Learners and Learning

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The **SAIDE** *Teacher Education Series*

Saide
South African Institute for Distance Education

Learners and Learning

Learning Guide

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Preface

The SAIDE Teacher Education Series

Learners and Learning is one of the modules in the SAIDE Teacher Education Series developed between 1998 and 2002.

This comprehensive multi-media series comprises:

- Learning Guides, which operate much as a teacher does in structuring learning, explaining concepts, exploring debates in the field, and direct readers to other parts of the module at appropriate times;
- Readings which function as a 'mini-library' of edited readings for further exploration of concepts, issues and debates raised in the Learning Guide;
- An audiotape which use interviews and classroom events to develop the issues raised in each of the modules (not for all modules)
- A video which bring issues and debates from the modules to life (not for all modules).

Although designed to support the learning guides, the readings, as well as the audio and video resources could also be used independently of the learning guides. Used creatively, they provide valuable resources to support existing teacher education programmes.

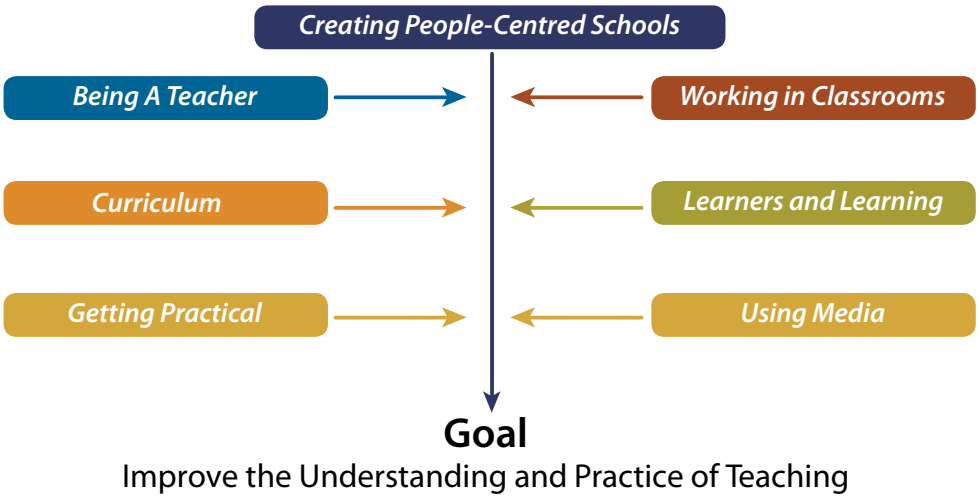
This set of learning guides with accompanying readers develop teachers' abilities to use theory in practice; and to understand, intervene in and improve their practice as teachers. The diagram below shows the inter-relationships of the modules in terms of curriculum coverage.

From within a framing context generated by Creating People-Centred Schools

- ***Being a Teacher*** and ***Working in Classrooms*** cover the professional and classroom contexts within which teachers practise
- ***Curriculum*** and ***Learners and Learning*** provide a theoretical understanding of resources or tools teachers may draw on
- ***Getting Practical*** and ***Using Media*** draw on the above in guiding practice.

Curriculum and ***Getting Practical*** are available in second editions from Oxford University Press. The other titles are available on www.oerafrica.org.

Inter-Relationship of SAIDE Teacher Education Modules



Components of the Learners and Learning module

As its title suggests, ***Learners and Learning*** is a module that addresses most directly the central, core business of schooling. The aim of the module is to improve the teaching abilities of teachers. It accordingly promotes a theoretically informed understanding of what learning is, how it takes place, and how teachers may go about organising systematic learning. The module enables teachers to analyse learning, and, in so doing, to reflect on what they can do to improve it. Thus, while the module draws on the learning theories of writers like Piaget and Vygotsky, it grounds these examples, practical exercises, and case studies drawn from schools.

Learning Guide

The different sections in the Learning Guide present a coherent progression.

1. Section One: Introduction to the module
   This covers the writers' understanding of learning and how this informs the learning guide. It also explains how the writers intended the module to be studied.
2. Section Two: Learning to know what we don't know
   How do we, as teachers, enable learners to learn by moving them from the known to the unknown?
3. Section Three: School learning
   How is school learning different from everyday learning, and how can teachers implement good school learning in their classrooms?
4. Section Four: Text as a context for learning
   What role do texts and literacy (reading and writing) play in learning, and how can teachers scaffold learning through texts?
5. Section Five: How can teachers structure learning?
   What role do teachers play in producing and improving learning, and how can they structure learning?
6. Section Six: Talking about theory
   How can teachers use different theories of learning to understand and promote learning?

Readings

The Learning Guide is supported by a set of 17 readings that fall into the following sections, each with an introduction:

1. Section 1: Classic theories of learning
2. Section 2: Learning theory as classroom practice
3. Section 3: From the known to the unknown
4. Section 4: Reading and schooling

Not all the copyright holders of these readings have given permission to release them digitally, and so, although notes on all the readings are included, the full text is in some cases omitted.

The available readings can be downloaded from the ***Learners and Learning*** module page on ***www.oerafrica.org***.

Audiotape

The audiotape includes interviews and discussions that cover three key questions:

1. What is learning?
2. Is there a difference between everyday learning and school learning?
3. How do we teach to enable learning?

For the most part of the 84 minutes (divided into clips that vary in length from 9 to 18½ minutes of recording) we listen to the views of experts who provide interesting and valuable insights and debates. The clips can be downloaded from the Learners and Learning module page on ***www.oerafrica.org***.

Acknowledgements

Learners and Learning was developed through the Study of Education project managed by the South African Institute for Distance Education (SAIDE) and funded by the WK Kellogg Foundation. The series editor was John Gultig, and the module coordinator for ***Learners and Learning*** was Ian Moll.

The first edition was published by SAIDE/Oxford in 2001 under conventional 'All rights reserved'. This (slightly adapted) 2010 version is available digitally on www.oerafrica.org under a Creative Commons Attribution 3.0 licence to facilitate updating and adaptation by users. The processes involved in making the 2010 version available were managed by Ken Harley and Tessa Welch, with funding from the International Association for Digital Publications.

SECTION ONE

About this module

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Introduction 1.1

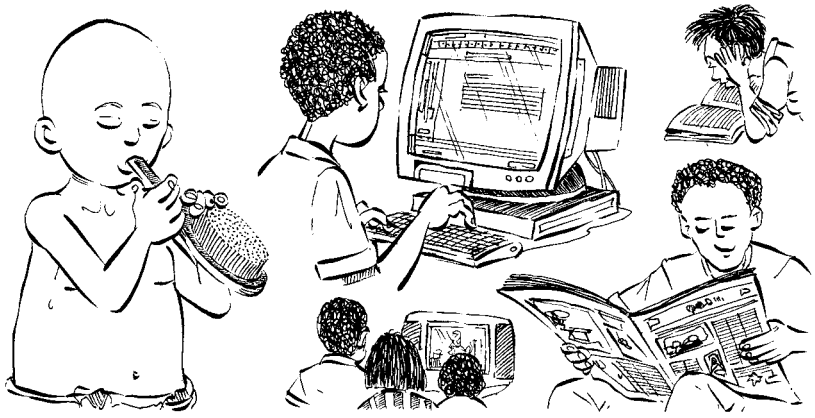
The problem with learning

Week 1 begins.

It seems obvious that teachers should be interested in learning. Children go to school to learn; teachers go to school to teach them how to learn. The introduction of outcomes-based education has re-established the importance of learning by emphasizing ***learner-centredness*** and ***lifelong learning***, and by highlighting the importance of creating a ***culture of learning and teaching*** in our schools.

But learning doesn't belong only in classrooms: learning new things is something that we all do, everywhere and throughout our lives. Long before children get to school they learn about the world by inquisitively exploring their immediate environments, responding to a multitude of colours and sounds, touching, grasping, and putting all kinds of things into their mouths. Perhaps most importantly of all, young children learn to talk, to communicate with others, and to know the world through the language of their mothers and others in their cultural context. As a result, children arrive on the first day of 'big' school with their heads already full of rich learning experiences.

This everyday learning – learning ***outside*** of the classroom – continues throughout our lives. Even as adults we continue to discover new things about our worlds – through the newspapers we read, the TV we watch, and in our interactions with others in the workplace and at home.



> ***The process of learning seems so natural that we often forget to ask important questions about it.***

None of us doubt that learning to understand the world is a central part of education, but because learning is such an ordinary and everyday thing, we sometimes take it for granted. We don't give a second thought to ***how*** the people around us are learning, or ***why*** they are able to remember all the new things they learn. The ***process*** of learning seems so natural that we forget to ask important questions about it; we often don't bother to learn about learning.

There is a danger in this oversight, particularly for teachers. Precisely because learning is so common and so natural, we need to think about it carefully and understand what it is, and why and how it happens. We need to understand why different kinds of learning are important in different contexts. More significantly, we need to understand why, and under what conditions, learning doesn't happen when we expected it to.

What will you learn in this module?

Not surprisingly, ***Learners and Learning*** aims to develop your understanding of learning. It seeks to assist you, as a teacher, to be able to analyse learning, and in so doing, to reflect on what you can do to improve it.

We have divided the module into six sections. This first section:

- introduces the module;
- discusses how we'd like you to study;
- explains how we understand learning;
- begins to explore, at a simple level, how learning is initiated.

Sections Two to Six each pose, and provide tools for answering, a critical question about learning:

Section	Critical question about learning explored	
Section Two	**How do we, as teachers, enable learners to learn?**	This section explains how learners move from the known to the unknown.
Section Three	**How is school learning different from everyday learning?**	We explore how teachers can implement good school learning in classrooms.
Section Four	**What role do texts and literacy (reading and writing) play in learning?**	We argue that reading and writing are crucial to good school learning.
Section Five	**What role do teachers play in producing and improving learning?**	In this section we consider this question in detail.
Section Six	**How can teachers use different theories of learning to help them understand learning in their classrooms?**	We examine a number of different cognitive theories and consider the relationship between theory and practice.

At the end of each section we consider how the ideas about learning discussed relate to the South African debate about outcomes-based education.

How to work with this module 1.2

The importance of active learning

As you work through the Learning Guide, you will see that we advocate the idea that ***new understandings depend on, and arise out of, action***. Because we firmly believe this, we have designed this Guide to include many activities that we hope you, as the teacher-learner, will complete. Like all good learning materials, the Guide will work best if you ***engage systematically with the activities*** that are set out for you here. If you don't do the activities, you will miss out on the most important part of the learning pathway we have developed for you.

Reading and writing activities

You will recognise these activities by this kind of icon in the margin next to them. The recommended time you should spend on each activity is also included.

Most of the activities in the Guide are ***reading and writing activities***. It is important that you apply your mind to each one of them and answer the set questions in your workbook.

Follow the instructions given for each activity carefully. You may, for example, be asked to read an article from the Readings, to consider a set of issues raised in the Guide from a particular perspective, or to listen to a specific part of the audiotape. Follow these instructions but also write down any other comments or thoughts that come to mind as you do each activity. In particular, think of how you can apply the new ideas in your teaching.

The activities you are asked to do are designed primarily to help you to learn something new, or to acquire a new understanding about something. As with the readings, we will sometimes ask you to go back to an activity you have done in your workbook and revise it in the light of the new understandings you have developed. Don't skip this step; it is a vitally important part of the learning process.

Thinking activities

An icon like this will appear in the margin when you need to stop reading and reflect on an issue.

At various points in the Learning Guide, we ask you to ***pause*** and take some time to reflect on a particular issue. These thought pauses are designed to help you consolidate your understanding of a specific point before tackling the next section of the Guide. They deliberately try and slow you down!

One of the habits many of us develop through our involvement in a rote recall kind of learning is that we rush through things. Once we have read something, we believe we know it. This isn't true. While we may now recognize the idea, we probably don't really understand it in any detail. Work through this Guide slowly and thoughtfully. Reread and rethink. This is how we develop a depth of understanding and become able to use the ideas we learn.

Try to link the issue raised in each thought pause with what you have read, with what you have already learnt about learning, with your own previous experience, and so on. Think about the problem we have raised. You might want to jot down your ideas in your workbook so that you can be reminded of them at a later stage.

Listening activities

An icon like this will appear in the margin alongside all listening activities that require you to listen to the audiotape.

The audiotape (available in 7 audio clips on ***www.oerafrica.org***) contains interviews with South African experts in the field of learning, interviews with teachers, and short excerpts of teaching and learning experiences. The tape serves two key purposes:

- It provides learning variety in that it asks you to listen rather than read. It also dramatizes learning events so that the interactions between teachers and learn-

ers come alive. A learner who used a similar tape in another module said that it offered 'light entertainment' after the heavy reading he had done! This is a good response. Enjoy the tape.

- It illustrates or magnifies ideas presented in the Guide by providing you with examples of how teacher-experts use these ideas in ***conversation***. Listen to how they construct arguments, or how they use a concept or idea to analyse an incident in a classroom.

We refer you to the audiotape at specific points in the text and have tried not to use excerpts that are more than about twelve minutes long. You may find it difficult to concentrate at first. Your listening skills will improve, however, if you use the questions in the activities to guide your listening, make notes while you listen, and listen to excerpts more than once. Feel free to listen to the tape ahead of time, but do so ***again*** when the Guide requests you to do so.

This time management icon will help you to assess how well you are using your time. We have assumed that you will work with this Learning Guide over 20 weeks, spending 6 hours studying each week. Try and make sure you begin sections in the correct week.

How much time should you spend studying?

It is impossible to estimate how long it will take hundreds of different kinds of learners to work through this module. We have written it so that an average, hard-working student who works consistently for six hours a week will finish this module in about twenty weeks (a university semester). In other words, you should set aside about 120 hours of time to study.

We expect that you will spend the 120 hours in the following way:

- Reading time: about sixty hours. This includes reading the Guide as well as readings in the Reader.
- Activity time: about forty hours. This includes the time it takes you to think about your readings, listen to your audiotape, and write your answers in your workbook.
- Assignment writing time: about twenty hours. This is the time you will spend writing the assignments you submit to your tutors.

> ***Different students learn in different ways and at different speeds. Assess your own capabilities and structure your learning to fit your lifestyle.***

As we have said, however, different learners learn in different ways and will take different lengths of time to complete this module. Be your own guide. Structure your learning so that it fits with your lifestyle. You could, for instance, complete this module:

- in ten weeks if you are a full-time student and can spend twelve hours a week on this module;
- in a year (or about forty weeks) if you are very busy and can only spend three hours a week studying.

Of course you could also complete this module in a couple of days if you ignore all the activities and simply read it from cover to cover. But this isn't studying and you will probably forget everything within days!

We also know that different students work at different speeds, so you may well find that you need more (or slightly less) than the 120 hours we have estimated it will take learners to complete this module. Again, assess your own capabilities and spend more time on the module if you feel you need to do so.

Assessing your learning

We have designed this module so that it models an outcomes-based assessment style. This means that the book promotes an assessment process that:

- is ***continuous*** and ***formative***;
- assesses your ability to ***relate ideas about learning*** to ***classroom realities and concerns***;
- contributes to your ***intellectual development***.

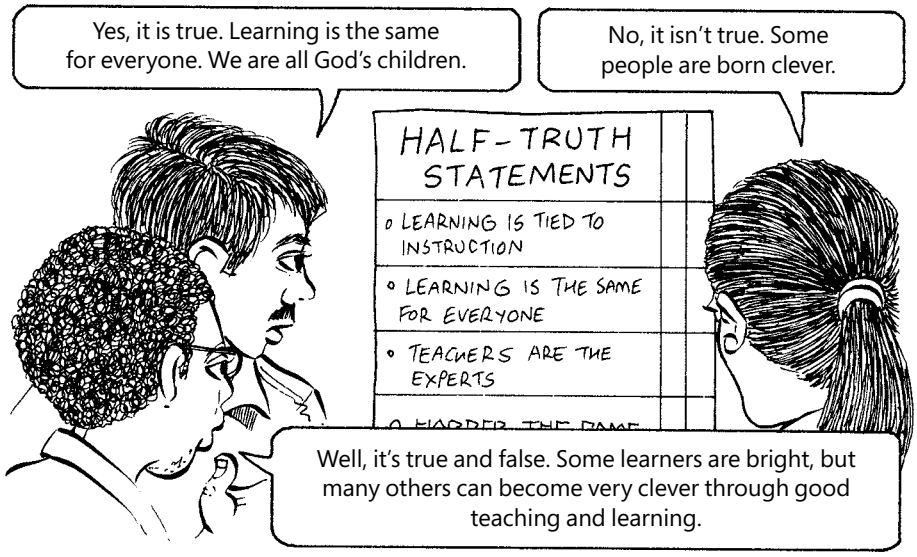
While your institution may still require you to write a final exam, we believe that your ***own assessment*** of your ***consistent engagement*** throughout the learning process is just as important as any final 'measurement' of your ability.

So far, this section has set out the different learning media which make up the module (a 'teaching' text, academic articles, and taped discussions which expand and reflect on the text) and has explained what it is that we expect you to do in order to acquire new understandings about learning. This explanation is descriptive in two ways. In one, more obvious sense, it describes all the important components of the module. In another, more abstract sense, it describes a conception of learning (and thus of assessment) that is important for you to understand:

- Firstly, the module as a whole is a ***system*** of knowledge about learning. Not only do the various sections and parts of each component (Learning Guide, Reader, and audiotape) build on one another; each whole component also builds on and clarifies the ideas in the other components. This means that as you work through the whole module, you are building relationships within and between the different texts.
- Secondly, the section assumes that you need to ***do*** things in order to learn. It sets out the kinds of ***tasks*** or ***activities*** that you need to engage in in order to come to know this system, that is, to learn about learning. You need to engage in action to start to learn something new, and you need to continue with such action in order to gain and consolidate new understandings.

At the beginning of Sections Two to Six, your first action will be to consider a number of ***contentious statements about learning***. The aims of doing this are to:

- help you define what you already know about learning;
- establish what you think you may know (but which might be wrong);
- focus your thinking on the central issues of each section.



Spend time considering whether or not you agree with each of the statements, and for what reasons. As you read through them, make notes on your initial response to each (we will ask you to reassess these first responses later). We have tried to formulate the statements so that they are neither obviously true nor false but rather represent half-truths about learning. This means that while they may offer important insights into learning, they tell only ***part*** of the story and can be misleading or incorrect in some important aspects.

At the end of Sections Two to Six, your last action will be to go back to the statements you considered at the beginning and think about them again in the light of

what you have studied. When you do this, ask yourself:

- How have my views or understandings changed?
- Can I provide better reasons for why I agree or disagree with particular statements? If yes, what are these? If no, why not?
- What are the strengths and weaknesses, or the half-truth, of each statement?

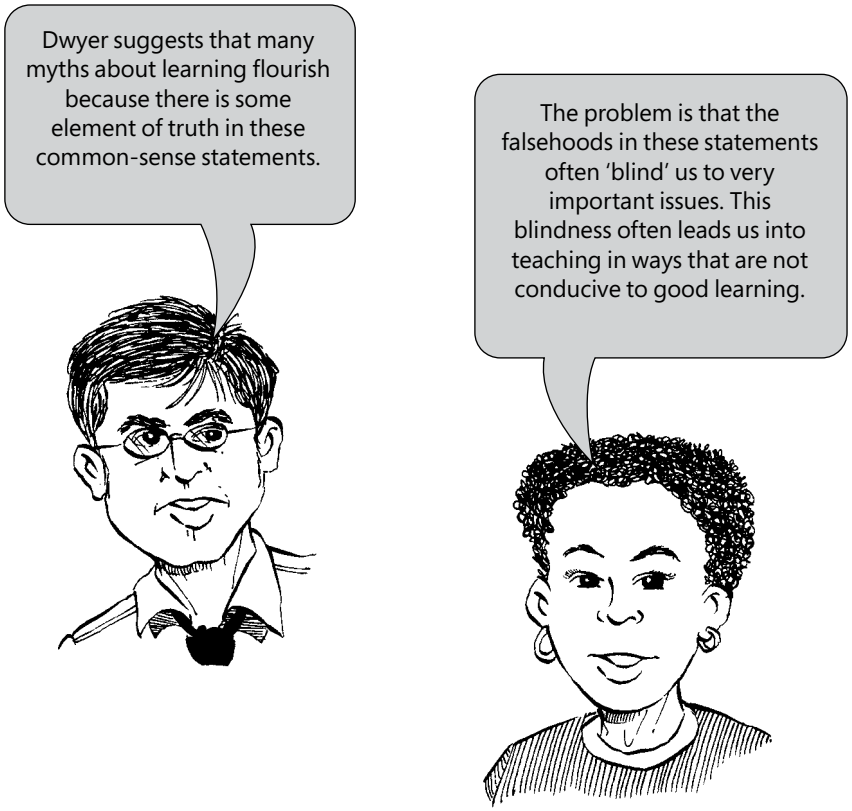
These half-truth statements act as a special kind of ***learning outcome***. They direct your attention to the key ideas in each section. By returning to them after studying a section, we are asking you to assess the degree to which your understanding of these key issues has changed. In other words, we are asking you to decide whether or not you achieved the desired learning outcome.

How does learning get started? 1.3

What are half-truths?

In Reading 5, Dwyer argues that a whole range of ***common-sense statements about learning*** made every day by teachers, are only half-truths. For example:

- He argues that the statement ***'learning is a somewhat unnatural activity'*** is true to the extent that learning requires hard work, but false in that it is something all children do simply because they grow and develop.
- He suggests that the statement ***'learning is the same for everyone'*** has some truth in it (because all children have a right to acquire the common body of knowledge that enables them to participate in a democratic society) but is false in another sense (because every child learns differently).



Most of the statements about learning at the beginning of each of this module's sections can be considered to be ***half-***truths rather than entirely true or false. As a learner it is important that you, in each case, think about:

- in what ways they are true;
- in what ways they are false.

We hope that in the process of studying each section you will refine and change your initial understanding of the half-truth statements and find further knowledge and evidence to support particular positions.
Let's read the article by Dwyer to see what he can tell us about half-truths in learning.

You need about 45 minutes to do this activity. Read Dwyer carefully and more than once. Do Activity 1 alone first and discuss it with other teacher-learners when you have finished.

ACTIVITY 1

1 Glance through the table below. Then read the article by Dwyer 'Some half-truths about learning' (Reading 5). Use the statements in the first column of the table to guide your reading.
2 When you have finished reading, and understand what Dwyer is arguing, draw a table similar to the one below in your workbook and complete it.

Statement about learning	What does Dwyer consider to be true about the statement?	What does Dwyer consider to be inaccurate or false about the statement?
Learning is the act of acquiring and retaining information.		
Learning is a somewhat unnatural activity.		
Learning is best undertaken in a structured, orderly manner.		
Learning is tied to instruction.		
Learning is the same for everyone.		
Teachers are the experts.		

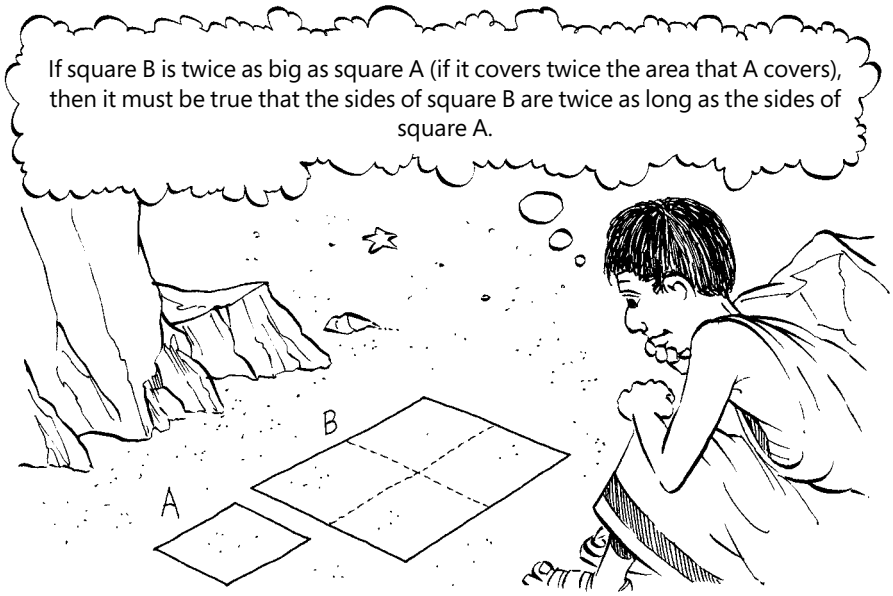
Starting to learn

We won't provide feedback on Activity 1 immediately. As you move through this module, you will work out what half-truths are and why they limit our understanding of learning through your own ***action*** by doing the half-truth activities regularly.

Let's continue by finding out how ***believing that we know the truth*** can stand in the way of real learning; of really finding the 'truth'.

An ancient story about learning

There is an ancient and famous story about a slave boy who believed that when you doubled the area of a square, it followed that you doubled the length of its sides. He thought to himself:



STOP. THINK.

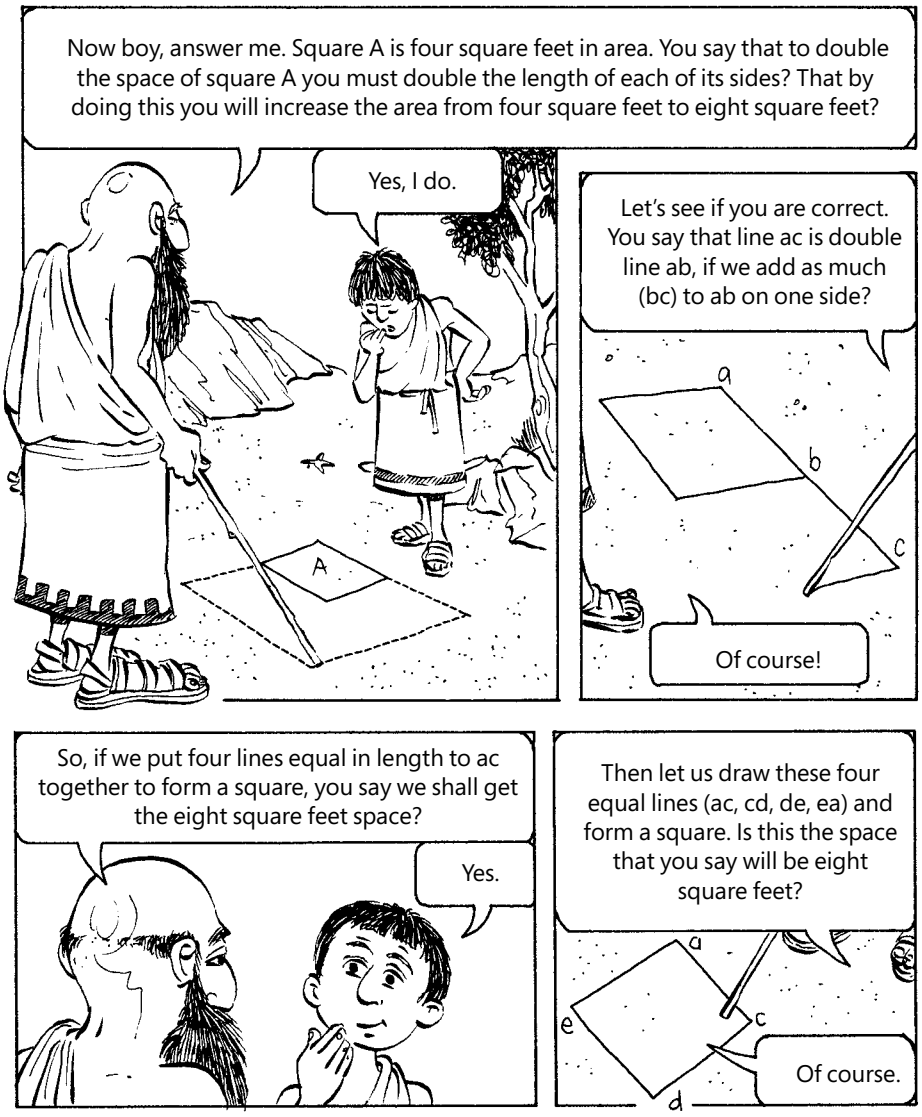
Read that again. Is this boy's logic correct? If not, what's wrong with his understanding of space? How would you, as a teacher, correct his thinking?

Take some time to reflect on the issue being raised here.

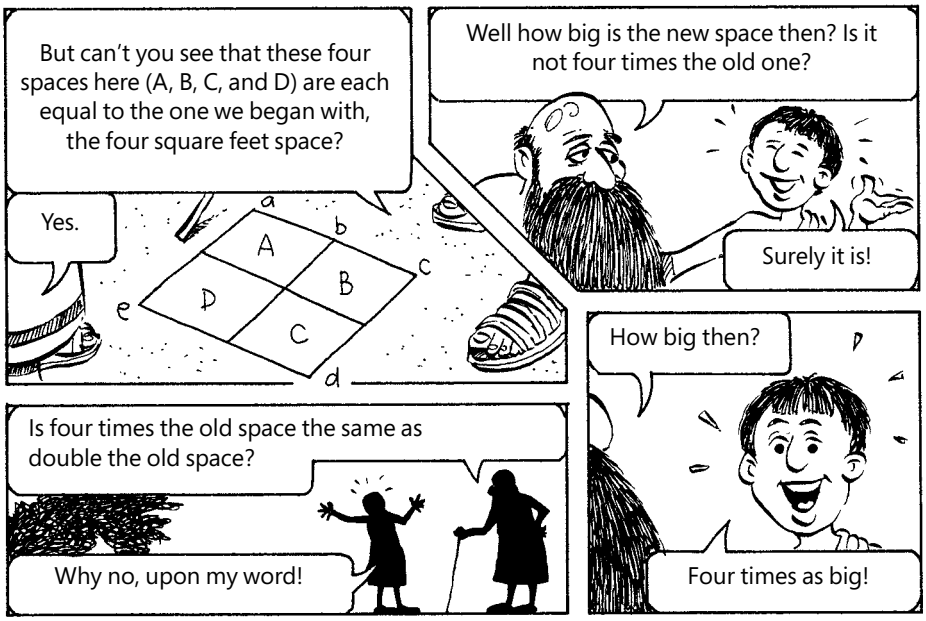
This reasoning seemed obvious to the boy. He couldn't see that he was wrong. In fact, as far as he was concerned, he was absolutely right, and stated the fact boldly and confidently. As his teacher said at the time, the boy did not know, but he ***thought*** that he knew. Because he ***believed*** he was right, he could not see that he was wrong.

In order to correct his thinking this teacher, the famous Greek philosopher Socrates, asked the boy a series of questions about the two squares. By doing this he led the boy to contradict himself. Suddenly, as he tried to answer the questions, the boy realized that his answers didn't make sense. He suddenly saw that he had been wrong all along. This is sometimes called an 'Aha!' experience. The boy realized that he had not understood and did not know after all, and he felt really uneasy. Socrates called this feeling 'perplexity'.

Let's look in on Socrates' teaching. Read through this cartoon.



This story/cartoon is adapted from Plato, 'The Meno' in *The Great Dialogues of Plato* (New York, Plume, 1956), pp. 45–46.



Spend about 25 minutes on this activity. When you have finished the activity, consider discussing your ideas with other teachers before you continue reading.

ACTIVITY 2

1 Find and listen to Part 1 of the audiotape. After the introduction there is a 'South-Africanized' version of the Socrates dialogue.
   a First, listen carefully to the important points we make about how you should learn.
   b Then, directly after the music, listen to the teaching dialogue between 'Socrates' and a 'learner'.

2 As you listen pay particular attention to the questions the teacher asks.
   a What does the teacher do to help the learner to understand?
   b What does this story teach us about teaching and learning?

Week 2 begins.

What does Socrates teach us about learning?

At first, the boy ***thought*** that he knew how long the sides of square B were. He was satisfied and ***complacent*** in his state of ignorance: there was no reason for him to investigate further or to think more deeply. Socrates knew this, and asked him questions that broke his complacency by making him feel perplexed, confused, and uncertain. The boy began doubting his initial beliefs. He now knew that he did not know, and so began ***searching for new understanding***. He was aware that he had misunderstood things and that he now had a problem to solve. He was no longer complacent.

Socrates believed that the learner was now much wiser than before, even though he did not yet grasp the correct ***understanding*** (he knew that the area was four times as large but did not yet understand ***why***). Without his complacency, the boy was better off and much stronger as a learner. Now he would ***want*** to know, and would ***search actively*** for knowledge. As Socrates said, 'He will find out by seeking along with me, while I do nothing but ask questions.'

Socrates went on to help the boy discover ***mental pathways*** (new ways of thinking about the problem) he could use to learn about the relationship between the sides of a square and its area. He did this by asking him further questions about the lines and spaces of the square, and about diagonals that could be drawn in the square.

What role should learners play?

What you have just read is an example of a successful learning and teaching event, but the success is the result of the learner and the teacher being prepared to play particular roles. The boy – the learner – has to think about the problem ***actively***:

- He guesses and by so doing reveals his understanding (or misunderstanding) of the problem.
- He makes mistakes and is prepared and encouraged to make mistakes.
- He then corrects them in the light of new information or feedback.
- He is prepared to listen to Socrates and learn from his teacher's understanding, which is different from his own.
- He realizes the contradictions between his existing knowledge and the formal knowledge that others – like Socrates – have of geometry.

By being prepared to enter the learning situation with this kind of attitude, the boy is able to actively come to know something that he did not know before.

What role should teachers play?

Much of this couldn't have happened, however, without a good teacher and good teaching. Let's have a look at the kind of role that Socrates – the teacher – plays. He ***deliberately teaches*** the boy new knowledge:

- He questions the boy and then identifies the mistakes that the boy is making.
- He is able to pinpoint what the boy needs to know and do in order to correct his mistakes ***because he knows more about geometry than the boy***.
- He frames this new knowledge in a way that the boy can understand it and be challenged by it; he teaches well!
- He designs an ***activity*** which will allow the boy to engage in, and come to understand, the new knowledge and correct his own mistakes. He doesn't simply tell the boy why he is wrong.
- He ***guides*** and, where necessary, ***provokes*** the boy through this activity. This ensures that the learner is interested and engaged, and doesn't become too confused.

Another way of thinking about this famous event is to say that Socrates introduced the boy to a ***system of thinking*** (about geometry) and questioned him about the squares using the ***language*** and ***conceptual tools of this discipline***.

By answering the questions, the boy engaged in a new way of thinking about the square, and eventually completed the 'Aha!' experience. He arrived at a new understanding by participating with Socrates in the activity of questioning even that which seemed obvious. He learnt to see a problem in geometry differently and correctly, and in the end, he knew and understood the principle of how to calculate how much longer the sides of square B were than those of square A.

Most importantly, he would now be able to apply this understanding to new problems independently.

Don't worry if you are not absolutely sure what we mean by 'system of thinking', or 'conceptual tools of this discipline'. These ideas are central to this module and we will teach you more about them as we move through the sections.

The learning paradox

The most interesting question that this story of a boy learning geometry provokes, is one that has troubled psychologists and educators for a long time. It is a question that every teacher asks in some form or another about every learner, every day in a classroom:

Think carefully about the boy. In his initial state, he did not realize that his understanding was incorrect. He therefore ***did not realize that he needed to learn*** anything.

He saw no need to learn, and ***had no desire whatsoever to learn***. In fact, his misunderstanding, because it was so strongly and confidently held, probably acted as an obstacle to further learning. The fact that he 'knew' meant that he did not seek any further knowledge about the subject.

This problem is often called the ***learning paradox*** and is very important in teaching. The paradox suggests that:

- If we ***know something***, then we don't look any further; we don't feel a need to see whether there is something more to know. In other words, we don't feel motivated to learn because we think we have already learnt.
- Yet, if we ***don't know something***, we also don't feel motivated to learn! Why? Well, because we don't know what we need to know, or need to look for. We don't know that there is anything more to learn. And even if we did seek to learn, we would not know when we had found what we looking for (because we didn't know what it was when we started).

This may sound a little confusing at the moment. But this is the tricky problem that confronts teachers over and over again in their classrooms. We will come back to it again and again in this module.

How do teachers deal with this paradox?

The ***learning*** paradox also translates into a paradox of ***teaching***:

The story of the boy learning geometry shows us very well what an understanding of this paradox can reveal about learning, particularly the kind of learning that happens at school.

Socrates had to find a way of getting the boy to understand that, in fact, he ***did not know the answer*** to the geometrical problem, although he ***believed he did***. Then, he somehow had to provide the boy with the necessary learning resources for his understanding to change. In other words, he had to find a way of motivating the boy to move from the ***known*** to the ***unknown***.

By 'paradox' we mean a state of affairs that is at first glance contradictory, but which on closer examination, reveals an underlying truth. The *learning paradox* is such a statement. Kierkegaard described it in this way in *Philosophical Fragments* (Princeton University Press, 1987): 'A person cannot possibly seek what he knows, and, just as impossibly, he cannot seek what he does not know, for what he knows, he cannot seek, since he knows it, and what he does not know he cannot seek, because, after all, he does not even know what he is supposed to seek.' Later, when you listen to your audiotape, you will hear a number of people refer to it.

As the teacher, Socrates was responsible for ensuring that some kind of ***activity*** happened which would make it possible for the boy to learn something new. Sometimes learners encounter the unknown with confusion and puzzlement (perplexity) when they recognize that they do not understand it at all. Often, however, they may think that they do understand it – just as the boy thought that he understood the geometry of the area of a square.

In either case, the learner is ***unable to use his or her previous understanding*** in order to act in solving the problem:

- In the first case, the learner knows that his or her previous understanding is inadequate and doesn't know what to do.
- In the second case, the sense of understanding means that the learner will act inappropriately and be unable to solve the problem correctly.

This is the learning paradox – how can someone learn something new or different either if they feel totally lost, as if they know nothing at all, or if they feel certain that they understand things perfectly? This paradox cannot be resolved by focusing on ***understanding*** alone.

> *Rather, the key to learning lies in action.*

This is a very important principle for you to understand: in order for children to learn, they must engage in some kind of activity that provides pathways for them to move from the known to the unknown. In the Reader, you will find an article by Craig on page 85 entitled 'Education for all'. In it, Craig expresses this principle as follows:

> *'For someone to learn, she must first act, in order to discover the limits of her knowledge and the demands of the task, before she can be explicitly taught about the task and ways of engaging it appropriately and successfully.'*

In order for children to learn, they must engage in some kind of activity that provides pathways for them to move from the known to the unknown.

Two kinds of learning activity

How will the learner know what kind of action to engage in? There are two important sources of activity:

- The learner herself will spontaneously act to make sense of the world. People are naturally active, curious beings. Although these actions may sometimes be based on misunderstandings, new information from objects and events in the world in response to her actions may cause her to reflect on and change her understanding.
- A teacher or more experienced person may create opportunities for action that will take the individual beyond her own spontaneous activities and in the process, allow her to experience things in a new way.

Both of these sources of action are important for changing old understandings and learning new things. This module will explore both to explain how the ***active construction of learning*** is possible.

The module's key themes

The central themes that you will find running through the whole module arise from this discussion of the learning paradox. We proceed from the insight that activities involving both ***self-generated action and engagement with the knowledge of others*** are necessary for learning to occur. Throughout, we emphasize that learning is only possible through action.

Section	Key theme
Section Two	We discuss the spontaneous mental action by which people create connections between ideas using their previous knowledge to understand new information. We also explore the active strategies of guessing, questioning, and imagining as ways to move from the known to the unknown.
Section Three	We identify particular kinds of *unknown* that characterize the formal schooling context and demand new and different kinds of learning actions.
Section Four	We explore the important role of reading in learning. Through reading we gain access to the knowledge of others (and in particular, disciplinary knowledge) which is probably the most important function of school learning.
Section Five	We explain how teachers can guide and direct learners' actions to effect new understandings.
Section Six	We explore different ways that important theorists have explained the learning process.

Our understanding of learning

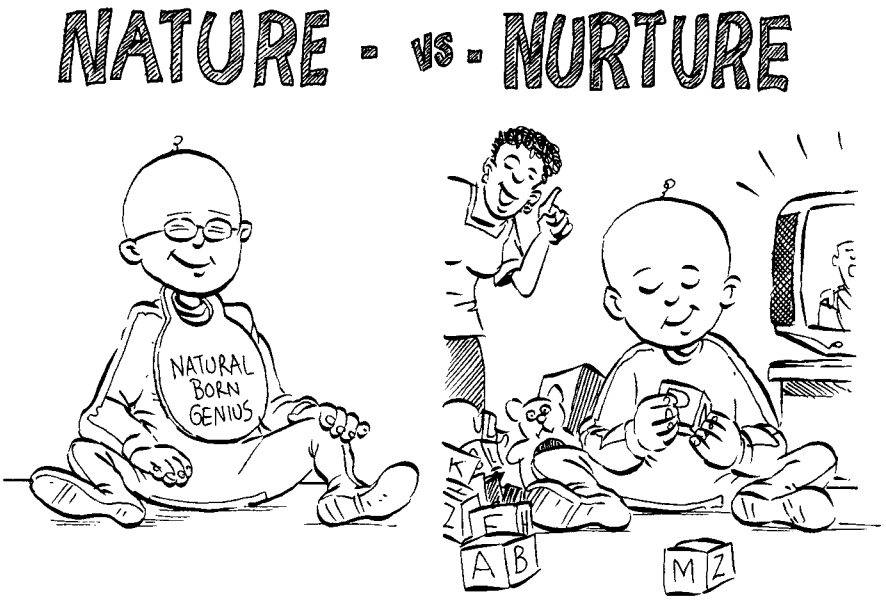
This module takes a broadly ***constructivist*** approach to teaching and learning. Earlier theories of learning tended to view learners as rather passive recipients of knowledge, but contemporary constructivist theories emphasize the active engagement of both learners and teachers. We revisit some of the earlier ideas in the module and redescribe them in theoretical terms. We also make suggestions as to how you as a teacher can use theories of learning.

These ideas about learning having to do with acts of understanding are contentious. Ideas about teaching and learning have changed a lot in the past fifty years. In the context of schools, there has been a shift from the idea that good teaching is like banking (depositing knowledge in the learner in the same way as money is deposited in the bank) to the idea that teaching and learning are active ***processes*** of making meaning.

The passive learner

If you spoke to education department officials and theorists of learning around the world before the 1950s, you would probably have been told that children learn by having knowledge ***given*** to them. They would have argued about ***how*** this knowledge is given. Some would have said that it is given to the learner 'from inside' by different kinds of intelligence and aptitudes that children inherit at birth. Others would have said that knowledge is given to the child by 'inputs from outside', by the influence that the environment has on children's upbringings. But they would not have argued very much about the 'fact' that knowledge is ***given*** to children.

The reason for this general level of agreement is that we are, to a greater or lesser extent, teachers, learners, and thinkers within the dominant spirit of our times. The debate about learning and teaching that raged up to the end of the 1950s tended to be formulated as the 'nature-nurture debate'.



'Nature': Knowledge is given to us from inside. Learning happens when the machine of our mind gets going, when we practise and perfect our innate talents.

'Nurture': Knowledge is given to us from outside. Learning happens when the environment impacts upon us and changes our conduct, when we accumulate experiences.

In education theory, the 'nature' perspective (the belief in the power of innate ideas to determine our learning) was in its time very influential in shaping the schooling system as we know it. The power of the intelligence testing movement is one example. Let's face it, we all find it very hard to shake off the belief that the people who did better than us at school were ***born*** with a higher IQ than us, no matter how much we are told that IQ tests are culturally and academically biased! As teachers, it is difficult to shake off the belief that some children are ***born*** more intelligent than others.

The 'nurture' perspective has also been extremely influential. One thing that it has produced is a very narrow focus on the ***objectives*** of the teaching-learning situation. It has led to a system of teaching where learning objectives (or outcomes) are defined beforehand, and where teachers teach towards the achievement of this final set of predetermined skills, knowledge, attitudes, and values by the end of a particular period of time. Behaviourists, for example, talk of the shaping of 'terminal behaviours' by the careful management of reinforcement systems. The teaching-learning process is recast as a series of technical events concerned with the way that environmental stimuli reinforce learning.

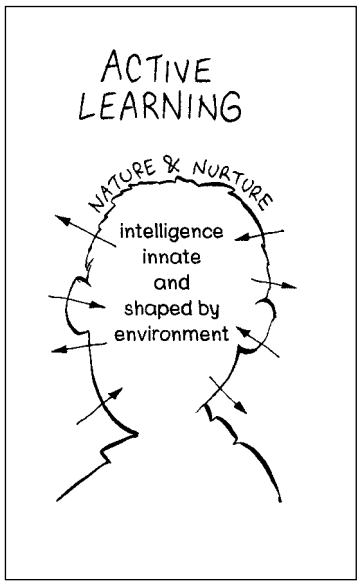
The common assumptions within the nature-nurture dispute have been very influential in education. Up to at least the middle of the twentieth century, teachers and education officials tended to share a view of the learners as ***passive*** or ***static***. Whether knowledge came from inside or outside the child was not considered as important as the underlying idea that the ***child passively received knowledge***.

The active learner

In the 1960s and 1970s, a revolution took place around the world in the way in which we think about teaching and learning. Its essence was a shift away from the idea that knowledge is simply ***given*** to children in favour of the idea that children ***create*** knowledge. No longer were children to be thought of as passive recipients of knowledge, but rather as ***active constructors*** of their own knowledge through their interaction with the world and society around them. In order to construct knowledge learners must ***both***:

- develop their own novel ways of knowing;
- acquire existing human knowledge (language, cultural wisdom, technical skills, school disciplines etc.).

In other words, learners ***construct*** (develop their own novel ways of knowing) and ***reconstruct*** (acquire existing human knowledge) knowledge in order to develop their own ***systems of knowing***. The child-centred or learner-centred education movement came about as a result of this emphasis on the way that the learner constructs his or her own knowledge. This revolution in thinking about learning is known as the 'constructivist revolution', and it left the rigid, old nature-nurture debate behind.



Importantly, the concept of activity was central to this whole shift in understanding learning. In the school context, broadly speaking, constructivism came to emphasize the activity of both learners and teachers in the school as they constructed and reconstructed knowledge.

This shift in thinking does not mean that we should throw out all the ideas about learning or methods of teaching associated with the earlier theories. In fact, new ideas often build on older ideas. Think about a child constructing knowledge. The act of constructing new knowledge is an interaction between what is given by ***nature*** (inborn capacity) and what is given by ***nurture*** (experience). The learner creates new meanings out of this interaction. This module approaches learning with both imperatives – nature and nurture – in mind:

- In Section Two we set out to understand the immense ***inborn capacity*** (nature) of individuals to learn. We argue that all of us are ***naturally*** curious and acquire new understandings by acting on the world in peculiarly human ways. This is a powerful force for learning in the classroom.
- In Sections Three, Four, and Five we explore how schools, books, and teachers can make learning possible. Everything in the world – events, contexts, objects, and people – functions either to produce(nurture) or block learning.

However, learning should not be dissolved into ***either*** the inside ***or*** the outside of the learner. In this module we try to develop the principle of the ***active construction*** of learning out of both human nature and the world.

Outcomes-based education 1.4

Many people have argued that constructivism informs the learning and teaching approaches advocated with the introduction of outcomes-based education (OBE) in South Africa. We'd probably argue that this statement is a ***half-truth***!

There is an emphasis on the learner-centred construction of knowledge, skills, values, and attitudes within OBE. A Department of Education document makes the link in the following way:

> *'One of the characteristics of transformational OBE in South Africa is that it is learner-centred. Learner-centred approaches place emphasis on constructivism. Each of us constructs our own meaning and learning about issues, problems, and topics.'*

This quotation is from Department of Education, *Curriculum 2005: Towards a Theoretical Framework* (Pretoria, 2000) p. 11.

We aren't as sure that there is ***necessarily*** a connection between constructivism and OBE. We also think that many of the advocates of OBE understand constructivism differently to us. But the debate about educational change in South Africa asks us to consider them together. In this module, we will do this.

At the end of each section we include a commentary on OBE and its implementation in South Africa. These discussions will highlight current debates about OBE, and explore it in relation to issues about learning covered in the section. Travel this journey with us. See whether you can work out which parts of the current half-truths in the debate about outcomes-based learning in South Africa are true and which are false!

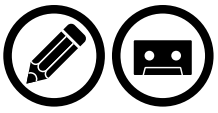
We end Section One with audiotape 'visits' to a number of learning experts. Many of the ideas raised earlier about the nature of learning – like the learning paradox – are discussed.

ACTIVITY 3

1 Find and listen to Part 1 of the audiotape from *What is Learning?*.

2 Answer these questions when you have finished listening:

- **a** OBE advocates often argue that learning should be fun and relevant. Do Moll and Lazarus agree? In no more than ten lines, explain what they say about the nature of learning. (They may disagree with one another. If they do, note their differences.)
- **b** What are the crucial differences between school (formal) learning and everyday (experiential) learning, according to these speakers?
- **c** The speakers suggest that content learning and conceptual learning are two important parts of formal learning. What are these? How do they differ from one another?
- **d** Miller says that the idea that we can proceed from the known to the unknown, or from the familiar to the unfamiliar, isn't possible when teaching new conceptual knowledge. Why is this so? What does he suggest we do instead? (Note how his argument links back to the work we did on the learning paradox earlier.)
- **e** Write down one idea you have learnt in this section which you can apply in a classroom. Explain how you would use it.



You may find it difficult to concentrate throughout this long sixteen-minute excerpt. It is divided into three subsections: First, Ian Moll and Sandy Lazarus, who are both educational psychologists, talk about learning. Second, Gill Adler, a mathematics educator, distinguishes between two types of learning – content learning and conceptual learning. She uses mathematics examples to make her points. Finally, Ronny Miller, another educational psychologist, discusses the different types of learning and then explains why one type – conceptual learning – is so difficult. To improve your concentration, read the questions you have to answer *before* you begin listening. Make notes as you listen. Attempt to relate this conversation to ideas about learning raised earlier in this section. Spend at least 45 minutes on this activity.

1.5 Conclusion and key learning points

> ***We develop national curriculums, ambitious corporate training programmes, complex schooling systems. We wish to cause learning, to take charge of it, direct it, accelerate it, demand it, or even simply stop getting in the way of it. . . .***
>
> ***If we proceed without reflecting on our assumptions about the nature of learning, we run an increasing risk that our conceptions will have misleading ramifications. In a world that is becoming more complexly interconnected at an accelerating pace, concerns about learning are certainly justified. But perhaps more than learning itself, it is our conception of learning that needs urgent attention . . .***

This quotation is from E. Wenger, *Communities of Practice: Learning, Meaning and Identity* (Cambridge University Press, 1998), p. 9.

Reassessing the half-truths

This is the point at which you should review what you have learnt (or not learnt) in this section. Begin by turning back to the half-truth activity on page 10. Dwyer argued that the following statements are half-truths about learning:

- Learning is the act of acquiring and retaining information.
- Learning is a somewhat unnatural activity.
- Learning is best undertaken in a structured, orderly manner.
- Learning is tied to instruction.
- Learning is the same for everyone.
- Teachers are the experts.

Now that you have learnt a whole lot more than you knew when you began this module, have your views about what is true and false about these statements changed?

Key learning points

- We all learn all the time; we are 'sense-making' machines.
- However, everyday (spontaneous) learning and school (formal) learning are different in important ways, and we need both.
- School learning requires that we break away from our concrete and familiar worlds. In order to do this we need to learn to think abstractly and conceptually.
- Learning isn't always fun. The best learning asks us to move out of our comfort zones – it is difficult, and it will cause some level of anxiety.
- One of the biggest hindrances to new learning is what we already know. Although this is sometimes a useful starting point for new learning, it can also block new understandings.
- In order to help learners 'unlearn' we need to create some conflict or contradiction in their thinking. We can't talk new ideas or understandings into people's heads; we can only provoke them through some form of action or activity.
- Conceptual learning is particularly difficult. Once one understands the ***concept*** of, for instance, a game, then the teaching of new ***content***, like the rules of cricket, is relatively easy (one can link it back to the idea of a game). But if a learner has never played any kind of game and needs to learn this concept, then one can't draw on the familiar to teach it!
- Learning is paradoxical: those who ***know*** aren't challenged to learn further while those who ***don't know*** don't know that there is more to learn.

We will come back to many of these ideas, especially the last two, throughout the module but particularly in the next section.

SECTION TWO

Learning to know what we don't know

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Introduction 2.1

In Section One we introduced you to some of the key questions about learning that will be explored in this module. Can you remember what you learnt? Did your understanding of the half-truths change by the end of the section?

What will you learn in this section?

Week 3 begins.

Section Two begins to focus on ***how*** we learn in greater detail. In particular, it explores the following question:

We tackle this question by exploring the ways in which human minds:

- construct ***connections*** between ideas;
- use what is ***known*** to understand new and unknown things;
- are challenged to change old misunderstandings by new and ***contradictory*** understandings.

We will also be looking at how teachers can use spontaneous learning actions – those characteristics which learners naturally possess – to create mental pathways between what learners already know and what we want them to know (the unknown).

We begin by investigating ***how we learn*** (Section 2.1). Then, based on this understanding, we explore how we can teach so that learning happens. The section suggests three possible strategies to move learners from the known to the unknown:

- First, by encouraging ***guessing*** – by taking risks and making mistakes. We examine how Piaget's ideas of ***accommodation*** and ***assimilation*** can help us keep a balance between the risk of new, unfamiliar ideas and the stability of old, known ideas in teaching (Section 2.2).
- Second, by encouraging and using ***questioning*** – by listening to learner questions and asking good teaching questions. We explore a variety of question types and how they can be used in lessons (Section 2.3).
- Third, by encouraging ***imagining*** – by using and escaping from the known, to imagine the unknown (Section 2.4).

Learners often use these strategies independently as they learn. But our task is to find out how we, as teachers, can use these strategies. In order to do this we need to understand how they ***both*** enable and constrain (block) learning.

More half-truths to guide your learning

Before we begin we'd like to activate your minds again by asking you to consider these half-truths about learning:

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
Learning involves acquiring, retaining, and reproducing information.		
As we become better at learning we should make less and less mistakes.		
For every question there is only one answer.		
A good teacher will be able to answer all questions raised in the classroom.		
The use of metaphors and analogies in teaching promotes understanding.		
Children are curious and active and therefore learn spontaneously.		

Approach this exercise in the same way as you did when you thought about the statements made by Dwyer in Section One (page 12). In each case, think about why the statement might be considered to be true, why false, and how you might challenge and question each statement.

It is important for you to note that the statements simply present ***possible*** understandings of the issues under discussion. Sometimes, by working out why a particular understanding is flawed, we can refine our understanding of a phenomenon and clarify our own position and our reasons for holding it.

Remember, these statements should also focus your attention on the ***key issues*** to be dealt with in this section. In this sense they act as learning outcomes. At the end of the section we will reconsider our views on these issues.

How do we begin to know what we don't know?

2.2

What do we know?

Ask yourself this question, '***What do I know?***'

The short answer to this question is, ***'A lot!'*** In fact, each of us knows ***so much*** about all kinds of things that reporting this knowledge would be impossible.

So, let's refine the question and ask one that is more focused about your knowledge in ***relation to something*** in particular, ***'What do you know about the game of soccer?'***

STOP. THINK.

What do you know about soccer? Write down everything you know about the game in three minutes.

Take some time to reflect on the issue being raised here.

What do we know about soccer?

How did you manage this activity?

- Perhaps you responded by listing famous players, such as Pele, Ronaldo, Doctor Khumalo, Lucas Radebe, Benni McCarthy, David Beckham, or Siyabonga Nomvete?
- Perhaps you named the winning teams of the important soccer competitions in recent years, for example Mamelodi Sundowns: Premier Soccer League 1998, 1999, and 2000; Manchester United: Premiership, FA Cup, and the European Cup

in 1999 (the treble); France: World Cup 1998 and Euro 2000?
- Perhaps you started to describe the way in which the off-side rule is applied or under what conditions a corner is awarded?

Regardless of what approach you took, or where you started, you probably found that ***one idea led to the next one***. In the end, you more than likely wrote down many more things than you initially thought you would.

If you are not a soccer fan, this activity might have been a lot more difficult (or even seemed pointless). You may only have been able to answer the question with a simple statement like, 'It's a game played by two teams that kick a ball towards the goals at either end of a field.' You may even have responded with something like, 'I know nothing at all about soccer.' But this would not have been true.

At the very least, all of us know that soccer is a ***game*** and that it is played with a ***round ball***. If we proceed from this starting point, most of us would probably be able to produce a lot of other information about soccer: that you play the game on a ***field***, that you ***kick*** the ball, that you win by ***scoring goals***. And so we find that those who thought they knew 'nothing at all' about soccer, in fact know quite a few useful and correct facts – knowledge that is shared by many soccer fans – but these facts seemed so obvious that they were not recognised as knowledge.

This activity illustrates a number of important points about learning and knowing:
- First, it is difficult to describe what we know, because we tend to 'forget' that we know things that we have known for a ***long time***. This knowledge is so ***natural*** to us that it no longer seems like knowledge, or like anything worth learning.
- Second, we also ignore things we know if they don't seem to fit in a particular context of enquiry.

> ***"Shared knowledge is an important starting point for learning."***

The difficulty that confronts us as teachers is that things that we take for granted because we know them so well may ***not*** be shared by the learners whom we teach. For example, we know that Lucas Radebe is a defender, but we may not realise that people who don't know the game of soccer will not know the difference between strikers and defenders! To them, all soccer players are the same.

Shared knowledge (like the understanding of the game of soccer that even the least knowledgeable amongst us may possess) is an important starting point for learning. If it isn't recognized by either teachers or learners, then learners may feel that they are ignorant and incapable of learning and teachers may feel helpless, frustrated, and unable to get through to learners.

The problem in teaching new knowledge is precisely that it is not shared. This presents the central problem of learning-teaching:
- How do we find out whether the knowledge that is required for a learning task is shared by participants?
- How can those who know (often the teacher) share that knowledge with others who don't know?
- How is it possible for those who do not know something, to come to know it?

Take some time to reflect on the issue being raised here.

STOP. THINK.

Before you continue, stop and think about these questions. They are the kinds of questions that seem so natural to us as teachers that we don't think they are important! You might want to make brief notes about your thinking in your workbook. We shall return to these questions later.

Learning what we don't know

Sharing knowledge may not sound like a very complicated problem. Surely, you may think, if people do not know about soccer, they could simply ask someone who does know to ***tell them*** about it! After all this is how we were taught.

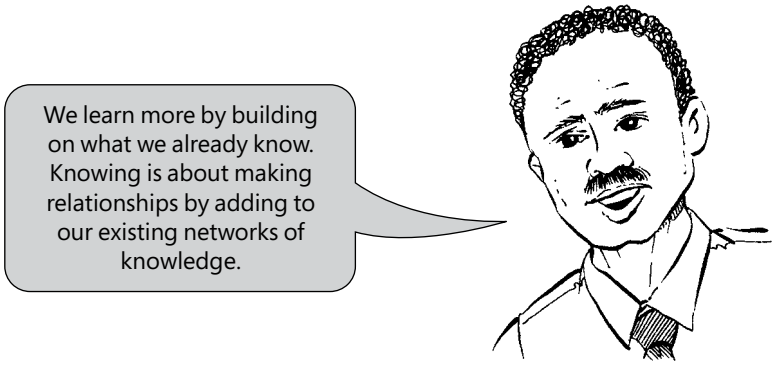
STOP. THINK.

Let's think about it a bit more carefully. In fact, let's do a little experiment. Without looking at the text, recall as many facts as possible about the game of soccer that we have mentioned in this section so far.

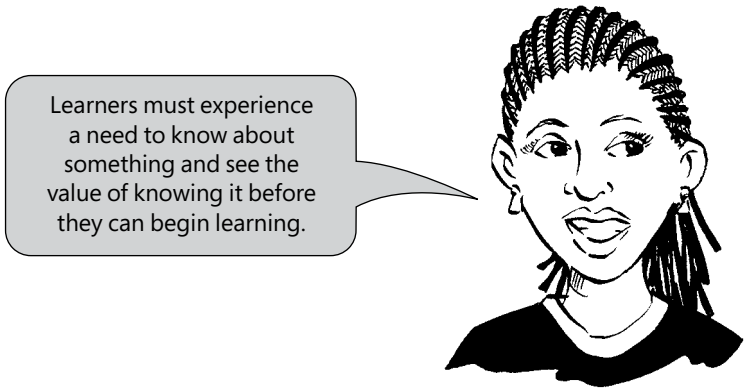
Take some time to reflect on the issue being raised here.

How do we remember things?

If you already knew many things about soccer before you started reading this text, you probably had no difficulty recalling the information. Even if you didn't know every one of the specific facts mentioned beforehand, you would quickly have taken in any new fact by adding or linking it to your previous knowledge of soccer. This points to an important idea in good learning:



If, however, you knew very little about soccer before reading this module you probably found that you 'failed the test'. Maybe you didn't even bother to try**,** thinking, 'Why should I try? I am not trying to learn about soccer, it is of no interest to me and will not help me in any way.' Ironically your ***resistance*** to learning would have identified another important problem with ***any*** learning:



The old saying, 'you can lead a horse to water but you can't make it drink' is powerfully accurate in any learning-teaching situation. Rothkopf puts it like this:

> *'You can lead a horse to water but the only water that gets into his stomach is what he drinks. … The proposition is simple. In most (teaching) situations, what is learnt depends largely on the activities of the student.'*

This quote is from E. Z. Rothkopf, 'The concept of mathemagenic activities', *Review of Educational Research*, 40 (1970), 325–336.

The importance of motivation

Perhaps if you were told that knowing these facts about soccer would be important for the course examination, you would now go back and memorize them. You would now have a ***motivation*** – however controversial – to learn.

But coming to know something requires more than:

- already knowing something about the topic;
- having a motivation to learn more.

Think about this: having learnt these facts, do you think you would feel that you know all about soccer? Probably not. Although you may be able to reproduce these facts under examination conditions and in conversation amongst people who really know a lot about soccer, you might still feel foolish and perhaps bored, uncertain of where and how to insert these facts into the conversation, and unable to demonstrate that you know about soccer. In other words, you wouldn't really be able to ***use*** your knowledge competently.

Participating fully in ***conversations*** about the game would require that you have a wide-ranging and deep knowledge about the world of soccer. And of course to play the game, requires a whole array of different skills.

How can we develop understandings that are deep and allow us to enter conversations knowledgeably?

Spend about 40 minutes on this activity. Think carefully about the analogies used. Try and link them to your own experiences, and to what you have already learnt in this module. The quote is from R. Harré, in D. Clarke and N. de Carlo, *Motives and Mechanisms: An Introduction to the Psychology of Action* (London, Methuen, 1985), pp. 71–72.

ACTIVITY 4

1 Read the quotation about learning below and then answer the questions that follow it.

> *'The difference between traditional and personal psychology can be illustrated by their respective (understandings) of education. According to the traditional (understandings), a teacher possesses a large stock of knowledge, while a student has only a small amount of knowledge. Education consists of the teacher passing knowledge from him/herself into his/her student. A traditional examination is an attempt to discover how much each individual has acquired.*
>
> *In our theory of education, however, the process is quite differently conceived. There is a general conversation which takes place in institutions like the universities, and to which the academic staff contribute. It is from this conversation that students extract what they can.*
>
> *Education, according to personal psychology, is like breathing in the surrounding air; it is not like being pumped up like the tyre of a bicycle.'*

a The writer argues that education is like participation in a conversation. What does he mean? What kinds of things do we learn in conversations that are often not learnt in classroom instruction?

b What does the writer mean by the analogy 'education … is like breathing in the surrounding air, it is not like being pumped up like the tyre of a bicycle'? What does this suggest about 'traditional' views of the learning process?

2 Think of your own experience of learning at home, in classrooms, and in the environment of colleges and universities. How is learning different in these places? Can you think of any examples that could justify Harré's views?

Learning by 'breathing the air'

Becoming familiar with the conversational world of soccer would entail coming to know all kinds of ***unanticipated*** facts which ***initially appear irrelevant***.

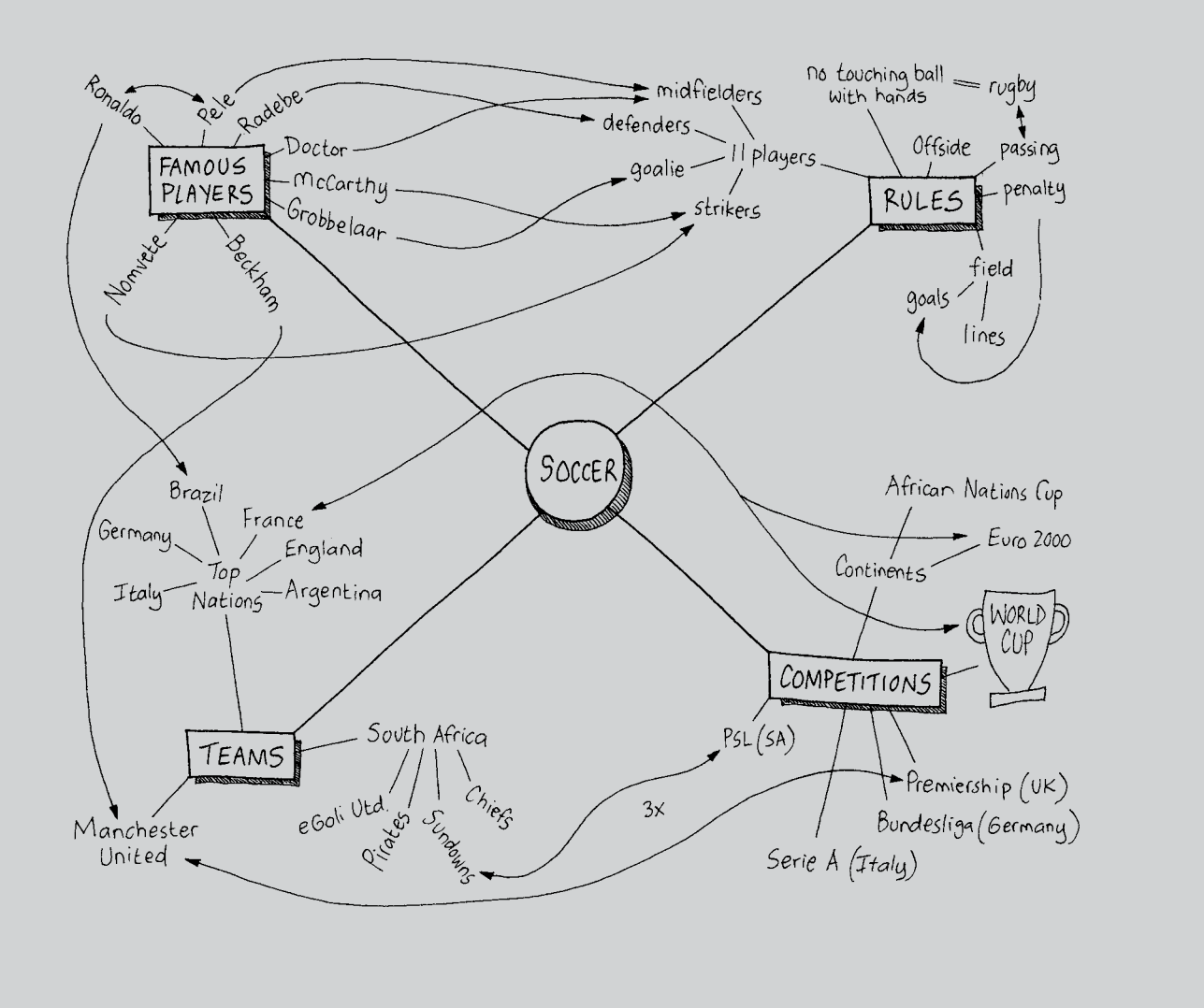
For example, each of the famous players mentioned earlier has a unique character and is well known for his style of playing and impressive goals scored or saved in particular games. Each of them is also linked to a particular club. There are also other facts associated with these players that are not about soccer but are nonetheless well known by people interested in the world of soccer. For instance:

- Do you know which of the players is married to a famous pop star? Who is she?
- Do you know whose father was killed in a violent robbery?
- Do you know which player refused to play for his country at one time because he wanted to put his club first?

You may again be thinking, 'But what is the point of all of this talk about soccer?' Well, we are using it to make the following points about the nature of learning; about moving from the known to the unknown:

- First, something that we already know that ***may not appear to be relevant*** to a new field of knowledge, may indeed connect us to this new, unknown world. So, for instance, although we may not be interested in soccer we might be interested in pop music and come to know about David Beckham as the soccer player married to Posh Spice.
- Second, a missing fact in our previous knowledge may make it difficult to understand new information. We won't understand 'Ronaldo is the new Pele' unless we know that at one time Pele was considered to be the greatest player in the world. When we learn this we understand that the sentence is saying that Ronaldo must be a very good soccer player too.
- Third, sometimes previous knowledge isn't helpful. In fact, it may hinder the development of new and different understandings. For example, in another game – rugby – one isn't allowed to pass the ball forward. In soccer this is permissible. People familiar with the rules of rugby might therefore be puzzled about why the referee allows play to continue in a situation where it appears a rule has been broken.

We can now begin to see that good learning – which leads to the kind of knowing required to indulge in conversations – is a complex web of connections between our previous knowledge (the known) and new knowledge (the unknown). It is like a network of interconnected information that continually develops, grows, and changes shape.



Harré suggests that this kind of learning develops through the ***act*** of being within a conversation, ***listening*** to this conversation, and ***watching*** how people ***talk*** and ***behave*** as they converse**.** Maybe this is what he means when he says that education is like 'breathing the air'? Rather than being fed knowledge, we learn by engaging in it, observing it, and practising it. What do you think?

Learning about Durban

We now want you to engage in a bit of action to illustrate a number of the points we have made about learning in this section so far. This time, we want you to think about what it means to know a city. The city in this case, is Durban. Work through this example and see if you can identify how ***this*** analogy works to illustrate the same points about learning as those identified in the story about soccer. This example also introduces some new ideas. If possible, use the example to try to 'teach' a colleague what you have learnt about learning.

Spend about an hour on this activity. The appendices with all the information required for this activity are at the back of this Learning Guide (see pages 213–225).

ACTIVITY 5

1 Use Appendix A to answer the following questions about the city of Durban. Write your answers in your workbook.
   a Where is Durban?
   b Write down as many facts about the history of the city that you can find in the material provided.
   c Describe the population of Durban.

d Describe the political profile of Durban.
e What interesting things are there to do and see in Durban?

2 When you have answered the questions, try to connect the facts you have unearthed by drawing a mindmap (similar to the one on page 32 on soccer) of the new knowledge you have acquired about Durban.

3 Now think about what this activity has taught you about how people move from the known to the unknown. For instance:
a How would we come to know a place like Durban if we had never been there before?
b How would our knowledge of other cities (and particularly of the place where we ourselves live) help us or hinder us in coming to know the city of Durban?
c How would we communicate our knowledge of our home town (or a place that we know very well) to someone who doesn't know it at all?

What did we learn from this activity?

Which of the facts about Durban did you consider to be important? Which facts do you think are ***essential*** to ***knowing*** Durban?

Put yourself in a learner's position. Think about what you would want to know about a city and why. Discard the kind of knowing that is associated with recalling information for an exam. Instead, think about what facts would be useful to a person living in the city or visiting it as a holiday-maker.

Would the facts that you have identified above help you to know:

- Where to buy cheap, fresh vegetables?
- Which are safe and unsafe places to go?
- Where there are interesting places to listen to music?
- Whether to go there on holiday?
- How to look for work there and whether it would be wise to move to the city to live there?
- Which school to send your children to?
- How to get from A to B, from the market taxi-rank to the beachfront for instance, or from the airport to Umlazi?

It is interesting that official documents about the city don't help us very much at all with developing this sort of knowledge about a place. But the people who live there certainly have opinions about these things and talking to them and living among them would enable us to find out this kind of information about the city. To simulate this experience, we interviewed some Durbanites. Their stories about their home town are included in Appendix B.

STOP. THINK.
Turn to Appendix B and read what these Durban residents have to say. Do their personal experiences give you greater insight into the aspects of the city listed above? Do you notice that the kinds of writing supplied aren't just factual? Instead, they create a kind of *conversation* about the city, about the experience of *living* in the city.

Take some time to reflect on the issue being raised here.

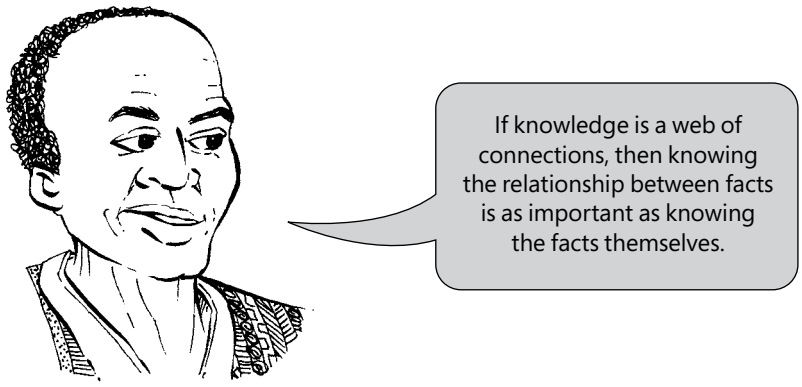
These ***different kinds of knowledge*** about Durban raise important questions about how we may go about learning new, previously unknown things about the city:

- Which sources of information (for example, the tourist bureau's brochure, daily newspapers, people who live there) would we trust in trying to learn about these aspects of the city of Durban?
- Would everyone's knowledge of the city be of the same kind?
- Would this make some knowledge of Durban right or wrong?
- How would we check or evaluate our own and others' understandings of Durban?

What have we learnt about learning new things?

Think about what the soccer and Durban examples show us about the processes involved in learning ***anything new.*** What general conclusions can we draw that may apply not just to these examples, but to all processes of knowing and learning to know new things?

If we assume that knowledge is a system of interrelated facts, we can see how the task of constructing a mindmap or a network can help us to ***represent*** what we think ***relationally.*** By drawing a mindmap we can capture the ideas ***and*** the relationships between them.



This is an important point to remember for your own learning in this course. Simply collecting and repeating facts does not yet count as knowledge. An important part of knowing is the ability to connect facts into a complex network of ideas. This means that you must learn to ***identify and explain the relationships*** between facts or ideas.

The activities in this section have shown you that the notion of a 'network of knowledge' is a useful way of explaining ***why*** we often discover that we know more than we thought. (Although, as we suggested earlier, we often need something to make us realize that we do in fact know these things). It also helps us to understand why it is easier to learn new facts about familiar topics than it is to learn new facts about completely unfamiliar topics. You will also have discovered that because knowledge is a network of connections, knowing the relationships between facts is as important as knowing the facts themselves.

However, as we said earlier, there is a level at which knowing something involves more than a network of information or facts. Even those who may be able to talk quite competently about the game of soccer or about Durban, and can link into a wide range of facts in the network of knowledge about either, may not necessarily be able to actually play soccer or have been to Durban themselves!

Coming to know something may also involve learning to ***do*** things, through repeated activity and disciplined practice or perhaps just through lived experience.

Take some time to reflect on the issue being raised here.

STOP. THINK.

At this point you may want to do a quick review of what you have learnt:

- Page back to the introduction of this section (page 23). Check the description of what it was to cover. How much of this have you learnt?
- Check the half-truths on page 24. Has your opinion of any of them changed?
- Turn to page 68. Read the first two key points. Do you recognize that you have learnt these things?

Learning by guessing

2.3

Our account of learning thus far suggests that the process of learning is both easier and more difficult than we might have thought! It is easier, because all people actively think about their worlds and all learners have some knowledge that can be used in the learning-teaching situation. It is harder, because coming to know about something entails far more than acquiring and memorizing facts and therefore we can't teach learners by simply telling them things. We now move on to suggest three possible strategies to move from the known to the unknown:

- ***Guessing:*** learning by taking risks and making mistakes (Section 2.3).
- ***Questioning:*** listening to learner questions and asking good questions (Section 2.4).
- ***Imagining:*** using metaphors and analogies to constitute the unknown (Section 2.5).

Week 4 begins.

How our fear of the new limits our learning

Learning is always about coming to know something ***new***. This could mean finding out new information, thinking in a new way, or doing something you have never done before.

This is most obvious in school where, for example, we learn new things like how to do quadratic equations, draw contour maps, and analyse poems. However, ***living effectively and independently*** in the world ***also*** involves a process of learning ***new*** things. We learn how to operate a new appliance, to ride a bicycle, to bake a particular kind of cake, to care for a new-born baby, or to settle an argument between members of a household.

This quality of ***newness*** or ***strangeness*** may generate feelings of curiosity and excitement, but it may also create a sense of fear about the difficulties and hard work entailed in learning.

As teachers, it is easy to forget that the things we now understand – that are easy – were once strange and unfamiliar to us. As we 'forget' that we know things that we have known for a long time, it becomes very hard to remember that learning them involved taking risks or making mistakes. Bruner suggests that most of what we know feels rather more like a well-known story than a list of distinct facts and procedures:

> *'We live in a sea of stories, and like fish who [according to the proverb] will be the last to discover water, we have our own difficulties grasping what it is like to swim in stories. It is not that we lack competence [in doing this]. Far from it. We are, if anything, too expert. Our problem, rather, is achieving* ***consciousness of what we so easily do automatically*** *[…]'*

This quote is from J. Bruner, *The Culture of Education* (Cambridge, Harvard University Press, 1996), p. 147.

In other words, it is difficult to place ourselves in our learners' shoes. We can't imagine the problems they may have with something that is completely familiar to us. Because we have mastered the equations or the maps etc., we no longer have to take risks when working with them. So it becomes hard to imagine the feelings of helplessness or fear some learners experience when they are faced with what seem to us to be simple tasks.

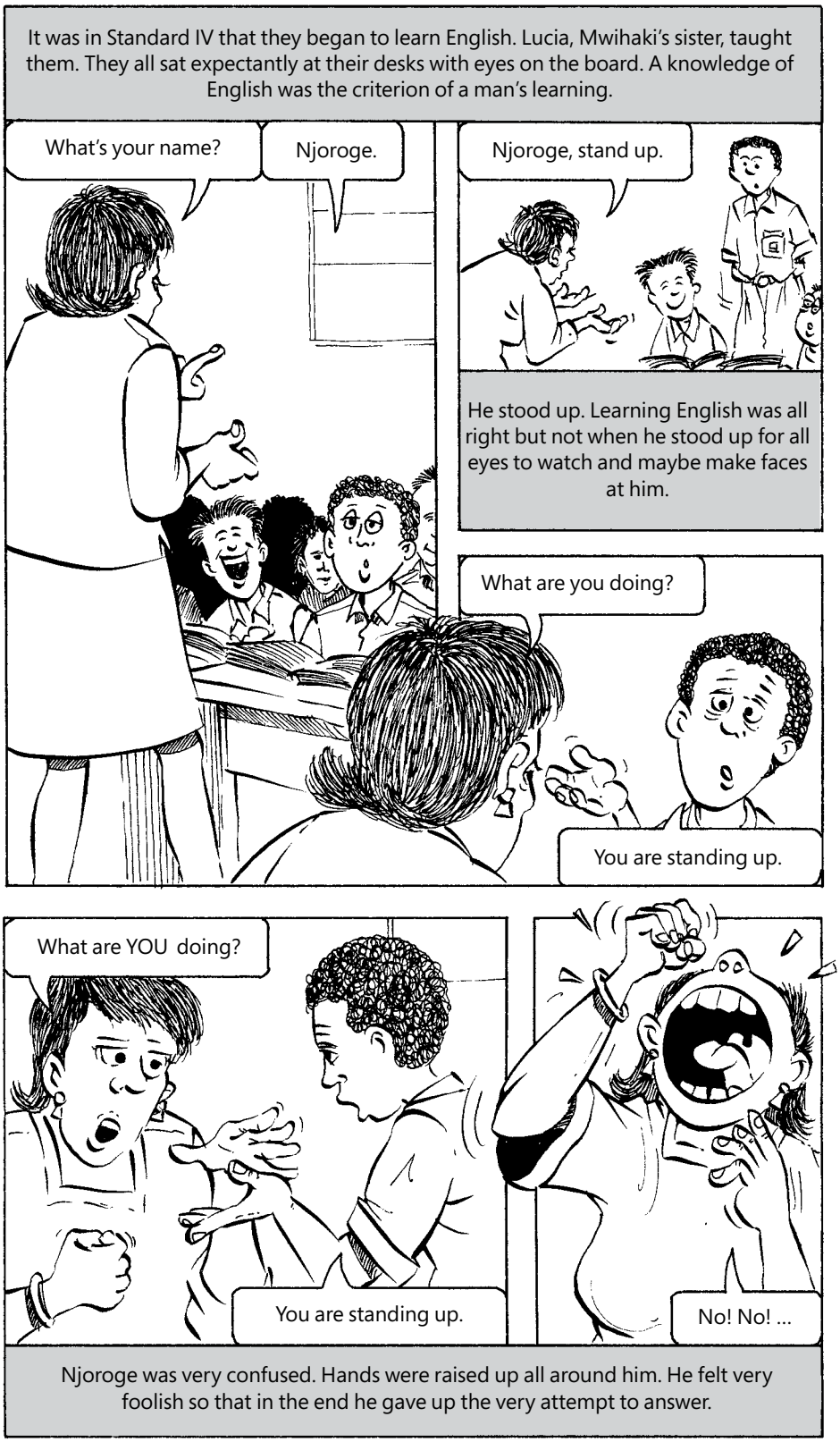
But if we don't begin to understand these feelings – which are very powerful and can disrupt learning – we limit our abilities as teachers. Let's begin to understand these fears by reading through three excerpts describing fear in learning situations.

Spend about an hour on this activity. You might want to talk to other teachers about the fears mentioned in these excerpts. Make notes in your workbook. Experience 1 is from a famous novel called *Weep Not, Child*, by Kenyan author, Ngugi wa Thiong'o (published by Heinemann, London in 1964). Experience 2 is from a novel called *I Know Why the Caged Bird Sings*, written by American author, Maya Angelou (published by Virago Press, London in 1984). The 'Uncle Willie' referred to is a teacher. Experience 3 was written by University of the Witwatersrand student, Mandla Maseko.

ACTIVITY 6

1 Read the cartoon below and the extracts on page 35. They tell us about the experiences of people who remember feeling anxious in a learning situation. Try to find out why they felt uncertain, even afraid. Then answer the questions that follow the extracts.

Experience 1: Njoroge



Experience 2: Maya

'Uncle Willie used to sit like a giant black Z (he had been crippled as a child), and hear us testify to the Lafayette County Training School's abilities. His face pulled down on the left side, as if a pulley had been attached to his lower teeth, and his left hand was only a mite bigger than Bailey's. On the second mistake or on the third hesitation his big overgrown right hand would catch one of us behind the collar, and in the same moment would thrust the culprit toward the dull red heater, which throbbed like a toothache. We were never burned, although once I might have been when I was so terrified I tried to jump onto the stove to remove the possibility of it remaining a threat. Like most children, I thought if I could face the worst danger voluntarily, and triumph, I would forever have power over it. But in my case the effort was in vain. Uncle Willie held tight to my dress and I only got close enough to smell the clean dry scent of hot iron. We learnt the times tables without understanding their grand principle, simply because we had the capacity and no alternative.'

Experience 3: Mandla

'In 1996, I received a letter that changed my life. It was an acceptance letter from Wits University. I could hardly believe it! For the next few days I was so excited I could hardly sleep. I had attended a rural school but had always dreamt of studying at an institution like Wits. My dream had come true!

However, being accepted was just the first hurdle. As I began my studies I sometimes almost wished I hadn't been accepted. For starters, it was the first time in my life I'd shared a learning area with students of other races, most of whom spoke English fluently. The new environment demanded that I speak English too. Yet I struggled to construct a sentence for the first few months! And asking a question in a lecture was nerve-racking and embarrassing because other students – schooled at multiracial or Model C schools – made fun of me as I stuttered and mumbled in English. A second problem was the library's computerized catalogue: it looked so sophisticated that I thought I'd never be able to use it. I became extremely nervous and worried that I would not be able to get a degree and that my family and community would be disappointed.

However, my success in getting in, and my desire to make my family proud, made me determined. Although I was still nervous about asking questions in class, I realized that doing so helped me learn. Similarly, once I plucked up the courage to ask a librarian for help, the computer system in the library proved quite easy and a real help in finding information for essays and assignments.

Perhaps I would have been less anxious in a more comfortable environment where I wasn't pushed to use English constantly and where the library was smaller and less imposing. But my excitement about being at Wits was all about the wonderful learning opportunity that it represented and so the anxiety spurred me on to make sure that I achieved. And so I did, graduating three years later, a fully-fledged member of the university community.'

2 Now answer these questions:
- **a** What makes the learners feel anxious in each experience?
- **b** Compare the three stories. What is similar in the learners' experiences? What is different about their individual experiences?
- **c** Imagine that you were able to change the conditions of learning for these three learners. What would you do for each one?
- **d** Is it possible to remove all the things that made the learners feel anxious?
- **e** Is there any sense in which anxiety may benefit the learning process?
- **f** Can you make a general statement about fear and learning?

The fear of making mistakes

In each of the three experiences, learners report feelings of anxiety:

- in Experience 2 the fear is linked to harsh punishment;
- in the other two situations there is no such threat. In these instances, ***the anxiety***

associated with learning is due to a fear of failure or embarrassment.

Of course, in some situations, making a mistake may have life-threatening consequences, for example, failing to stop at a red robot, putting one's fingers in an electric socket, or misjudging the intentions of a stranger. Because of this we tell our children, 'Look left, look right, look left again'; 'Don't touch'; 'Don't talk to strangers'**.** We try to ensure that they will ***avoid*** these dangerous mistakes, because we want them to survive!

However, most mistakes are not of this kind. When we fail to understand a concept, draw a graph incorrectly, or forget the steps in a dance sequence, our lives are not at risk. Yet many of us are terrified of making mistakes. We treat the possibility of error in these and other contexts of learning in the same serious way.

It seems that avoiding mistakes is the most important goal in learning. We believe we are always learning to do something 'right'. Teachers often have similar attitudes to mistakes. They may interpret learners' mistakes as a failure in their teaching or as an indication that learners are lazy or have not done the necessary work.

Either way, mistakes often make teachers angry or frustrated. Here is another extract from ***Weep Not, Child***, Ngugi wa Thiong'o's novel. It provides us with a good example of how easily teachers can be ***angered*** by mistakes.

The story is set in colonial Kenya. In the extract, Lucia, the English teacher, has to witness how her class makes mistakes in front of an English-speaking visitor. This provokes very strong feelings in her.

Anxiety associated with learning is often due to a fear of failure or embarrassment.

The visitor

'One day a European woman came to the school. As she was expected, the school had been cleaned up and put in good order. The children had been told and shown how to behave. ... When she entered, the whole class stood up at attention. Some had already opened their mouths to answer the expected greeting.

"Good afternoon, children."

"Good morning, Sir."

Lucia felt like crying. Had she not taught them the correct thing over and over again? She had been let down.

The visitor was explaining that, since it was after lunch, after twelve o'clock, they should talk of "afternoon", and since she was a woman, they should call her "Madam".

"All right?"

"Yes Sir!"

"Madam!" shouted Lucia almost hysterically. She could have killed someone.

"Yes Madam."

"Good afternoon."

"Good afternoon, Madam." But some still clung to "Sir". It had come to be part of their way of greeting. Even when one pupil greeted another, "Sir" accompanied the answer.

When the European went away, the children regretted the incident. Lucia beat them to cool her rage and shame. In the future they were to know the difference between "a morning" and "an afternoon", and between "a Sir" and "a Madam".'

STOP. THINK.

Do you notice how strongly Lucia's fear is driven by her ego? She is terrified of being embarrassed by the learners. She is frightened she will be regarded as a failure. Have you experienced such feelings? Can you suggest better ways of responding to mistakes that learners make? How could these mistakes be used to support learning that will lead to understanding?

Take some time to reflect on the issue being raised here.

Making mistakes: the secret of successful learning?

The philosopher Dennett makes the strong and unusual claim that attempting to avoid mistakes is counterproductive to the learning process. He argues that 'there are times when making mistakes is the secret of success'. What do you think about this assertion? Surely success is measured by the ***lack*** of mistakes? Let's read and see why Dennett says this.

ACTIVITY 7

Spend about an hour on this activity.

1 Turn to Reading 11. Read the *first paragraph only* of 'How to make mistakes' by Dennett. Then answer the following questions.
   - **a** What is Dennett saying that is different from the way you have thought about taking risks in learning new things?
   - **b** Is Dennett suggesting that every mistake will necessarily be of value for learning?
     - What kinds of mistakes would be counterproductive?
     - What kind of response to mistakes does Dennett propose as useful for learning?

You will notice that all these questions can be answered, briefly, by reading just the first paragraph of the article. Dennett presents the *core of his argument* in the first paragraph. In the rest of the article he establishes the *reasons and evidence* for his position.

Many academic articles take this form and you can therefore usually use the first paragraph to get a general *sense* of what an article is about. It often helps to stop after reading the first paragraph and to try to establish this general sense for yourself. Orientating your mind in this way, getting in tune with the author, helps you to organize and structure the rest of what you read in relation to this general idea.

2 Now read the whole article by Dennett before answering the next set of questions.
   - **a** Read Dennett's description of how to learn long division and note what he says about the value of guessing. Can you remember an example from your own experience where guessing was a valuable tool for learning?
   - **b** What, according to Dennett, is the significance of making mistakes in public?

A note about good reading and learning

Our questions focus your reading on important parts of the text. Although Dennett, for instance, discusses the role of 'mistakes' in evolution and artificial intelligence, you have not been asked any direct questions about these sections of the text. This is because a full understanding of these parts of his argument require ***other knowledge*** that you may not have.

But it is possible to follow Dennett's central argument about guessing and making mistakes without grasping these details. Part of becoming a good reader involves learning which parts of a text to focus on and which can be left for another reading

or another context of learning. Identifying the central argument clearly as we did in the last activity is one reading strategy. You also need to become comfortable with skipping or moving quickly through parts of an article without worrying if all of it makes complete and immediate sense to you.

However, imagine if we told those of you who have no idea what 'artificial intelligence' is that it is:

> *'1. A label for a relatively new interdisciplinary field combining research and theory from cognitive psychology and computer sciences, which is focused on the development of artificial systems that display human-like thinking or "intelligence".*
>
> *2. Any manufactured intelligence, i.e. the goal of the field of study in 1. The work in AI [artificial intelligence] should be, although it often is not, distinguished from work in computer simulation, in which the intelligence is in the programmer of the computer and not the machine itself.'*

This is from A. S. Reber, *The Penguin Dictionary of Psychology* (Harmondsworth, Penguin, 1995).

Once you have understood this definition, reread the sections in Dennett that deal with artificial intelligence. You will probably understand the references in the Dennett article that much better now. As we have said before, one way of expanding your existing network of knowledge about any subject is, of course, to read further on the subject. Then build the new links …

Why is it important to take risks and make mistakes?

Dennett suggests that the key to learning lies in a willingness to guess and take risks even when these risks lead to mistakes. He goes further to suggest that mistakes may be ***more productive*** for learning than ***correct guesses***.

He accepts that there are times when mistakes are dangerous and should be avoided, but goes on to argue that we are more afraid of mistakes than we need to be. In school learning guessing is nerve-racking and many learners prefer to remain silent and inactive rather than risk a mistake. But because classrooms are places where we learn new things, school tasks often put us in a situation where, as Dennett puts it:

> *'the only way to come up with the answer is to take some creative leaps in the dark and be informed by the results'.*

Mistakes can be productive if we make ***educated*** guesses. These are guesses that build on what we already know. Once made, we need to look carefully at the results to establish whether they are correct or not. Dennett argues that:

> *'we don't usually have to risk life and limb in order to learn from our mistakes, but we do have to keep track and actually attend to them'.*

If we do not take our mistakes seriously and 'attend to them' – look carefully at what went wrong and why – we limit our opportunities for learning. Think back to Uncle Willie's children (see page 38). They recited the times-tables without risking mistakes because they were afraid of the punishment they would get for 'being wrong'. However, because they avoided mistakes, they avoided opportunities for true understanding. In the end they 'learnt the times-tables without understanding their grand principle'.

Most of us may be willing to contemplate the idea that we can learn from our mistakes as Dennett suggests. By reflecting on the unexpected results or negative consequences of our actions, we may come to a new understanding of what happened and why. However, most of us find it very difficult to attend to our mistakes ***in public.*** We prefer to see 'learning from our mistakes' as a private, individual experience to be hidden from others to whom we pretend that we know much more than

we do. The following poem by Laing illustrates this attitude rather well.

There is something I don't know
that I am supposed to know.
I don't know what it is I don't know,
and yet I am supposed to know,
and I feel I look stupid
if I seem both not to know it
and not to know what it is I don't know.
Therefore I pretend I know it.
This is nerve-racking
since I don't know what I must pretend to know.
Therefore I pretend to know everything.

I feel you know what I am supposed to know
but you can't tell me what it is
because you don't know that I don't know what it is.

You may know what I don't know, but not
that I don't know it,
and I can't tell you.
So you will have to tell me everything.

This poem is from R. D. Laing, *Knots* (Random House, 1972).

Becoming conscious of our mistakes

The all-too-familiar experience captured in Laing's poem highlights a crucial problem in the process of learning from mistakes: ***we often do not realize we have made a mistake until others tell us so***.

Sometimes our actions may themselves produce negative results that enable us to learn directly and independently from our mistakes. We can then learn lessons and draw conclusions from the consequences of our actions that will allow us to do things differently the next time around. As Dennett says:

> *'We can actually think the thought, reflecting on what we have just done. And when we reflect, we confront directly the problem that must be solved by any mistake maker: What, exactly is that? What was it about what I just did that got me into all this trouble? The trick is to take advantage of the particular details of the mess you've made, so that your next attempt will be informed by it, and not just be another blind stab in the dark. In which direction should the next attempt be launched, given that this attempt failed?'*

Our capacity to ***learn reflexively*** is a remarkable human characteristic. This means that each new guess or creative leap in the dark, is seldom completely random or undirected. We may ***feel*** as if we know nothing about a particular topic (such as soccer, mathematics, or jazz) or about how to perform a particular task (play a piano, drive a car, write a poem, make a table). However, our guesses about these things are never completely uninformed. Rather, they always draw on our previous experiences, and on a lifetime of reflecting on our actions and drawing conclusions. This uniquely human intelligence is what helps people to deal with the uncertain future. We use our past experiences and knowledge to guess about the future and anticipate likely outcomes of our actions. We can assume that this process of anticipating, guessing, and moving ahead of what is already known occurs in all learners regardless of who they are and what they are trying to learn.

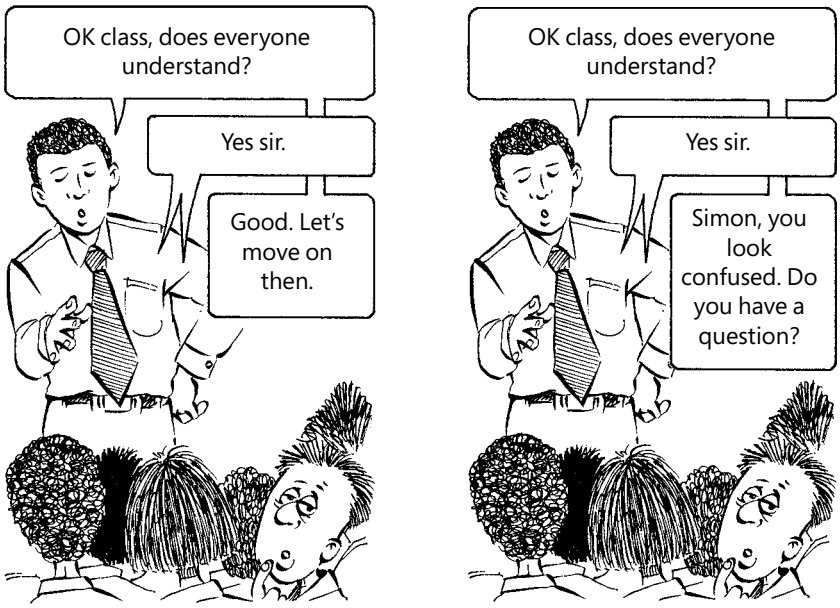
Using others to point out our mistakes

However, sometimes our learning actions may not produce an immediately obvious negative consequence that tells us of our mistake, or may produce a consequence that we cannot interpret or learn from. Often the best feedback about our mistakes

comes in conversation with other people, who help us to see our actions in a new light.

So, while reflection alone may have limited value, reflection ***with feedback*** offers powerful possibilities for changing and developing our understanding. The response of teachers to mistakes should therefore be to enhance the possibilities for learning from mistakes by providing ***feedback*** that will change understanding and allow for the integration of new knowledge. Equally, teachers should create situations where they can receive feedback on their teaching by, for instance, asking other teachers to sit in on their classes.

Learner responses are a form of feedback. But, like the teacher on the right in this cartoon, teachers should not simply accept a chorused 'yes' response from learners. Always observe learners and probe for possible difficulties.



> ***When we regard mistakes as the cornerstone of learning, we suddenly have to rethink a lot of common-sense ideas about teaching and learning.***

When we regard mistakes as the cornerstone of learning, we suddenly have to rethink a lot of common-sense ideas about teaching and learning:

- Are teachers like Uncle Willie or Lucia not blocking learning because they punish children who make mistakes?
- Shouldn't children like Njoroge, who make useful mistakes, be rewarded for their active engagement in the process of learning, rather than punished for being wrong?

Simply by rethinking the experiences of these learners we can see how challenging Dennett's ideas about risk-taking and mistakes really are to teachers and to schools.

Yet, when we think of our own experience of learning, his ideas make perfect sense. For example, quite often, when we think back to the beginning of a new course, the things that worried us when we first started learning (and the mistakes that we were afraid of making) seem trivial in hindsight. Looking back, it seems that we were foolish not to see this at the time. As we attend to our mistakes, we learn, and as we learn, we reach a new sense of balance and certainty that allows us to assert, 'I know about that!'

Learning is an experience of taking risks, making mistakes, and changing our understanding as we move from the known to the unknown. This is why we ask you to answer the half-truth activities ***before*** we deal with these issues, and why we ask you to ***relook*** at them afterwards.

Spend about 40 minutes on this activity. Do it on your own at first and then share your ideas with other learners.

ACTIVITY 8

1 Take out your notes from the half-truth activity on page 24 at the beginning of this section and read them again.

a Has our discussion about the importance of taking risks and making

mistakes changed your ideas about learning?

b How would you now describe the path from the known to the unknown?

2 Do you remember the learning experience of Njoroge in Activity 6? He is made to feel foolish because he makes a mistake and therefore gives up his attempts to answer the teacher's questions. Look at the transcript again (page 34).

a What errors did Njoroge make?

b What do they tell you about Njoroge's understanding of pronouns?

c Explain why you think Njoroge is making these mistakes.

d How would you correct Njoroge's mistakes?

Assimilation and accommodation in learning

The process of learning through guessing (and inevitably making mistakes) can be compared to the experience of walking a tightrope. The tightrope walker takes enormous risks. What makes it possible for him to do so?

- First, the tightrope walker makes ***his own progress*** across the high wire. He is in control of when and how to take the next step. Learners also need to have some sense of control over when it's a good time to guess or take risks, and how to do so.
- Second, with each step, the tightrope walker ***adjusts*** his weight and ***finds a new sense of balance***. Learners also need to find ***equilibrium.*** In their case it is a balance between their previous knowledge (the known and familiar) and the new things they are learning (the unknown and unfamiliar).
- Last, but by no means least, the tightrope walker can take risks because of the ***safety net*** below! He knows that even if he falls the consequences will not be fatal. The same applies to learning. Learners also need safety nets in the classroom. They must be encouraged to take the risks associated with guessing in learning. The safety net is teacher reassurance that mistakes will not have serious negative and irreversible consequences.

There is another reason why the safety net is important for learning. Even when guessing takes place in the best possible way, giving the learner control and providing support, there is no guarantee of immediate, complete, faultless understanding. New understandings may include new errors and new possibilities for mistakes. So learning is a continuous process of seeking a state of mental balance, integrating new knowledge with what we already know, and adjusting our previous understandings in the light of new knowledge.

The comparison between the tightrope walker and learning is a useful way of introducing the ideas of Piaget.

What can we learn from Piaget?

Jean Piaget (1896–1980) developed a theory of knowledge and of the cognitive processes whereby people come to know the world. It is one of the most important psychological theories of the twentieth century.

The importance of action

From Piaget's perspective, all knowledge is constructed through our ***action*** in the world. He argued that we can only know about things if we ***act on them***. Very small babies, for instance, get to know the world around them by touching and tasting things (although exasperated mothers try and curb this guessing and acting behaviour). As children get older, they literally get to know their world by ***moving about in it***: learning to crawl, then walk, and bumping into things. Through these actions babies learn what's hard and what's soft, what's heavy, what's painful, and what's not.

Piaget argues that ***action*** continues to be very important for all thinking throughout our lives, although its nature changes. Older children and adults also use physical actions – similar to those of the small child – to learn about the world. But the action increasingly happens in the ***mental*** realm; the act of thinking. This is how Piaget explained this point:

> *'Logical relationships are, first and above all, operational structures. Although their most advanced forms are certainly expressed by language, their origins are found in the co-ordination of (a person's) own actions. Even at the sensory-motor, pre-verbal level, a child is involved in activities that include uniting, ordering, introducing correspondences etc. These activities are the source of operations and logico-mathematical structures.'*

Equilibrium: accommodation plus assimilation

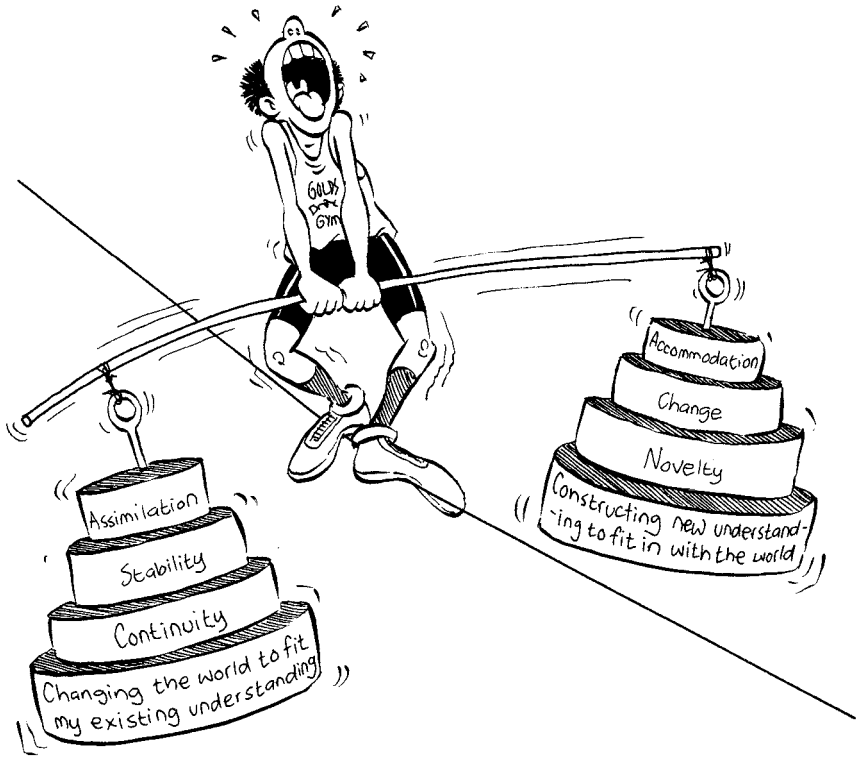
Piaget first suggested that the development of knowledge occurs through the process by which we seek a state of ***equilibrium***, or balance, between our previous knowledge and new things we encounter in the world. Like a tightrope walker adjusts his or her physical balance, we all ***mentally adjust and readjust our thinking*** in response to new objects and events. Piaget identified two mental processes that enable us to perform this balancing act: ***assimilation*** and ***accommodation***. He argued:

> *'Knowledge is not determined strictly by the knower, or by the objects known, but by the exchanges or interactions between the knower* ***and*** *the objects (between organism and the environment). The fundamental relation is not one of simple association but of* ***assimilation*** *and* ***accommodation****. The knower assimilates objects to the structures of his actions (or of his operations), and at the same time he accommodates these structures (by differentiating them) to the unforeseen aspects of the reality which he encounters.'*

This quotation and the one on page 45 are taken from J. Piaget, 'A theory of development' in *International Encyclopaedia of the Social Sciences* (New York, McMillan, 1968), pp. 140–141.

The process of coming to know things is not, in Piaget's words, 'having a static mental copy of the object'. We become knowledgeable by 'effecting transformations' on what we are trying to understand and, by so doing, 'reaching some understanding of the mechanisms of these transformations'.

Piaget is an important educational theorist. Many of the ideas in this module have been inspired by him. Let's spend a little more time understanding his ideas and what their importance is to teaching.



ACTIVITY 9

1 Turn to Reading 3 and study Piaget's article entitled 'Development and learning'. Pay special attention to his notion of *equilibration* to extend what you have learnt thus far.

2 Answer the following questions when you have finished:

- **a** According to Piaget, how does knowledge come from equilibration?
- **b** Define in your own words the terms 'assimilation' and 'accommodation'. Illustrate your definitions with examples from your teaching.
- **c** Look at the labelled drawing of the tightrope walker above. Think about the way in which assimilation and accommodation are represented. Then answer these questions:
  - Why is assimilation linked to stability and continuity?
  - Why is accommodation linked to novelty and change?

You should spend at least an hour on this activity. Read Piaget carefully. Use the good reading ideas we have suggested. And read the article more than once. Try and link these ideas back to what we have already learnt, and to your work as a teacher.

What have we learnt about guessing and learning?

Consider this story of a young child learning about snakes and lizards.

Take some time to reflect on the issue being raised here.

STOP. THINK.

Can you guess how Dennett and Piaget would explain this child's learning? Spend a moment thinking. Then make some guesses!

We think Dennett would say something like this:

- When the child sees the snake (picture 2), she makes a guess based on her previous experience of seeing and knowing a lizard (picture 1).
- In doing this, she makes a mistake (picture 2).
- The mistake presents her with an opportunity for learning (picture 3) and so she corrects herself with the help of outside feedback (picture 4).
- In the end she has learnt something new.

We think Piaget would explain the same process in the following way:

- As the child sees the snake she focuses on what is familiar, and 'assimilates' her perception of the snake into her 'schema' of a lizard (pictures 1 and 2).
- But then she notices the differences between what she knows about lizards and the actual snake in the picture. By noticing the differences, she begins to feel unsure and experiences a state of 'disequilibrium' (picture 3).
- With the help of feedback from the environment – maybe a teacher, but based initially on her action of looking at the snake and noticing the absence of legs –

she develops a new understanding (a new 'schema') of what a snake is (picture 4).
- This enables her to 'accommodate' the differences.

Without assimilating (using her previous knowledge to make sense of what she sees), the child would be unable to understand the world. However, without accommodating the new and different information that she encounters, her knowledge would remain static and unchanging. Both aspects of her thinking enable her to achieve new and more complex states of mental equilibrium.

STOP. THINK.

Read through these explanations again. Do you notice any similarities between these and the process of learning that Socrates took his learner through (Section One)? Do you remember the disequilibrium felt by the boy in that process?

Take some time to reflect on the issue being raised here.

Piaget's theory offers a formal explanation of the ideas that we have already explored in the first part of this section (in the examples of learning about soccer and the city of Durban). He offers us a way to answer our central question, '***How does the unknown become known?***'

We do so through a process of equilibration. This involves:
- connecting new information to what we already know (assimilation);
- noticing, through our action (which includes thinking about what we are doing or looking at), that our understanding doesn't quite explain things (disequilibrium/conflict);
- filling in missing gaps in our knowledge by identifying other facts that will help us interpret new information;
- recognizing novel and contradictory aspects of new knowledge that our previous understandings cannot account for, and accommodating these into our new and more advanced understanding.

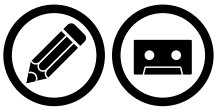
ACTIVITY 10

1 Listen to Part 2 of the audiotape. You will first hear Ronny Miller (whom you met in Part 1), then some music, and then the author of this section, Jill Bradbury. Miller and Bradbury discuss many of the ideas raised in this section so far. In particular, listen to how they explain the idea of *action* and *experience* in learning.

2 Answer these questions when you have finished listening:
- **a** How is their understanding of action and experience (which they call 'spontaneous discovery learning') different from what is commonly practised in schools?
- **b** What kinds of skills do teachers need to construct the kind of active learning environment they suggest?

3 Before you continue we'd like you to do a quick recap of what you have learnt so far. Page back to the introduction to this section. Read through the half-truths again. Have you changed any of your opinions yet?

4 Choose one idea about learning that you have learnt (and which is new to you). Think of how you'd use this to improve your teaching. Explain your idea to another teacher and ask for feedback.



Spend about an hour on this activity. The audiotape runs for about 9 minutes. Listen carefully and take notes as you listen. The activity is designed to help you consolidate and apply many of the ideas you have learnt so far. If you are feeling uncertain about these ideas, relisten to the Introduction and Part 1 of your tape, and reread Sections One and Two before continuing.

Learning by questioning

2.4

What function do questions play in learning?

Week 5 begins.

Questioning is a critical part of both teaching and learning, second only to explanation in its use by teachers in classroom teaching. Unfortunately, however, questioning is too often used in a very limited way. Questions are usually:

- asked by teachers and answered by learners;
- used to test knowledge recall.

So, while questioning is a valuable and very important ***teaching*** tool, it is under-used.

Rather than simply assessing the ***product*** of learning, questions can and should be used to drive the ***process*** of learning.

Questioning can be used to ***predispose*** learners to learn. By asking intriguing questions we can make learners more receptive to teaching.

Teachers can deepen and widen learners' criticality and thinking by using a wide ***variety*** of question types.

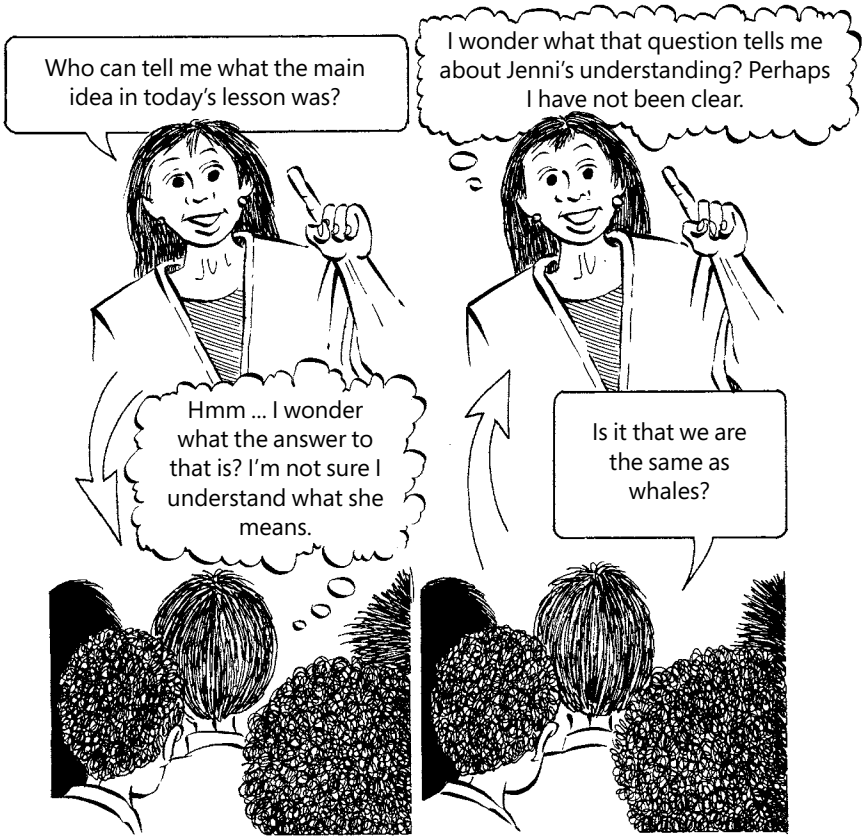
Listening to ***learner questions*** can provide teachers with important tools to guide their teaching.

> ***Although questioning is a valuable and very important teaching tool, it is under-used.***

The roles of teacher-as-questioner and learner-as-answerer are sometimes reversed. Teachers are often expected to possess an encyclopaedic knowledge because learners frequently see the teacher as a person who will have answers to every question. In turn, many teachers believe that their role is to provide the information that learners seek.

Playing this role has two key weaknesses:

- First, while teachers should know more than their students, it is impossible for teachers to know the answer to every question. This isn't because they are inadequately trained or haven't studied enough (although sometimes this is the reason). It is simply due to the fact that ***networks*** of knowledge present us with a variety of possible linkages (and thus answers) to questions. As we suggested earlier, the more we know the more we know we don't know!
- Second, not all kinds of questions ***can*** be answered by simply providing a specific piece of information. Sometimes the relationships between facts are very complex. It is therefore impossible for teachers to answer some questions by simply stating facts. By trying to do so teachers curtail learner motivation to enquire further. Do you remember Socrates' student? He became complacent because he thought he knew. Providing answers rather than provoking questions can close down learning!



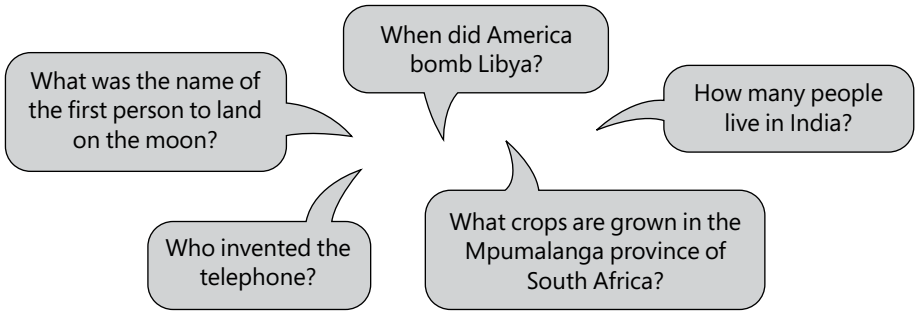
The feedback loop in questioning.

Different kinds of questions

Not all questions are equally valuable for learning and not all questions demand the same kind of answers. Learning to ask the right sort of question is an important teaching skill! Let's begin by investigating different kinds of questions and the ways in which they lead us to explore new knowledge

Factual questions

We often think of a question as representing a gap or hole in a learner's knowledge that must be filled or plugged by the teacher. Some questions are indeed like this. Let's take the following examples of ***factual questions*** as the starting point for our investigation of how learning happens through questioning:



These questions have correct, factual answers about which there can be little debate. Even if you don't know the answer to a factual question, there is no need to worry. These are the sort of questions to which we can find answers by looking in an encyclopaedia or other reference source. Factual questions will direct learners in the process of gathering information but the answers provide little more than a ***starting***

point for developing understanding or new ways of thinking about aspects of the world.

There are questions that are not so straightforward. These questions challenge learners to ***construct new knowledge***. What happens when we change factual questions to focus on the ***same information*** in ***different ways***?

Relational questions

Unlike factual questions that focus on isolated facts, ***relational questions*** make us think about the relationship between facts and in this way, encourage learners to extend the way they think. Relational questions are more open-ended than factual questions and can be answered in several different ways. Strohm Kitchener calls these kinds of questions 'ill-structured problems' for which there is no 'single, unequivocal solution which can be effectively determined at the present moment by employing a particular decision making procedure'.

Compare the examples of factual and relational question forms in the following table:

Factual question form (and answers)	Relational question form
What was the name of the first person to land on the moon? *(Neil Armstrong)*	Why was the first person to travel to the moon an American man rather than an African woman?
What crops are grown in the Mpumalanga province of South Africa? *(Citrus fruit, bananas, timber, maize, sunflowers, cotton, potatoes, avocado pears, macadamia and pecan nuts)*	How do these crops generate income for the province and what contribution do they make to the economy of South Africa as a whole?
When did America bomb Libya? *(1986)*	How did this bombing campaign affect international relations in subsequent years?
Who invented the telephone? *(Alexander Bell)*	How are telephones used in different parts of the world?
How many people live in India? *(2 billion)*	What access do people have to resources such as health and education in India?

We have not provided answers to the more complex relational questions above as there are several possible correct answers and many different ways to approach these questions. Do you notice, however, that without some factual information, it is impossible to answer these more complex questions or indeed, even to ask them? For example, if you did not know that the first person to land on the moon was an American man named Neil Armstrong, then it would not be possible to construct the relational question, 'Why was the first person to travel to the moon an American man rather than an African woman?'

Explanatory questions

Questions that probe the ***meaning of particular aspects*** of a situation and search for ***explanations of why*** they occur in a particular way, or what causes them to happen, are called ***explanatory questions***. They focus on physical causes and/or human reasons for things and they can be raised in relation to each of our examples. You might have noticed that an explanatory question is a specific kind of relational question: it ***explains and gives reasons.***

These ideas are from K. Strohm Kitchener, 'Cognition, metacognition and epistemic cognition' in *Human Development*, 26 (1983).

Compare the examples of factual and explanatory question forms in the following table:

Factual question form	Explanatory question form
What was the name of the first person to land on the moon?	What is gravity and how is it possible to overcome it and travel out of the orbit of the earth? (physical causes) Why did people travel to the moon? (human reason)
What crops are grown in the Mpumalanga province of South Africa?	What climatic conditions and other social or economic factors facilitate the growth of these crops for profit? (physical causes)
When did America bomb Libya?	Why did America bomb Libya and what were the consequences of this action? (human reason)
Who invented the telephone?	How is it possible to transmit sound through telephone wires? (physical causes)
How many people live in India?	Why are some areas more densely populated than others and what are the consequences of this population distribution? (physical causes and human reason)

Once again, note how explanatory questions require us to think about certain facts ***in relation*** to other facts. While relational questions explore a whole range of relationships within the web of knowledge, explanatory questions focus on a ***particular kind of relationship***, enquiring into the possible physical causes or human reasons for why things happen the way they do.

Evaluative questions

Particularly with regard to the human reasons for things, we can extend our enquiry further by asking ***evaluative questions*** about whether things are good or right or fair, or whether we find them appealing, interesting, beautiful, inspiring, or saddening. Evaluative questions are likely to evoke the most debate in class because most of them don't have a right answer that can be proven. Instead, our answers will often be based on our beliefs and assessed not on whether they are true, but rather on how well they are argued and substantiated.

Compare the examples of factual and evaluative question forms in the following table:

Factual question form	Evaluative question form
What was the name of the first person to land on the moon?	Is the expenditure of state money on space travel justified?
What crops are grown in the Mpumalanga province of South Africa?	Is this the best use of the natural and human resources of the province?
When did America bomb Libya?	Did America have a right to bomb Libya?
Who invented the telephone?	What's the best looking, smallest cell-phone on the market?
How many people live in India?	Do people have equal access to health and education in India?

Using a range of questions in teaching

The kinds of questions that focus on the ***relations*** between facts, generate a search for ***explanations,*** or ***evaluate*** the state of affairs, require more complex processes of answering than simply 'filling the gap' as demanded by ***factual*** questions. They are questions that:

- can ***extend*** and ***change our thinking***;
- help us to focus on ***unfamiliar*** aspects of what we already know;
- encourage us to ***actively construct new links*** between existing facts.

This makes them excellent teaching tools. Rather than limiting questions to those that have a right answer, and thus encouraging an atmosphere where learners don't risk making mistakes, and limiting opportunities for thinking and debate, these kinds of questions generate new thought and controversy. They 'predispose' learners toward thinking, risk-taking, and thus learning.

But let's get active again. We'd like you to practise designing these kinds of questions.

ACTIVITY 11

Spend about an hour on this activity. You may want to 'practise' using these questions with a group of fellow teachers.

1. Take another look at the different kinds of questions (factual, relational, explanatory, and evaluative) we have used as examples in this subsection. Using the *same question topics* we'd like you to add one or two of your own examples for each kind of question. You could, for instance, add a *factual* question like 'How old was Neil Armstrong when he walked on the moon?' to the question about the first person on the moon. Or a *relational* question like 'In what way did the first man on the moon make history?'
2. Next, we'd like you to think up examples of each kind of question but using new 'topics'. For example, 'When was Nelson Mandela inaugurated as South Africa's president?' (a factual question in History or Human and Social Studies), or 'Should South Africa use nuclear energy as it's main source of electrical power?' (an *evaluative* question).
3. Finally, design a short, fifteen-minute lesson teaching a concept or idea in an area with which your are familiar using *only questions*. We'd like you to use a range of questions so that you evoke different kinds of learning. (Read the subsection on questioning again to see why we use questions.) You will also need to imagine how learners will respond to each question you ask and build on this. Maybe use a table similar to the one below:

Topic and stage	Teacher's question	Likely learner answer
Introduction (evoke interest).	(Give learners a newspaper article with sensationalist report on matric pass rate.)	
	↓ What % of matriculants at X passed in 2000? *(factual question)*	Simple question ... some might have have difficulty working out percentages but should get right answer (40%).
	↓ Do you think 40% is a good pass rate? *(evaluative question)*	Most will say no, some might say yes ... mixed response.
	↓ Yes, it is difficult to answer that. Maybe we should explore *why* the school has this kind of pass rate.	Mixed response ... too few resources ... qualification of teachers ... attitude of learners etc.

Topic and stage	Teacher's question	Likely learner answer
	Can you think of, or work out, possible reasons for the 40% pass rate? *(explanatory question)* ↓	
	OK ... you say resources and qualifications are the problem. But here is another school two kilometres from X. It has a pass rate of 95%. Why the difference? *(explanatory question)* etc.	etc.

Learning to ask the right kinds of questions to solve different kinds of problems is an important part of learning. By ***modelling*** a thoughtful and questioning attitude in class – teaching through questioning is one way of doing this – we provide learners with the opportunity to learn by ***'breathing a questioning air'***. We give them an experience of how they can use questions to find out more about the world.

As teachers, we need to become aware of the kinds of relationships that different questions explore. Remember, all questions rest on some kind of original fact (rendered through a question, perhaps, but maybe based on a newspaper article). By using an array of ***explanatory*** and ***evaluative*** questions, however, one pushes learners into seeing the original fact – their original ***known*** – in new and unknown ways. By questioning skilfully we help learners develop networks of knowledge because we teach them how to make relationships, or see relationships, between discrete facts.

> ***Learner questions provide opportunities for teachers to investigate how individual students think and what their learning needs are.***

Listening to learners' questions

As important as choosing the right question to ask, is the ability to ***listen to and interpret*** the answers that students provide and the questions they ask.

Dillon (who said that questions 'predispose' us toward learning) argues that a question not only asks for information, it also ***gives*** us information about the questioner:

> *'When a student asks a question, he exhibits his present and future complex of knowledge, his dispositions of character, and the dynamics of his relations to the world, insofar as these pertain to the matter in question.'*

Questions (and, often, answers) offer a strong indication of a student's readiness to learn and reveal things to us about our learners, such as:

- who they are (their values and attitudes etc.);
- what they already know and understand (or perhaps misunderstand);
- their orientation towards new learning (how they learn, how keen they are to learn etc.).

As teachers we need to resist using learner questions merely as oppportunities to display what we know by providing answers. We should rather learn to use the questions of our learners as opportunities to investigate how individual students think and what their learning needs are. How do we do this? Your next activity, in which you read Dillon, may give you some ideas.

ACTIVITY 12

This is a reading activity and should take you no less than an hour to complete. Use the good reading tips we have already taught you. If you'd like to discuss the ideas in this reading, do so only after you have answered the questions and thought carefully about the ideas.

1 Turn to Reading 12, 'Student questions and individual learning' by Dillon. Start by scanning the whole article and reading the headings of each section. This will give you an idea of what the article is about.

2 Focus on Dillon's ideas about how questions reveal learners' 'pre-understanding'. Then answer the following questions:

- **a** What do the following questions tell us about what the questioner *already knows*:
  - Do you think that dagga should be legalized?
  - Would you help me with this problem, I am very confused?
  - Why are you being so difficult?
  - Don't you think this picture of a river is beautiful?
- **b** Look at each of the questions above again. What do they tell us about the questioner's *'dispositions'* (the kind of person she is, her attitudes towards the issue about which she is asking and towards the person whom she is asking)?

3 Now reread the first three paragraphs of the section in which Dillon deals with 'the question sentence'. He argues here that a question may reveal a misunderstanding that needs correcting before any kind of answering can make sense. We can refer to the understanding implicit in a question as a kind of 'preunderstanding'. It is the understanding that exists prior to the question and on the basis of which the question is formed.

- **a** Reread the question about the man who beats his wife and explain why this question cannot and should not be answered.

4 Finally, read the section called 'The questioning act'. As you read, make a note of the positive and negative feelings that the act of questioning provokes.

- **a** Using your notes, how would you explain the observation that many learners do not like to ask questions in class? How would you encourage questioning in the classroom?

What can we learn from Dillon?

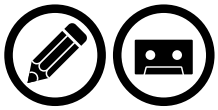
Questions seem to ***demand answers*** and we often think that the ***quicker and more certain*** the answer, the better it is.

However, Dillon says that 'to begin by answering the question may be a pedagogical blunder'. He suggests that, instead, we should treat a question like a ***doorway*** that opens into a new room. Rather than simply closing the door as soon as it is opened (by answering a question the moment it is asked), we should pay attention to the question itself. This will allow us to enter into the space that it creates for dialogue and discussion.

For example, when learners ask questions that cannot be answered easily, we can use them to trigger discussions that will focus the whole group's learning in new ways. Our teaching response to the questions of our students may very often take the form of yet more questions rather than answers.

You will have noticed that some questions reveal more about what a person knows than others. Some questions tell us very little about the disposition (personality or attitudes) of the questioner, whereas other questions reveal a lot. However, all questions reveal ***something*** about the questioner – about what they know and about who they are. For these reasons we should pay attention to the question rather than just rushing to answer it. We need to pay attention to the partly-disguised clues or hints in questions by 'reading' and interpreting their meanings more carefully. By doing this we will be able to respond to learners in more effective ways.

Remember though that questions alone do not necessarily lead to learning. Also, if we ask the wrong kinds of questions, we may block rather than facilitate learning. The following activity will illustrate this point.



Spend about 30 minutes on this activity. When you have finished, relisten to Part 2 of your tape. Do Miller and Bradbury's ideas about questioning provide you with any new ways of thinking about this activity?

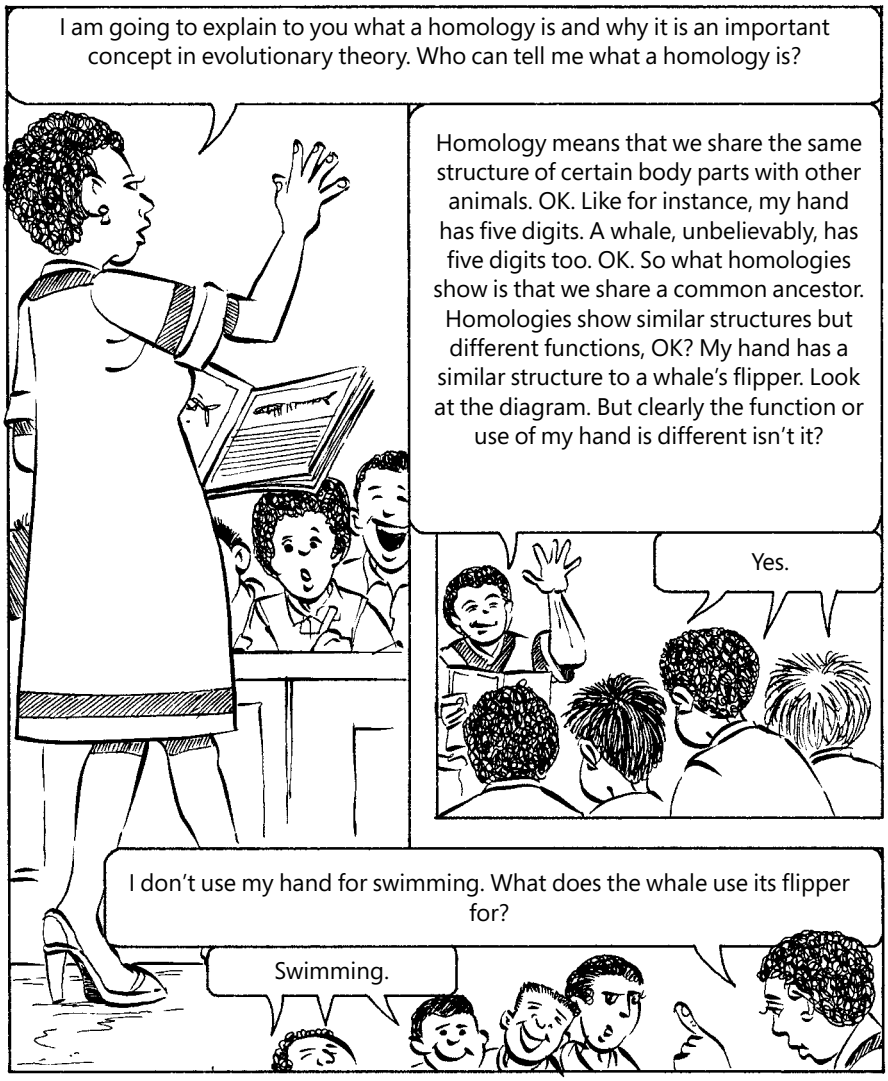
ACTIVITY 13

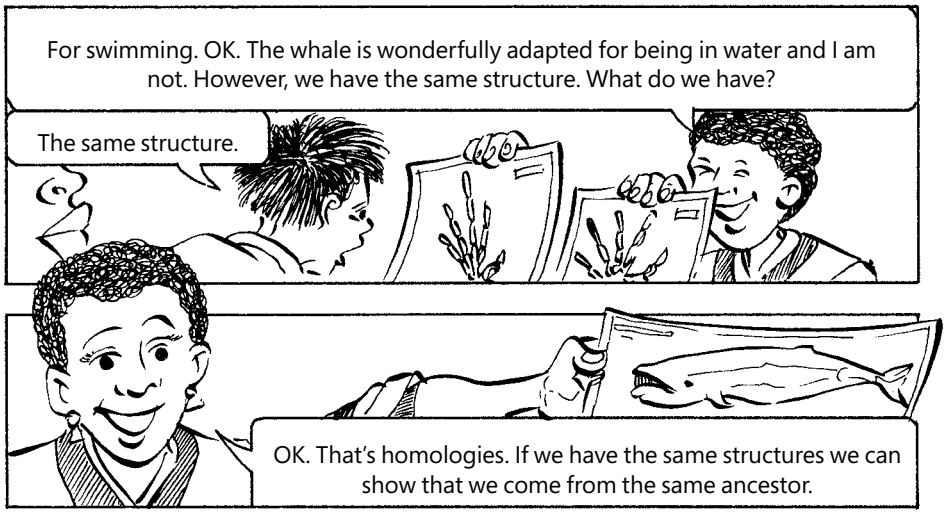
1 Read the exchange below between a teacher and a group of learners. The teacher is using a question- and-answer method to introduce the learners to a new idea (in this case the notion of 'homology').

2 As you follow the lesson, pay particular attention to the questions the teacher asks. Consider:

- **a** Which questions block learning and which encourage learning? Explain your answer.
- **b** How would you judge the quality of the questions asked? Your comment on the *quality* of the questions should make use of the ideas we have discussed so far. For example:
  - What kinds of questions are being asked?
  - Are they factual, relational, explanatory, or evaluative?
  - What knowledge do these questions presuppose?
  - What do the questions tell you about the disposition of the teacher?

3 Compare the kinds of questions in this activity with those you devised for your lesson in Activity 11. On reflection, do you think that some of your questions may block learning? Why?





What can we learn from this activity?

This teacher uses a lot of questions in a fairly short space of time. One might think about this, 'Good, she knows that questions are part of good teaching!'

The problem is that her questions don't lead students into the unknown. They also don't provoke learning. Notice that she gets two kinds of responses to her questions:

- Her first question is met with ***complete silence***. Why? Because the students can't possibly answer it! If they could answer it and knew what 'homologies' were, the lesson would be unnecessary. They know that this is not a 'real' question and so don't respond. It serves right at the outset to establish the students' ignorance and the teacher's knowledge.
- Her other questions are answered enthusiastically. Why the difference in response? And does this signal a better use of questions? Learners answer these questions because they are safe questions. They are safe for the teacher because she knows learners can answer them and so she feels affirmed. They are safe for the learners because they know exactly what the teacher wants to hear. The problem is that these questions are not really questions that promote learning; they only serve to prompt the students to ***repeat*** the teacher's story. It isn't possible for us to tell from their answers whether the learners have understood the concept of homologies or why it is important for evolutionary theory.

If the teacher asked her first question again at the end of the lesson, do you think the students would now be able to answer it?

We don't think so!

STOP. THINK.

We have come to the end of this subsection. Before you rush off, or move on to the next subsection, stop and think.

- Try and organize what you have learnt so far. Make links, and think of practical applications.
- Check whether you have understood the ideas well enough to use them in your teaching and learning. See if you can talk about them by talking to other teacher-learners.
- Can you link the ideas together into a network of knowledge about learning?
- Refer back to the half-truths (page 24). Have you changed, or added to, any of your earlier ideas?

Take some time to reflect on the issue being raised here.

This is what we think we have covered so far

We began our discussion on asking and answering questions by wondering how questions can help learners to bridge the gap between the known and the unknown. We then showed how different kinds of questions bridge this gap in different ways.

Although our common sense tells us that good answers are more important for learning than good questions, Dillon's article challenges us to turn this thinking on its head. The reading showed that questions can be more important than answers because they:

- allow us to construct new relationships between facts;
- reveal a lot of useful information about the learner.

What happens ***before*** the answer (be it a question, a guess, or a mistake) is what really counts when we chart the path from the known to the unknown.

Learning by imagining 2.5

The power of our imagination

Week 6 begins.

A remarkable feature of human thinking is our capacity to ***imagine*** things. We can create pictures in our minds about things we have never seen or events that we have never personally experienced. We can compose stories that take place in other worlds, or in our world but which have characters that don't exist (who are invented by the author). The ability to imagine is one of the characteristics that distinguish human beings from other living creatures.

Yet although imagination is often spoken of as an important part of teaching and learning, it is seldom used to its full potential. How can we use it to assist learners to move from the familiar known, to the unknown?

The unknown can be imagined or created in the ***mind's eye*** if we, as teachers, create the opportunity for learners to do this. Imagining is, if you think about it, a kind of ***guessing.*** We guess, or imagine, what might happen if we do something (or don't do it). We guess about things that we don't yet know and in so doing we create possibilities for exploration and testing.

However, the imagined world is seldom (if ever) created out of nothing. We draw on what we already know to imagine what is possible. We create a path between the known and the unknown. The closer the imagined possibility is to what we have previously experienced and already know, the ***easier*** it is to learn. The further away from our own experience we travel, the more room there is for 'error' in our imagined reality and the greater the possibility for surprise.

The power of imagination lies primarily in that it allows us to ***loosen our mental grip*** on familiar things. By doing this we are able to think of new worlds that would not be possible if we held tightly to the familiar. By opening up these new worlds, we can also begin to change our understandings.

Rather than tell you how to use imagination as a teaching tool, we'd like you to try the following activity. Through action you will experience ***both***:

- the ***power*** of imagination and surprise;
- how our 'familiar' ***shapes*** and ***constrains*** our ability to imagine.

ACTIVITY 14

Do this activity quickly. Spend no more than 15 minutes on it.

1 *Imagine* the people, objects, or events described below. In each case jot down a few words that describe what you imagine or, if you prefer, make a simple sketch.
   - **a** A woman who testified about the murder of her father at the Truth and Reconciliation Commission.
   - **b** A vast crowd of people.
   - **c** A man jumping off a high bridge.
   - **d** A child swimming in a large pool.
   - **e** A powerful, democratic leader.
   - **f** Landing on the moon.

2 Now look at the photographs in Appendix C on page 223. Compare the images with those that you imagined. Were there things about these images that surprised you?

How does our imagination work?

Did you imagine the woman who testified at the TRC as a black woman or a white woman? Given that most victims of apartheid were black, most readers probably imagined a black woman, possibly an older woman in a great deal of distress. (We would also have 'learnt' this from seeing clips from TRC hearings on television.)

Given that the photograph is of a young, white woman can you imagine who she is and what story she told? Maybe you said she had been bombed by ANC guerrillas? Maybe you thought she was asking for compensation from the ANC? Read this excerpt from a newspaper. It tells you who the woman is.

These extracts are taken from an article by J. Turner published in the Mail & Guardian on 2 September 1997.

Will somebody please just tell me who killed my father?

Activist Rick Turner was gunned down at his door in 1978, one of the early victims of apartheid hit squads. For years his daughter, Jann Turner, has been trying to find the killer. This is the moving story of her search ...

'I began searching for my father's killer in 1989. I was living in New York City at the time. I read in the paper that an investigative journalist called Jacques Pauw had blown the lid on a place called Vlakplaas, South Africa's death squad HQ. Horror unfolded in the forms of Almond Nofomela and Dirk Coetzee and for the first time I pictured my father's murderer as a person, rather than a state or a system. [...]

No one has applied for amnesty for the murder of Dr Rick Turner. Over the years there have been a series of leads, flutterings of hope when it seemed we might discover who killed him and why, but we've always ended up with the fantasies of cranks or hitting the wall of silence surrounding Boss (the Bureau of State Security) and the security police. This week I slammed into the very last cul de sac. I am tired of it, tired of returning to the horror of the night my dad was killed, tired of pushing and pushing to get to the ever elusive truth about who killed him and why, tired of doing this alone. There is a chance – because the cut off-date for receipt of applications is an ever-receding one – that someone will confess. But it's unlikely. [...]

The Truth and Reconciliation Commission offered the first and last hope that my father's assassination would be officially investigated. It was a real chance to break through the wall of silence surrounding Boss and the security police.

This week sources within the commission told me that their investigations have revealed a high-level cover up. But that is all. It seems they've been thorough in checking out the police, but have they requested Boss and security police files? Have they subpoenaed everyone I listed in my submission, everyone with something to tell us about my father's murder? If not, why not?

Alex Borraine, acting chair of the commission, re-emphasized to me this week that "the time we would like to devote to individual incidents just isn't available, there are so many others to do". It's awful, but I do understand. Truth commissioner Richard Lyster also pointed out to me that "in Natal there are 12 investigators and 4 600 cases". Perhaps the commission's investigation unit was doomed from the start. Perhaps it would have been more apt to have named it the Verification and Research Unit.

And yet – through the search for my father's killer, culminating in the truth commission, I have found healing. Whatever I was looking for, I have found part of it.

The emotional closure began in 1993. I had been filming in the house at Dalton Avenue. It was late at night, the crew wrapped and piled outside into the car. They left me alone to close the place up. It's very hard to articulate what happened next, because what I felt was so intense that I seemed to see it and hear it as well. As I walked around the house locking up, I felt the house leaving me. Each room; his bedroom, the bathroom, the kitchen – the rooms and I said our farewells to one another.

Finally I stood on the place where my father died. I felt him leave the place on the floor, I saw him rise up from there and leave that dying-place. I had this vision – I don't know what else to describe it as. It was a vision of me and him in a place like a wind tunnel, but the wind was pulling us in different directions. We were literally flying, but we were holding onto each other by our fingertips and the effort of holding on was enormous ,the strain was unbearable. Then suddenly Dad and I let go of each other. We just flew away from each other, ripped apart by the opposing forces in the tunnel. The relief was intense. I felt peace flooding through me. It rose up from the floor, through my feet and into my body. When I walked out of that house, down the steps to the van, it was in the present that I did so, it was now. My father didn't live there any more. I had broken past the barrier of that terrible night of his murder, past him dying and beyond to him alive. I had

to walk through a wall of grief to get there, but since then I have felt him alive in me, present to me in a way he was not before. [...]

The emotional closure was completed in October last year. My sister and mother and stepmother flew out from Britain to testify with me before the Human Rights Violations Committee of the truth commission. Before testifying we spent a week travelling around South Africa, visiting my grandmother and gathering with friends of my father's to remember and to celebrate him. At Natal University we opened the Rick Turner Memorial Building and met students and teachers in whom my father and his work are very much alive.

The wakes and memorials culminated at the hearing in Durban. Going over all that old ground was harder and more painful that I expected, but after testifying I felt lighter. I felt somehow unburdened. To be heard out by officials of Nelson Mandela's government, to have our loss so publicly acknowledged – it was terribly important. [...]

It is very, very hard for me to accept that I may never know who killed him and why. It is very hard to accept that the truth will remain obscured. Somebody shot down this man who spoke gently of reason and freedom, who swore violently at the failures of his DIY projects, loved bad English cooking and Elvis and Hegel. A man who was thinking about going for a walk on the beach tomorrow with his daughters, if only the rain would let up. What do you think went through his mind in those 20 long minutes after the bullet ripped through him? Those 20 minutes before he died? How much fear? How much regret? How much love? How much forgetting? How much forgiveness?

The truth is I'm depressed by this process. I wish that anger would spur me to action, but I know further action is pointless. I just feel dull and low. The truth is I feel I have failed him. There are people out there who do know the truth. Will someone please just tell me?'

Were you surprised? Maybe. Maybe not. The fact that many of us imagined that this photograph would have been about a black woman tells us a lot about our ability to imagine but also about how our imagination is constrained by our 'known'. Our imagination is strongly coloured by our experience, our reality.

The second image is quite surprising, perhaps even shocking. While it ***is*** an image of a large crowd, our guess is that none of you imagined the crowd to be a sea of bridal couples! It is far more likely that you would have imagined a rally of some kind, or a church congregation.

Did you imagine the man jumping off a bridge to be suicidal, thus evoking feelings of sadness? Were you surprised by the contrast: the delight of a young bungee-jumper as he leaps daringly from a bridge?

Even the ordinary experiences that are part of everyday life, such as swimming in a pool, may be imagined in a range of different ways. These imaginings are strongly shaped by your experiences and previous knowledge of these things: different people will call to mind different sorts of swimming pool, or will have a different experience of swimming 'triggered'.

The other photographs were probably not very surprising to you at all. Even if your own personal images differed from these, they are so famous that they would have been instantly recognizable to you. Some people and events are popularized by contemporary culture, recognized by millions, and represent memories of the past and hopes for the future that transcend cultural and other boundaries.

Our imaginations are amazingly powerful, creating people, places, and events seemingly out of thin air! You remained seated and reading and even though you didn't change your activity, your imagination created new worlds.

This is where the power of imagination for learning can be found. Learners can be enticed down the path from the known to the unknown by the use of images that draw on what they already know, but which simultaneously introduce new and often surprising possibilities. By drawing on learner imaginations of the TRC (and having a good idea of the likely imaginings they will come up with) and then presenting them with a very different imagination (an actual photograph), one creates a disequilibrium in the learners' heads. This state, you may remember, jolts learners out of their complacency and forces them to look for explanations. Why did I assume these things? What does it tell me about my thinking? etc.

> ***"Our imaginations are strongly influenced by our experiences."***

Using metaphors to evoke imagination

Metaphors and analogies can also be used to evoke learners' imaginations. These are generally powerful word images that force an association with something else. For example, we said earlier that 'Ronaldo is the new Pele'. We associated Ronaldo with Pele, who many people regard as the best footballer ever.

South African soccer fans do this regularly. Someone who is a very poor soccer player is called an 'uyinkomo' (in Zulu) or 'ke kgomo' (in Sotho). Yes, a 'cow'! What image does this analogy conjure in your head? A big, clumsy animal that walks around grazing grass and periodically stamping the ground and kicking up the turf? This is exactly what the users of this metaphor want you to imagine. It refers to soccer players who spend their time wandering aimlessly around a soccer field and who miss the ball when it does come their way, kicking the ground instead!

Many South African soccer players have metaphorical nicknames. A 1970s Chiefs goalkeeper was called 'Banks' Setlhodi. The association may have been with the English goalkeeper, Gordon Banks, who was regarded at that time as the best in the world. But a friend told us that it had another association: supporters knew that Setlhodi would invariably save kicks from strikers of opposing teams. His hands were as safe as a bank. This example demonstrates vividly how a metaphor (in this case a nickname) can help us to imagine the unknown (in this case the attributes of a player we may never have heard of).

Take some time to reflect on the issue being raised here.

STOP. THINK.

What associations do these other nicknames conjure up?

- 'Spiderman' Baloyi (the current Chiefs goalkeeper).
- 'Yster' Khomane (a Pirates defender from the past).
- 'Computer' Lamula (a former Chiefs mid-field player).
- 'Telephone Exchange' Molatedi (another Chiefs mid-fielder).

What did we think?

Did you notice how the metaphors used allow even those of us who have never heard of these people to imagine something about their skills? In other words, the metaphor of a 'telephone exchange' allows the ***unknown*** – the kind of player Molatedi was – to become part of our ***known*** (because we understand something of what a telephone exchange does). Molatedi was a player in the late 1980s and early 1990s. He was nicknamed 'telephone exchange' because of his ball distribution skills and accurate passes. The ball was always passed to him in the centre of the park and he would make sure that it was distributed to Chiefs players all over the ground.

By thinking of a new, unknown thing as 'like' something already known, we can imagine the thing we don't yet know. The connections created between the known and the unknown, and the simultaneous sense of confidence and uncertainty that learners feel, make this process of imagination very productive for learning. Can you see how metaphors or analogies are like photographs or pictures? To learn more about how and why you should use these ideas in classrooms we'd like you to do some reading.

Spend about 30 minutes on this activity. Do the reading and then share your ideas with other teachers. See if you can think of metaphors you can use in class to assist learners to understand something they know nothing about.

ACTIVITY 15

1 Turn to Reading 10, 'Learning to think metaphorically' by Joyce *et al*.

2 Before you start reading, look through the article and note the headings. You will see that it is a text written to assist teachers who would like to encourage metaphorical thinking in class. Consider:

- **a** How has the use of metaphors and analogies helped learners to think about poems in a new way?
- **b** Can you link Joyce *et al.*'s suggestions about the use of metaphorical thinking in the classroom to Dennett's arguments about risk-taking?

What did we learn from Joyce et al.?

Aha! So, after all of that we find that metaphors don't always work. Sometimes they may even block learning!

This should not surprise you. Although photographs or images are a powerful means of evoking imagination, they can also fail dismally if:

- learners are too familiar with the photograph (they stay in their known);
- the photograph contains images of something utterly unfamiliar (learners are unable to use their known to access the unknown, because there is no known in the photograph).

The trick in developing metaphors for learning and teaching lies in creating the ***correct balance*** between the known and unknown components. If we assume that something is familiar and known to our learners when it is not, the metaphor will fail to provide an access route into the new information that we want them to learn. On the other hand, if the image or metaphor is too familiar, learners may latch onto this and be unable to 'see' what's new.

Let's examine these problems in more detail.

An analogy cannot work unless something about it is familiar. For example, earlier in this section we likened the process of learning to the progress of a tightrope walker across a high wire. If you did not know what a tightrope walker is, the analogy would not have helped you to understand how important ***equilibrium*** is for learning. The picture we included to 'explain' the analogy might have assisted you to understand the association, but if you were unfamiliar with the analogy and the image, it is likely that you skipped that bit of the module. The potential explanatory power of the association would have been lost entirely. Even worse, the metaphorical explanation may have confused you rather than helped you to imagine the more abstract processes of mental equilibration.

An important part of teaching therefore involves ***listening*** to your learners so that you can enter and use their ***familiar*** worlds to make connections to the new ideas that must be taught. Are you familiar with the television programmes your students watch? Do they have favourite music groups? Who are their role models and why do they admire these people? What about the family circumstances of your learners? We need to be aware of the distances that may exist between us as teachers and our learners. In the end, it is our responsibility to ***build bridges*** that help to close these distances.

Being aware of our learners' worlds and the things they value doesn't mean that we must necessarily agree with them. Adolescents in particular are highly sensitive to, and even resentful of, insincere attempts to identify with their worlds. However, our knowledge of what is familiar to them will enable us to use what they know to introduce them to ideas that they don't yet know. In short, we cannot just assume that things are familiar to students. We have to ***work*** at creating a ***shared world of meaning and experience.***

> ***"The trick in developing metaphors for learning and teaching lies in creating the correct balance between the known and unknown components."***

ACTIVITY 16

1 *'Education is like banking.'*
What does this statement bring to mind? Think about what pictures it evokes in your head.

2 Now read through the cartoon on page 62.
Comment on the way in which the analogy goes wrong in the learning situation depicted. How could the teacher overcome this problem?

Spend about 30 minutes on this activity, which is a good one to do with other teachers. Listen to the different ways in which they interpret these misunderstandings.

Misreading metaphors

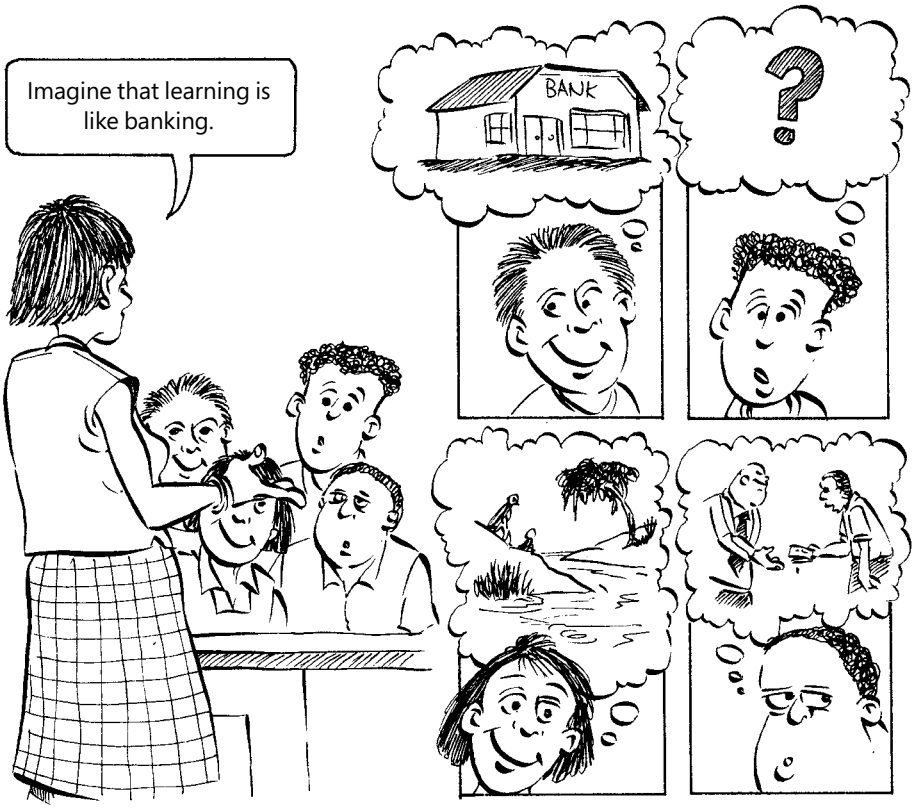
This cartoon demonstrates a rather unexpected problem with using analogies in class. New ideas may be blocked by:

- ambiguities of language (one learner thinks of a riverbank instead of a money bank);

- the learners knowing too much about the analogy.

Knowing too much might seem like a strange problem, especially because we have already seen that analogies cannot work when meaning is not shared. However, if analogies are too well known, the familiar content may overwhelm the imaginative process leaving no room for the new ideas to develop.

For example, the learner who imagines the teacher receiving money from a pupil,



may immediately link the analogy very concretely to his own context in which concerns with the costs of education and the possibilities for corruption are pre-eminent. In the end, his detailed knowledge blocks his understanding because he cannot see the ***general*** point the teacher is trying to make by using the analogy.

The cartoon also reminds us that we cannot simply assume that the worlds we imagine as teachers will be reproduced precisely in the minds of our learners. Sometimes what sits in our learners' heads may prevent them from thinking of the new things we try to teach them.

The Joyce reading contained an example which illustrated a different problem. Learners ***knew*** that a poem is not like a giraffe, but when they ***had*** to find similarities between the two, they made surprising connections and as a result they came to think about both giraffes and poems in a ***new*** and interesting way. This underlines an important point: new ideas may be continuous with our previous knowledge and build on it, or they may be entirely different from our previous understandings and even contradict what we already know. In both cases they assist us in learning.

We must remember that although analogies or metaphors play on ***some element of similarity*** between two things, they need not be alike in every respect. In fact in some cases, the differences between things may be misleading at first (there are lots of things about giraffes that are very different to poems, and banking can be quite different to education). Part of the teacher's task is to carefully elaborate ***how*** the familiar can be used to imagine the new. In order to avoid confusion, teachers might also need to point out the limits of the comparisons they are making.

In other words, as teachers we must use analogies to create a ***world of shared understanding***. Despite the difficulties associated with the use of analogies and metaphors, they remain exciting tools for challenging what we already know and for suggesting new possibilities. By using symbolic representation, language, and images we can create pathways into the unknown.

Can you see that this idea of a pathway into the unknown is itself a metaphor, repeated throughout this section? We have also constantly referred to worlds of meaning that have to be shared (another metaphor).

Before you move on to the next subsection, try the following activity. It will help you to sum up what you have learnt about using the known to imagine the unknown.

ACTIVITY 17

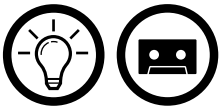
1 A number of metaphors or analogies have been used in this section to create the possibilities for you to learn new things and to help you think about the process of learning in new ways. Read through the whole section again and list as many metaphors or analogies as you can. (There are *lots* – far more than ten!)

2 Which of these analogies work or do not work for you? Give reasons for your answers. Here are a few metaphorical questions to get you thinking:
- How is learning like forgetting?
- How is learning like knowing?
- How is learning like eating?
- How is learning like a giraffe?

Spend about an hour on this activity. Ideally, do it alone at first. Then get a group of teachers (who have all also done this activity on their own) to share their ideas.

STOP. LISTEN. THINK.

At this point you might want to relisten to Part 2 of your audiotape. Refer back to the notes you made when you listened to it previously (page 45). Have any of your understandings changed or deepened? Why?



Take some time to reflect on the issue being raised here.

2.6 Learning and OBE

What did Curriculum 2005 say about learner-centred education?

Early on in the implementation of the new OBE curriculum in South African schools, the Department of Education called on teachers to develop 'a new way of looking at learners'.

Learners were not to be seen as empty vessels, as clever or stupid, or as being in competition with each other. Rather, every learner was to be considered unique and able to succeed in school. A more recent education policy discussion document has confirmed this principle. South African learners, it suggests, must be 'viewed as thinkers with emerging theories about the world' and 'not viewed as blank slates onto which information is etched by the teacher'.

The general idea is that what is learnt at school needs to be determined by, and ***relevant*** to, the needs and interests of learners, and not by a rigid syllabus. Teachers should 'seek the learners' points of view in order to understand learners' present conceptions for use in subsequent lessons'. This principle of ***learner-centredness***, and the related idea of ***relevance*** to the learner, has led to an important debate in school staffrooms:

These quotations are from Media in Education Trust for the National Department of Education (poster 5c), *Curriculum 2005 Orientation Programme* (1997), and Department of Education, *Curriculum 2005: Towards a Theoretical Framework* (Pretoria, 2000).

The one side of the debate

Some teachers argue that ***learners*** must suggest the topics they want to learn. In other words, the syllabus should be constructed on the basis of learner interests. This is justified by the argument that learners bring with them rich, unique, personal experiences and knowledge and that out of this, topics relevant to them can be generated collectively. The proponents of this view argue that when learners don't know all the details of a topic, they will learn these details by exposure to the ***collective*** knowledge of their ***peers*** and to selected learning materials. Through this process, all learners will ***discover***, or construct, new knowledge for themselves.

The other side of the debate

Other teachers argue that the relevance of any topic for the learners cannot be determined in advance, before the learning process begins. In other words, learners don't arrive at the classroom door knowing about what they need to learn. It is very likely that they aren't interested in, and so won't choose to learn about, adjectives and adverbs, the laws of motion, the international date line, or historical conflicts in the Eastern Cape. These teachers suggest, though, that it is ***vital*** that learners learn about things that aren't initially regarded by them as interesting or relevant. This argument holds that the initial lack of interest by learners can be overcome in the ***process of learning***. As learners learn, they will begin to see the relevance of concepts or analytic processes that they did not anticipate before.

Take some time to reflect on the issue being raised here.

STOP. THINK.

Does this debate ring any bells? Does the second argument remind you of the learning paradox in any way? You might want to reread Section 1.4. Much of Section Two also talks about how to get someone who *doesn't know* to *know that they don't know*. Given what you have learnt so far, which side of the debate would you vote for?

How has Section Two addressed this OBE debate?

In Section Two we have focused on the individual learner and on his or her ***spontaneous, natural ability*** to learn new things. We explored how different learners learn and discussed the different pathways along which they move in order to get from the known to the unknown:

- through guessing and making mistakes;
- by asking questions;
- by imagining new possibilities.

Piaget's theory of ***equilibration*** helped us to understand that these ***acts*** by learners are the ways in which they construct new knowledge for themselves. In this sense, learners ***do*** generate their own learning.

However, Piaget also warned us that the learning process is a ***balancing act*** between the known and the unknown. His twin notions of ***assimilation*** and ***accommodation*** help us to understand that it is ***both*** the learners' existing knowledge ***and*** the nature of the learning task, in ***interaction with one another***, that challenge the learners and allow them to learn.

The teaching challenge is, therefore, to maintain a ***relationship*** between the known and the unknown. School learning ***isn't*** something that learners construct for themselves in splendid isolation. The different disciplines of knowledge, and the history of ideas that has developed over time, challenge and enlarge individual experience. They open up new worlds of knowledge for the learner. Importantly, teachers, other learners, and books all provide new opportunities for learning in that they mediate the different ways in which different kinds of specialists (mathematicians, historians, psychologists etc.) think, reason, and argue.

If we understand learning as a balancing act – as a process which requires ***both*** learner action and imagination ***and*** learners who are willing and able to discipline themselves by learning existing knowledge – then the current debate in OBE doesn't help us to think meaningfully about learning. The first position emphasizes only the ***existing*** knowledge of the learner; it over-balances on the side of learner action or what Piaget would call ***assimilation***. The second position over-emphasizes the learning of accumulated school knowledge; it over-balances towards the ***unknown*** knowledge of the task, or the action of ***accommodation***.

Our argument is that when learners construct their own knowledge, they must do both; they must assimilate and accommodate.

Nonetheless, ***in a broad sense***, the OBE idea that learners construct their own learning is an important one. As the national Department of Education has put it in elaborating its conception of learner-centredness, OBE is about:

> - *helping learners to internalize and reshape, or transform, new information (transformation occurs through the creation of new understandings that result from the emergence in action of new cognitive structures or ways of knowing);*
> - *learner intellectual activity such as questioning, investigating, problem generating and problem solving (it's about constructing knowledge, not receiving it);*
> - *understanding and applying, not repeating back;*
> - *thinking and analysing, not accumulating and memorizing information;*
> - *active, not passive learning.*

This quotation is from Department of Education, *Curriculum 2005: Towards a Theoretical Framework* (Pretoria, 2000).

> ***"The constant challenge facing teachers is to maintain a relationship between the known and the unknown."***

2.7 Conclusion and key learning points

Take some time to reflect on the issue being raised here.

Reassessing the half-truths

STOP. THINK.

In order to conclude this section we'd like you to go back to the half-truths on page 24 and the notes that you made in response to them. Reconsider the statements in the light of what you have learnt in this section. Have you changed your opinions? How? Why? Note these changes in your workbook.

We will now provide you with our response to these half-truths and explain how we have explored them in Section Two. Use this as an example to guide your thinking about the half-truth statements at the beginning and end of each of the sections that follow.

Learning involves acquiring, retaining, and reproducing information

This statement is partly true. Learning does involve gathering new facts, whether these be about soccer, or a city like Durban, or about Piaget's theory of equilibration. Part of your task in studying this course on learning involves acquiring new facts, for example that assimilation is the process of understanding new information on the basis of what is already known. Or that accommodation is the process of changing previous knowledge in the light of new information.

However, in another important way, this statement is incorrect or at least incomplete. Learning involves ***far more*** than just acquiring isolated facts. Our discussion of the networks of knowledge (see pages 27–35) and of different kinds of questions (see pages 49–58) makes it clear that ***developing connections between ideas*** is as important as learning facts in the process of coming to know and understand new knowledge.

For example, to understand Piaget's theory fully, we need to understand the relationship between the processes of assimilation and accommodation. We also need to understand Piaget's theory in relation to other theories that you will encounter later in the course, like Vygotsky's theory of learning (see page 95 in Section Three).

As we become better at learning we should make fewer mistakes

This statement is true from a common-sense point of view. As we come to know more about something, we will make less errors and are likely to reproduce our knowledge in a more factually accurate way. We will also make fewer mistakes in the procedures that must be followed, whether these be the physical actions required for baking a cake or playing a good game of soccer, or the mental actions required for reading or writing a good essay.

However, in another important way this statement is very wrong. As we become better learners we become more willing to guess, to take risks, and therefore more likely to make mistakes! But, and this is important, we will know how to use our mistakes to learn new things. Our new mistakes will reveal new possibilities for knowledge and understanding. As Dennett (and others) have suggested:

'The more we know, the more we know that we don't know!'

For every question there is only one answer

You will now know that this statement is inaccurate. As we saw in this section, some kinds of questions have many different possible answers. Relational, explanatory, and evaluative questions can be answered in several different ways (see pages 51–52). Indeed, the tasks that you do in this course all require you to generate answers that are uniquely your own. There is no single, correct, model answer.

However, we also know that factual questions generally do only have one correct answer. If we ask who developed the theory of equilibration, the answer is Piaget and can be no other. It is also true that over time, and as we learn more about the world (or about learning), our previously 'correct' facts may change. Also, while some explanatory questions (for instance) may have the ***possibility*** of a number of answers, one answer may be far more convincing (and thus more acceptable) than other answers.

Teachers and learners need to learn to differentiate between different kinds of questions and the kinds of answers that they demand.

A good teacher will be able to answer all questions raised in the classroom

This statement is wrong. It is ***impossible*** for even the most knowledgeable teacher to know all there is to know about everything! An active class of enquiring children will pose problems and questions that cannot be anticipated. Dillon also suggests that answering a question immediately may stop or interrupt the learning process rather than encourage and provoke it.

Of course, teachers should prepare their lessons thoroughly and research the topics that they are going to work on with their classes. The teacher's own active engagement with trying to find answers serves as a model for learners. A question to which an answer cannot be given should be met with suggestions about how to find an answer.

The use of metaphors and analogies in teaching promotes understanding

This statement is true. Metaphors that link new ideas to that which is known and familiar help learners to enter the unknown (see pages 59–65).

However, sometimes metaphors may fail to promote understanding, and may even hinder it. This happens both when the knowledge that we assume to be familiar is not shared by learners, and when the metaphor is so strongly tied to the familiar, known world that learners are unable to ascertain in what way the new idea is different and unfamiliar (see Activity 16 on page 64). This means that although the use of metaphor and analogy is a useful strategy for teaching and learning, the elements of the known and unknown must be carefully balanced by the teacher.

Children are curious and active and therefore learn spontaneously

We strongly agree with this statement. Piaget's theory provides us with a model of human thought that is highly active. Teachers that recognize and enhance this naturally powerful capacity create classrooms that build the self-esteem of their learners and enable them to reach their full potential.

However, and this is important, some learning doesn't occur spontaneously and requires the intervention of a teacher or someone else to help us learn. Feedback from others can help learners to change their understandings and correct mistakes that they may otherwise be unaware of.

This view, and the important role of the teacher in the learning process it implies, is explored further in the rest of this module.

Key learning points

The aim of this section was to explore the question, '***How is it possible for those who do not know something to come to know it?'*** Here is a summary of how we attempted to address it:

1. We suggested that the process of learning is both easier and more difficult than we think:
   - Easier, because all people actively think about their worlds and all learners have some knowledge that can be used in the learning-teaching situation.
   - Harder, because coming to know about something entails far more than acquiring and memorizing facts and therefore we can't teach learners by simply telling them things.

2. We found out that learning was a complex and contradictory process. For instance:
   - Even when we think we know nothing at all, we may in fact know quite a lot (but because it is so familiar, we 'forget' that we know it)!
   - Knowing some facts about a topic often makes it easier to acquire new knowledge.
   - But sometimes what we already know makes it more difficult to learn something (the new knowledge contradicts our current understanding).

3. We looked at three possible paths that could lead learners from the known to the unknown:
   - We challenged the assumption that mistakes are 'bad' and looked at how guessing and mistake-making can become the secret of learning success.
   - We looked at how questions and answers can guide learners towards a new understanding of their world. We identified different kinds of questions (factual, relational, explanatory, and evaluative) and realized that more complex and open-ended questions generated different kinds of learning. We also noted that questions tell us as much about what learners know as they do about what they don't know.
   - Finally, we explored the possibilities of using metaphors and analogies to imagine the unknown. In the process of doing that we discovered how learners could use the familiar to imagine the new.

4. Piaget offered a formal explanation of how we learn. He called it ***equilibration*** and it involves:
   - connecting or ***assimilating*** new information into what we already know;
   - feeling that what we have doesn't really fit, or answer, what we need to answer (this create a sense of ***disequilibrium*** which motivates us to search for new information);
   - filling in these missing gaps in our knowledge by identifying other facts that will help us interpret new information;
   - recognizing and accommodating novel and contradictory aspects of new knowledge that our previous understandings cannot account for.

> ***"The basic principle of active education methods … may be expressed as follows: to understand is to discover, or reconstruct by discovery, and such conditions must be complied with if in the future individuals are to be formed who are capable of production and creativity and not simply repetition."***

This quotation comes from J. Piaget, *To Understand is to Invent* (New York, Grossman, 1978), p. 20.

SECTION THREE

School learning

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Introduction 3.1

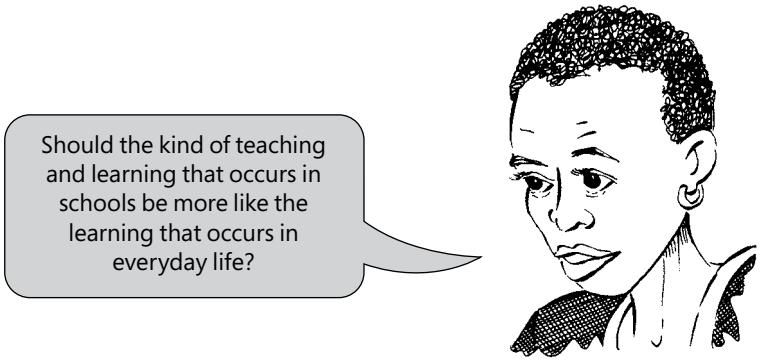
Week 7 begins.

What will you learn in this section?

In Section Two we examined three possible ways in which learners learn new things:

- First, we suggested that learning requires learners to take risks and make mistakes. We were challenged to rethink our assumption that mistakes are 'bad' and looked at how mistakes can become the secret of success.
- Second, we looked at how questions and answers can guide learners towards a new understanding of their world. We identified different kinds of questions (factual, relational, explanatory, and evaluative) and realized that more complex and open-ended questions generated different kinds of learning. We also noted that questions can tell us as much about what learners do know as they do about what they don't know.
- Finally, we explored the possibilities of learners using metaphors and analogies to imagine the unknown. In the process of doing that we discovered how learners could use the familiar to imagine the new.

In Section Three we will build on these ideas with special reference to schooling. In particular, we want to focus on the following question:



How will we answer this question? We will suggest that while we all learn from everyday life, the nature of this kind of learning is different in critical ways from school learning. For this reason, we disagree with those who suggest (through calls for relevance, or for learners to decide their own learning topics) that schools should become more like life, because we believe that this will weaken learning and leave South Africans without important cognitive skills.

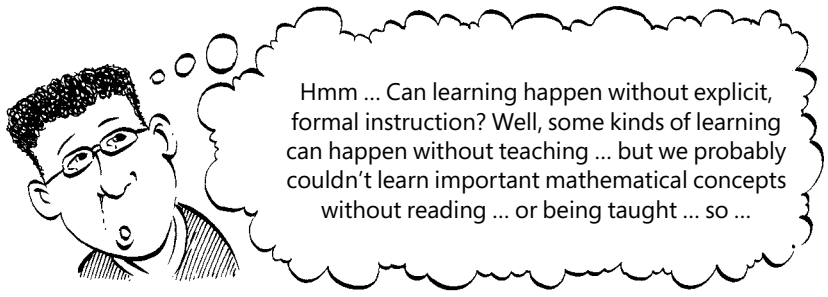
Schooling, through its focus on texts, language, and reading, allows us to develop a more ***generalized*** perception of the world. It enables us to move beyond the concrete, local, and practical limitations of our everyday experience and to develop our abilities to think abstractly. Teachers, we argue, play an essential role in this kind of learning process. They model ways of thinking, provoke and organize new ideas, and scaffold learners as they attempt to build mental bridges between what they know and the unknown.

More half-truths to get you thinking

Before we begin, here are some more half-truths to get you thinking. They also encapsulate ideas that this section will explore. Use them to guide your study.

Think of them as half-truths of the kind that Dwyer discusses in Reading 5. Use the same format as in Section Two and make notes about how each statement seems true to you and in what ways it seems inaccurate or false.

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
School learning is similar to other ways of learning.		
Learning cannot happen without explicit, formal instruction.		
School can change the way you think.		
Learning at school involves learning a new 'language' – new ways of talking and thinking about things.		
The teacher's role is to tell learners what they don't know.		
School learning is not useful or relevant to the problems of everyday life.		



Is school learning different from everyday learning?

3.2

Learning from everyday life

We all know that a teacher's work is to care about learning. Making learning happen is what teaching is all about.

Yet many teachers find it difficult to explain exactly ***how*** their classes achieve their learning outcomes or how students learn. When we asked a group of experienced teachers in the Northern Cape to name ways in which learning happens at school, they came up with a long list:

Take some time to reflect on the issue being raised here.

STOP. THINK.

The ideas listed on page 75 include a variety of formal and informal learning activities. Which of these activities would you do in everyday life *as well as at* school? Which activities would you do at school *only*? Write down a few examples of each.

Exploring, discovering, learning

Human beings are curious by nature. Just think of how small children begin to observe and explore the world. They are constantly active – looking, touching, and tasting. They also use language to help them understand what they are doing and how their activity relates to what is happening around them. They ask a thousand questions to make sense of their everyday experiences and to develop their personal knowledge of the world.

Our learners don't arrive in our classrooms with 'empty' heads. No matter how young they are, learners are people who already have a great deal of personal and experiential knowledge of the world. We all ***actively*** and ***continuously*** construct our understanding of the world through the guesses and mistakes we make, the questions we ask, and the possibilities we imagine.

> ***We all actively and continuously construct our understanding of the world through the guesses and mistakes we make, the questions we ask, and the possibilities we imagine.***

Our colleagues from the Northern Cape were aware of this continuity between everyday learning and school learning. Many of the learning activities that they listed, such as sharing ideas, playing games, and problem solving occur inside ***and*** outside schools. We all need everyday knowledge (or common sense) to guide us through life. We use it to make sense of our experiences and give meaning to the work we do. We never stop developing and extending it, regardless of whether we are eight or eighty-eight years old. In this sense, everyday learning is a lifelong process.

How is it possible for ordinary people to continue to learn new things about the world even when they are not under the watchful eye of a teacher in a classroom? Piaget's theory (see Reading 3 and pages 39–42 in this Learning Guide) provides us with an explanation: through ***action***.

We make sense of our environments through our ***actions*** (both physical actions like touching and kicking, and mental actions like comparing and categorizing) and the ***effects that these actions produce***. The Northern Cape teachers described learning as a range of ***activities*** or things that learners ***do***, rather than things that they come to know. However, their list raises critical questions. There are some systematic activities (like reading, writing, calculating, and summarizing) that children don't spontaneously develop without going to school. So, we need to consider:

- Is there a kind of learning that happens ***only*** through schooling and not in everyday life?
- If there is, what is the connection between schooling and everyday life?
- Is our common sense (or everyday knowledge) altered or changed by our learning at school?

Take some time to reflect on the issue being raised here.

STOP. THINK.

Discuss the following issues with fellow teachers and record your ideas in your workbook. Think about the way learning has happened in your own life:

- Can you remember any learning experiences that happened only at school and not in everyday life?
- Can you think of something that you learnt in the course of everyday life – something that you definitely did not learn at school?
- Can you think of some way in which something you learnt at school was useful to you, or of relevance to a problem you encountered, outside of the classroom?

School-like learning

Although we have been talking about school learning (as opposed to everyday learning), it is not only ***where*** it happens that makes school learning different from everyday learning. To illustrate this point we will read about a context where there were no school classrooms but where people nonetheless constructed opportunities for school-***like*** learning. The following extract from Nelson Mandela's autobiography, ***Long Walk to Freedom***, describes how Robben Island prisoners continued their education despite restrictions placed on their daily activities:

Robben Island 'University'

'In the struggle, Robben Island was known as "the University". This was not only because of what we learnt from books, or because prisoners studied English, Afrikaans, art, geography, and mathematics, or because so many of our men like Billy Nair, Ahmed Kathrada, Mike Dingake, and Eddie Daniels earned multiple degrees. Robben Island was known as "the University" because of what we learnt from each other. We became our own faculty, with our own professors, our own curriculum, our own courses. We made a distinction between academic studies, which were official, and political studies, which were not.

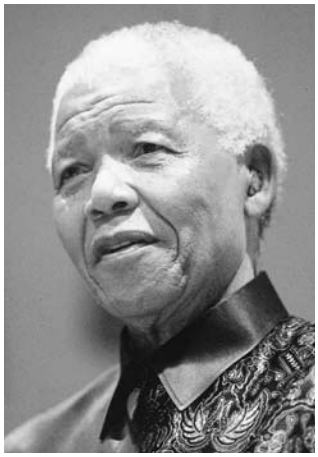
Our university grew up partly out of necessity. As young men came to the island, we realized that they knew very little about the history of the ANC. Walter, perhaps the greatest living historian of the ANC, began to tell them about the genesis of the organization and its early days. His teaching was wise and full of understanding. Gradually this informal history grew into a course of study, constructed by the High Organ, which became known as Syllabus A, involving two years of lectures on the ANC and the liberation struggle. Syllabus A also included a course taught by Kathy, A History of the Indian Struggle. *Another comrade added a history of the Coloured people. Mac, who had studied in the German Democratic Republic, taught a course on Marxism.*

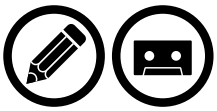
Teaching conditions were not ideal. Study groups would work together at the quarry and station themselves in a circle around the leader of the seminar. The style of teaching was Socratic in nature; ideas and theories were elucidated through the leaders asking and answering questions.

It was Walter's course that was at the heart of our education. Many of the young ANC members who came to the island had no idea that the organization had even been in existence in the 1920s and 1930s. Walter guided them from the founding of the ANC in 1912, through to the present day. For many of these young men, it was the only political education they had ever received.

As these courses became known in the general section, we began to get queries from our men on the other side. This started what became a kind of correspondence course with the prisoners in the general section. The teachers would smuggle lectures over to them and they would respond with questions and comments. This was beneficial for us as well as for them. These men had little formal education, but great knowledge of the hardships of the world. Their concerns tended to be practical rather than philosophical. If one of the lectures stated that the tenet of socialism is "From each according to his ability, to each according to his need", we might receive a question back that said, "Yes, but what does that mean in practice? If I have land and no money, and my friend has money but no land, which of us has the greater need?" Such questions were immensely valuable and forced us to think about our views.'

This excerpt is from N. Mandela, *Long Walk to Freedom* (London, Abacus, 1995), Chapter 76, pp. 556–7.





Spend about 30 minutes on this activity. Part 3 begins with teachers talking about how an environmental *experience* helped them understand environmental theory. Then Morobe explains how learning political *theory* helped him understand his experience as a South African political prisoner. Finally, four academics – Ian Moll, Sandy Lazarus, Maggie Tshule, and Gill Adler – talk about the differences and relationships between school-like (theoretical) learning and spontaneous, experiential learning.

ACTIVITY 18

1 Listen to *all* of Part 3 of your audiotape. Pay particular attention to the interview with Murphy Morobe as it adds further insight to the way in which Robben Island was like a 'university'.
2 Now look at the description on page 75 by Mandela again:
   a Underline all the words that lead you to think that 'the University' was concerned with school-like learning and that people like Walter Sisulu had a formal approach to teaching.
   b How was learning through 'the University' different from everyday learning?

What did we learn from this activity?

You will have noticed that we refer to 'school-like learning' in Activity 18. By implication, we are interested here in what the difference is between learning in everyday life and learning that takes place in formal learning contexts like schools, colleges, or universities. For convenience, from now on we will refer to this distinction as one between ***everyday learning*** and ***schooling*** (by which we mean a particular type of learning).

Included under this notion of schooling is the kind of learning you are engaged in as you work through this module. Regardless of whether or not you are being assisted by a teacher, or whether or not you are sitting in a classroom, the way in which you are consciously building up a systematic network of concepts about learning is a kind of schooling.

Likewise, the systematic learning and reflection on politics that went on in the underground of Robben Island prison was a type of schooling. It is very easy for us as educated adults to lose sight of how this kind of learning differs significantly from the largely unconscious learning of everyday life.

What is the nature of school learning?

When we looked at the list made by the Northern Cape teachers at the beginning of this section, we could identify certain learning activities that happen mostly in the process of schooling. Examples of these include memorizing facts, drawing, repeating, and summarizing information. For many learners in our country reading and writing are also learning experiences that are limited to the confines of the classroom. However, when we reflect on the way in which 'the University' on Robben Island was organized, we can identify a few more important features that make schooling different from everyday learning:

Schooling extends everyday experience

Schooling is not limited to our everyday experience. Rather, it extends it. In this sense it can take us beyond the 'prison walls' of our immediate situation. We are given an opportunity to interact with ***other people's knowledge*** about the world; we can share their experiences.

But this extended knowledge is also presented to us in an organized and systematic way. We often find it in books as written text. For example, under the influence of Walter Sisulu, the ***informal*** history of the ANC (probably local and individual stories that prisoners told each other) 'grew into a course of study … involving two years of lectures'. The information was ***structured*** into a ***formal syllabus.*** By doing this the prison 'university' made it possible to provide lectures that taught others a more general history that was no longer limited by the personal and local context in which parts of this history were first developed. It could be used, as Mandela says, as 'a kind of correspondence course' that could be taught to prisoners from the general section.

Although the extract doesn't provide details, we would assume that the perspective of the course did not contradict the political ideals of the ANC. Even so, by

combining their personal experiences with the more organized and systematized knowledge they found in books, learners were introduced to both:

- a ***wider world*** than their personal stories reflected;
- ***different perspectives*** on similar situations.

Formal study, in other words, provides us with the conceptual tools to both ***broaden*** and ***deepen*** our understandings.

The existence of written texts and knowledgeable teachers – two key characteristics of most school-like learning – means that ***direct experience*** is no longer the ***only*** way to learn. We can't ***all*** have access to ***all*** the experiences in the world. In fact, our own ***direct experience*** is very limited. Formal learning gives us ***indirect access*** to a much wider array of experiences. These are often organized into more formal knowledge.

Even so, maintaining a balance between formal and everyday knowledge is important. We use our everyday knowledge to help us make sense of any new ideas we learn. For example, Nelson Mandela describes how 'teachers would smuggle lectures over to them [i.e. to prisoners in the general section] and they would respond with questions and comments … These men had little formal education but a great knowledge of the hardships of the world. Their concerns tended to be practical rather than philosophical … such questions were immensely valuable and forced us to think hard about our views.'

> ***Formal study provides us with the conceptual tools to both broaden and deepen our understandings. It involves working with language in particular ways, and requires us to use concepts and generalizations that take us beyond our immediate experience.***

School-like knowledge is text-based

Because formal school knowledge is often based on many other people's ideas it tends, as we said earlier, to be written down. Consequently we engage in schooling through the medium of spoken or written language.

School learning activities often involve learning ***new words to fit new ideas***. Formal study also requires that we work with language in particular ways. The formal courses offered by the teachers of 'the University' helped other prisoners to understand the history of South Africa in systematic and theoretical ways. Knowing about the past suddenly involved more than talking about personal or community memories. It included theoretical ideas such as feudalism, capitalism, and socialism.

School-like knowledge allows us to generalize and think conceptually

This theoretical knowledge about society allowed prisoners to see how their everyday experience of being poor was part of a system designed to keep them poor. They were able to move from their known (their ***individual experience*** of poverty and oppression) to a new, generalized, and abstract knowledge of concepts like socialism or liberty, for instance. These concepts not only enabled them to see that their experiences were shared universally, but also allowed them to ***explain*** their experiences. In turn, their everyday experience and knowledge of poverty allowed them to come up with critical questions that deepened their understanding of the system.

We can see from the above discussion that theoretical knowledge requires learners to use ***concepts*** and ***generalizations*** that take them beyond their immediate experience. Teaching conceptually is a crucial part of schooling.

But what exactly is a concept? What is a generalization?

This is another reading task. Use the good reading tips you have learnt. As you read, think of how these ideas would work in your subject area. Spend at least an hour on this activity.

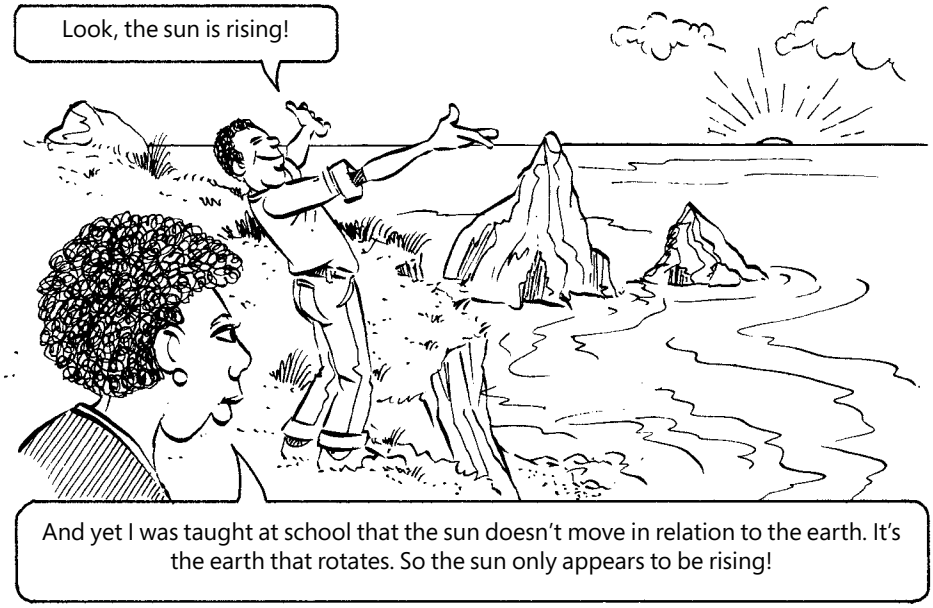
ACTIVITY 19

1 Turn to Reading 13, 'Teaching a concept-based course' by Stuart. Read through the introduction to get a sense of what the extract is about. Pay particular attention to words such as 'concepts' and 'generalizations'.
   a What do you expect to find out by reading this extract?

2 Now read the section called 'Concepts' and look at Figure 2. You might feel you need to read it two or three times before you have understood the section well.
   a What *kind* of knowledge can learners construct with the help of concepts and generalizations?
   b How is this knowledge different from knowledge that comes from everyday experience?
   c Figure 2 has arrows for teachers and learners that run in opposite directions. Can you explain why?

School-like knowledge is systematic

Sometimes our everyday experience of the world seems to contradict the theoretical knowledge we have of it. Why is this so? Here is one example:



Take some time to reflect on the issue being raised here.

STOP. THINK.

What does this cartoon show about the character of everyday learning? What does it show about the character of school learning? What would these two people need to know before they could begin to doubt that the sun rises? (Some ideas from Section Two could be useful here.)

The cartoon reminds us that our everyday experience of the world can be very different from our theoretical knowledge about it. When we look at the sun 'rising', it certainly ***appears*** to be moving upwards. When we think and talk about the sun in our everyday lives, we think about it moving across the sky, creating longer and longer shadows as the afternoon wears on, and giving us some relief from the heat when it finally moves behind a mountain in the evening. This kind of knowledge about the sun may be adequate for our everyday lives. After all, do we really need to know that it is actually the earth that is moving?

Scientists, however, who study weather patterns, or technicians who plan the fuel

consumption and flight paths of intercontinental jet airliners, can't rely on these everyday explanations about the sun. Imagine if they did! These kinds of people must have a ***systematic*** understanding of this phenomenon; it is crucial for them to understand that the ***earth rotates*** in relation to a ***stationary sun*** in order for them to be able to do their work properly. They can't acquire this knowledge from their everyday experience. In fact, as we have shown, everyday experience actually contradicts it! They (and we) acquire this kind of knowledge through schooling and tertiary education.

The fact that people like scientists, engineers, doctors and so on acquire systematic knowledge, does impact on our ability to live comfortable lives! Having a systematic understanding of the solar system also helps us in more trivial matters. What time will I have to wake up to watch live TV coverage of amaBokke-Bokke playing against New Zealand? Or how late will we have to stay awake at night to watch Bafana Bafana when they play in Mexico? Although we might do so unconsciously, we do draw on the systematic knowledge of the earth's rotation in a solar system in order to understand time zones. And we acquired this knowledge through schooling.

School knowledge is networked

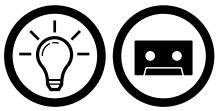
Did you notice in our previous discussion that we linked two phenomena that in everyday experience might seem like entirely different phenomena – the rising and setting of the sun, and the differences in times in different parts of the world? We can only link these when we understand that they both have to do with the way in which the ***solar system*** works. This ***concept*** cannot be seen or experienced (although manifestations of parts of it can, like the sun rising). Instead, it becomes a system of thought (a concept) through the combination of a number of smaller 'facts' (like the rising and setting sun) into an abstract network of ideas. Once this is done, and the concept is accepted, we can build new ideas off it.

> ***"Systematic thought, abstraction, and language are all vital to advanced learning."***

The idea of a network holds true at other levels too. Let us briefly return to the prisoners on Robben Island who challenged the ideas of their teachers with questions from their everyday experience. 'These men had little formal education but a great knowledge of the hardships of the world,' says Mandela. Although they were learning about abstract concepts such as capitalism, they managed to make meaningful links between these ***theoretical*** ideas and their daily lives. This relationship between theory and the everyday enabled them to change their thinking and become 'scholars' of history and economics. They were able to see beyond their experience and begin to recognize, describe, and explain features of their lives in the new ***language of theory***. In other words, the specific personal events of their own lives were linked to the general explanations of economics and history.

We have suggested that ***language*** is important in theoretical knowledge. We have also suggested that theoretical knowledge is ***abstract***. But what allows us all to ***share an understanding*** of abstract concepts like time zones or capitalism? Think of time zones. Although the idea is based on an understanding of how the solar system works, it is ultimately a set of ***humanly-constructed*** rules about how we should talk about time worldwide. In other words, our theoretical knowledge of the physical world allowed us to develop a system called international time zones.

We will return to the importance of systematic thought, abstraction, and language in school learning later in this module. For the moment, hold onto the fact that they are all vital to advanced learning, even if you don't fully understand their significance yet!



Take some time to reflect on the issue being raised here. Relisten to Part 3 of your audiotape. Concentrate on the discussion that follows the Morobe interview. Does it help you to rethink the half-truths?

STOP. LISTEN. THINK.

Go back to the notes you made in the thinking activity on page 80 about everyday and school learning. Do you still agree with what you have written? Do you want to make any changes? What new insights would you like to add?

How is school knowledge different from everyday knowledge?

It is important for teachers to understand the differences between everyday knowledge and school knowledge as these differences influence the learning performance of children at school. The following extract, taken from the 1999 President's Education Initiative in South Africa, will help you to understand this point:

'The fundamental distinction between the formal knowledge of schooling and everyday knowledge is well illustrated by the following piece of research undertaken by Bernstein (1996).

*Two groups of seven-year-old children from the same school, one from **middle-class** homes and the other of **working-class** origin, were given a series of cards showing pictures of the food on offer for school lunch. After making sure that the children recognized the pictures, they were asked to group those pictures which they thought belonged together. They could use all or only some of the cards, and they could use any reason for grouping which they saw fit.*

***Working-class children** predominantly used criteria drawn from their own life context as a principle for classification ("I have this for breakfast", "I cook this for my mum"). For these children the reason for grouping comes from their **personal experience** of food.*

***Middle-class children**, on the other hand, were far more likely to use as their principle for classification something the pictures have in common ("They come from the sea", "They are vegetables"). For these children the reason for grouping is more **abstract and learnt** (they understand that "vegetables" are a category of things, for instance).*

*The children were then asked to put the cards together in another way. This time a significant number of the **middle-class children switched their classificatory principle** to one based on local context and personal experience, while the **working-class children** merely **used another reason based on personal experience**.*

In short, middle-class children have access to two principles of classification:

- *one formal and specialized (school knowledge);*
- *the other personal and localized (everyday knowledge).*

In the school context, where the research was conducted, the first principle was preferred by middle-class children. Working-class children only had access to informal and non-specialized principles of classification, based on their personal experience.

The problem raised by this research is obvious: middle-class children, because of factors such as the kinds of conversations which occur in their homes and access to books, computers, travel, and other sources of information or experience, have ready entry to the principles which underlie school knowledge. Consequently education tends to reinforce codes, which these children bring to school, and it provides more opportunities to the middle classes for success.

*While unequal distribution of material resources and quality teachers make an enormous difference to student learning, the greatest obstacle to equity in any schooling system is the **differential access to formal knowledge** open to children of different social classes.'*

This extract is from N. Taylor and P. Vinjevold *Getting Learning Right* (Johannesburg, Joint Education Trust, 1999). This is the report of the President's Education Initiative.

ACTIVITY 20

Spend about 30 minutes on this activity. After reading, discuss the questions in the activity with fellow teacher-learners.

1 Read the extract on page 80 again.
2 When you have finished, consider the following questions:
   a Several factors that seem to help children to do well at school are mentioned. Can you list them?
   b Think of your own education (at school or university), or think of the school in which you teach. Does this excerpt reflect your experience at all? Can you think of examples of how, for instance, your (or another learner's) education was limited by not having access to a variety of 'codes' or 'principles' for organizing knowledge?

Should school learning be more like everyday learning?

The extract on page 80 provides a challenging description of the ***power*** of school knowledge. It also shows how the reliance on everyday experience can limit our learning. The children who ***only*** had access to classification principles based on personal experience were only able to complete the task in ***one way***. They had less choice and were less flexible in their thinking because they didn't have the means to move beyond their immediate experience. This influenced their performance at school. Although they managed to do the task presented to them, they did not excel in it.

The middle-class children were able to access classification principles based on their personal experience ***and*** other classification principles they had learnt through communicating their ideas in school-like ways. As a consequence, their thinking was more flexible (they were able to change the ways in which they organized information when requested to do so). They could move beyond their personal experience, and so they had much more choice.

The excerpt suggests that middle-class children enter schools with a wider variety of classificatory principles because of their home experiences. They have an intuitive understanding of the ground rules of school knowledge because they have done things like read storybooks, listened to radio conversations, and engaged in school-***like*** conversations with their parents. Instead of just talking about what is happening around them (which does happen in working-class families) they would also talk about ***ideas*** they had heard or read about. They had developed an understanding that words and ideas can take us ***beyond the things we see and do***. This made them flexible in their approach to their tasks and as a result they did better at school.

These ideas are controversial. Some people have argued that they suggest that working-class people are less intelligent than middle-class people. This isn't a correct interpretation. If you read the extract carefully, it says precisely the ***opposite***:

- It argues that working-class children, for many reasons ***other*** than a lack of natural intelligence, don't tend to learn school-like thinking at home. The reasons include the fact that many working-class parents were denied formal schooling themselves. Because of this, and a lack of money, they don't tend to buy books for home use. Many also don't have time to spend talking at length with their children because they work from 6 a.m. to 6 p.m.! This lack of talk also impacts negatively on school learning which is so language-based.
- Consequently, schools (especially those that teach formal, systematic ways of thinking rather than everyday knowledge) become ***doubly important*** for working-class children. If schools were to become more life-like, working-class children would lose out on the one place they have to learn formal ways of thinking. Middle-class children, on the other hand, would still learn to think in school-like ways at home.

Educational research that suggests that there should be a difference between everyday learning and schooling is controversial in another way too. It challenges an important, common-sense idea about teaching and learning, namely that schools must ***build on***, and be ***relevant to***, ***learner experience***. Some people argue

that we can ***only*** learn if we build on what we already know through experience. We have suggested that things aren't as simple as this and that learners must ***also*** be introduced to ***new*** and ***strange*** ideas and ways of thinking. Others have argued that school learning must offer a ***complete break*** with experience in order to be successful. What do you think? The following reading encourages you to explore this debate further.

You will need about an hour for this activity. Don't forget to use the good reading tips we have introduced you to.

ACTIVITY 21

1 Turn to Reading 16 'Guided adventures in learning' by Floden and Buchmann. Read the introduction and look at the subheadings to get a feel for the argument of the authors.

2 Carefully read the section called 'Why breaks with everyday experience are necessary for everyone'. Then answer the following questions:
- **a** Why are breaks with everyday experience necessary for everyone?
- **b** In what way is 'learning from experience' limited?
- **c** Can you think of an example from your own life where you experienced the limitations of everyday learning?

3 Now read the next section called 'Effecting breaks with everyday experience'.
- **a** How do the ideas in this section compare with our common-sense understanding that 'teachers must begin where learners are at'?

What did we think of these ideas?

Floden and Buchmann agree with Bernstein's observation that many children struggle with the abstract, theoretical nature of schooling. But, contrary to our expectations, they don't blame schooling for the problem. They don't say that because learners struggle with school knowledge it is therefore irrelevant to their lives. They also don't suggest that schools should be changed to be more 'relevant'.

Instead, they present a surprising argument ***in favour*** of the 'separateness' of the school. They argue that 'everyone lives in a particular restricted time and place, but [***because***] school and university are places apart, [learners are] ***emancipated*** from the limitations of [their] local circumstances.' In other words they suggest that learner freedom is ***only possible*** because formal learning (at schools and university) is different to, and separate from, everyday life!

Later on they suggest that 'to have equal opportunities, children must ***imagine*** themselves in futures not determined by their immediate environments and local beliefs'.

Did you notice that both in their concern with the power of *difference* and with the power of *imagination*, Floden and Buchmann map the path from the known to the unknown in ways that should be familiar to you from Section Two?

They also argue strongly that learners first have to develop new concepts ***before*** they integrate their everyday experience into their new generalized way of thinking about the world.

So, say Floden and Buchmann, teaching should ***begin*** with topics and ideas that aren't related to the learners' lives. Once learners understand new concepts, and once they can think '***within*** the abstract conceptual system', links to experience (everyday examples) can be made.

Take some time to reflect on the issue being raised here.

STOP. THINK.

These ideas may well sound strange given the kinds of ideas about learning that are dominant within OBE. But take them seriously. Think about them. Think about your own experiences of learning. Do these ideas not have some validity?

What are the ground rules of school learning?

3.3

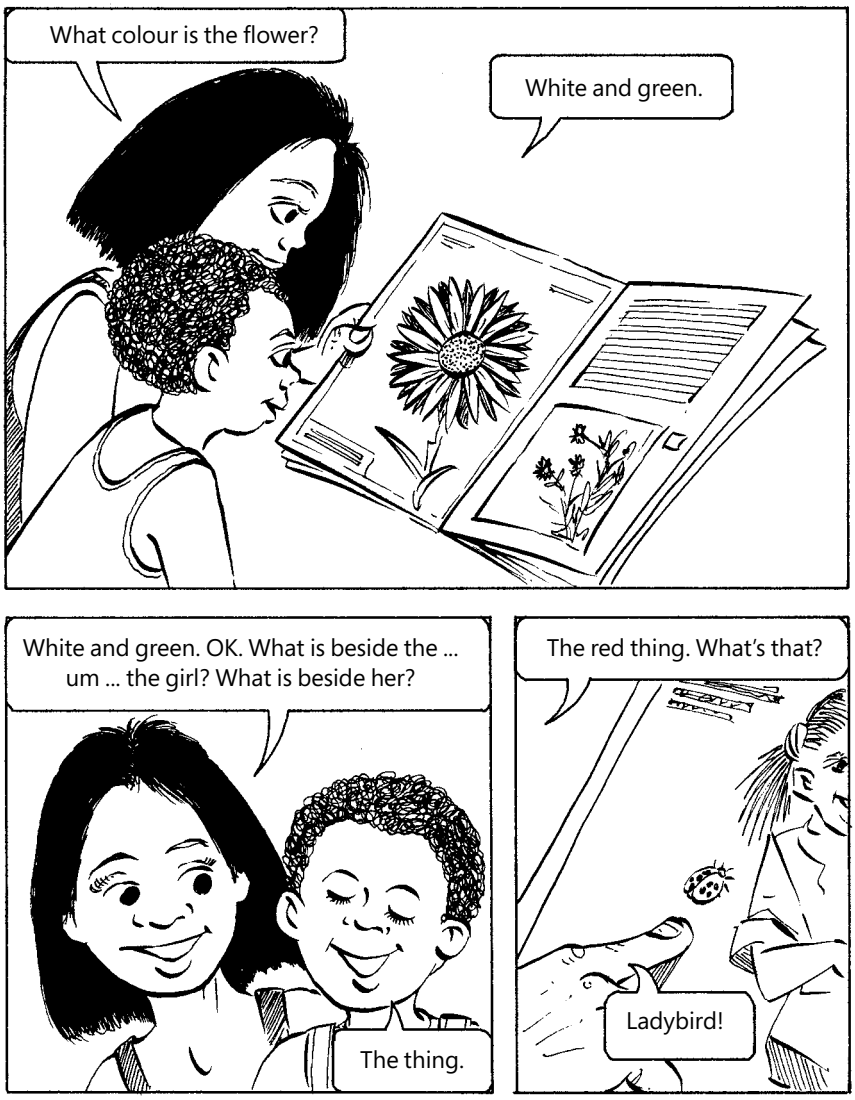
In the previous subsection we discovered that ***good*** schooling is quite distinct and distanced from our everyday experience. We noticed that it:

- is theoretical;
- is systematic;
- leads to a generalized perception of the world.

We will now investigate what these ideas mean more carefully so that we can discover the ***ground rules*** of schooling.

Developing a systematic use of language

Let us begin with the following dialogue between fifteen-year-old Rahilla, and her four-year-old sister, Asiya. The two sisters are looking at a picture book and talking about it.



This dialogue comes from K. Norman (ed.), *Thinking Voices: The Work of the National Oracy Project* (London, Hodder & Stoughton, 1992), p. 77.

Take some time to reflect on the issue being raised here.

STOP. THINK

Read the dialogue again. Pay particular attention to what *Rahilla* is saying. Look out for examples of 'school talk' Rahilla might be using. Write them down.

What did we learn?

This is what Rahilla said:

- 'What colour is the flower?'
- 'White and green. OK. What is beside the ... um ...the girl? What is beside her?'
- 'The red thing. What's that?'
- 'What colour is the ladybird?'
- 'Oh, look, there's a feather there!'

Do you notice that Rahilla talks like a teacher? She ***asks*** a lot of ***questions*** and through her questions she approaches the pictures in the book ***systematically***.

In her mind Rahilla uses the ***system*** of colours to decide what to talk about in each picture. She points out colours to her little sister ('the red thing') and often asks her about the colours of things ('What colour is the ladybird?'). This mental system can be called a ***frame of reference***.

By the final picture Asiya (the learner) has worked out that Rahilla (the teacher) is only interested in colours and so she happily volunteers information about the colour of the feather ('Yay! ... White!') before Rahilla even has a chance to ask. Asiya has understood the ***system*** behind her older sister's interactions and has ***accepted*** her ***frame of reference*** for the duration of the reading task.

Some of you might be thinking, 'That is bad … she is giving the teacher what she wants … she isn't really learning.' If Asiya ***never*** moved to a point where she ***understood*** the classification rules, this criticism would be valid. But difficult and abstract concepts are built on sets of rules and assumptions. In order to understand (rather than simply recite) them, learners need to be inducted into these rules. In the above excerpt Asiya learns a new frame of reference – a new set of rules for classifying. This allows her to understand the world in new ways.

You may remember that the extract about the difference between school and everyday knowledge (which you read earlier on page 82) suggested that children who grow up with books have entry into the principles that underlie school knowledge long before they even go to school. The above dialogue presents us with a good example of how this happens at home, in this case through the mediation of an older sister.

Here is another example of a teacher using language to encourage Lizeka, a Grade 1 learner, to think in a ***systematic*** way:

Teacher: *Look at the picture. How many rabbits are there?*

Lizeka: *My uncle has baby chickens. They are ... um ... sooo tiny.*

Teacher: *That's wonderful. Tell me, how many chicks are there at your uncle's place?*

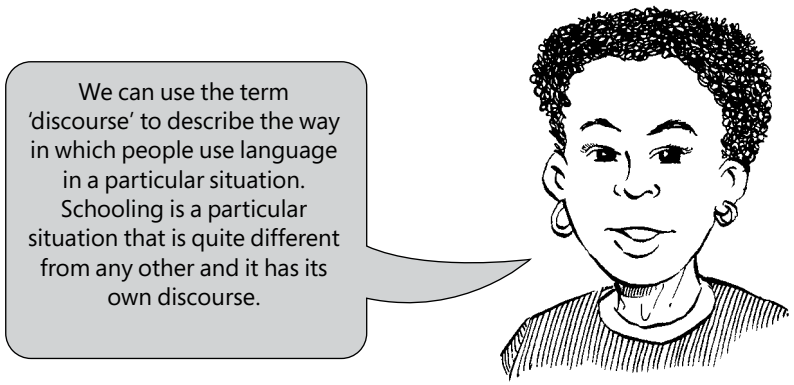
Notice how the teacher refuses to be side-tracked by Lizeka's story. But also notice that she doesn't ignore Lizeka's contribution either. Instead, she builds on what Lizeka brings to the class ***in a particular way***. There are three points of enormous teaching importance here:

- Don't get distracted by the everyday knowledge that learners bring to class.
- Don't ignore it either.
- Instead, use it to build more systematic ways of thinking and talking; use it to build school-like knowledge.

In the above example you can see how the teacher uses language as a tool to 'systematize' the little girl's response. Without ignoring Lizeka's immediate experience, the teacher shifts the attention of the class from 'chicks' back to '***numbers***' and in so doing, excludes any information that is not part of her lesson. Like Rahilla, this teacher uses a particular ***frame of reference*** while she is teaching. But unlike Rahilla, she has chosen a frame of reference that lies beyond the immediate lives of her learners. Even though Lizeka talks of her everyday experience, the teacher responds in a way that changes the meaning of Lizeka's words. The teacher ***generalizes*** Lizeka's experience (the real story of the little chicks) from an ***everyday*** situation and turns it into a number problem (school learning).

Learning an academic or school discourse

We have made frequent reference to the importance of language in school learning. The examples have shown that one of the most important kinds of formal learning is learning to use language in different and more systematic ways.



The two dialogues illustrate the ***discourse of schooling***. When Rahilla and Lizeka's teachers talk, they are not only communicating on the level of everyday experience. Like the teachers on Robben Island, they are using questions and answers to draw the learners into the ***world of organized knowledge***. Because it is ***generalized*** knowledge, it lies beyond the immediate reality of the learners.

Another way of saying this is that these teachers introduce their learners to the ***formal and literate discourse*** that operates at school. The most important thing to remember about the discourse of schooling is that it ***organizes knowledge in a theo-***

retical way and ***follows similar rules*** regardless of where you are in the world. As learners become familiar with this discourse, they not only develop a new kind of knowledge, but also begin to have more choice about the way in which they approach and solve problems, both at school and in everyday life.

Both Rahilla and the teacher demonstrate, through their teaching, that the discourse of schooling has certain rules. Here are three rules that seem to apply in their interactions with learners:

- The teacher's talk (or discourse) is usually based on a ***system of knowledge that lies beyond the everyday experiences*** of the learners.
- The learners are expected to ***become familiar with, and operate within, the frame of reference of the subject*** the teacher is trying to introduce.
- The learners are expected to ***extend their everyday understanding of the world*** and to make the discourse of schooling meaningful for themselves.

Learning to classify

Spend about 30 minutes on this activity. Do it on your own first, then share your ideas with other teacher-learners.

ACTIVITY 22

1 Look at the photograph below of a teacher in class. Pay particular attention to the words she has written on the board and how she has organized these words. (We have reprinted the words next to the photograph, so that they are easier to read.)

Electricity

Sources:
battery
dynamo
cell
accumulator

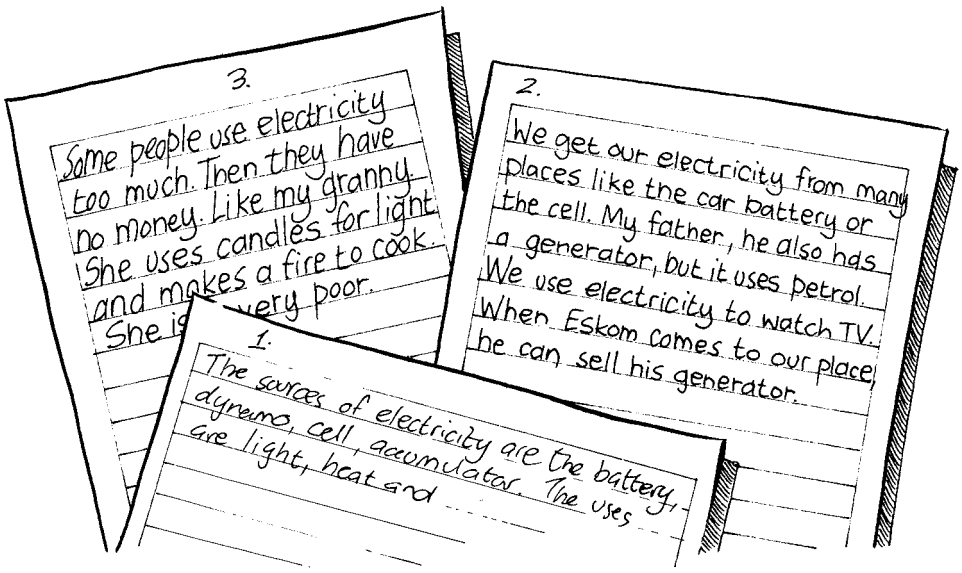
Uses:
light
heat
sound
movement
magnetism

A class in Nyanga near Cape Town learning about electricity.

2 Answer the following questions:
- **a** What do you notice about the way in which the teacher organizes information on the board?
- **b** Can you describe the system that the teacher uses to organize the ideas the learners come up with?
- **c** Whose ideas about electricity are important?
- **d** How do the three rules for school discourse apply in this situation?

What did we think?

Before we give you any feedback, we'll tell you what the learners, who had to write their own explanation of the sources and uses of electricity, came up with:



STOP. THINK.

Which of these three students do you think has best understood the lesson? How do you know?

Take some time to reflect on the issue being raised here.

OK. What did we think?

We think that the teacher wanted to encourage her learners to think about electricity in a systematic and generalized manner. To achieve this she chose 'sources' and 'uses' of electricity as headings on the board. These headings represent her classification system for the lesson.

Obviously the teacher is interested in the ideas of the students, but as they respond, she ***uses their ideas and classifies them*** under her own headings. You may be thinking, 'This teacher isn't respecting learner ideas by doing this. She is saying that her ideas about electricity are more important than the learners' ideas.'

We don't think that the teacher is disrespecting learner ideas. Instead, we think she is operating as a very good teacher. She uses learner ideas, but then 'models' to learners ways in which their ideas can be organized systematically. Her headings help learners to recognize and use a ***new system*** of thought.

This process, however, takes time. The written explanations of the learners show how strongly they rely on their immediate experience to make sense of the lesson. Like the learners in Bernstein's study (see page 80), these children don't all use ***abstract classification principles*** when they think about the uses and sources of electricity. However, the more successful learners do begin to add a new layer of understanding to their everyday knowledge of electricity and show some flexibility in their thought.

School discourse: formal, abstract, and regulated

Activity 22 once again shows us how ***formal, abstract,*** and ***regulated*** school discourse really is.

The teacher applies the first rule of school discourse (teacher's talk is based on a ***system of knowledge that lies beyond the everyday experiences*** of the learners) when she presents her two headings and organizes learner information into a system of thought that is outside of their immediate experience. (Remember also that the learners are not doing anything with electricity in class. They are only talking about it.)

In their homework, the learners are seen to apply the second rule (to ***become familiar with, and operate within, the frame of reference of the subject*** the teacher is trying to introduce). When they write about electricity they try to fit in with their teacher's frame of reference.

The picture doesn't really give us enough information to judge whether the learners are ***changing their everyday understanding*** of electricity. (The third rule of school discourse is that learners are expected to ***extend their everyday understanding of the world*** and to make the discourse of schooling meaningful for themselves.) The written answers, however, show that the level of understanding varies from student to student:

- Learner 1 has copied the teacher's notes, but has added no ideas of her own. So we are not sure if she has really understood what the lesson is about.
- Learner 2 seems to be thinking carefully about electricity because she can apply the idea of sources and uses of electricity to her own life. Although she seems to have understood the lesson, she still struggles to write about electricity in a systematic way.
- Learner 3 seems to be unsure of what the lesson is all about. He links ideas such as light and heat back to his immediate experience and does not shift to a more formal level at all. He turns his science answer into a story about his granny. As teachers, we can see how he will struggle at school because he has not yet understood the ground rules of school learning and begun to work with his ideas in a systematic way.

Take some time to reflect on the issue being raised here.

STOP. THINK.

Go back to your initial response to this activity on page 88. Were your ideas similar to our ideas? How did they differ? Why? Has your understanding changed now? Why?

How school learning develops thinking

To conclude this section on the ground rules of schooling, we would like to present you with four thought-provoking observations about the effects that schooling has on the development of our thinking.

Explicit, general rules are integral to the discourse of schooling

Explicitly-formulated, general rules help learners to look beyond ***specific*** problems and to search for the ***pattern or rules*** on the basis of which many other problems of the same kind can be solved.

By going to school, learners begin to see everyday situations as examples of general rules and their thinking becomes systematic.

Think back to Rahila's behaviour (pages 83–84). It is her school experience that makes her attend to the pictures in the storybook in the particular way that she does. Although she is surely aware that the book tells a story, she is also able to respond to the pictures in a more abstract way, thinking about the images in terms of the ***category*** of colour that distinguishes some objects from one another and forms a likeness between others. The way she involves her younger sister in such a

classification or categorization activity shows how her thinking has been shaped by the schooling experience.

Language is the main tool for teaching and learning

Language is the main tool for teaching and learning because it is through language that learning can happen ***outside everyday activities and without immediate problems that need to be solved.***

This means that learners begin to think about questions and problems as language-based, theoretical tasks that extend beyond the limitations of everyday life. In other words, they develop a theoretical discourse.

Once again the experience of the prisoners on Robben Island is a good illustration of this point. As they studied secretly at 'the University', they engaged mainly in a lot of talking and reading, and even some writing when they could copy and distribute texts. Yet because of the ***kind of discourse*** that was used – they organized individual experiences into a generalized history of South Africa, of apartheid, of colonialism etc. – they developed a deeper theoretical understanding that extended and changed their practical, activist knowledge.

By doing this they became more flexible thinkers and were able to read about other struggles for liberation and understand the commonalities between their own struggles and those in other countries.

Schools are organized to teach specific habits of learning

Schools are organized to teach specific habits of learning which affect the way learners use language or approach tasks. Over time, learners ***internalize these habits*** and begin to ***adjust the way in which they approach the world***. In doing this they begin to ***develop concepts*** that ***allow them to move freely between the discourse of everyday life and the discourse of schooling.***

If you think back to our observations on the work of Learner 2 (page 88) you will remember that she was the only one who showed signs of shifting between the discourse of everyday life and the discourse of schooling. Only when these shifts happen, can we begin to see evidence that a development in thinking has occurred.

Schools teach people to read and write

Schools teach people to read and write. ***This gives them access to systematic ideas and knowledge that go beyond their immediate experience of time and space.***
Schooling introduces learners to a literate discourse and leads them into unlimited new worlds that exist only through a system of concepts captured by language. Reading and writing also help learners to become more aware of their own thinking and force them to be disciplined and systematic in the way that they share their ideas.

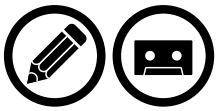
Think again of the Robben Island 'University'. While learners there learnt a lot from the experiences of fellow prisoners, they still felt the need to copy out 'Das Kapital' so that it could be read by a number of learners. Like these learners, we read in order to extend our world by sharing in the experiences of other people. Reading and writing also teach us the organizing concepts that enable us to see the similarities between our situation and other situations.

Introducing Vygotsky

Many of these ideas about the importance of school learning stem from the work of the Russian psychologist Vygotsky. He was particularly interested in the ***developmental*** significance of ***schooling*** and argued strongly that there are important differences between ***everyday learning*** and ***learning in school contexts.*** Here is a summary of his ideas:

We will learn more about Vygotsky's important ideas later (see pages 93–94 for further discussion of his work). This table is constructed from ideas in L. Vygotsky, *Thought and Language* (Cambridge, MIT Press, 1962), Chapter 6, and L. Vygotsky, 'Thinking and speech' in R. W. Rieber and A. S. Carton (eds.), *The Collected Works of L. S. Vygotsky, Volume 1: Problems of General Psychology* (New York, Plenum Press, 1987).

	Everyday knowledge and concepts	**School knowledge and concepts**
***Where* do we learn them?**	In the course of everyday activities.	In the context of schools and other formal learning activities.
***How* do we learn them?**	Spontaneously, in action.	Via instruction, in lessons.
***Why* do we learn them?**	Simply because we do the activity – the learner and others are engaged together in an everyday task.	Because we want to develop knowledge and thinking – a teacher deliberately develops the learner's knowledge.
What is the *nature* of the learning?	Unsystematic: we learn by trial and error in context.	Systematic: we learn by drawing attention to salient features of a system of knowledge. (We may also use mistakes, but will do so deliberately and consciously.)
How *aware* are we of learning?	We aren't conscious of our learning. We can do it, but cannot say how.	We are conscious of our learning. We attend, can do things, and can explain why and how we do things.



Spend about 45 minutes on this activity.

ACTIVITY 23

1 Go back to your responses to the thinking activities on pages 74, 78, and 80, and to Activities 18–22. Then take another look at the table above before you answer the following three questions:
   a How has schooling changed the way in which you think and learn?
   b What happened to your everyday knowledge as you progressed through school?
   c How has being able to read and write changed the way you learn?

2 Now listen to the interview with Murphy Morobe (Part 3 of the audio-tape) again and think about the way in which formal learning influenced the thinking of political prisoners on Robben Island.
   a What difference has schooling made in the lives of these men?

What did we think?

Although each person's experience will in some ways be unique, it is possible to make a few general observations about the relationship between everyday knowledge and school learning.

When asked to comment on their learning, many people will only talk about their *formal education*. In their minds, everyday learning does not really count as real learning and so they automatically ***separate*** everyday and school knowledge completely. This complete separation often devalues everyday learning, or it renders schooling meaningless. As we have seen in Section Two, we use the ***known*** to imagine and construct the ***unknown***. Our everyday knowledge is part of the known that we ***must*** draw on when we learn at school.

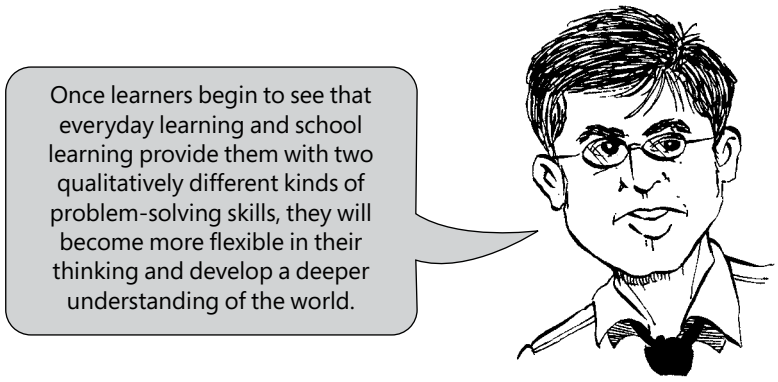
However, in order to be successful at schooling, we need to ***move beyond the known*** and enter the unknown world of systematized thought. We can't do this unless we recognize the ways in which school learning is ***different*** from everyday learning.

As Floden and Buchmann argued, it is often easier to understand these differ-

ences when teachers help learners to make a ***complete break*** with everyday experience. Once learners have developed a new 'school-like' way of thinking, they can go back to their everyday experience and integrate it into the newly-acquired pattern of thought.

This going back from school knowledge to everyday knowledge is a very important step in learning. For example, the two people looking at the rising sun in the cartoon on page 78 make the link between school knowledge and everyday knowledge with the comment that the sun 'only ***appears*** to be rising'. If they had failed to understand the relationship between the two ideas ('the sun does not move in relation to the earth' ***and*** 'the sun is rising'), then their everyday knowledge would have seemed inadequate and their school learning meaningless.

The real challenge for teachers is to enable learners to make a break with everyday experience ***in order to recognize*** the specific demands of school knowledge. But that is not enough. Teachers then have to encourage learners to ***move beyond the separateness of everyday contexts and schooling*** (which the teachers have themselves created) and ***help them to reintegrate the two ways of thinking***.



3.4 How does school learning happen?

Week 9 begins.

Learners come to school and bring with them valuable experiences and insights that come from their everyday experience of the world.

The learners in the photograph on page 86 already have an everyday understanding of electricity, even if they have not studied it in a systematic way before. Many of them are thinking about electricity in a ***practical*** way while they are trying to respond to the teacher who is thinking about electricity in a much more ***theoretical*** fashion. Unless the teacher is able to bridge the gap and link the two different ways of thinking and talking about electricity, the learners will experience many misunderstandings and frustrations in class.

In other words, if the teacher would like the learners to participate fully in class, she must lead them from the known to the unknown in a way that helps them to shift from their everyday discourse to a scientific discourse about electricity.

How can teachers encourage this change in thinking to happen?

Turning experience into thought

Spend at least an hour on this activity. Read carefully and consciously link these ideas back to what you have already learnt and to your own experiences of teaching and learning. Once you have done your own thinking, you may want to share your ideas with other learners.

ACTIVITY 24

1 Turn to Reading 6 'How children learn: implications for practice' by Bennett and Dunne. The introductory section of the article will give you a good overview of what the authors are planning to say about how children learn. The last paragraph of each section will also give you a good summary of the argument up to that point.

2 Read the first section under the subheading 'How children learn'. As you read the extract, write down a few notes to help you answer these three questions:

- **a** How do Bennett and Dunne define learning?
- **b** How do they explain the process that makes children change their thinking?
- **c** How do they see the role of language in learning?

What can we learn from Bennett and Dunne?

Did you notice that Bennett and Dunne describe learning in a way that builds on Piaget's theory of equilibration? (If not, stop and think again.)

They suggest that children come to school with existing knowledge that is organized into cognitive ***schemata*** (ways of knowing).

If the children learn something new, they have to ***reorganize*** or ***reconstruct*** what they know.

- Sometimes they simply add more information to what they know and ***extend*** their schemata.
- At other times they begin to understand things more deeply and realize that things are more complex than they thought. In this case they ***elaborate*** what they already know.
- If the learning process forces children to change the way they think, they can be said to ***modify*** their cognitive schemata.

STOP. THINK.

How would Piaget describe the process outlined at the bottom of page 94? What language would he use?

Take some time to reflect on the issue being raised here.

Like Piaget, Bennett and Dunne believe that children cannot learn without being ***active.*** They have to make their own links between what they know and what the teacher is telling them. By making these links, they are constructing new meaning. As we have seen, this view of learning is called ***constructivist*** because learners are not receiving knowledge from the teacher. Instead learners are always actively making links within their networks of knowledge and using these links to construct their own understanding of the subject they are learning.

However, ***unlike*** Piaget, the authors of this article stress the importance of children learning ***together*** and ***sharing meaning with each other.*** They believe that ***language*** is an important tool for developing new ways of thinking and it is most powerfully used in a setting 'where social interaction, particularly between a learner and more knowledgeable others, is encouraged'. They suggest that 'through speech to themselves (inner speech) and others, children begin to organize their experiences into thought'.

Here Bennett and Dunne are drawing on the work of another great cognitive development psychologist of the twentieth century, Vygotsky, whose ideas on the difference between everyday and systematized concepts we encountered earlier in this section.

Vygotsky's theory of the Zone of Proximal Development (ZPD)

As we have already seen, Vygotsky was particularly interested in the ***developmental*** significance of schooling. He argued that the ***development of concepts*** in school contains the key to the whole history of a child's mental development.

The Russian psychologist, Lev Vygotsky (1896–1934), developed a theory of the socio-historical construction of knowledge and cognitive processes. As in the case of Piaget, his is one of the most important psychological theories of the twentieth century.

He contributed significantly to our understanding of the teacher-learner relationship in learning, and the kinds of action the teacher should take in order for new learning to occur. We can all remember teachers who made a particularly important contribution to our own learning and development, and Vygotsky's theory provides us with a way of understanding exactly how and why teaching is so important for learning.

Vygotsky introduced us to the notion of teaching as ***mediation.*** A teacher (and this teacher could be a schoolteacher, an adult caregiver, or a more experienced colleague or peer) is seen to interpret and pass on to the learner the knowledge that a community has built up over time. This passing on of the knowledge built up by the community is called mediation.

Vygotsky put forward the notion of the ***zone of proximal development*** to model how it is that teachers ***mediate new understandings***. For him, there are two levels of development that exist simultaneously in a developing child:

- the ***actual*** level of development, which is manifest in what the child can do ***without help***;

- the ***potential*** level of development, which is manifest in the child's abilities ***with optimal guidance from a teacher***.

The gap between these two levels of development is the ***zone of proximal development,*** or the learner's potential for learning or developing.

Vygotsky summarizes the importance of the teacher-learner relationship in developing a learner's understanding in the following way:

> *'The essential difference in the case of the child [when compared with the way an animal learns] is that he can **imitate** a number of actions which go beyond the boundaries of his own potential […] . With the help of imitation in collective activity, under adult guidance, the child does much more than he can do with understanding, independently.*
>
> *The divergence between the level of performing tasks which are accessible under guidance **with adult help**, and the level of performing tasks which are accessible to **independent activity**, defines the zone of the child's proximal development. Here is an example:*
>
> > *We have before us two children with a mental age of seven. One [child], with a little help, can do tests that nine-year-olds [normally do] but the other can only do tests seven-and-a-half-year-olds do.*
>
> *Is the mental development of these two children equivalent? Their **independent** activity is equivalent but from the point of view of **future potentiality for development** the children differ radically. That which a child is in a position to **do with adult help** we call the zone of his proximal development.*
>
> *This … method allows us to measure not only the process of development up to the present (the stage already accomplished, the processes of maturation that have taken place), but also those processes which are in the course of becoming established, which are now only maturing, developing.*
>
> *What the child can do today with adult help he will be able to do independently tomorrow. The zone of proximal development allows us, therefore, to determine the child's next steps, the dynamics of his development, to consider not only what development has been brought about but what will come about in the process of maturation.'*

This quotation is from L. Vygotsky, 'Learning and mental development at school age' in A. N. Leontiev and A. R. Luria (eds.), *Selected Psychological Works* (Moscow, Progress, 1955), pp. 446–447.

Mediating learning

Bennett and Dunne, and Vygotsky, teach us two important things about teaching:

- First, they show that children construct their own learning but do so best when teachers put in place certain conditions. One of the most important conditions is to involve learners in some kind of action, in particular a mental action.
- Second, another important condition for constructing learning is the mediating role played by a teacher. In particular, these experts show how important the discourse of 'knowledgeable others' is to draw the learner beyond the known into the unknown.

For example, all the 'paths into the unknown' that we suggested in Section Two are approaches to learning which use language. By encouraging guessing and reflection on mistakes, questioning and answering, and the use of metaphors and analogies, we engage learners in a discourse about the unknown. As learners ***participate*** in the discourse, they begin to follow its rules and use these rules to organize their own thought.

Let us investigate what these principles mean in the context of your study of this module.

ACTIVITY 25

Spend about 40 minutes on this activity.

1 You are a learner in this course. You are learning about learning. When you started reading this section, you did not come to it with an empty head. All your previous knowledge about learning (whether based on schooling or everyday experience) helped you to make sense of this section and to follow our argument so far.
   a Are any of the ideas we have discussed similar to what you already knew about learning before you began this course? (You may want to go back to your early notes on activities to remind yourself of your earlier thinking.)
   b Identify new conceptual terms you have learnt that enable you to describe and explain these ideas in formal academic discourse.
   c In what ways does the new language change your understanding?

What has our approach been to teaching and learning?

Each student's learning experience of this course will be different, not least because each student enters the learning process with different prior knowledge and experience and will therefore find different aspects of the course more or less difficult, more or less interesting, and more or less familiar or new.

To assist you in your reflection on your own learning, we will reveal ***our*** teaching intentions for some of the activities that you have done.

When we designed Activity 22 (page 86) the photograph was carefully selected to illustrate an everyday experience of teaching and learning. Like Rahilla did in the dialogue on pages 83–84, we followed a ***systematic and questioning*** approach to the task. We asked questions to focus your attention on aspects of the photograph that we believed would extend your everyday knowledge of learning and lead you to think about the way school discourse works in a classroom setting. That is why all our questions focused your attention on the ***classification exercise*** in the picture.

After each activity we provide comment on the activity. This is, in our minds, another opportunity for learning. By commenting on the photograph and student tasks, for instance, we tried to ***elaborate*** and extend your understanding. Our aim was to encourage you to think about school learning as characterized by a particular kind of discourse. While our comments cannot substitute for your own thinking and writing in response to the tasks set, they should help you to reflect on your response and guide you into another cycle of thinking.

Of course, some of you may have skipped the activities and gone directly to our comment. This is your choice but it is also likely that you will not develop your ***understanding*** of concepts by doing this. Remember the importance of action? The activities are this mental ***act***. Our comments that follow each activity attempt to assist you in ***accommodating*** and ***assimilating*** the new ideas evoked by the activity. This is also why we often ask you to go back and rethink or reassess previous answers.

Like the teachers from the Northern Cape, you will have had many everyday experiences and many common-sense ideas about how learning happens at school. We chose ***not*** to build on these ideas at all. Following Floden and Buchmann's suggestion, we began our discussion about how school learning happens with a ***complete break*** from everyday experience. We introduced you to Bennett and Dunne's discussion of learning first and then encouraged you to use the general conceptual framework of their article to reflect on your own experience.

Before we move on to the next subsection on teaching, we would like to give you an opportunity to reflect on some more powerful, common-sense ideas about school learning that you will meet in your practice.

ACTIVITY 26

Spend about an hour on this activity. Think deeply. Don't allow superficial feelings to get in the way of your thinking.

1 Read the six statements about learning in the first column of the table below. These are the half-truth statements which Dwyer investigates in his article in Reading 5. Note that we have expressed each one as a statement about school learning.

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
Learning in school is the act of acquiring and retaining information.		
Learning in school is an unnatural activity.		
Learning in school is tied to instruction.		
Learning in school is the same for everyone.		
Schoolteachers are the experts.		
Learning in school is best undertaken in a structured, orderly manner.		

2 In the light of what you have discovered about the systematized learning of the school context in the section so far, would you still agree that each statement contains a half-truth? In each case, explain what is true and what is inaccurate or false

3 Look at your answers in the second column ('What is true about the statement?'). What kind of teaching strategies are suggested by these 'truths'?

4 How do you think the writers of this module would respond to these statements about school learning? Find evidence in the module to support your answer.

What is the role of the teacher in school learning?

3.5

What do we know about learning?

Week 10 begins.

Firstly, we know and can see why everyday knowledge is important for school learning. If learners construct new knowledge by extending, elaborating, and modifying their existing cognitive schemata, then the everyday learning of children is the *foundation* on which all other learning is built. Because everyday learning happens every single day of our lives, we cannot think of it as something that ends when school begins.

However, we understand that everyday learning and school learning are two different ways of learning that involve learners in different kinds of discourse. If our aim is to enable children to live creative and full lives and to go on to be successful adults in the workplace, we need to find ways in which to encourage learners to:

- develop their competence in both kinds of thinking;
- create fruitful links between school and the everyday world.

Secondly, we now know that language is extremely important in learning. We also learnt that different contexts (for instance, school as opposed to everyday discussions about soccer) and different subjects (history as opposed to science or maths) have their own discourses with their own specific rules. It is therefore crucial that we make learners aware of the ground rules of classroom (or school) discourse, as this creates the framework for success at school.

Are teachers still important?

If learning is about learners actively constructing their own meaning, what is the role of the teacher? Can't learners learn by themselves? In the following activity we will try to reflect more critically on the role of the teacher during a learning activity.

ACTIVITY 27

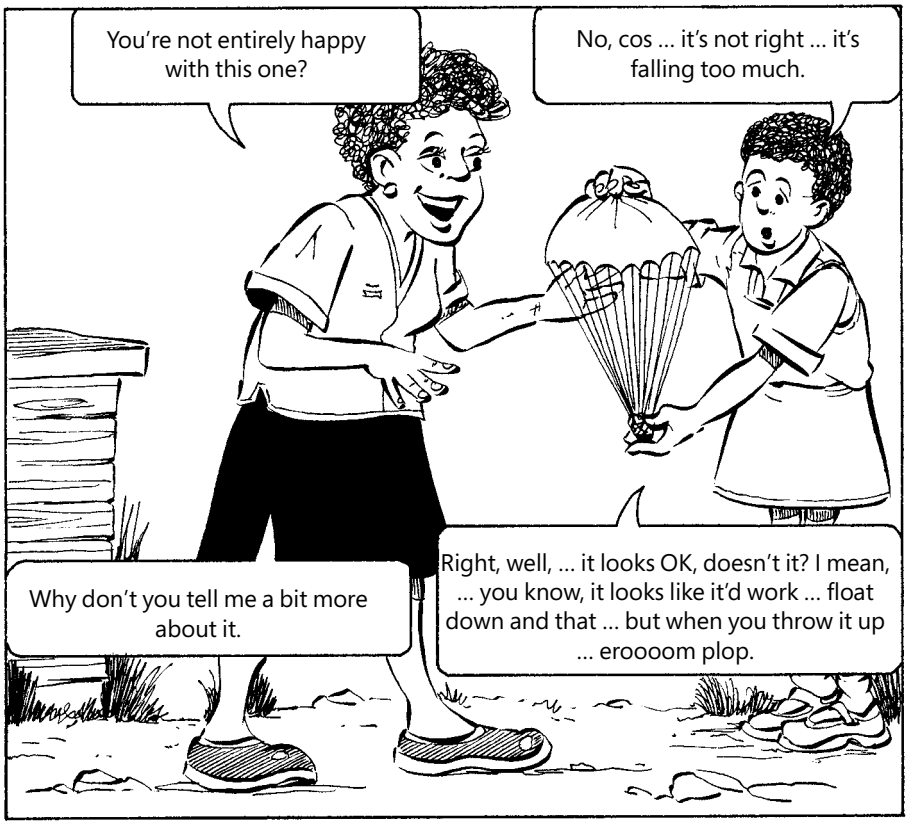
Spend at least 30 minutes on this activity.

1 Read the exchange between Raina and her teacher on page 100. The discussion takes place in a primary school class, where the learners have been building little models to show how plants disperse seeds. Raina has made a model parachute using paper, string, and a little stone to show how seeds get blown away by the wind and glide to the ground as if they are tiny parachutes. Unfortunately her model does not work very well. The discussion with the teacher begins after she has tried several times to make her model parachute glide.

2 As you read the words of the teacher and Raina, think about how you will answer the following questions:
   a What do you notice about the way the teacher talks?
   b How would you describe the role of the teacher in this learning situation?

Teacher: How's the experiment going then?

Raina: Well ... it's OK, but, well, ... I can't work out why this one isn't working very well.



Teacher: Shall we try it ... oh yes, ... plop ... I see what you mean.

Raina: Something needs changing.

Teacher: Yes, you're right ... have you had any thoughts?

Raina: I thought maybe ... to change the stone ... use a bit smaller one.

Teacher: That is a good idea, yes ... to lighten the load a bit.

Raina: Yeah, lighten the load, that's first ... mmm ... and then if that doesn't do it ... doesn't work ...

Teacher: We'd need to make changes somewhere else perhaps.

Raina: Well, all these ... I might have too many strings ... you know ... if I had a few less strings.

Teacher: To make it lighter, yes ...

Raina: And, yeah, and cos they're pulling it in all too tight ... too much.

Teacher: Oh, I see ... it also needs to catch enough air, doesn't it, to stop it ... plopping?

Raina: Yeah, to stop it doing a plop dive ... that's the main thing that is ... catching ... spreading out flat to catch the air ... I think that's the main problem, the strings are pulling the paper down too much ... like too tight.

Teacher: I'm wondering what we can do about it.

Raina: Change the stone for a littler one ... take some strings off, and then shall I test it?

Teacher: Yes, give me a shout. I'll come and watch.

This dialogue is from K. Norman, (ed.), *Thinking Voices: The Work of the National Oracy Project* (London, Hodder & Stoughton, 1992), p. 177. Note: the text has been adapted slightly.

The importance of teacher talk

Did you notice that the teacher doesn't ***tell*** Raina what to do? All the questions or comments have one common purpose: to help Raina clarify her own understanding of what is happening with her parachute. Remarks like 'Tell me about it' or 'Have you had any thoughts?' encourage Raina to ***identify the problem*** and to ***offer a solution*** herself. In this way the teacher allows Raina the space and the time to construct her own understanding of the experiment.

Although the teacher doesn't tell her what to do, she is fully involved in ***guiding Raina's thinking*** towards a solution. She mediates actively. We can recognize the frame of reference of the teacher's talk (or discourse) when she says, 'That is a good idea, yes … to lighten the load a bit'. She is thinking about ***aerodynamic laws*** when she points out that Raina is right to lighten the load, and that the paper needs to catch more air.

So, although the teacher does not tell Raina what to think, the ***interaction*** between them is definitely influencing the direction Raina's thoughts take. The remarks about lightening the load and later, about catching enough air also demonstrate how the teacher ***shifts the discourse*** to a more formal level. The teacher stimulates Raina's thinking process so that she ***herself*** can make sense of the way in which parachutes work.

Lastly, it is useful to note that the teacher doesn't say anything negative about the parachute that fails to work. Raina isn't blamed for doing something wrong. The teacher is encouraging and interested and this gives Raina the feeling that her teacher believes she can succeed and is really interested in her work. Her teacher's interest and support make it easy for Raina to make mistakes, and to try again.

> ***"A teacher's active interest and support can make it easy for learners to make mistakes and try again."***

STOP. THINK.

Page back to the explanation of Vygotsky's zone of proximal development (pages 93–94). Does it help us understand what this teacher is doing with Raina? Does this example help you understand Vygotsky's ideas about learning?

Take some time to reflect on the issue being raised here.

The dialogue on page 98 demonstrates the essential role teachers play in the learning process. They make deliberate and powerful interventions in the learning of other people. These interventions affect learners in at least three ways:

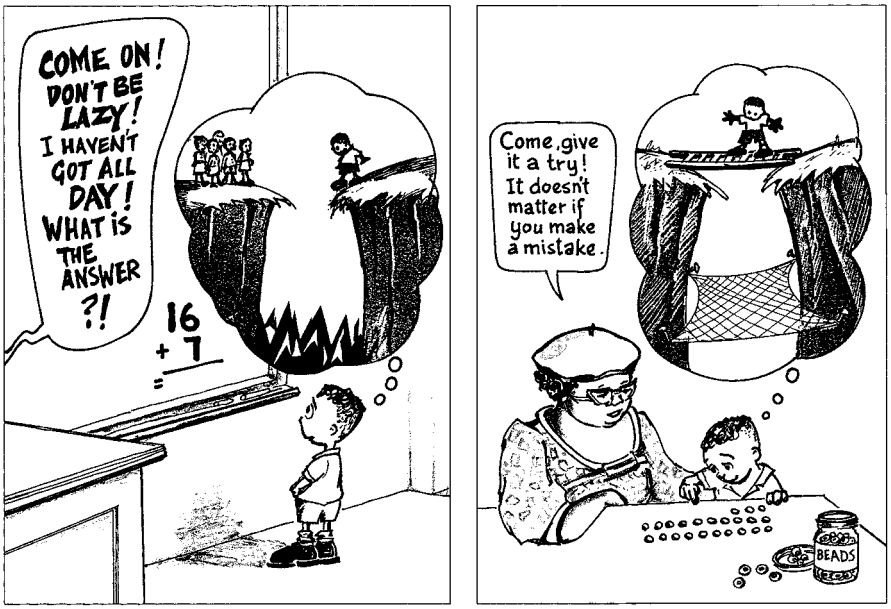
- Teachers not only influence the content of what is being learnt, but their discourse affects the way in which learners think about the content and the task. Teachers can influence the content, direction, and form of thought of their learners.
- The way in which teachers design learning tasks has an influence on the time and space learners have to construct their own understanding of the work.
- The way in which teachers relate to learners during the learning activity influences how learners feel about themselves.

Spend about 20 minutes on this activity. Do it with other teacher-learners. This cartoon is from G. Winkler, *All Children Can Learn* (Cape Town, Francolin Publishers, 1999), p. 13.

The importance of scaffolding

ACTIVITY 28

1 Look at the two drawings below.



2 Think about the influence of the teacher on each learning situation. Then write down your responses to the following questions:
- **a** Which drawing shows the better learning environment? Why?
- **b** How does the design of each task influence the experience of the learner?
- **c** How does the relationship between the teacher and the learner influence the feelings of the learner about his chances of success?

What did we think?

The cartoon illustrates very clearly that all learning is about ***bridging gaps***. When it comes to school learning, teachers not only set up these gaps for the learners, but they also ***structure the learning task*** and ***choose the level of support*** the learners will receive.

Some educators use the term ***scaffolding*** to describe the process through which a teacher can structure and support learning. The concept of scaffolding learning was put forward by Bruner and his colleagues and is an ***interpretation*** of Vygotsky's ***zone of proximal development.*** The following reading will explain the concept of scaffolding in more detail.

Spend at least an hour on this reading. Again, think of how these new ideas relate to other ideas you have learnt (like the ZPD) and to your own experiences of learning.

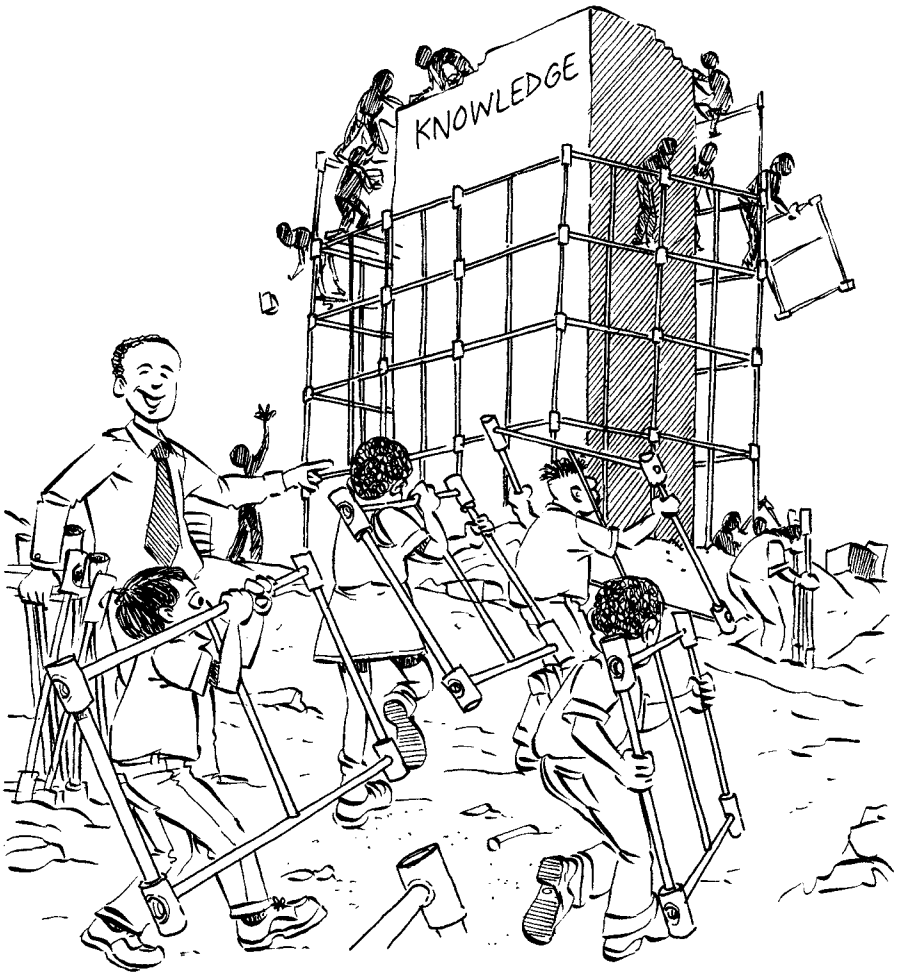
ACTIVITY 29

1 Turn to Reading 7 '"Scaffolding" learning in the classroom' by Maybin *et al.* Note that:
- The first part of the reading explains the concept of scaffolding in a theoretical and generalized way.
- In the middle part, the authors try to show what this concept means in a teaching context and provide classroom scenarios to illustrate their point.
- Finally, in their conclusion, they list the factors that support the scaffolding process.

2 As you work through the article, take note of any information or ideas that will help you to answer the following question: 'Scaffolding is clearly a form of help, but what kind of help is it?'
3 Write about a page, explaining the kind of help scaffolding provides for learners. (It may help you to note that scaffolding is a metaphor. Think about the ways in which this kind of teaching activity is similar to the scaffolds that builders erect on building sites.)

What did we learn about scaffolding?

We know that teachers help learners all the time, but not every kind of help is a scaffold for learning. Scaffolding refers to the help teachers give learners that enables them to ***extend their knowledge*** and to ***try something they would otherwise not manage on their own.***



Learners must build their own tower of knowledge, but if the teacher does not provide the scaffold, they cannot extend their knowledge beyond what they already know.

> ***All learning is about bridging gaps. Scaffolding by teachers enables learners to extend their knowledge and try something that they would otherwise not manage on their own.***

In other words, scaffolding is concerned with qualitative leaps in the ***performance*** of learners.

In the maths lesson shown in the illustration on page 100, both the teacher's ***encouragement*** and the ***counters*** are scaffolds because they help the boy to complete a sum he couldn't manage on his own.

In the discussion with Raina (page 98), not everything the teacher says is a scaffold. Only her response, 'That is a good idea, yes ... to lighten the load a bit ... Oh, I see ... it also needs to catch enough air, doesn't it, to stop it ... plopping?', provides a link

between Raina's experiment and the aerodynamic laws that will help her to know how to improve her parachute.

Scaffolding is particularly important when teachers introduce learners to new ideas or new ways of solving problems. The way teachers talk (their discourse), the kinds of conversations they encourage between learners (learner discourse), and the way school tasks are designed, are powerful opportunities for scaffolding.

In addition, good scaffolding requires a particular kind of relationship between teachers and learners, and adequate time and space for completing learning tasks. The next activity will explore how we can implement these in practice.

Spend at least 40 minutes on this task. The reading explains the implications a contsructivist view of learning holds for teaching. Think carefully about what this means for your teaching! Maybe you'd like to talk to other teachers about these ideas?

ACTIVITY 30

1 Turn to Reading 6 and take another look at 'How children learn: implications for practice' by Bennett and Dunne.

2 Pay particular attention to the second part of the reading entitled 'Implications for practice'. Here the authors make several suggestions about the ways in which teachers can scaffold learning.

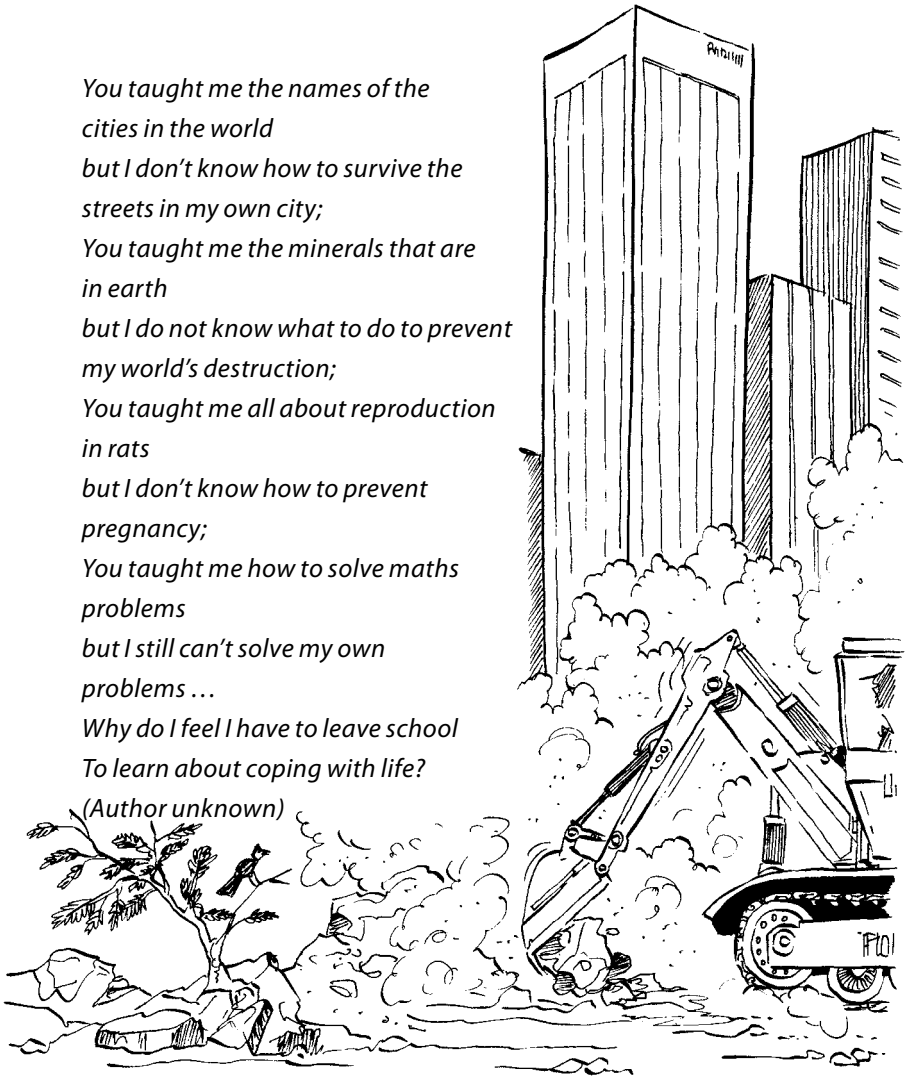
- **a** What teaching practices are mentioned in the article that could be helpful scaffolds for learning? Why do you say this?
- **b** Can you provide any other examples – drawn from your own experience – of teachers scaffolding learning? Explain how these actions assist learning.

School learning and OBE

3.6

The following poem was published on a poster which hangs on the walls of a good number of senior officials of the national and provincial education departments in South Africa.

You taught me the names of the cities in the world
but I don't know how to survive the streets in my own city;
You taught me the minerals that are in earth
but I do not know what to do to prevent my world's destruction;
You taught me all about reproduction in rats
but I don't know how to prevent pregnancy;
You taught me how to solve maths problems
but I still can't solve my own problems …
Why do I feel I have to leave school
To learn about coping with life?
(Author unknown)



The poem tells us a lot about the intentions of the planners of OBE. From the beginning, OBE in South Africa was underpinned by a particular principle about learning, namely that school learning should occur in a ***meaningful context*** and not be separated from learning and knowledge that children develop in the ***real world.*** As one of the policy papers at the time said:

> *'[We take] a broad view of education and training, seeing it not only as something that happens in schools or colleges, but in all areas of our society – homes, workplaces, public works programmes, youth programmes, and in rural areas.'*

This quote comes from the *Reconstruction and Development Programme White Paper* (September 1994).

OBE planners were critical of an education system that separated ***contemplation*** and ***physical work.*** They argued that such a system is an unhappy one because it divides people into workers and thinkers whereas people are naturally capable of both action and critical thinking.

By the time the ***White Paper on Education and Training*** was published in 1995, education policy was firmly committed to:

> *'a view of learning which rejects a rigid division between "academic" and "applied", "theory" and "practice", "knowledge" and "skills", "head" and "hand"'.*

This quote is from *Government Gazette*, 357:16312, (Parliament of the Republic of South Africa, Cape Town, 15 March 1995).

The great OBE debate

This principle of the ***integration*** of learning across school and everyday life contexts has produced a very important debate amongst teachers. Again, we can discern two opposing positions in the debate, although the vast majority of teachers seem to sit somewhere on a continuum between the two. The poles of the discussion are:

Position 1: Schools shouldn't teach dry subject knowledge; instead, they should teach useful, real-life knowledge

On the one hand, OBE is seen by many to herald the end of formal, disciplinary learning in school. In order to set up learning experiences, teachers who hold this view seek to bring everyday-life situations directly into classrooms as the ***substantive content*** of learning. Alternatively, they take learners out on visits and excursions into community contexts. Where they ask questions from history or maths or whatever, they do so ***only*** in the context of real-life activities and not in the study of the discipline as such.

In holding these views, such teachers take their inspiration from education theorists like Bill Spady, who believes that:

> *'existing school curricula are based on irrelevant subject-based learning. We should rather ask what learners need to be able to know and do in later life, and design curricula backwards from there'.*

This quote is from W. Spady, 'It's time to take a close look at outcome-based education' in *Outcomes* 11:2 (1992) 6–13.

Position 2: Schools should teach subject knowledge and show learners how to use it to solve real-life problems

On the other hand, another group argues that the main schooling problem is one of not being able to bring school knowledge to bear on the real-life contexts of learners. Teachers who hold this view strongly affirm the importance of the disciplinary knowledge acquired in school as the basis of OBE. But they try to avoid teaching it in a way that leaves it divorced form the everyday lives of learners. The notion is that while learners benefit greatly from the systematic study of history or maths or whatever, they only fully internalize new conceptual frameworks when they use them to interpret and solve problems in their own community contexts.

Such teachers regard it as important to bring local knowledge under the scrutiny of the new, systematic insights that their learners acquire in school.

What position do we hold?

In this section, our focus has been on the ***distinctiveness*** of schooling as a mode of learning. We saw that school learning is necessarily 'formal, abstracted, and regulated'. It ***isn't*** bounded by everyday experience, but instead, aims to provide learners with systematized thinking abilities and concepts.

We also reflected on the role of the teacher in this context. In school, learning activity takes place on the basis of someone ***else's*** understanding (usually the teacher's). It is this understanding which engages the prior understanding of learners. It puts them in a position, by the end of the process, to be able to reorganize their own thinking and prior knowledge. This enables them to move ***beyond*** their everyday experience, but in the end to ***come back*** to their everyday-life worlds with new understandings of how to solve problems.

It should be obvious that we tend to support the second position. Schooling is a ***particular way of knowing.*** By learning to know in this way, learners develop ever more complex ways of engaging in their communities and life worlds. Without this learning, learners are trapped in the immediacy of their communities. All problem-solving tends to be of a trial and error kind rather than being based on some systematic understanding of the problem being tackled.

STOP. THINK.

Read the poem on page 103 again. Now explain what you think it means. Do you agree with its sentiments? Why? Why not?

Take some time to reflect on the issue being raised here.

A simplistic analysis – and we'd argue that position 1 is simplistic – may conclude that this poem suggests we drop formal history teaching ('you taught me the names of the cities in the world') and instead teach learners how to 'survive the streets in my own city'. Or that biology teaching be dropped ('you taught me all about reproduction in rats') in favour of short, practical, life-skills courses that will enable learners to 'prevent pregnancy'. In other words, a simplistic analysis would conclude that the poem advocates that school should teach us how to cope with the immediate problems of life.

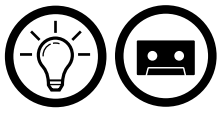
We'd interpret the poem differently. We would agree that schooling should enable people to live better lives. But we'd differ as to how we'd teach in order to achieve this outcome.

We would probably argue that to teach about the problems encountered by large cities ***throughout the world*** (in other words, develop a generalized understanding of concepts like urbanization) puts us in a better position to help learners to survive the streets in their own city. Or that to know the ***technicalities of mining and mining processes*** (have a deep, theoretical, and systematic understanding of mining) will help learners to better know what to do to prevent the destruction of the world's natural resources (and how to do it). Or that to ***understand reproduction*** in human beings and animals puts learners in a better position to make informed choices about family planning and reproductive rights.

There is certainly also room in school to learn to solve ***both*** maths problems and personal life problems. The importance of learning in school is that it allows us to do both, and to ensure that each adds learning value to the other.

3.7 Conclusion and key learning points

Reassessing the half-truths



Take some time to reflect on the issue being raised here.

STOP. LISTEN. THINK.

To check your learning we'd like you to go back to the six half-truth statements at the beginning of this section (page 72), and those on page 96. Decide if you still agree with your original responses.

- Are there any statements that seem to have changed their meaning for you?
- Are there any assumptions you now believe are wrong?
- Why have these changes occurred?

Relisten to Parts 1, 2, and 3 of your audiotape. See whether the conversations make more sense now that you have learnt so much more. Remember the point made about learning in Section Two, that the more you know the more you realize you don't know? How valid do you think this statement is?

Key learning points

We began this section by asking the general question, ***'What is school learning?'*** In trying to answer this question we discovered that everyday learning is very different from schooling and so we tried to deepen our understanding of the specific nature of school learning.

This led us into a discussion on the discourse of schooling and the importance of language as an instrument for learning. Through language, learners can develop a more generalized perception of the world that allows them to move beyond the limitations of their everyday experience.

Throughout this section we built on our ideas from Section Two and used a constructivist view of learning to sharpen our understanding of how learning happens at school. We agreed with the view that learners actively construct their own knowledge, but then began to question the role of the teacher in this process.

As we analysed different learning situations, we realized that teachers play an essential role in the learning process because they make deliberate and powerful interventions in the learning of their students. These interventions can be compared to scaffolds that learners can use to bridge the gap between the known and the unknown.

Here is our summary of this section's key points:

- Schooling is not limited to everyday experiences or specific contexts.
- School learning can change the way learners think, because teachers help them to develop new concepts and to generalize their perception of the world.
- Once learners have developed a 'schooled' way of thinking, they still have to integrate their everyday experience into their new, generalized way of thinking about the world.
- School learning is grounded in disciplines of learning and the rules of each discipline have to be learnt and respected.
- Learners who understand the ground rules of schooling generally do well at school.

- Language is the main tool for teaching and learning.
- The discourse of schooling has an effect on the development of our thinking.
- Learners do not 'receive' knowledge from the teacher at school, but rather have to make active links and construct their own understanding of the subject they are learning.
- As learners participate in the discourse of schooling, they begin to follow its rules and use these rules to organize their own thought.
- Teachers play an essential role in the learning process, providing scaffolds for learners with which they can extend their knowledge and try something they would otherwise not manage on their own.
- An important form of scaffolding involves linking specific examples or experiences to general categories or explanatory principles. By providing learners with a new discourse or language with which to redescribe things in theoretical terms, teachers provide scaffolding for learners to enter the unknown worlds of expert knowledge.

> ***A school teaches in three ways: by what it teaches, by how it teaches, and by the kind of place it is.***

This quotation comes from L. Downey, *The Secondary Phase of Education* (Boston, Ginn, 1967).

SECTION FOUR

Text as a context for learning

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Introduction 4.1

What will you learn in this section?

Week 11 begins.

As you have discovered, everyday learning is very different from schooling. One of the features that distinguishes the two is the centrality of language as an instrument for school learning. Language allows learners to develop a more generalized and systematic understanding of the world.

We have discussed how teachers make deliberate and powerful interventions in learning and how these interventions assist learners to bridge the gap between what they know and what they still need to learn.

Texts are often used by teachers to evoke and scaffold learning. Texts organize and systematize knowledge and so play an important role in teaching learners to think in school-like ways. Because of this, reading is one of the most important language acts in school learning. We will see that at school a text is often the ***context*** for learning, and the use of school textbooks requires learners to be active and independent readers.

This section will explore the relationship between learners, text, and the world. We will find out how textbooks are written, how learners read, and how teachers can assist learners to read critically.

More half-truths to think through

Read through the following assumptions about reading and learning. As before, make notes about your agreements and disagreements with these half-truths.

These half-truth statements are quite tricky. They seem simple at first, but the more you think about them, the more complex the issues become!

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
Reading is difficult and boring.		
All readers will understand the meaning of a text in exactly the same way.		
There is only one way to read.		
Textbooks should be read differently to storybooks.		
Children learn to love or hate reading because of their parents' attitudes to books.		
Reading is only useful for school learning.		
Learning through reading is just the same as learning through talking and listening.		

4.2 How do we enter the world of reading?

Have you ever noticed that many languages use similar words for 'reading', 'studying', or 'learning'? In Zulu, for example, the word '-funda' can mean all three:

- ***reading*** a book;
- ***studying*** at school;
- ***learning*** how to ride a bicycle.

Even in English, where separate words exist, our mental links between reading and school learning (studying) are so close that the words can be exchanged. Students are often described as '***reading*** History' when they study at a university, or as '***studying*** a book' when they read through a book.

Reading seems such an obvious and integrated part of school learning that we often forget to mention it. For example, in the previous section on school learning, only a very brief comment is made about the fact that school learning usually requires us to be literate. Yet there is no subject at school that does not involve reading, and there isn't a child who can succeed at school without learning to read.

So all teachers need to understand how the reading process works in order to make it a meaningful and rewarding activity for their learners. The purpose of this section is to help you to do that. We will:

- explore how learners can successfully enter the world of reading;
- look at the power of the written word in influencing the way we think.

Differences between the written and spoken word

Spend about 30 minutes on this activity. The extract comes from M. Donaldson, *Children's Minds* (London, Fontana, 1978), pp. 86–95.

ACTIVITY 31

1 Here are a few open-ended sentences about the spoken and the written word. Complete each sentence in any way you like.
- **a** The written word mostly ...
- **b** The spoken word only ...
- **c** Without spoken words ...
- **d** The written word can ...
- **e** The biggest difference between spoken and written words is ...

2 Now read what Margaret Donaldson says about the differences between written and spoken language:

> *'As literate adults, we have become so accustomed to the written word that we seldom stop to think how dramatically it differs from the spoken one. The spoken word (unless it is recorded) exists for a brief moment as one element in a tangle of shifting events, [...] and then it fades. The written word endures. It is there on the page, distinct, lasting. We may return to it tomorrow. [...] We can pick it up and slip it into a pocket or briefcase. Once a child has begun to learn to read, he can bring his book home from school and read to his mother the same words which he read to his teacher in the classroom earlier in the day.*
>
> *So a child's first encounter with books provides him with much more favourable opportunities for becoming aware of language in its own right than his earlier encounters with the spoken word are likely to have done. Of course in some homes awareness of the spoken word is greatly encouraged. Some parents talk about words*

to their children, play word games with them and so on. But most talk only with words. [...]

For many children the earliest encounter with the written word is indirect, arising in the situation where a story is read aloud by an adult. This is already in a sense language freed from context; but the experience of hearing a story is not so likely to enhance awareness [of language] as the direct grappling with words on a page is. [...]

It turns out that those very features of the written word which encourage awareness of language may also encourage awareness of one's own thinking and thus be relevant to the development of intellectual self-control. This has important consequences for the development of the kinds of thinking which are characteristic of logic, mathematics, and the sciences.'

3 Answer the following questions:

a What, according to Donaldson, is the most important difference between spoken and written language?

b What do you think it means to become 'aware of language in its own right'?

c What is the significance of the distinction between spoken and written language for learning? (In addition to the last paragraph of Donaldson's extract, it may also help you to look again at the discussion of discourse in Section Three on pages 83–91.)

d Donaldson makes the strong claim that reading has 'important consequences for the development of kinds of thinking'. What do you think the relationship between reading and thinking is? Make some notes in your workbook. We will return to this question again at the end of the section.

> ***Reading, like learning, begins with the mystery of the unknown.***

What did we think?

Donaldson draws our attention to the fact that written words (as opposed to spoken ones) are made ***permanent*** on paper or in books. As a result, books take on a life of their own where experiences exist in and through language ***alone***. Only by paying attention to the language can we begin to unravel the meaning of the written words.

Think, for instance, of those who can't read. For them the words on a page are simply dead little black marks. As a literate person you might have experienced similar feelings when looking at a sheet of music, or some scientific formula. Musicians hear music when they read the notes on a music sheet. A formula creates a whole world, a whole new concept, for the mathematician. But for us? These notations are just dead little black marks!

However, for those who can 'crack the code', each little mark will help to reveal the world within the book. In this sense, reading is a more active process than listening, and it relies on an understanding of an abstract code. Readers must be able to interpret letters and understand how these are formed into words and sentences.

Reading, like learning, begins with the mystery of the unknown. At first there is a huge gap between the world of the reader and the world of the book. At school these two worlds exist together in the same place, but they do not necessarily meet. Since written words are completely separated from our lives, we can look at them and not be part of the experience they present.

So how can we enter the world of reading?

What happens when we read a book?

ACTIVITY 32

1 Look carefully at this picture of a woman reading a book.

Reading is a complex, abstract process that happens in the mind.

2 Now read the statements below and decide for yourself if they are true or false. Mark the statements where you are unsure about what to think. We will return to this activity later and perhaps you will be able to make a decision then.

- **a** The woman is a good reader only if she carefully reads every word in the book.
- **b** She is a good reader if she can predict from her own experience what will happen next in the book.
- **c** The woman is not doing much while she is reading.
- **d** Once the woman knows the words, she should be able to understand everything in the book without much further effort.
- **e** When she reads she also has to think about what she is reading.
- **f** When she reads she thinks about other books she has read.

What does this woman need to know in order to read?

Remember that reading happens ***in the mind***; it is an abstract process. When we read, we link the information on the page (written letters and words) with information 'in our heads' to make meaning of the potentially meaningless squiggles on the page.

This is a complex process. We need to activate and link a lot of different kinds of information before we can begin to make sense of the little black marks our eyes see on the page. What kinds of knowledge or information do we draw on when we read?

Knowledge of the written code

First, we need ***knowledge about the written code.*** We need to know how the letters on the page ***represent particular sounds*** and ***how they combine*** to communicate meaning in the form of words.

For example, we need to recognize that 'd' sounds like 'duh', and that if it is combined with 'o' and 'g' we have a word 'dog' that describes an animal many of us keep at home. (We should also know that if we reverse these letters – 'g' + 'o' + 'd' – we have a word that means something very different!)

Knowledge of the language

Second, we need ***knowledge of the language*** in which we read. Even if we can sound out words correctly, they will remain meaningless if we do not know the language of which they are a part.

So, for instance, our example of 'dog' is only meaningful for those who can speak English. Likewise, an isiZulu word like 'funda' is easy enough to ***sound out*** (although we would probably pronounce it with an English accent), but if we don't know isiZulu, we won't know what the word ***means*** even though we recognize all the letters.

In South Africa many students do a lot of their reading in English, which is their ***second language***. This obviously creates additional barriers and difficulties in the reading process.

Becoming familiar with the language in ***spoken*** form is also important for the reading process as it enables us to develop an 'ear' for the language. This gives us a basis from which to guess the sounds and meanings of new, unfamiliar words encountered in text.

However, knowing the language in which we read doesn't only entail knowing English or Zulu or Spanish. It also involves becoming familiar with the terms and special discourse of the ***learning area*** in which we are reading. Many of us might be very fluent in English but unable to understand a scientific text because it uses specialist terminology and often uses common words differently from the way in which they are used in everyday language. You are ***now*** in the process of learning the language of ***learning*** as you read this module.

Knowledge of the rules of writing

Third, we need ***knowledge about the rules of writing***. Even if we can ***sound out*** words and ***know what they mean***, we must ***relate the words to each other*** in a meaningful way.

We must be able to link the words we read into a ***larger network*** or structure. The meaning of a text is not only about the parts but also, importantly, about the whole. The way in which words are combined in sentences, paragraphs, and perhaps sections with headings, develops a particular meaning.

Throughout this text we have emphasized the importance of understanding how different ideas link together to create a network of ideas or a concept. For example, at the simplest level, a sentence like 'The ball is in the net' tells us, firstly, about the relationship between the 'ball' and the 'net' (it is 'in' the net, not 'on' it or 'next to' it). But secondly, if we are soccer fans, then the relationship between the 'ball' and the 'net' takes on new significance. It means that a goal has been scored.

This is a simple way of moving into the next point. We also need to recognize the kind of text (or ***genre***) that we are reading – a textbook, a story, a newspaper article etc. – in order to make meaning of a sentence or network of sentences. The sentence 'The ball is in the net' on the news or soccer pages of a newspaper means that a goal has been scored.

Equally though, we would read a textbook on soccer (or anything else) differently from a story or newspaper article on soccer. Different kinds of texts ***need to be*** read, and ***are*** read or interpreted, in different ways.

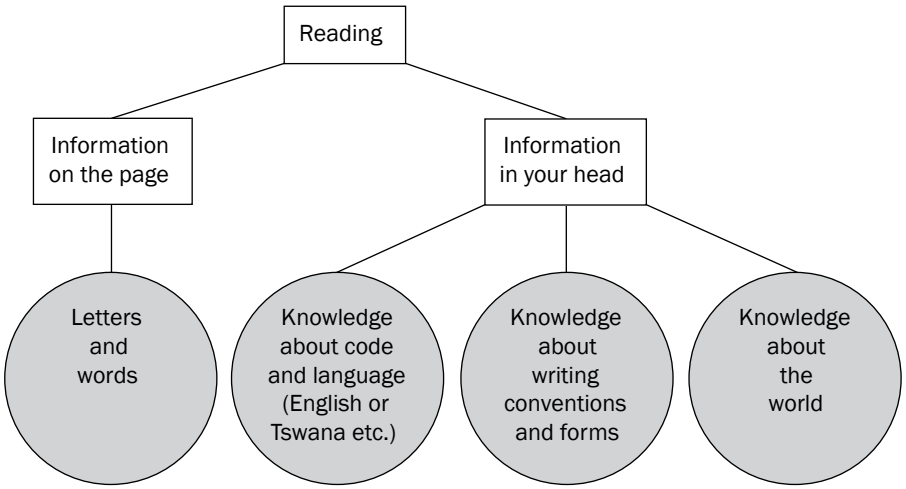
Knowledge of the world and how it works

Fourth, we need ***knowledge of the world and how it works***. In written text, experiences exist in and through language ***alone***, and so we need to make links ***actively*** between the ***language of experience*** and what we actually see, hear, and feel in the world.

For example, when we read about children waiting for a bus on a warm day, we will only 'live' the experience of that waiting if we can ***imagine*** the situation by drawing on our own experiences or what we already know. (As South Africans, we will probably imagine a hot, sweaty, possibly dusty wait. Canadians, on the other hand, may imagine a cold, snowy wait!)

To summarize

- Becoming a good reader means learning to 'crack the code'.
- In order to do this, we must know the alphabet and the language in which the text is written and recognize what kind of text it is. We should be able to tell if we are reading a story, a letter, or part of a textbook and what we can expect from each kind of writing. (What can you expect from a story that you cannot expect from a textbook?)
- Finally, we need knowledge of the world so that we can bring our own experiences to the text and make it come alive. The richer our own life experiences are, the more colourful and vibrant the world of books can become.



Towards a definition of reading.

Take some time to reflect on the issue being raised here.

STOP. THINK.

Go back to Activity 32. We'd say that statements a), c), and d) in this activity are false or at least not entirely true. Use the above discussion of reading to explain how you think we'd justify why we think this.

How did we answer this?

The statement 'The woman is a good reader only if she carefully reads every word in the book' is based, we believe, on a half-truth. A good reader will read the individual words, but will also use previous knowledge and reading experiences to predict what will happen next. She will be aware of the network of knowledge that she can draw on to construct meaning from the text. She will make guesses where she meets words she does not know and work out the meaning from the context, rather than from the individual word.

The statement 'The woman is not doing much while she is reading' is false. As we found out earlier, reading is a complex activity of the mind that involves using many different skills all at once. Although the woman is sitting quietly, her mind is very active. She is relating the information on the page to her knowledge of the language, and of the world, and of previous books she might have read in order to make meaning of the text.

Knowing the words is only a small part of reading so a statement like 'Once the woman knows the words, she should be able to understand everything in the book at once' is also false. If the words do not link up with a meaningful experience, the woman can read the words off the page, but she might still not understand what the book is about.

Reading is an active process that can change from one sitting to the next. As the interconnections and links we make between words (and also between the text and our own lives and other texts that we have read) change, our understanding can become more layered and complex each time we reread a book.

What do we do when we read?

In Section Two we discovered that knowledge is a network of interconnected information and that the relationships between different facts are as important as the facts themselves. We also realized that we can only bridge the gap between the known and the unknown by using what we know to construct links for ourselves. This process enables us to guess, question, and imagine the unknown.

When we compare these insights to the discussion on reading above, we notice many similarities:

- First, reading is also about networking and making links between different kinds of knowledge we already have. The relationships between headings, sentences, or paragraphs are as important as the meaning of individual words.
- Second, when we read we also have to construct the as yet unknown meaning of the text by using what we already know about books and the world. Reading presents us with a particular case of moving from the known to the unknown.

Reading is hard work and can be exhausting, especially if our experience of the world is very different to the world of the text we are reading about.

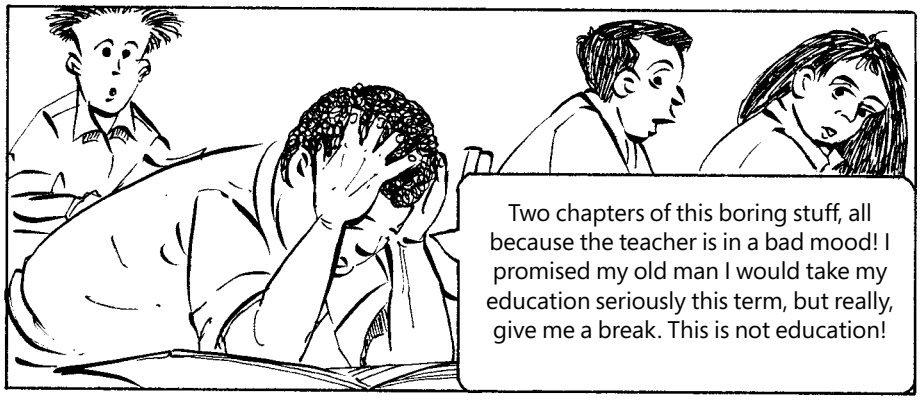
Why is reading so difficult?

Not all of us who read, however, ***enjoy*** the experience. Reading is hard work and can be exhausting, especially if our experience of the world is very different to the world of the text we are reading.

Look at the following comment by a fifteen-year-old learner, Mike. He describes what happened when he was supposed to read a book in class. As you read his story, try to identify at least two reasons why Mike is not interacting with the book he is supposed to be reading.

We have represented his thoughts as a cartoon strip on the next two pages.


I walk into the class, you know, and my heart sinks. I get this heavy feeling right here.
READ CHAP
-Then answ
questions
chapters
of
The teacher is in a foul mood and has written all these instructions on the board which we are supposed to follow without saying a word.
TERS 4+5
er the
on the
at the back
the book for
tomorrow!
Nobody is fooling around with the teacher if he is in a mood like this, so I find my book and try to read.
I really try, you know, but then I start wondering if we are all in trouble. Why is the teacher in such a bad mood? I try reading again, but it doesn't make sense. I have forgotten what happened in the last chapter.
So I ask my buddy for help and get shouted at for talking. It's a boring book anyway. Who wants to read about some old man in the mountains? I've never seen a mountain around here. Have you?
And then there are all these boring stuck up words, like 'ascend' and 'altitude'. Who talks like that? Not anyone I know!



For many learners reading is a struggle.

STOP. THINK.

- Think about your own experience of reading at school. Was it similar to Mike's experience? What was different?
- Did you ever experience reading as difficult, *but worthwhile*? If you answer yes, what made it worthwhile? If no, why do you think reading isn't worthwhile?

Take some time to reflect on the issue being raised here.

Why is Mike struggling to read?

Mike's difficulty is not that he is unable or unwilling to read, but that he is ***not sure how to approach*** the reading task:

- He is not ready to read his book because he can see ***no real purpose*** for the task. He doesn't feel like interacting with the text simply because the teacher is in a bad mood.
- He has ***no motivation*** for reading the book on his own because he doesn't enjoy it. He finds it irrelevant and difficult to follow.
- He also has ***no strategy*** for dealing with the difficult sections of the book or for remembering what happens from one chapter to the next.
- The topic ***doesn't interest*** him. He cannot relate it to his own life and so his attention wanders to the things that really matter to him.

Mike's story illustrates that ***our attitude*** to reading is very important for the reading process. When a person begins to read, be it for pleasure, for work, or at school, several factors influence how successful the interaction between the reader and the text will be. The quality of the reading experience in turn influences what will be understood and what will be remembered.

> ***"Our attitude to reading is very important to the reading process."***

Important factors for a successful reading experience

- If learners find a reading task ***purposeful***, they will have high expectations from their interaction with the text. If the main purpose is simply to get through the reading to please the teacher, the task will seem meaningless from the start. One of the problems we face with new readers who have no prior experience (through family, for instance) of how reading can be useful, is to get them to believe that reading can serve a purpose.
- If learners are ***interested*** in a topic, they will remember what they read about it. This is closely linked to purpose but it is possible to have a purpose that motivates without arousing much interest (for example, having to fix your car despite having no interest in car mechanics).
- The ***motivation*** for reading will come from the purpose and the interest. But it can also be outside of the task. For example, a learner who wants to do well at school will read with great care, even if the topic is not very interesting.
- ***Attention*** is another powerful factor that can influence reading. If a learner's mind

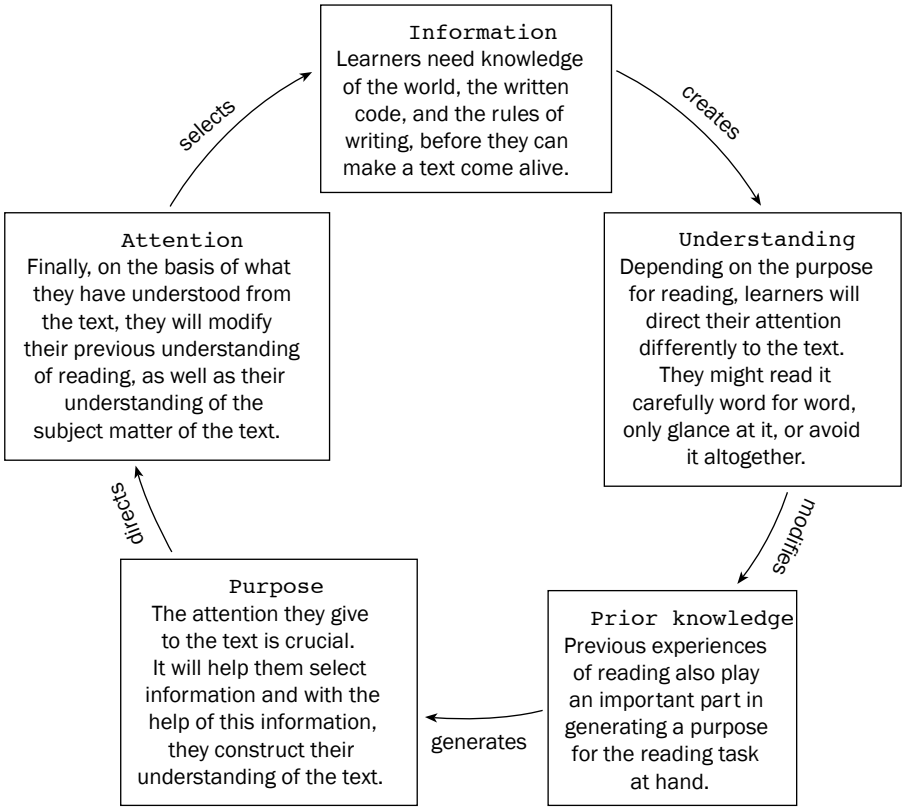
Do you notice how similar the prerequisites for successful reading are to the prerequisites for successful learning? What does this tell you about the relationship between reading and learning?

is on other things, it will be difficult to make sense of the reading even if the topic is interesting and the learner knows why it is important to read it (he or she has a purpose).

- A good reading ***strategy*** (like asking questions or predicting) can help learners to focus their interest and attention on the reading, even if it is difficult. This is an important way of overcoming distractions.
- Making meaningful ***links*** between the text and our existing knowledge will influence how successful the reading experience will be. (This is why we have tried to use familiar analogies in this text but, more importantly, why we have asked ***you*** to constantly relate ideas to your lives and practices as teachers.)

These factors, together with the knowledge we need to 'crack the code', determine our capacity for successful reading. They work together and influence how willingly learners, like Mike, will use books to help them learn. The relationship between the different factors is important because they all form part of a reading-learning cycle:

This diagram has been adapted from N. Marshall, 'The students: who are they and how do I reach them?' in D. Lapp, J. Flood, and N. Farnan (eds.), *Content area reading and learning*, p. 82.



The reading-learning cycle.

Spend about 30 minutes on this activity. Do it on your own first, then discuss your ideas with other teachers.

ACTIVITY 33

1 In the light of these factors, let us revisit Mike's reading experience and try to investigate why he found reading such a difficult experience. Copy the learning cycle down. Then go back to Mike's experience of reading and show at what points in the cycle the breakdown of Mike's learning occurred.

2 If Mike was in your class, how could you prevent this breakdown of learning?

What did we think?

We discussed earlier that reading is an ***activity of the mind***.

By plotting Mike's reading experience on the learning cycle we can see clearly how involved the learner must be. The real breakdown in Mike's learning occurred at the point where he could not be bothered to read and so the gap between him and the text couldn't be bridged. He didn't read, so he didn't understand and didn't learn anything new.

Although, technically speaking, Mike is literate and at school, he isn't reading and he isn't learning. Reading has become a meaningless experience for him (as it is for many other South African learners). As teachers, we need to recognize that reading is inherently difficult (think about your own struggles with various texts – perhaps even this module text).

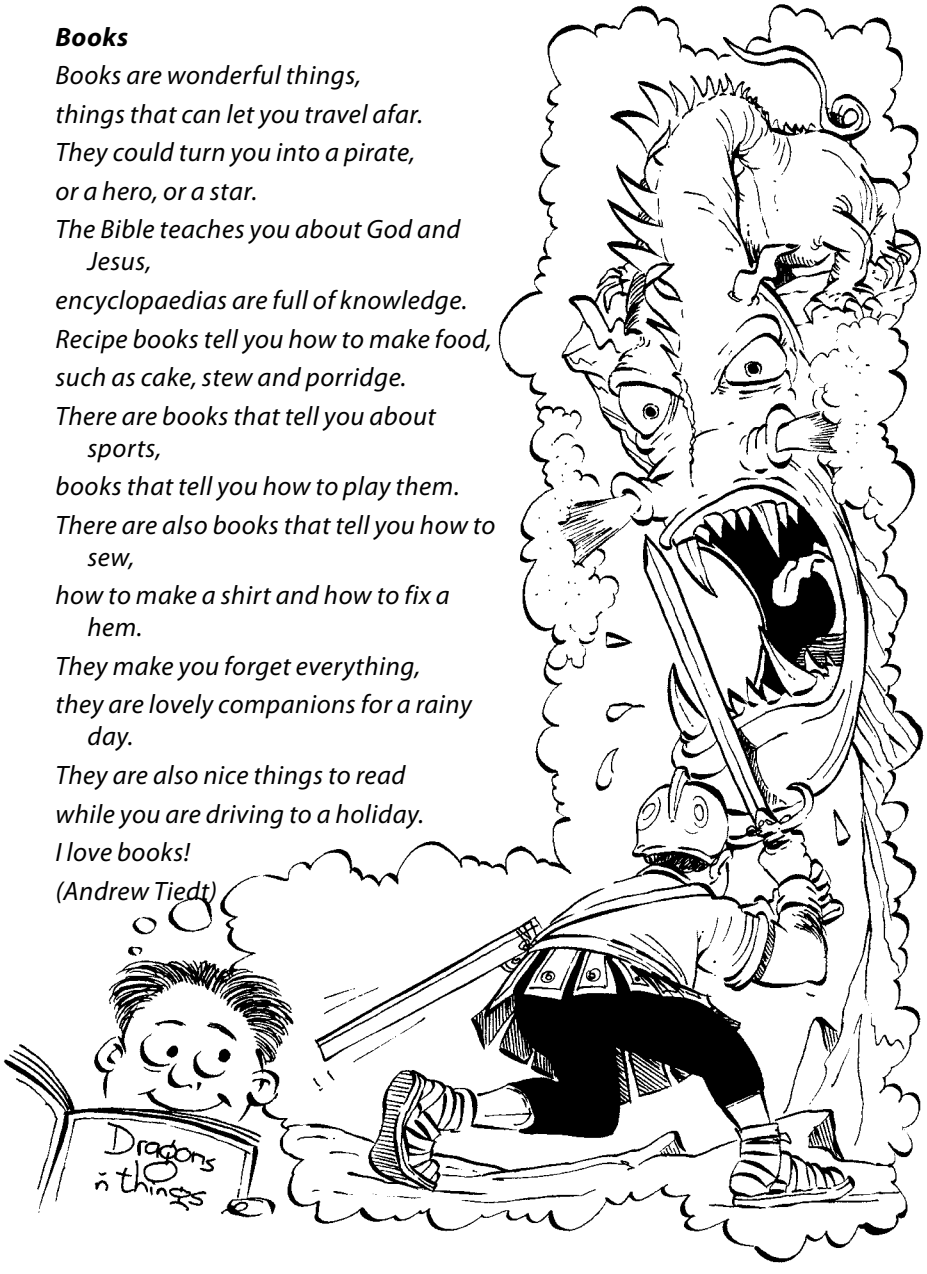
4.3 What makes reading a meaningful experience?

Not all learners approach a reading task with a positive attitude. Their interest, motivation, and skill will vary greatly, depending on their previous reading experiences. One factor, however, stands out as very important: ***The attitudes towards reading which learners bring to the classroom will have an important influence on how and what they will read in future.***

With support and guidance, most learners can experience how the books they read at school will open a new and exciting world of ideas and transport them far beyond the limited world of their everyday experience. In Activity 34 you will be working with the following poem that demonstrates this idea. It was written by a ten-year-old school boy in Cape Town.

Books

Books are wonderful things,
things that can let you travel afar.
They could turn you into a pirate,
or a hero, or a star.
The Bible teaches you about God and Jesus,
encyclopaedias are full of knowledge.
Recipe books tell you how to make food,
such as cake, stew and porridge.
There are books that tell you about sports,
books that tell you how to play them.
There are also books that tell you how to sew,
how to make a shirt and how to fix a hem.
They make you forget everything,
they are lovely companions for a rainy day.
They are also nice things to read
while you are driving to a holiday.
I love books!
(Andrew Tiedt)



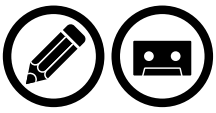
As teachers, we should never take reading for granted:

- When learners come to class with a negative attitude, we have to take their struggle with reading seriously and help them experience reading as a ***meaningful*** activity.
- When learners have had good reading experiences, it is our responsibility to make sure that the reading experiences we give them in class continue to strengthen their positive attitude towards the written word.

ACTIVITY 34

1 In his poem on page 122, Andrew describes many things that books can do for people who read them. Reread the poem. Pick out examples that will allow you to comment on his attitude to reading.

2 Now answer these questions:
- **a** How does Andrew's attitude to books compare with Mike's?
- **b** How could we go about generating or encouraging this love of books where it doesn't exist?
- **c** How can we use this love of reading to teach that which is as yet unknown and beyond the learners' interest?
- **d** Are there any differences between the written and spoken forms of this poem?



Spend about 30 minutes on this activity. First read the poem. Then listen to its spoken form on your audiotape. You will find it at the beginning of Part 4 of your tape. Listen to all of Part 4. In it you will hear Ian Moll explain why reading is important in school learning, and Yvonne Reed give us some ideas about how we can teach people to read. Use these ideas to inform your answers to question 2. The poem is taken from the *Molo Songololo* magazine (Issue 86, July–August, 1994), p.16.

The 'magic' of books

Unlike Mike, Andrew has clearly experienced a supportive learning environment that helped him to enter the world of reading and learn from it. He has experienced books as useful and exciting things. Andrew understands how they can assist him to learn, and how they can simply bring joy.

The poem also illustrates that the 'magic' of books is an important factor that helps children to experience reading as a meaningful activity. For Andrew, books are like friends that can turn him into a pirate, or keep him company on a rainy day or on a long journey. In their book, ***On Learning to Read,*** Bettelheim and Zelan claim:

> *'What is required for a child to be eager to learn to read is not knowledge about reading's usefulness, but a fervent belief that being able to read will open to him a world of wonderful experiences, permit him to shed ignorance, understand the world, and become a master of his fate.'*

ACTIVITY 35

1 Turn to Reading 15 and read the extract by Bettelheim and Zelan called 'The magic of reading'. *Before* you read the extract, carefully think about your own experience of learning to read.
- **a** What motivated you to learn to read?
- **b** Did you experience reading as a magical thing?
- **c** Who supported you? Where did you struggle?
- **d** What was the attitude of your parents to reading?

2 Read the extract by Bettelheim and Zelan and make notes about the factors that motivate children to read.

3 Now use Bettelheim and Zelan's language or discourse to redescribe your experience in these more formal terms.

Spend about an hour on this activity. Read the extract on your own first, then meet with fellow learners and discuss Bettelheim and Zelan's ideas.

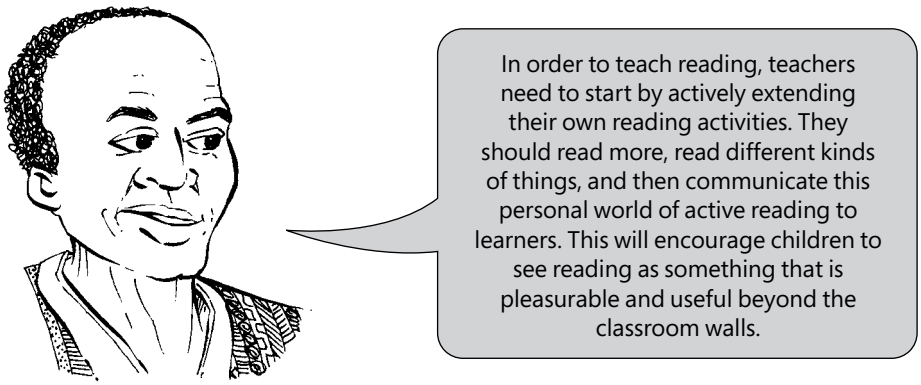
What did we think?

We have all had unique experiences in learning to read. You may remember a favourite book, or have a fond memory of a special relationship with a parent or teacher that centred on books, or recall a less pleasant experience of anxiety or boredom in your first classroom.

While we have all had ***unique*** experiences, we have also all had some ***common*** experiences of reading. As we suggested earlier, we only learn to read if reading seems purposeful and meaningful. Reading must give children the feeling that ***new worlds are opening*** before them. Only then can it be seen as the key to unlimited knowledge.

Bettelheim and Zelan argue that a positive attitude to reading grows out of a child's experience of ***how adults enjoy books***. Children who have never shared the enjoyment of books with anyone will not believe that reading is important. In the end, it is the 'wish to penetrate […] the important secrets adults possess' that helps children to persist in the struggle of learning to read. Without this desire, as Mike's experience so clearly shows, the act of reading seems meaningless from the start.

This has important implications for teaching reading in South Africa. Many learners come from homes which have no books, and where parents have been denied (by our history) the joy of literacy. So they enter schools with no model of reading as a joyful and meaningful activity. At school, they often encounter teachers who also don't read and don't see any point in reading. Many studies have pointed to the fact that teachers don't read enough and don't encourage reading in schools. So, both at home and at school, reading isn't 'modelled'.



Bettelheim and Zelan argue that the kind of encouragement teachers and parents often use with learners, namely that reading will help you get ahead in life, is a very weak persuasive tool. They say that 'usefulness' isn't something that motivates young learners. Instead, they suggest, we read (and children, in particular, read) because we are promised trips to magical lands. It is the fantasy that reading brings – the imaginative stories that books carry – that motivates us to read. This is what teachers need to communicate to learners, both in words and in actions.

Bettelheim has often been criticized for being too 'psychological' and 'magical' in his description of reading. For example, although he talks about the importance of reading parents, he does not elaborate the extent to which reading and writing are social activities beyond the rather private space of the family. The political and economic dynamics of the society we live in can have a powerful influence on our attitude to reading, on our opportunities for reading, and on the uses that we can make of reading in our everyday life.

What do you think?

ACTIVITY 36

1 Read this newspaper report on the first 'All Africa Conference on Children's Reading'. Do you recognize any of Bettelheim and Zelan's argument in this report?

Spend about 45 minutes on this activity.

FIRST ALL AFRICA CONFERENCE ON CHILDREN'S READING FINDS TEACHERS LACKING

Literacy lovers needed

Elinor Sisulu

'Kader Asmal was a Boer. He died in the Anglo-Boer War that took place in Bloemfontein in 1968.' Many teachers would guess that this horrendously inaccurate statement was the response of a primary school child. This level of ignorance would not even surprise some. After all, how many school children know that Kader Asmal is our minister of education, and that the Anglo-Boer War was fought 100 years ago? What should shock teachers is that this response came from a second-year library science student!

The Kader Asmal response was quoted by Dr Lulu Makhubela in her presentation to the All Africa Conference on Children's Reading held in Pretoria on August 6 to 9. At the conference, a leading Ugandan publisher, James Tumusilme, told of a school in Nigeria where a student, when asked who wrote Macbeth, replied 'I do not know, but it was not me!' The teacher and principal also did not know who wrote Macbeth but agreed that it was not their student!

Naturally these anecdotes evoked much laughter among the conference delegates, but there was an underlying grave concern that many teachers and librarians do not read enough to acquire basic general knowledge. If educators, who are expected to promote reading, do not read themselves, how can they teach children to love reading? This concern was echoed throughout the conference, which brought together teachers, teacher trainers, librarians, researchers, writers, publishers, literacy experts and policy makers from all over Africa and the world.

In his opening address to the conference, the first of its kind, Asmal said that millions of African children have been denied the right to basic education, of which literacy is the core. 'The lack of access to education robs these children of their chance to develop their natural abilities of reasoning, problem solving and creative thinking, and thus lift themselves out of poverty and ensure a better life for their own children.' Teacher-training programmes need to be upgraded so that teachers can take full advantage of the new curriculum and 'transform their classrooms into sites of genuine intellectual exploration and creativity.'

The importance of training teachers to teach children how to read was a key concern. Professor Onukaogu of the University of Ile-Ife in Nigeria bemoaned the fact that far too often teachers in Africa are ill-motivated and ill-equipped to teach reading. He argued that teachers in Africa are underpaid and neglected. 'Adequate facilities for teaching are not made available to them. They never had any pre-service training in reading and its teaching, and in-service training and workshops are not provided to enhance their competencies and self-esteem.'

Teachers also need to know more about the literature of their countries, and courses in children's literature should be included in the curricula of teacher training colleges. Onukaogu suggested national awards for the best reading teachers: 'If we respect the reading teachers, if we enhance their well-being, so will they respect and enhance the well-being of our children. If we ignore our reading teachers, we do so at our own peril.'

'Every teacher is a storyteller,' declared one of the delegates. The significance of storytelling and oral traditions was a recurring theme of theconference.MzingiziManzezulu, a subject adviser in the Western Cape Department of Education, demonstrated ways of using storytelling to teach science. Australian writer Mem Fox argued that when learning to read children need teachers who will tell stories and read aloud often, teachers who are passionate.

The conference showed that there is no shortage of people committed to achieving literacy for all in Africa and turning African children into independent, life-long readers.

2 The article asks, 'If educators, who are expected to promote reading, do not read themselves, how can they teach children to love reading?' and claims that '[...] often teachers in Africa are ill-motivated and ill-equipped to teach reading.' Discuss these views in terms of Bettelheim and Zelan's ideas about reading.

4.4 What kinds of reading support school learning?

Week 12 begins.

The All Africa Conference on Children's Reading (Activity 36 on page 127) suggested that millions of African children have been denied the right to a basic education ***of which literacy is the core***.

Literacy, however, is only the beginning of ***school*** reading. As learners progress through school, the act of reading should become more familiar to them. They should be able to enter the ***world of text*** with ease by the time they are in Grade 5 in order to use text books, reference books, and other reading material to help them succeed at school.

In South Africa, as in many parts of the world, this isn't happening. Learners are moving through school without ever becoming comfortable readers. If texts and reading are at the core of school learning, then this fact will impact negatively on all their learning. They will struggle to solve maths problems, they will struggle to read Human and Social Studies textbooks, they will struggle to develop arguments in problem-solving activities, and they will struggle to pass exams.

Why do teachers use textbooks?

As learners progress through school, learning and teaching become (and ***must*** become) more and more textbook and reading based. There are four assumptions that can explain why teachers increase the use of textbooks in the later years of school:

- Textbooks help teachers to teach.
- Learners use textbooks to learn course content.
- Textbooks present the content of a course correctly and coherently.
- Textbooks introduce learners to the discourse of academic learning.

> ***"Literacy is only the beginning of school reading."***

You may immediately object to some of these assumptions, thinking, 'But textbooks are biased, or boring, or not related to life.' In some senses you will be correct, but this doesn't mean that we should reject the principle that textbooks are important in learning! Let's consider the four assumptions in more detail.

Textbooks help teachers to teach but must be used creatively

We'd agree with the first assumption, namely that textbooks are a very important resource for teachers. However, we'd also agree that textbooks are often used very uncreatively. Sometimes teachers simply use them to keep learners busy.

Textbooks are a very useful resource for teachers. They contain most of the critical content learners need to learn, and they are often well-structured and written accessibly. However, while they are a resource for the teacher, they cannot and should not be regarded as the teacher. Teachers need to use them creatively and soundly in their teaching.

Textbooks carry course content but can be inaccessible

This brings us to the second assumption. If learners can establish ***meaningful*** links to the textbook, they can use it to help them learn. Many learners in African and other developing countries have to use textbooks that are written in their second or third language. As a consequence, learners find it difficult to read and understand these books. Identification with textbooks is often made even more difficult by the so-called 'euro-centrism' of many textbooks. Instead of teaching the required content by using African examples, textbooks may only use examples that are

appropriate to the United States or Britain.

When learners cannot easily make sense of the language and structure of their textbooks, they rely on what they hear in, and remember from, class. Textbooks then become increasingly irrelevant to the learning process and may even present barriers, rather than bridges, for learning.

Textbooks should present the content of a course correctly and coherently

The third assumption is particularly problematic. Every textbook presents a ***particular version of the information*** that is available about a subject. In the past, for example, many South African history textbooks only presented a racist version of the development of our country and the rest of Africa. Although textbooks are being revised, the new books will also not be neutral and 'true'. They can't be.

Books are written by people, and all people ***construct their own*** version of the 'truth'; their own understanding of the world. That is perhaps why the new South African curriculum identifies the ability of learners to collect, analyse, organize, and critically evaluate information as a critical learning outcome. In the light of this outcome, textbooks, no matter how biased they are, can be used to introduce learners to the discourse of schooling. In other words, good teachers can still use poor and biased textbooks to develop in learners a critical attitude towards learning and towards texts of all kinds.

Textbooks introduce learners to the discourse of academic learning

The increased use of textbooks not only means that learners have to read ***more*** texts as they move from one grade to the next, but that they also have to learn to read ***different kinds*** of texts. As we suggested earlier, different text genres require different approaches to reading. (We read fictional stories differently to the way we read non-fiction texts designed for learning.)

Indeed, as learners progress through school, the activities of ***reading and learning*** become increasingly integrated to the point where very little learning occurs without reading. Even activities such as debating, group discussion, or conducting experiments rely on learners' reading abilities because all of these activities should be preceded by preparation through reading and followed up by reading.

Those learners who struggle with reading will increasingly also struggle in all other areas of the curriculum.

Different kinds of school reading

What kinds of reading do learners need to be able to do in order to succeed at school?

ACTIVITY 37

1 Look carefully at the diagram of 'the Road to Reading Pleasure' on the next page. Then answer the questions on page 129. The diagram is from G. Winkler, *All children can learn* (Cape Town, Francolin Publishers, 1999), p. 89.

Spend about 30 minutes on this activity.

"As learners progress through school, reading and learning become increasingly integrated to the point where very little learning occurs without reading."

2 Now answer the following questions:
   a Which reading skills (other than basic literacy) are demanded by school learning across the curriculum?
   b According to the diagram, how can teachers help learners to acquire these skills and become confident readers?

Schooling is an activity centred on texts

At school the 'text' becomes the main context for learning. (Do you remember what the title of this section is?)

In Section Three we examined how schooling takes learning ***beyond*** the contexts of everyday life. We have also seen that books are important vehicles through which learners are transported beyond the contexts of everyday life. Books open up new ***worlds*** of knowledge and take people to places they cannot possibly go in reality.

We have also learnt that reading and writing assist in the cognitive development of learners who learn to become more disciplined and systematic in their thinking. At school, children ***study written texts*** ranging from highly formal discourse (such as a mathematics theorem) to texts that aim primarily to convey and evoke emotional responses (for example, the poem by ten-year-old Andrew on page 122, or the poem by R. D. Laing on page 39). Learners also ***talk about texts***, whether these be books, worksheets, learning tasks, or their own writing.

The main point is this: almost all schooling can be characterized as ***activity centred on texts***.

School reading is circular and reflexive rather than linear

The 'Road to Reading Pleasure' (Activity 37 on pages 127–129) shows how reading becomes an increasingly complex activity as learners move through school. As they get older and more experienced, they no longer read books only for the sake of following a story. Learning ***through reading*** entails an active process of ***deconstructing parts of a text*** and ***reconstructing a new whole*** for oneself from the text.

This kind of reading is not a ***linear*** process: it doesn't simply begin at the beginning and end at the end of the text. Instead, advanced reading is a much more ***circular*** and ***reflexive*** process. It involves starting at the beginning of a book (although not always), but instead of simply reading through it, we usually:

- skim the text quickly first, concentrating on the headings, and the beginnings and ends of paragraphs in order to get a general idea of what is in the text;
- use this information to decide whether we want to read the text, and where we will begin.

At times, our reading process may be directed at finding ***specific information***. We might then only read a particular chapter, for instance. If we were reading for ***deep understanding***, we would read and reread with careful attention to detail to ensure understanding. Sometimes we might also ***memorize*** the information we have read and understood. At other times we may be reading for ***pleasure***, in which case we would begin at the beginning of a novel, for instance, and read quickly and without attention to detail until we get to the exciting conclusion.

School learners tend to spend more and more time reading as they progress, and teachers are thus able to rely more and more on reading to provide the ***context*** within which learning takes place. For example, we don't have to take learners to a river physically in order for them to understand about river pollution. We could, instead, get learners to read interesting and informative case studies and theoretical explanations of this phenomenon in textbooks in order to create a context for learning. The advantage of this kind of context is that it isn't limited to your local river; we can present learners with examples of a whole variety of different kinds of rivers and of pollution from around the world.

School reading is done actively and independently

For this to happen, however, learners have to develop into ***active and independent readers*** who can make meaning from what they read.

Active readers use many different strategies to help them make meaning from a text. For example, they ask themselves questions before they read, while they read, and when they have finished reading. Active readers also monitor themselves as they read, taking on the role of being their own internal teachers, asking themselves 'Do I really know what this is all about?' As we said earlier, developing a clear understanding will often involve going back, rereading, and trying to link different parts of the text to each other by using the bit that one has understood to try and understand those bits that just don't make sense.

The structure that the author has imposed on the text will help in this process. It is particularly useful to pay attention to the ways in which the connections between ideas are marked and to note whether an idea follows on from or extends an earlier less complex idea or whether it is a new and perhaps contrasting position.

For instance, words like 'first', 'second' etc. indicate ***a sequence***, while a word like 'however' suggests that the text will either provide an ***alternative explanation*** or a ***qualification*** to what has already been said.

We make sense of text; the meaning of a text doesn't simply reveal itself to us! The world of reading and the meaning of a text do not exist ***unless we make them happen*** ourselves. ***Active engagement*** will enable learners to read independently and with purpose and enjoyment. They won't need a teacher or parent to force them to read.

> ***Active, independent readers aren't born, they are made.***

Developing active and independent readers

But active and independent readers aren't born, ***they are made***. And teachers play a very important role in making these readers!

The following exercise will illustrate one way in which Intermediate Phase teachers can develop young, active, and independent readers. The short story is taken from a Grade 6 text that was developed to encourage learners to be active readers. An eleven-year-old boy, Peter Mkhalipi, originally wrote this story. We have chosen to use it here in order to illustrate how teachers can encourage learners to use their own writing for learning.

Read through the story. Think about the effect the ***questions in the text*** have on your reading.

The giraffe and the rabbit

When Peter Mkhalipi was in Grade 6, he wrote a story about two friends. His story teaches us that a friend sometimes makes a mistake, but when this friend says he is sorry, it is time to forgive him.

What do you think will happen in Peter's story?

Once upon a time a giraffe was grazing in the veld. Suddenly a rabbit jumped out of the bush and greeted the giraffe. The rabbit and the giraffe became friends and they went to have a drink of water.

Who will make the mistake? The rabbit or the giraffe?

Just as the giraffe was bending over to drink, the rabbit pushed it. The giraffe lost its balance and fell into the water. It went down the river shouting for help. The rabbit was laughing. Then he saw another giraffe and also pushed it into the river. Down the river the two giraffes went.

They were heading for a waterfall and the rabbit suddenly realized the danger. He realized his joke had gone wrong and he had to save them.

How did he try to save them?

He got a rope and threw it to the giraffes. They tied it around themselves.

The rabbit then called the elephant and together they pulled and pulled until the giraffes were safely on shore.

The rabbit said he was sorry. The giraffes forgave him and they were friends again.

This story comes from G. Winkler, (Cape Town, Shuter & Shooter)

What effect did these questions have on our reading?

The insertion of questions into a text is an example of a teaching method called ***Directed Reading and Thinking Activity*** (DR-TA). The method consists of four steps.

Step 1: Guess

Insert questions that encourage the learners to ***guess what will happen*** in the story ('What do you think will happen?').

This will probably direct readers to actively ***notice***, for instance, the ***title*** of the story because it is often from the title that our initial expectations develop. We learn from the title that this is a story about a relationship between animals. This creates a sense of anticipation and expectation in the reader. A question like this may also work to activate the learner's ***network of knowledge about texts and about the world***. In this case, ***if*** we are familiar with fables (stories which use animals as the main characters but which are really about human personalities and relationships) we would expect the rabbit to play a trick. We would also expect the story to have a moral or a lesson for us.

Step 2: Predict

Insert questions throughout the text to encourage learners to ***predict what will happen in the next section*** of the story ('Who will make the mistake?''How did he try to save them?').

These questions are like bridges between the known part of the story (what has happened so far) and the unknown (what will happen next). They encourage the readers to use the information they have to imagine and predict what is still unknown. In this sense prediction becomes a core element of the meaning-making process involved in reading. Another effect of the questions is that they create a purpose for reading. We want to read the next part of the story to see if our prediction was correct or not.

Step 3: Read

Encourage readers to read the text. This procedure is made easier by all the directed thinking we have done about the story so far. The questions function to break up the text into manageable sections, so we only have to read a little bit before we can stop and think about it again. This ensures that ideas are understood and integrated.

Step 4: Revise

Pose a question at the end of the reading process to help learners confirm, revise, or elaborate their predictions. While learners are doing this they are constructing the meaning of the text. If they 'made a mistake' and predicted something that did not happen, we have created an opportunity for learning. Their mistakes make them revise and elaborate their existing understanding of stories and what they can expect from them.

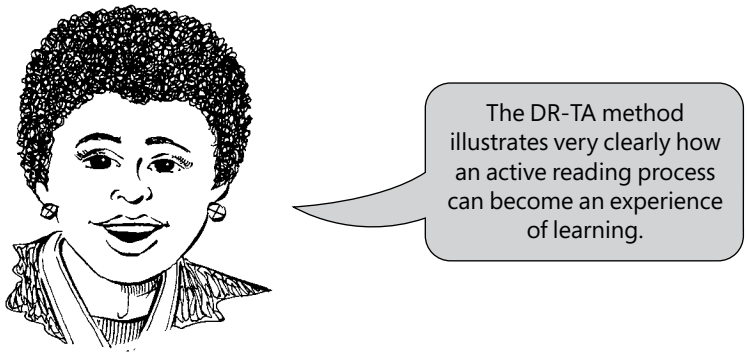
DR-TA's essential steps – ***activating*** and ***discussing*** what learners ***already know***, and ***predicting***, ***reading***, and ***discussing what happened*** and ***what was learnt*** – can be approached in many ways. The method can also be used for many different kinds of texts and in different learning areas. It can be used in small groups or with a whole class.

You will already have recognized the use of questions, predictions or guesses, imagination, and interpreting mistakes as the central elements of learning, as discussed in Section Two. The power of the method, no matter how you use it, is that it closely follows the natural process of learning:

The method begins with what learners know (***equilibrium***) and they make predic-

Do you notice any elements of this strategy in the way in which this Learning Guide has been written? Although it is aimed at learners with a better level of literacy, is an academic rather than story text, and the writers didn't deliberately use this method, we do think that some of the assumptions about reading that underlie the DR-TA method are evident. DR-TA was developed by Stauffer in 1969. It has been around for a long time and has survived many changes in the educational world because it is a flexible method.

tions on the basis of that knowledge (***focus on the familiar rather than the unfamiliar – assimilation***). Once learners read the text and find that they ***'made a mistake'*** in their predictions, they experience a state of ***disequilibrium***. They can no longer simply ***assimilate*** the information into their existing ***schemata*** and have to focus their attention on the unfamiliar aspects of the text. By doing that they extend their schemata to ***accommodate*** the unexpected information or turn of events. The process of accommodation means they re-establish a sense of equilibrium and have learnt something new.



When you worked through Peter's story about the giraffe and the rabbit, did you notice that 'understanding' did not occur as the end result of the 'mechanics' of reading? In other words, understanding is not something that happens only after learners have ***finished*** reading. Rather, reading for meaning or understanding formed part of the reading process itself from the very beginning of the story. This is why the DR-TA questions ***in*** the text can be such powerful supports for the reading process. By teaching learners to internalize the questioning process and to predict the development of the text ***as they read it***, we can help them to learn through reading.

Do you remember the reading by Dillon? You may well have struggled with it. We'd like you to now reread it using the new knowledge you have learnt about reading actively. You will need about an hour for this activity.

ACTIVITY 38

1 You have already studied Reading 12 by Dillon in the context of Section Two. You will notice a section in the Dillon reading titled 'Reading and studying'. Read this carefully.

2 Answer these questions when you have finished reading:
   a What different kinds of questions does Dillon suggest should be part of reading for learning?
   b Describe these different kinds of questions as part of the DR-TA method.

Different levels of reading

Reading, clearly, isn't a matter of passively receiving ready-made understanding from books. All reading, right from the start, is a highly active process.

The kinds of texts that learners encounter in their later school years require several levels of interpretation or meaning. We have identified four levels, all of which combine to make meaning possible:

- literal comprehension;
- interpretation;
- critical reading;
- creative reading.

We will briefly explain what reading and thinking skills are required for each one.

Literal comprehension

The learner has to be able to ***understand the meanings of words***, recognize the main idea, understand the sequence in which things are happening, and be able to recognize the cause-effect relationships in the text.

Interpretation

This involves going beyond the actual information presented in the text. Learners must be able to make ***generalizations***, predict outcomes, and construct relationships between different ideas in the text. At the simplest level, the skill of interpretation may lead us to make a statement like this, 'The writer's strong belief in predetermined learning objectives and her faith in standardized tests, like IQ tests, suggest that she would describe herself as a behaviourist'. In other words, we use existing information to predict and generalize.

Critical reading

At this level the reader is expected to ***make judgements*** about the quality, value, or accuracy of the ideas in the text. This includes looking for bias or exaggeration in the way that the language is used. Critical reading may result in the following kind of statement being made, 'While the writer's description of learning is interesting, her suggestion that teachers are able to determine the outcomes of learning fly in the face of most contemporary research'. In other words, we assess the quality of an argument and come to a judgment about it.

Creative reading

This involves the reader using the text to ***generate new ideas*** or develop new insights about a topic. At this level of reading we understand the ideas, we are able to use them to predict and generalize, and we have opinions about their validity. In addition, we can also use the ideas as a basis for developing new ones. Creative reading may lead us to make the following kind of argument, 'Both Vygotsky and Piaget are correct, but neither can tell us … (X). Our research shows that by factoring in the effects of … (Y), we can … (Z).' In other words, we use existing ideas to develop new ideas about learning, or about anything else we are studying.

The full possibilities for meaning in reading can only be realized through working at all of these different levels. We know that books are meaningless unless they are read. The act of reading is the act of creating meaning. So the meaning of a book is not in the book itself. It is the result of an ***interaction*** between the reader and the text. Since meaning is dependent on the activity of the reader's mind, the nature of the reader's activity will influence the nature of the meaning that is created.

The following activity will allow you to explore this point.

Spend about 30 minutes on this activity.

ACTIVITY 39

1 Look at the following illustration carefully. All four learners are making statements about the story of the giraffe and the rabbit.

2 Can you identify the different levels of meaning in the children's responses to the story?
3 Which child do you think gives the 'correct' meaning of the story? Explain your answer.
4 Why do you think many teachers encourage learners to think that there is only one correct interpretation of a book?
5 If there is no meaning in the story as such, why should the children bother to read it?

What did we think?

The first learner reports on the ***literal*** content of the story while the second learner takes a more ***critical*** attitude. He identifies an issue in the story and makes a judgement about it. The third learner has a ***creative*** response. He thinks up new ways in which the animals could have been saved. The fourth learner ***interprets*** the story and looks for a moral or a lesson to be learnt from the story.

All four learners understand what is happening in the story, but they engage with the text in different ways and so come up with very different responses. As a group, these children jointly construct the meaning of the story by each engaging at differ-

ent levels. In order for the full meaning of the story to be developed, these levels are all important: without the literal meaning of what happens in the story, the more interpretative and critical responses would not be possible. And whereas a critical response is more important in relation to textbooks than perhaps to a story like this one, learners need to develop a critical approach not only to reading but also to all aspects of life and learning.

The levels of meaning that go beyond literal comprehension challenge many of our preconceived ideas about books:

- They raise doubts about whether it is enough, or even necessary, to teach reading through comprehension exercises.
- Because they show us that so much of a book's meaning lies in a learner's head, they suggest that teachers should not emphasize memorizing what's ***in*** a book.

The activity of the learner is now recognized as central. The outcomes that guide South Africa's new curriculum emphasize this active role for learners. For example, the specific outcomes for the Languages, Literacy, and Communication learning area encourage learners to:

- make and negotiate meaning and understanding;
- show critical awareness of language usage;
- respond to the aesthetic, affective, cultural, and social values in texts;
- access and use information from a variety of sources and situations;
- understand, know, and apply language structures and conventions in context;
- use language for learning;
- use appropriate communication strategies for specific purposes and situations.

Even though the National Curriculum Statements developed as part of the Curriculum 2005 Review process describe the LLC outcomes in a slightly different form and language, you will notice that they remain very similar to those above.

4.5 Learning to read better

Earlier we looked at how textbooks are used for learning. We agreed that they are important sources of information and that learners need them to succeed at school.

However, we also know that many teachers either don't use textbooks in their teaching or they use them ineffectively, and many learners simply learn them off by heart. As the content and the demands of their courses become more complex, many learners feel stressed and anxious about reading books or using libraries to help them study. Even though learners may ***want*** to learn, the difficulty of textbook language makes reading tiring and, sometimes, almost impossible.

We know that successful reading is about 'cracking the code'. Let's take a closer look at this code and find out how textbooks are written.

How textbooks are structured

In order to do this we will 'study' this Learning Guide and use examples from it to develop your understanding of the textbook code and the structure of text.

The information in textbooks is usually organized and presented in carefully-designed patterns. Alvermann has identified five kinds of text structures or organizing patterns found in most textbooks, no matter what the subject content of the book might be. They are:

- simple listings;
- sequences;
- comparisons;
- cause-effect patterns;
- problem solving.

We will briefly explain each pattern before we work with them in greater depth.

Simple listing

This involves the presentation of information as a simple list of facts, often in order of importance. Sometimes lists are numbered or marked with bullet points. For example, what you are reading now is a simple listing. The purpose of a simple listing is to provide the reader with a short and clear overview of important information.

Sequence

A sequence describes events that happened in a particular order. The sequence can be presented as a story line, a time line, or a 'before and after' situation. The teaching purpose of a sequence is to draw the attention of the reader to the process or change involved in an event. For example, Mike's description of his reading lesson on pages 118–119 is a sequence with a story line.

Compare and contrast

This kind of text concentrates on differences and similarities between two or more things. Look at, for example, Donaldson's discussion of the spoken and the written word on page 112. The purpose of writing and organizing a text in this way is to sharpen the reader's understanding and definition of ideas.

Cause and effect

Cause-effect patterns look at events and their causes or consequences. The infor-

mation can be organized in two ways. One way is to describe an event and then identify the factors that caused it. Another possibility is to describe an event and then trace the effect it had. The discussion of the learning potential of the DR-TA method on pages 131–133, for example, uses this pattern. The teaching purpose behind this kind of text is to help the reader see links between different events and to find reasons for the way in which the links occur.

Problem-solution

This kind of text is similar to a cause-effect text, but concentrates specifically on problem-solution relationships between different ideas. Such a text should always clearly identify a problem that has to be solved. For example, our commentary after Activity 32 (pages 114–116) is structured like this and sets out to solve the problem 'Why are the above statements not true?' This kind of text is often used to encourage the reader to become a creative participant in finding a solution to a problem. Exercises and activities in textbooks are commonly written as problem-solution text.

These ideas are from D. E. Alvermann, *Content Reading and Literacy: Succeeding in Today's Diverse Classrooms* (Boston, Allyn & Bacon, 1998), p. 208.

You can see from the above examples that this Learning Guide uses more than one text structure. This is true of most textbooks in which you will find a combination of patterns, depending on the content or purpose of the different chapters or sections in the book.

We now want you to work with these text structures in some detail. By paying attention to the structure of a text, we can find clues to help us read and use textbooks meaningfully.

Work through the following activity on text patterns. Although it requires you to repeat a similar process each time, we encourage you to not skip any of the pattern exercises as each one establishes a ***different kind of relationship*** between ideas in the text. Once you have worked through the whole activity you will have deepened your understanding about the way textbooks work. You will also have ***practised*** a critical approach to reading text.

ACTIVITY 40

This is a long activity. It will take you at least 90 minutes to complete. Take a break after the first two exercises if you are feeling tired.

Sequence

1 Read our description of the DR-TA method again on pages 131–133 and then do the following:
- **a** Underline words in the text that signal that this passage is using a sequence structure.
- **b** As the text is sequencing events, you should be able to pick out the following information:
  - What is the first or initiating event?
  - What are the stages or steps?
  - How do they lead to one another?
  - What is the final outcome?
- **c** Draw a diagram of the sequence.

Here are words that signal a sequence or time order. Use them to guide you:
- first, second, third;
- next;
- initially;
- finally;
- before, after;
- when;
- now.

Compare and contrast

2 Read the discussion by Taylor and Vinjevold in Section Three (page 82) and then do the following:
- **a** Underline words in the text that signal that this passage is using a compare-and-contrast structure.
- **b** If the text is comparing things, you should be able to pick out the following information:
  - What things are being compared?
  - How are they similar?
  - How are they different?
- **c** Summarize the information of this section in a table like the one below.

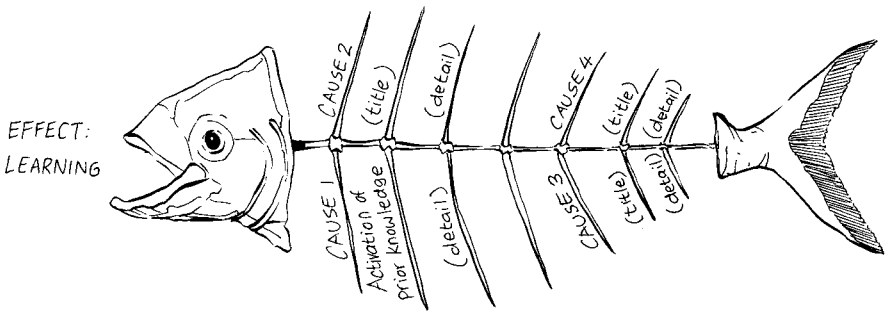
Here are words that signal a comparison or contrast. Use them to guide you:
- on the other hand;
- like, unlike;
- however;
- less than, least;
- more than, most;
- other;
- differently, difference.

	reading readiness	active reading
motivation		
purpose		
questions		
attitude		
interest		
attention		

Cause and effect

3 Read our commentary on Activity 9 on pages 44–45.
- **a** Underline words in the text that signal its cause and effect structure.
- **b** What are the causes of mistakes?
- **c** What are the effects?
- **d** Summarize the information from the passage in the diagram below.

Here are words that signal cause or effect. Use them to guide you:
- because;
- since;
- therefore;
- if ... then;
- as a result;
- consequently;
- nevertheless;
- thus.



Why text structures are important

At the beginning of this section we quoted an extract by Donaldson that described the nature of the written word. In the extract, she suggested that the written word requires us to become 'aware of language in its own right' because 'those very features of the written word which encourage awareness of language may also encourage awareness of one's own thinking and be relevant to the development of intellectual self-control'.

Dillon proposed a similar strategy by suggesting the use of 'questions about the self's process' while engaged in reading and studying.

Activity 40 required you to pay attention to signal words for particular text structures. In other words, following Donaldson's argument, you had to pay attention to a particular feature of the written word. The signal words, however, don't ***only*** point out (or signal) a certain kind of text. They ***also*** establish a relationship between the ideas in the text. Consequently they affect the way in which we think.

For example, by setting up learning as the ***effect*** of making a mistake, we are able to think about mistakes as the ***cause*** rather than the ***absence*** of learning. The cause-effect structure of the language has determined the structure of our thought.

By understanding text structures we can begin to recognize the relationships between parts of a text and become aware of our own thinking while we read. This awareness is the essence of intellectual self-control and will help us to be active and independent readers, able to use a text effectively in service of learning and teaching.

Learning to study better

4.6

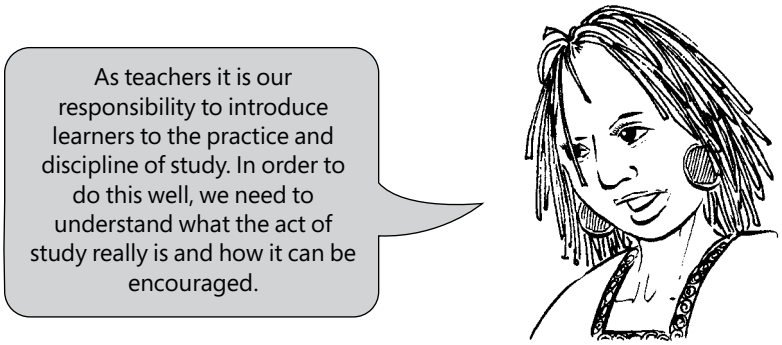
Earlier we observed that many people use the words 'reading', 'studying', and 'learning' as if they all mean the same thing. We found out that although text-related learning happens in both everyday life and at school, school learning in particular requires a lot of reading.

Later we discovered some similarities between reading as a meaning-making process and learning. We also learnt why reading is such a powerful tool for learning. Because it is so important to learning, we investigated different ways of reading and showed how reading-for-learning can only happen when we become aware of the nature of the written language and develop a critical attitude towards the text. As the famous writer and educator, Paulo Freire, explains:

Week 13 begins.

> *'Studying is a difficult task that requires a systematic and critical attitude and intellectual discipline acquired only through practice.'*

This phrase is from Reading 14. Paulo Freire was a Brazilian educator who lived from 1921 to 1997. His ideas were very influential in South Africa, first in the radical Christian groups and the black consciousness movement and then in the development of people's education in the late 1980s.



In Activity 16 (Section Two, page 61) we thought about how learning is (and is not) like banking. Paulo Freire used this metaphor to capture the old idea that learners are passive recipients rather than active constructors of knowledge. In his book, ***Pedagogy of the Oppressed***, he made a distinction between ***banking*** education on the one hand, and ***critical*** or ***dialogic*** education on the other. He urged that educators should stop thinking of teaching and learning as being like depositing money in a bank, or depositing facts in the head of a learner, and rather think of it as an active, critical process which can emancipate learners.

In his article in the Reader, Freire takes this notion further in relation to the acts (one might say ***activities*** and stress that they are ***active)*** of reading and studying.

ACTIVITY 41

1 Turn to Reading 14 'The act of study' from Freire's book, *The Politics of Education*.
2 Compare 'banking education' to studying with a 'critical vision'. (A hint: use what you learnt about the compare-and-contrast text structure to answer this question.)
3 Would the DR-TA method of reading fit in with Freire's ideas about study? If so, explain how. If not, explain why you don't think so.
4 What does Freire say about the relationship between the learner and the world? In other words, what is the point of studying?

Spend about 90 minutes on this activity. Read carefully. Use the ideas about reading and text structures you have learnt to inform your reading. See whether any of Freire's ideas are useful to your own 'act' of study.

Why do we study?

Freire claims that the act of study is founded in a curious attitude towards the world. If learners are curious about the world, they will ***want to understand*** it and will use all kinds of resources to find out more about it.

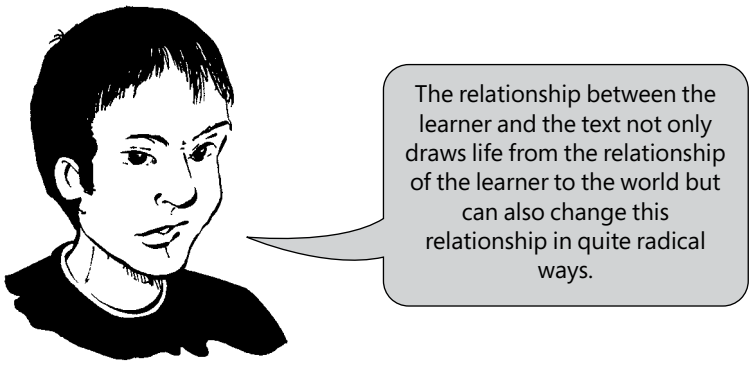
Reading and studying books are useful ways of finding out more information, but the information is not important on its own. It only becomes important if it is linked to real questions that emerge from our initial curiosity about the world. This is why he encourages us to take our own questions seriously, so that 'we as good readers [can] concentrate on analysing the text, looking for a connection between the main idea and our own interest'.

By using our own questions to guide us from the known to the unknown, we take on the role of the subject in the act of study. We are not studying in service of 'education' but are rather using education to develop our own thought. Studying is thus a way of making other people's thoughts our own by 'reinventing, re-creating, and rewriting' them in the light of the real questions we ask about our world. Therefore the 'one who studies should never stop being curious about other people and reality'.

In other words, Freire believes that the relationship between the learner and the ***world*** gives purpose and meaning to the relationship between the learner and the ***text.*** Freire's words are a great challenge to learners and teachers alike. He poses questions like:

- How do we stay curious about the world when so much of our time as learners is spent feeling bored and frustrated in class?
- How do we stay curious about the world when we spend years at school 'absorbing' other people's ideas about the world rather than actively and creatively interacting with our own?

But Freire doesn't argue that we give up learning about other people's ideas! Instead he says we cannot really study ***unless*** we actively make links between the texts we read and the context we live in.



One way to keep the curiosity of learners alive is to allow them to spend time at school talking with others about the questions and ideas that truly interest them, and to make these questions the basis of a disciplined study that involves both the spoken and the written word. To study and learn actively, we need to talk about and debate the insights that we gain in reading in relation to our own contexts.

In other words, we need to study the world and other people's words, but we need to do so actively and dialogically. We mustn't simply absorb these ideas uncritically, as a bank 'absorbs' money!

Freire allows us to understand how reading – the act of study – opens up new ways of understanding the world. It introduces the learner to the possibility of critical, and even radical, change.

This is why Freire argued that literacy, critical reading, and critical study are so

important. Sometimes a text that may not initially ***appear*** to have much relevance or interest for learners' lives can offer significant new ways of describing, understanding, and explaining everyday events once it is understood.

For example, look back at the discussion of 'the University' on Robben Island in Section Three, pages 75–77. By reading books and talking about theoretical ideas written many years ago by people from other countries, the prisoners of Robben Island developed new political understandings and explanations of events within their own experience; understandings which they would not otherwise have gained.

ACTIVITY 42

Spend about 50 minutes on this activity.

1 Turn to Reading 17 'Developing communities of reading and learning' by Brown and Campione. Carefully read the section entitled 'Higher-order thinking skills in reading'.
2 What, according to the writers, is an 'intelligent novice'? What skills does an intelligent novice need?
3 Do you think these authors would agree with Freire's definition of the 'act of study'? Give reasons for your answer.
4 Think of your own teaching. What more would you have to do to develop your learners as intelligent novices?

4.7 Texts, reading, and OBE

As we said earlier, the new South African curriculum suggests that learners should, by the end of their schooling, be able to:

- make and negotiate meaning and understanding;
- show a critical awareness of language usage;
- respond to the aesthetic, affective, cultural, and social values in texts;
- access and use information from a variety of sources and situations;
- understand, know, and apply language structures and conventions in context;
- use language for learning;
- use appropriate communication strategies for specific purposes and situations.

These are the seven language outcomes listed in Department of Education, *Report of the Technical Committee to Assist the Department of Education in the Development of Standards* (Pretoria, 1997), pp. 28–41.

The role of reading in the new curriculum

Reading and writing are not explicitly mentioned in these seven outcome statements. This omission has become a hotly-debated issue amongst teachers. Have OBE and Curriculum 2005 somehow forgotten about reading and writing?

In the area of early literacy education, there has certainly been some hint of this. In 1998, the new outcomes-based curriculum was implemented in Grade 1 classrooms. In preparing teachers for the change, many official guideline documents were issued. They fleshed out the specific outcomes – about making and negotiating knowledge, about critical literacy, and about communication – into detailed guidelines for lesson planning.

As a result many teachers moved towards more constructivist and integrated forms of teaching. However, very few of these guideline documents called for the ***deliberate*** teaching of reading. Reading and writing were relegated to two amongst a myriad of skills learners had to attain rather than as ***central processes*** in learning. The assumption was that if learners were presented with tasks involving reading and writing, they would construct the skills of reading and writing for themselves. Proponents of this view argued that their reading would be better than before, because they would learn it spontaneously in the course of interesting activities and not be turned off by boring reading instruction.

The result was that some teachers started to believe that reading instruction would no longer be necessary, or even that it was 'banned' by the new curriculum. Here is an extreme example of this kind of thinking:

A delegation of worried principals from a cluster of junior primary schools in western Soweto posed the following to their District Director as an agenda item for a meeting in October 1997: 'the suspension of principals if we do not teach phonics/reading'. In the meeting they told their director that certain teachers, after attending a teachers' union seminar on OBE, had informed them that phonics and reading programmes were part of the legacy of apartheid education, and that the new curriculum would no longer contain them. Obviously disturbed, the principals sought official reassurance on the matter from the department.

Questions and debates about early reading in these terms have continued to trouble many teachers. In fact the confusion became so severe that by early 2000, the Department of Education found it necessary to intervene and assert (some might say reassert) its commitment to the fundamental importance of reading in the learning process.

The new Director-General argued the following:

> *'Reading, in its broadest sense, is key to the development and sustainability of our fledgling democracy. The notion that the outcomes … do*

not promote, expect, or ensure that learners will be able to read and write is a "myth". The learning programme statement on literacy refers to a wider concept of literacy, including: language literacy, cultural literacy, visual literacy; media literacy; numerical literacy; and computer literacy.'

This quotation is from a paper by Thami Mseleku, 'Reading and Tirisano – Government's Vision for Reading in the 21st Century' presented to the *ERA Working Conference on Reading* (28–29 February 2000).

Why reading should be taught explicitly

Section Four has examined the central role of reading and writing in learning, in schools, and throughout contemporary society. It examined how written texts (books, journals, magazines, web sites etc.) provide the opportunity for learners to develop an awareness of language and a concomitant awareness of their own thinking. We saw the importance of teaching good reading foundations in children's earliest encounters with the written word, and we examined the ongoing importance of literacy development throughout the educational process. Reading takes us beyond our existing knowledge, and successful learners read more and more texts of ever-increasing complexity as they progress through school.

Our view is that reading and writing are ***fundamental*** to learning in educational contexts. Not only must the teaching of reading be improved, but the practice of reading and writing must appear ***explicitly*** as a critical learning outcome at all levels as OBE matures.

We would argue against the idea, found in much South African thinking and writing about OBE, that children will construct the skills of reading and writing spontaneously. Our view is that good, ***explicit teaching*** of reading is essential to the successful early acquisition of literacy. Here is a particular case of a young learner which illustrates this point well:

'In Grade 1, the teacher taught Ashok the alphabet. She made the students learn the sound of each letter for weeks. She made them write each letter.

For the first two months, the chalkboard was covered with the alphabet. Children copied each letter several times. Ashok learnt all the letters. Teacher and children paid attention to the textbook which had a letter, word, and picture per page. Ashok learnt immediately the b of bird, the a of apple, and the t of table. He failed to understand when the teacher added "ird" to b for bird. The teacher did not have time to notice or understand Ashok's point of view.

When Ashok went to Grade 2, he was asked to read a book. He said "b of bird", "a of apple", "t of table", reading letters off the page in this way. The teacher got annoyed with him and said, "Listen carefully to other children and read like them." Ashok listened, but he couldn't understand where he was making a mistake. He felt the others read just like him. Somehow he got through to Grade 3. Now he read by combining letters and vowel sounds. The teacher rarely asked him to read. Children sitting near him on the mat read the whole chapter. He didn't feel bad about it. He memorized a whole poem and during a revision of lessons in the last weeks of Grade 3, he read the poem without opening at the right page. He was happy but the teacher was angry. The differences between his and his teacher's points of view were becoming sharper.

Grade 4 started. The first page of his new geography book, a new subject, said, "Our district is uneven and rocky … its construction is like a plateau." Many children in the class had learnt to read fluently. They stood up and read, and then copied it into their notebooks. When Ashok tried to read slowly, the teacher would become impatient. The same situation existed during science lessons. In a month the teacher got so fed up with Ashok that she stopped saying anything to him. Ashok felt that the teacher didn't care any more. After the holidays, he didn't go back to school.'

This is adapted from a paper by M. M. Clay, 'How children learn to read: an international perspective' presented to the *All Africa Conference on Children's Reading* (Pretoria, August 1999).

Take some time to reflect on the issue being raised here.

STOP. THINK.

Before you continue, think about this story. How does it illustrate the point that reading must be explicitly taught and isn't spontaneously learnt?

How does the story end? Well, Ashok dropped out of school because he couldn't learn how to read accurately for himself. In fact, as we saw, he constructed a 'reading' practice of his own which remained trapped in his ***misunderstanding*** of what the task entailed. (Do you remember the discussions on misunderstanding and making mistakes in Sections One and Two?) He dropped out because the teacher failed to teach him new ways of reading. She failed to provide him with a pathway from the known to the unknown that would allow him to learn from, and overcome, his mistakes.

Clay (the writer of this story) explains that the lesson to be learnt from Ashok's story is that:

> *'if children are confused [about reading], then expert teaching is needed to pull them out of it. … [the problem] will not sort itself out as the child gets older. On the contrary, the child will, willingly and with effort, build error upon error until there is a huge, seething ant-hill of error.'*

Many teachers, we believe, are wrong when they say that children construct their own knowledge of reading in the course of outcomes-based activity. They underplay the crucial role of reading ***instruction*** and, by doing this, limit the learners' reading abilities for life. Reading is critical to good learning and like all learning requires teaching ***and*** an active learning attitude by learners to be successful. Removing either makes good learning impossible.

Conclusion and key learning points

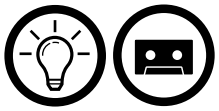
4.8

Reassessing the half-truths

STOP. LISTEN. THINK.

Relisten to Part 4 of your audiotape. Then go back to the half-truth statements at the beginning of this section on page 111 and decide if you still agree with your original responses:

- Have any statements changed their meaning for you? In what way?
- Can you now see some truth in statements you initially thought were incorrect?



Take some time to reflect on the issue being raised here.

Use what you have learnt in this section to develop your arguments both for and against these different positions on reading. Use the half-truths as a checklist to confirm what you now understand and what you are not yet certain about.

Key learning points

This section has investigated the relationship between learners, text, and the world.

We have argued that the links between the reader and the text are critical for the reading process, and that the knowledge the reader brings to the text is as important as the information on the page. We also saw that at school, textbooks are often the context for learning and that the use of school textbooks requires learners to be active and independent readers. We then took a closer look at the way in which textbooks are written, and explored how the structure of a text organizes and directs the way we read it.

We examined Freire's critical view of reading as dependent on our curiosity about the world and as a powerful force in changing our engagement with the world. Building on his ideas, we suggested that schools need to develop 'intelligent novices' who are able to take on the questions of the world.

Finally, we argued that teaching reading is an explicit and deliberate act. We suggested that the dangerous half-truth emerging in South Africa – that reading can be learnt spontaneously and therefore that teaching reading is outdated – could doom millions of learners to be poor readers for life.

Here is our summary of this section's key points:

- Reading is an activity of the mind requiring learners to 'crack the code' of the written text to generate meaning.
- Reading becomes meaningful when the reader can make links between his or her personal experience and the experience encoded in the text.
- Reading can be hard work and too many learners have a negative attitude towards it.
- Children are eager to learn to read when they believe that books are the key to a new world of experience.
- The attitude of adults towards reading influences the attitude of children towards books.
- Teachers need to read widely and actively themselves in order to establish a context of reading in the classroom.
- Learning through reading requires an active engagement at several different levels of meaning making.

> ***The act of study should not be measured by the number of pages read in one night or the number of books read in a semester. To study is not to consume ideas, but to create and recreate them.***

This quotation comes from P. Freire, *The Politics of Education* (Masachusetts, Bergin & Garvey, 1985).

- Different kinds of text require different approaches to reading, but all texts require active reading.
- Prediction and questioning are key reading skills.
- A critical approach to text is an essential skill for school learning.
- All books follow certain text patterns that establish specific relationships between different parts of the text.
- The structure of a text can influence the way we think about the ideas presented in the text.
- Teachers need to introduce learners to the 'discipline' of study and encourage them in its practice.
- The act of study is founded in a curious attitude towards the world.
- Reading can produce further curiosity and a critical attitude to the familiar world.
- The early skills of reading should be taught explicitly.

SECTION FIVE

How can teachers structure learning?

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5.3 Working with what learners already know 157
5.4 Teaching strategies that bridge the gap 167
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5.6 Conclusion and key learning points 179

Introduction 5.1

What will you learn in this section?

Week 14 begins.

In this module we have argued for a constructivist approach to teaching and learning. But in doing so, we have warned against an approach which suggests that learners are capable of learning all they need to know completely naturally, and that schools or teachers are unnecessary.

Instead, we have encouraged you to think about learning in a systematic and theoretical way.

- First, we introduced you to the ***learning paradox*** and the difficulty of becoming a learner.
- Section Two explored ways in which learners can construct their own knowledge as they journey from the known to the unknown.
- We then focused your attention on the particular nature of school learning in Section Three.
- In Section Four we discussed the great potential and specific demands of reading for learning.

You might want to relisten to the audiotape and note down in your workbook any ideas speakers have given you about how to structure learning; about how to teach. This section builds on these ideas.

Now it is time to shift our attention away from the activities of learners and focus more directly on the role that ***teachers*** play in learning. We will investigate how teachers can structure learning opportunities in such a way that learners can access all their available resources to help them learn. We argue strongly that even in a learner-centred curriculum it is the teachers' responsibility to teach so that learners learn.

In order to achieve this we have to construct learning activities in such a way that we achieve the right balance between challenge and support.

Some half-truths to guide your study

Before you begin, read and think about the following statements about how teachers can structure and direct the learning process.

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
Teachers should avoid conflict at all times as it blocks learning.		
Learners should be encouraged to ask questions.		
Learning is best undertaken in a structured, orderly manner.		
The learning process should be designed to move learners from the easiest and most familiar tasks through to the most difficult and least familiar ones.		
The teacher's role is best understood as one that facilitates learning, rather than one that teaches.		

5.2 Finding out what learners don't know

As teachers we cannot learn for our students. We also can't transmit what we know directly into their heads. We can only create conditions that are necessary for them to learn and construct their own understandings.

But what sorts of conditions, what sorts of tasks and teaching strategies, enable good learning?

Read through the following learning moment. This description of learning from a South African learner may draw your attention to strategies that teachers can use to intervene in the learning process and promote effective learning.

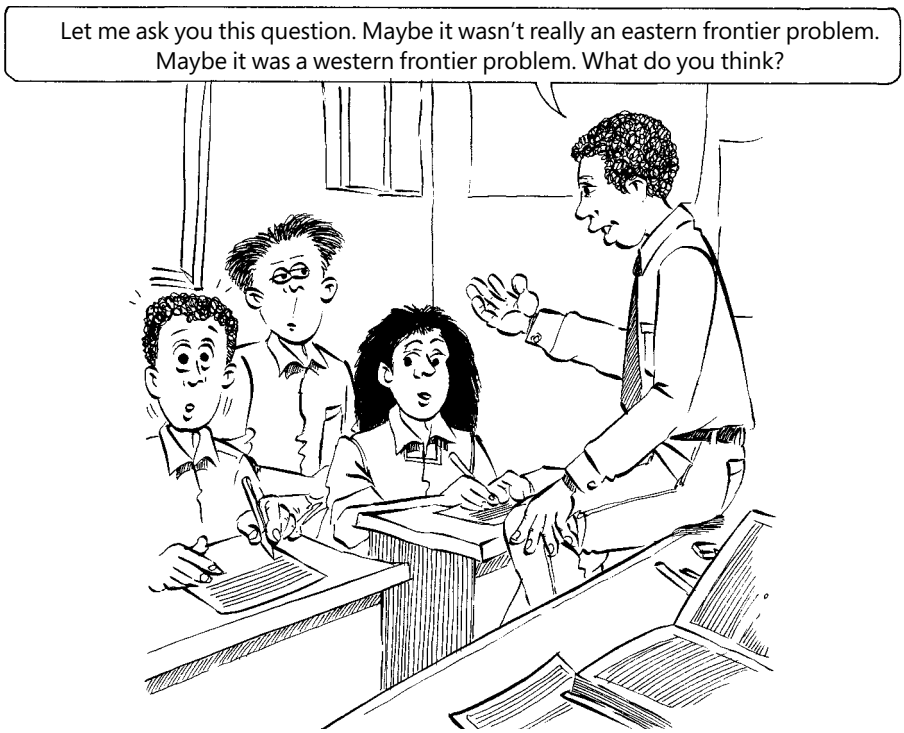
Learning moment 1

'Can I remember something that happened to me in class that changed my learning? Yes, there's one thing that I remember very well. Even now, about six years later, I can remember it so clearly that it's almost like it happened a few minutes ago.

It was in my Std 6 History class. We were doing all that stuff that we had done over and over again almost every year since I was in primary school – the Great Trek and why the trekkers left the Cape and all that. It was so boring and I already knew all about how the Xhosa used to steal cattle from the boers and how the English taxed them too much. All the stuff you were supposed to know if you were a good white South African kid.

And now we were doing it again. The eastern frontier problem, again. And even if it was boring, I still accepted it all: that the Xhosa were the bad guys and the boers were the good guys.

Then the teacher said something, which kind of changed the way I thought. It really was an awesome event for me in my learning. We were looking at our textbook, which had a chapter called 'The Eastern Frontier Problem', and he said:



He didn't even make us answer the question. He just asked it slowly and then kept quiet for a while. I think, maybe he was too scared to do anything else because teachers could get into trouble for not sticking to the syllabus.

Suddenly, I could see that History wasn't just about facts, but it was about having different views of the past. I could see that when we learnt the 'eastern frontier' and the 'Great Trek' over and over again, it might have been just to teach us a lie. I think that a lot of my critical thinking about History started right there.

It was only at University that I learnt about the Mfecane and things like that, but I already somehow knew that History was about different views of our past, even if I didn't know all the right words to say it. It was my Std 6 teacher who taught me that, just by asking one little question. I reckon I've got a lot to thank him for.'

STOP. THINK.

What is the *teacher* doing to make learning happen? What moves is the *learner* making alone? What challenge does the teacher present to the learner? How does the learner meet the teacher's challenge?

Before you continue, reread 'Learning moment 1'. Then see whether you can answer these questions. Make notes in your workbook.

Take some time to reflect on the issue being raised here.

Using tasks to create learning gaps

This experience in a history classroom illustrates how important it is that learners experience a ***gap*** between what they know and what they must get to know. It also shows that these gaps don't always occur naturally; they are carefully set up through a challenge by the teacher.

In everyday situations we usually experience a real gap in our knowledge when we encounter practical problems that require immediate, practical solutions. These problems present themselves unexpectedly in a spontaneous, unstructured way. In school, however, the learning problems are very different. The gap between the known and the unknown may be of no practical consequence to the learner. It is an artificial gap, which the teacher sets up with the help of a carefully-structured task.

This task – this gap – exists in and through language only; it occurs in the form of words and isn't a concrete reality. So, in order to solve it, learners must understand the language being used.

The ***quality*** of school learning is greatly influenced by how teachers design gaps to create a conflict between what learners already know and can do with their words and ideas, and what they should know and should be able to do soon. But designing a learning task of this kind is difficult! Let's read to see whether we can find some ideas to guide us as we design these tasks.

ACTIVITY 43

1 Turn to Reading 9 'Education for all' by Craig. Read the introduction and the section called 'Basic principles for cognitive change'. They will give you a good idea of what the whole article is about.

2 Once you have done this, carefully reread the first two principles of cognitive change and the section entitled 'Conflict'. Then answer these questions:
   a State these two principles clearly in your own words.
   b How do these two principles of cognitive change apply in 'Learning moment 1'?

Spend about 90 minutes on this activity.

Manipulating form and content in task design

The ***content*** of the lesson in Learning moment 1 was very familiar to the learner. The teacher was probably aware of this and had thought about the boredom such familiarity would create. He needed to do something that would focus the attention of the learners on something new.

- By rephrasing the problem of the 'eastern frontier' as a question about the 'western frontier' he introduced a gap in the learners' understanding of history.
- The content of the usual history story was questioned, or understood in a new way, by changing the perspective from which it was told. By shifting the perspective, the teacher created an internal conflict for the learners.

If their all-too-familiar understanding of the frontier wars suddenly became only one of many perspectives, how would they know which version of the story is really true? Learners were suddenly forced to think, both about this content and about how they would set about convincing people of the strength of their particular perspective.

You can also imagine how, in the absence of this conflict, the thinking of these learners had remained static for many years. They probably thought they knew and understood all there was to know about this part of South African history. But as soon as the history task was designed in such a way that the familiar content was presented from an unfamiliar perspective, a whole new way of thinking about historical events became possible.

The unfamiliar 'form' of thinking about history – history as several possible and often conflicting versions of events rather than a list of facts to memorize – is highlighted for the learners. They experience a shift in thinking that ***'really was an awesome event for learning'***.

Creating learner uncertainty

Learning moment 1 also illustrates the second principle of cognitive change, namely that learners have to discover the limits of their knowledge through their ***own actions*** before they can explicitly be taught about the task.

Once the teacher had set up the conflict, he did not resolve it himself. As the learner recounts, ***'He didn't even make us answer the question. He just asked it slowly and then kept quiet for a while.'*** This silence meant that the learners had to act themselves, not physically but ***mentally***. They had to weigh up this new possibility of thinking about familiar facts in a very different way. They had to decide for themselves if they stood on the eastern or the western frontier line.

By acting upon the uncertainty that the teacher's question created, the learner was introduced into the critical discourse of history. This introduction was so powerful that years later he claims, '***I think that a lot of my critical thinking about History started right there.***'

The above discussion of Learning moment 1 echoes our debate about everyday and school learning on pages 81–82, where Floden and Buchmann argued that teachers should not always start where learners are at, but that school learning can also begin with very unfamiliar material that has no apparent connections to learners' everyday lives.

They argued that a deliberate break with everyday knowledge would create greater opportunities for learning. However, in the light of Craig's discussion we can see that the ***quality*** of the break is very important. The gap between what learners know and don't know will only encourage learning if it creates an internal conflict that learners ***want to, and feel able to, resolve***.

As teachers we have to deliberately create a gap between the learners and the intended learning outcomes, but it is also our responsibility to structure the gap in such a way that it is not too vast (and if it is, we need to provide resources to enable learners to construct bridges of learning).

Here is another learning moment. Before you read it, scan the questions that follow the description on page 154. Use these to guide your reading.

Learning moment 2

'I was excited when our new teacher finally arrived. We had been without one for a while. I got on well with the teacher we had before. I did well in most subjects. The new teacher was, however, very different. I noticed that I was struggling to write creatively. I started being frightened of writing. The kind of writing this new teacher demanded was not familiar to us. Our writing for the previous teacher focused mainly on writing friendly and formal letters. We were always given a topic to write about, and the teacher's mark indicated that she considered grammar, spelling, and the logical flow of ideas to be important. These letters were easy. I did very well.

The new teacher introduced something completely different. We had an exercise book called our "journal" in which we had to write our own poems or stories. We had to write at least two things every week. She took the journals in and checked what we had written, but it was not for marks. I could not think of things to write, but I did not want to be exposed. So I used to copy from other books and magazines and pretended it was my original writing. There was a poem that I copied from the newspaper, about men digging in the street in Johannesburg. I remember some of it, "jackhammers pound, muscles gleam, to aid our traffic's angry stream".

My teacher must've known it was not mine, but she did not say anything. I also copied some stories from magazines and a poem from a birthday card. I tried to write my own but I could not do it. I used to be able to write. Our old teacher used to tell us what to write about. She gave us the form, and we had to fill in the details: beginning, middle, and end. We were given the topic and we knew what the correct language to use was and how many paragraphs to include. In essence, we just had to fill in our own sentences. We did not know how to write something completely new by ourselves.

Then one day I observed something that changed my approach to writing. I noticed that this teacher had a particular way of organizing information when she was teaching. She did not speak to me about how to write, she did not even punish me for copying and cheating, it was just the way she taught. Every lesson she presented was organized in the same particular way. She introduced the topic as a debate. She gave views in favour of the topic, and views against it. Then she would look at the evidence. At the end, she would reach a conclusion and say where she stood in the debate. This observation helped me a lot. It was the first time I had an idea of how to write confidently. I started writing like that. Soon I could write my own essays and I could even add my own ideas. In matric, I wrote an essay on censorship in the examination and I got a good pass.'

Take some time to reflect on the issue being raised here.

STOP. THINK.

- What is the teacher doing to make learning happen?
- What moves is the learner making alone?
- What challenge does the teacher present to the learner?
- How does the learner meet the teacher's challenge?
- Compare the nature of the challenge in Learning moments 1 and 2. Do you think the two teachers were equally effective?

Creating gaps that don't overwhelm learners

Learning moment 1 was a good example of the power of conflict in learning. Learning moment 2, however, presents us with a learning experience that nearly went wrong. Initially the learner felt so overwhelmed by the task, that she began to cheat and copy rather than attempt any work of her own. In the end, however, she did learn to write in a new way. But what does her initial reaction mean? Did the gap the teacher constructed help or hinder learning?

Spend about an hour on this activity.

ACTIVITY 44

1 Reread Learning moment 2. Also read over your responses to Learning moment 1.

2 Answer the following questions when you have finished:

- **a** Use the principles of cognitive change from Craig's article 'Education for all' to explain how the learner in Learning moment 2 was able to change the way she was writing.
- **b** Do you think every learner in the class made similar observations about the teacher's method? If not, what implications does this have for their learning?
- **c** Do you think it was good that the teacher did not say anything when the learner was cheating and copying?
- **d** Do you think the teacher offered enough support for the writing process? Explain your thoughts.

This activity reveals another difficulty teachers face as they think about constructing the learning process. It is not enough to set up a conflict to generate an internal crisis for learners. Too much insecurity and conflict can result in learners avoiding the task by cheating or copying. Conflict has to be balanced by support.

Scaffolding the gaps: supporting learners

Gaps, as we know, are places into which one can fall! We need ***support*** to traverse them.

The same is true in learning. Although creating a conflict in the learners' minds, or a gap in their understanding, provokes them to look actively for new ideas, it can also demoralize learners if we provide no support. A good learning task has to be designed in such a way that it provides two things:

- a sufficient ***gap*** between the known and the unknown to make learning ***necessary***;
- enough ***scaffolding*** to make learning ***possible***.

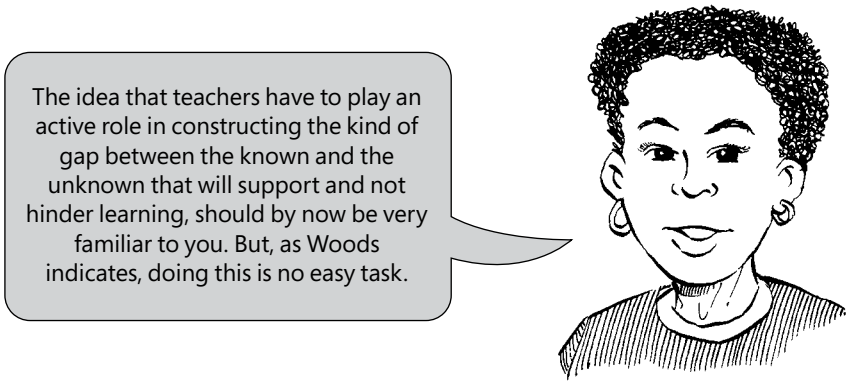
Wood described the dual responsibility of teachers to challenge and to support in terms of two rules of teaching:

'The first [rule] dictates that any failure by a child to bring off an action after a given level of help should be met by an immediate increase in help or control. Thus, if the teacher, say, had provided the child with a specific verbal instruction and then found that the child did not succeed in complying with it, the appropriate response is to give more help. […]

The second rule concerns what should happen when a child succeeds in complying with an instruction. This dictates that any subsequent instruction should offer less help [than before]. In other words, after success the teacher should give the child more space for success (and error). […]

Stated simply and boldly, the rules of contingent teaching sound easy. However, […] it is difficult to teach all children contingently all the time. […] Effective teaching is as difficult as the learning it seeks to promote.'

This quotation is from D. Wood, 'Aspects of teaching and learning' in P. Light, S. Sheldon, and M. Woodhead (eds.), *Learning to Think* (London, Routledge, 1991), p. 104.



Activities 29 and 30 in Section Three introduced you to the notion that teachers can scaffold learning. At this point you might want to reread the article entitled '"Scaffolding" learning in the classroom' (Reading 7). Also take another look at your notes on Activity 30.

Do you recall that ***scaffolding*** (like many other ideas in this module which focus on the responsibility of teachers to support learning) builds on Vygotsky's idea of the ***zone of proximal development (ZPD)***?

The ZPD is the gap (or zone) in which learners can shift from solving problems ***initially only with the help of the teacher (or more capable peers)***, to solving them on their own. In other words, the ZPD represents the kind of gap between the known and the unknown in which learning can take place. The idea of the zone of proximal development is very important in conceptualizing the teacher's role.

- It shows how important teachers are to the learning process, despite the fact that learners have to actively construct their own understanding of the task.
- Vygotsky argues that learners will not move from the known to the unknown unless they have a chance to actively observe and participate with their teacher (or peers) doing something they cannot yet do on their own.

In other words, while learners and teachers are busy on a task, the teacher can encourage learning by modelling actions that will arrive at the solution. However, ***imitation*** alone does not constitute learning. The learners still have to ***internalize*** the model of the teacher by reconstructing it in their own minds.

Designing tasks that disrupt familiar thinking patterns

In addition to providing a model for imitation, teachers must create conditions and opportunities for movement and change in learners' actions. By designing tasks that

require new kinds of actions from learners – tasks that disrupt their use of familiar, old patterns of thinking – teachers will help learners to negotiate the zone of proximal development.

As we have seen in Section Two, the teacher can support this process by:

- asking questions and interpreting the questions of learners;
- using what is known to help students imagine new things;
- encouraging guessing and risk-taking, and helping to interpret mistakes in order to draw attention to the important features of the task.

Finally, learners need to be encouraged to use their newly-constructed knowledge creatively and apply it independently to new problems and tasks.

True learning is a developmental process and cannot be achieved in a single task.

True learning is a developmental process and cannot be achieved in a single task.

However, the role of the teacher is to structure each task in such a way that the task itself becomes an opportunity for development to occur. The notion of the zone of proximal development helps teachers to think about the developmental quality of learning tasks in very particular ways and to make choices about three important aspects of their work:

- First, teachers have to choose how they use what learners know. (What do learners already know and what can they already do on their own?)
- Second, teachers have to decide how they focus the attention of the learners on the rules, language, and expectations of the task. (What aspects of the task need to be modelled or mediated? In what way must learner activity be constrained or restricted and focused?)
- Finally, they have to choose specific strategies to bridge the gap between the learners and the task. (Do the learners have enough opportunities to imitate, internalize, and apply what they are learning?)

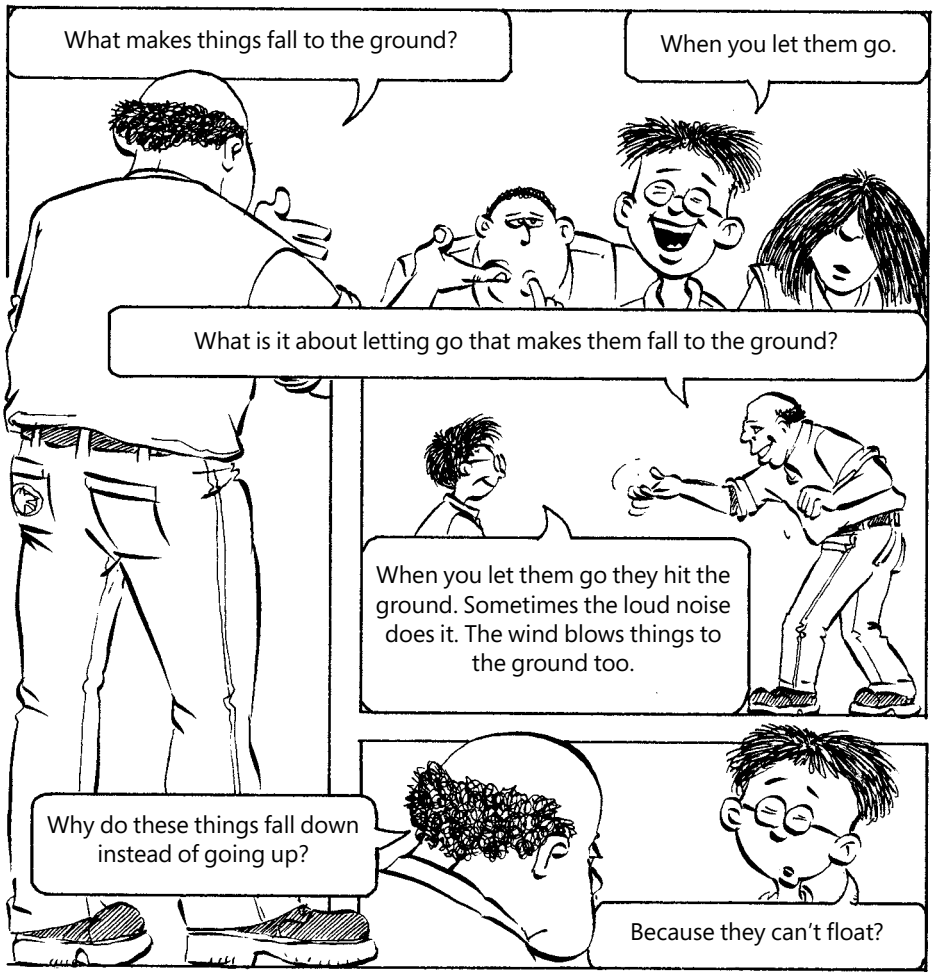
In the remainder of this section we will investigate each of these choices in more detail.

Working with what learners already know

5.3

One ***requirement***, if we are to use the idea of the zone of proximal development to inform teaching practice, is that we have insight into what learners already know. Teachers have many ways of probing their learners' understanding, but most teachers use direct questions such as 'Do you know?', 'Why do you say so?', 'Why did you do that?', or 'How would you explain that?'.

Probing alone, however, often leads to a dead end and fails to move learners beyond a certain level of explanation to a new way of thinking. Here is an example of this:



In this dialogue both teacher and learner are stuck, because the teacher is only using one kind of question ('What makes things fall to the ground?') to find out what the learner knows about gravity. By rephrasing and repeating this one question over and over again, the teacher gives the impression that he is looking for the correct answer rather than for the learner's ideas and understanding. In other words, he is using the question to test the learner's knowledge rather than to understand what the learner knows and why he thinks about things in this way.

This might be one reason that explains why the teacher fails to build on what the learner knows and move him beyond his everyday understanding of gravity. What do you think?

Using questioning thoughtfully

Here is another transcript from a lesson. In this case the lesson is on safety in the home, and the tutor is trying to build on what learners already know. Think about whether this teacher does it more successfully than the previous teacher.

Spend about 30 minutes on this activity. The transcript is from N. Mercer, *The Guided Construction of Knowledge* (London, Multilingual Matters, 1995), pp. 34–35.

ACTIVITY 45

1 Carefully read the following transcript:

Tutor: (Looking around the group.) *Before we start, can anyone give me any ideas of the kinds of accidents that might happen in the home?*

Kay: *Leaving toys on the stairs.*

Tutor: *That's good. Anyone else?*

Steve: *Trailing wires such as on an iron ...*

Tutor: *Fine.*

Steve: *... where a little child can pull it down.*

Tutor: *Pull it down. Yes, fine. Can you think of anything, Amanda?*

Amanda: *Just leaving things hanging around and everywhere, putting pots away ...*

Tutor: *Mmm* (nods).

Amanda: *... and things like that.*

Tutor: *So being tidy is one of the main areas. I agree with you.*

2 Reread the transcript, this time paying particular attention to the moves the teacher is making. Consider the following:
- **a** How is the tutor using what learners already know?
- **b** Will this help the tutor to understand what learners can or cannot do on their own?
- **c** Can you think of any other methods the tutor could have used to find out what the learners know about safety in the home?

Teachers' questions

The teacher in Activity 45 uses a fairly traditional approach to her lesson. She tries to begin where learners 'are at' and then tries to find out what they know about safety in the home. She draws out their ideas by asking direct questions ('Can you think of anything, Amanda?'), indirect questions ('Anyone else?'), and by confirming what they say ('That's good.').

All her questions are ***factual questions*** and in the end, she reformulates what learners have said into a ***generalized*** point about home safety: 'So being tidy is one of the main areas'. In other words, she uses what learners know to illustrate or exemplify the general point she has chosen to teach.

Although this teaching approach is popular (the lesson about electricity in Section Three, for example, has a similar structure), it has several shortcomings:

- First, it concentrates on facts and does not explicitly challenge learners to draw on their network of knowledge in a relational way.
- Second, it does not generate a conflict or problem that challenges learners to rethink their perceptions of safety in the home.
- Third, the teacher (and not the learners) asks all the questions, so in the end it is difficult to know what the learners can or can't do on their own and where they need help from the teacher.

Are there any other ways in which we can use questions to evoke learning?

Teaching learners to question

As we showed in Section Two, ***learner*** questions are powerful tools for learning: we found out that they can reveal what learners know as well as what they don't know.

Let's see if we can redesign the task in Activity 45 to allow learners to ask questions and use what they already know about safety in the home to challenge and extend the way they think. Here is one example:

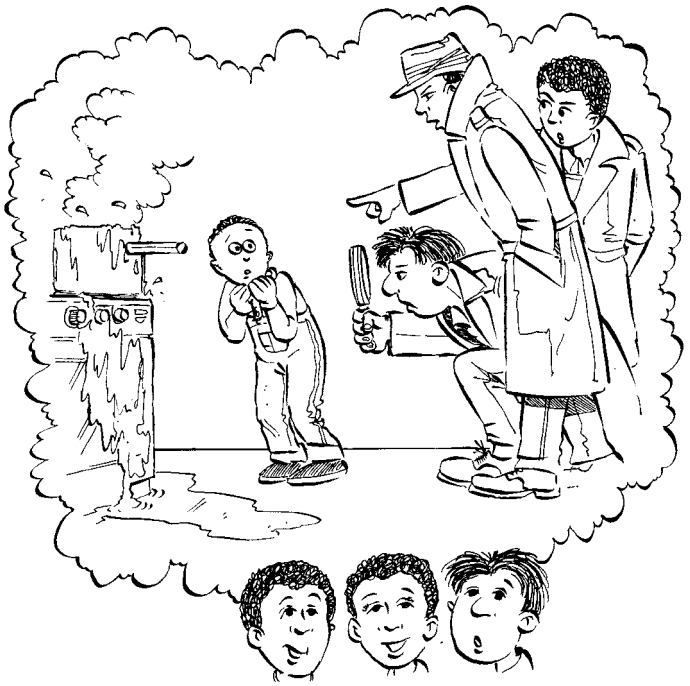
Step 1:
The teacher hands out a short accident report card and asks the learners to work in small groups and imagine an accident that happened in a home. They then use their imagined accident to fill in the report card.

Learners actively use their knowledge and their imagination to produce a coherent, meaningful scenario about the lack of safety in the home. They work in a group so that they can collaborate and support each other in a potentially daunting task. The accident report card constrains their activity and helps them to pay attention to the structure of the task.

Step 2:
The groups exchange their accident reports. They then read through the new report they have received.

By exchanging the report cards, learners are suddenly confronted with unfamiliar ideas they have to 'explain' (unfamiliar content, familiar form).

Step 3:
Each group now works with the new report. They imagine themselves as people who have to investigate the household accident. Learners are asked to generate a few probing questions for their investigation.



In the role of 'investigators' they have to generate their own questions. They already know the facts on the report card and so the 'investigative' questions have to be relational, explanatory, or evaluative in nature. By influencing the kinds of questions learners ask, teachers can encourage them to enquire further about the problems of safety in the home.

The teacher in this example uses three deliberate steps to structure the learning situation. This structure allows learners to focus all their attention on the important features of the learning task. In addition to the very structured teaching sequence, this teacher also encourages learners to move to a qualitatively new position in their thinking about accidents in the home by:

- providing them with a ***model*** (using report cards to be filled in);
- allowing learners to internalize the problem (imagining themselves as investigators of the accident);
- asking them to apply their knowledge creatively (generating new and complex questions).

The task turns learners into questioners. Learners not only construct the ***content*** of the lesson (case scenarios), but also create a ***problem*** for investigation. As investigators of the 'accident', they find themselves in a 'real' yet carefully-designed confrontation with the unknown (their knowledge of home safety), and they are guided into using the power of their imaginations and their questions to learn.

The importance of thinking about the process of teaching

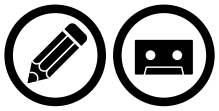
When we compare the above example with the first transcript in Activity 45, we are able to see how the ***choices*** of the ***teacher*** (in this case about the way in which to use what learners already know about accidents in the home) influence the structure and focus of the learning process. The method a teacher chooses makes a difference because it affects ***what*** is learnt and also ***how*** it is learnt. This is true not only for

individual lessons, but also for longer-term programmes.

Turn to your Reader and read a little more about how the choice of teaching method influences what and how learners learn.

ACTIVITY 46

1. Turn to 'Developing communities of reading and learning' by Brown and Campione (Reading 17).
2. Look at the headings and subheadings before you begin to read. You have already studied a part of the article in Section Four. However, reread the first few pages to get a sense of what the *Reciprocal Teaching Programme* is about.
3. Now carefully study the section under the heading 'Reciprocal teaching of coherent content' and answer the questions below:
   - **a** What problem or gap did the learners face?
   - **b** What methods do the facilitators of the programme use to bridge the gap?
   - **c** How did they structure student learning?
   - **d** What do you think was the secret of their success?



Spend about an hour on this activity. Once you have completed the reading and answered these questions, listen to Part 5 of your audiotape. First, Moll and Lazarus draw from theorists like Vygotsky to explain what good teaching is. Then Tshule and Adler use these ideas to provide us with a number of practical teaching ideas. Does the tape add anything to your understanding of the Brown and Campione reading?

All of the above examples illustrate how teachers are able to make choices about how they use what learners know. They are choices about the process, rather than the content, of the learning situations and have a powerful impact on the structure of the learning task.

Teaching learners to analyse tasks

Craig makes it clear that it is important for learners to be able to focus on the ***rules, language, and expectations*** of any learning task. In the previous section you had an opportunity to work with ***signal words*** in a text. Your work illustrated how a specific language feature of a text can influence the way in which we think.

Awareness of language and how it works, according to Donaldson, is also an important part of intellectual self-control, as it allows us to make choices about our mental processes. This means that the language we use in a learning task (be it oral or written) should not be incidental, and as teachers we need to become aware of the choices we make in this regard.

Language awareness for the ***teacher only***, however, is not enough:

> *'As we help students acquire information, ideas, skills, values, ways of thinking, and means of expressing themselves, we are also teaching them how to learn. In fact the most important long-term outcome of teaching may be the students' increased capabilities to learn more easily and effectively in the future, both because of the knowledge and skill they have acquired and because they have mastered the learning processes.'*

This quote comes from B. Joyce, E. Calhoun, and D. Hopkins, *Models of Learning - Tools for Teaching* (Buckingham, Open University Press, 1997).

Understanding the demands of the task

Ultimately we want learners to become aware of their own thinking and so we need to find ways of focusing their attention on the discourse of the learning task.

Many learners are unaware of the way in which school discourse works and therefore struggle to understand exactly how they should use language to meet the demands of a particular learning task. A common problem, for example, is the use of new technical terms.

In order to support learners, we therefore need to understand how we as teachers can focus the attention of our learners on the more formal features of the task. Let us once again begin by looking at how this is commonly done.

This comes from N. Mercer, *The Guided Construction of Knowledge* (London, Multilingual Matters, 1995), p. 36.

Teacher: A string. Yes. In this case it's a ...?

She holds up the pendant's chain.

Children: Chain.

Teacher: Chain. So it has to be ***suspended*** doesn't it?

She raises and suspends the pendant by its chain.

Anthony: A weight.

Teacher: It has to have a weight, doesn't it? A mass at the end which this one has.

The discussion continues ...

Karen: It has to hang straight down.

Teacher: It has to hang straight down, Karen. There it is. So that's right isn't it? So it has to hang from a ***fixed point***. It has to be ***suspended*** from a string or chain or whatever and it has to have a ***mass*** at the end. Right.

Towards the end of the lesson the teacher checks that the children are able to use these terms themselves.

Teacher: Now what did we say they had to have?

Jonathan: A pendulum? A weight at the bottom.

Teacher: Yes and yours has, OK? Yours is a washer.

Jonathan: Hmm.

Teacher: Right. David, what else does a pendulum have to have?

David:	A ***mass.***
Teacher:	Jonathan's mentioned that.
David:	A string.
Teacher:	A string or a chain or some means of hanging it down. Right. And Anthony what was the third thing it had to have?
Anthony:	***Suspended.***
Teacher:	Right.
Anthony:	***A fixed point.***

ACTIVITY 47

1 Take a critical look at the above classroom transcript. We have drawn your attention to the use of technical terms by printing them in bold.

2 Answer the following questions when you have finished:

- **a** How does the teacher focus the attention of the learners on the language requirements of the task?
- **b** Is she successful? How did you decide?
- **c** Do you think the learners are aware of the importance of using technical terms? Explain your answer.
- **d** Can you think of an additional task that would show you whether all learners are able to use the technical terms correctly?

Spend about 30 minutes on this activity.

The transcript of the science lesson shows how once again the teacher is asking all the questions. This time she has chosen to draw the learners' attention to the scientific definition of a pendulum (a mass suspended from a fixed point) by providing the technical terms and then expecting the learners to imitate her use of the words. This strategy seems successful, as the learners are able to name and recall the terms at the end of the lesson. Learning new terms by rote certainly is an important part of learning something new.

However, we can't be certain that all the learners have understood the concepts that these terms refer to. For example, David did not notice that mass and weight refer to the same idea, namely that a pendulum needs 'something heavy at the end'. If we wanted to be sure that learners like David understand the idea (and not only know the words), we would need to construct an additional task that allows them to apply the new concepts without guidance from the teacher. Such a task would present a real challenge (conflict) and in the process of application (action) the teacher and learners would come to know the difference between the ideas the learners can only apply with help, and the ideas they can already use on their own. Here are some ideas for the additional task:

- The application could take the form of a model-building activity, where the learners construct and label a pendulum.
- The task could also be structured as a problem-solving activity where the learners have to repair a pendulum that does not work and explain what needed to be fixed and why.
- A third possibility would be to ask the learners to find objects in the school that make use of the principle of the pendulum (a clock, a bell, a metronome etc.) and explain how they work.

It is important to note that all three of these examples involve a level of explanation by the learners. In other words, it is not enough for them to build the model, fix the pendulum, or find the object. The real learning task lies in the explanation – learners have to use language to help them make ***explicit links*** between the words they use and the ideas they present.

The importance of language support

Language is important in all kinds of learning, both the language used by teachers and the language competence of learners.

Before we can find solutions to this problem, we need to have a good understanding of the particular issues involved in language and education.

Spend about 90 minutes on this activity.

ACTIVITY 48

1 Turn to Reading 8, 'Eager to talk and learn and think' by Macdonald. The article is based on research done in South Africa from 1985 to 1990, which investigated bilingual primary education and its effect on learning and thinking.

2 Answer the following questions when you have finished reading:
- **a** Why does Macdonald suggest that children should first become literate in their mother tongue? What reasons does she give?
- **b** Do you agree with her? Explain your answer.

3 Now carefully look at the table that shows a model of thinking skills for science learning.
- **a** At what level of thinking are the learners engaging with the lesson about the pendulum?
- **b** What would the learners need to do in order to show that they can apply the concept of a pendulum?

As Macdonald points out, it is vital that teachers be aware of how many South African learners feel unsure about the language of learning and who will therefore struggle to do the task. They will struggle to explain their thoughts or ideas. In such a situation the teacher has a dual responsibility towards learners:

- First, the learning tasks have to be constructed in such a way that they offer ***explicit language support***.
- Second, they must provide ***support for the thinking process*** that has to happen in and through the language of learning.

In Reading 9, 'Education for all', Craig refers to this dual responsibility as 'consolidation'. She argues that:

> *'at best this involves … exposing the rules which constitute the task and which demand certain operations. This could be achieved through modelling mental processes, i.e. showing how one must operate to engage in the task appropriately and successfully. I think that this work is at best done through materials which bridge/support/scaffold learners' task engagement.'*

Would the learning material below and on page 166 meet her criteria?

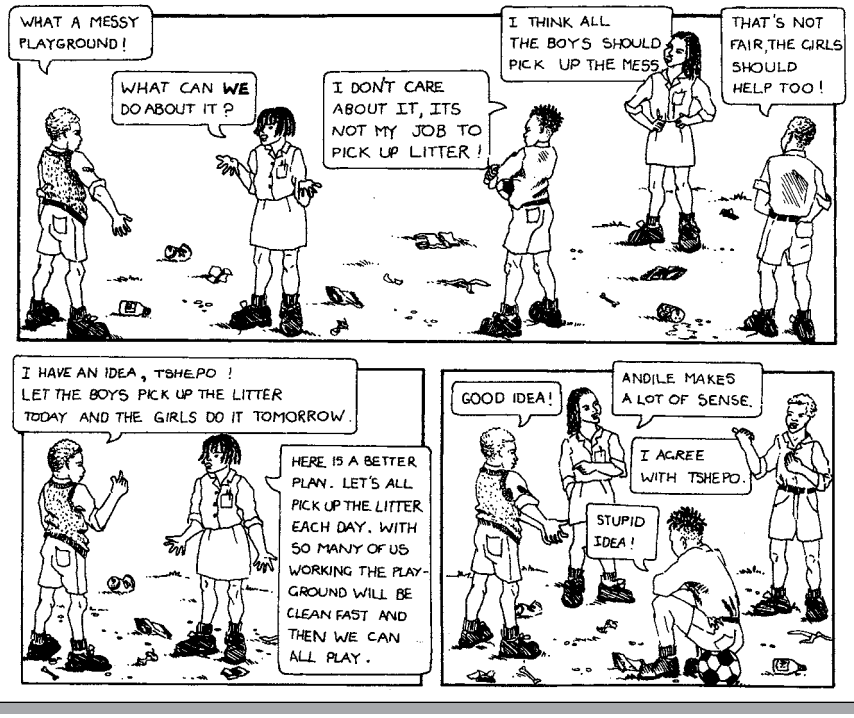
20 DEMOCRACY – ONE TYPE OF GOVERNMENT

There are many different ways in which people can govern themselves. One of the ways is called democratic government. In a democracy every person has a say in making the rules. Everyone agrees to obey the rules most people want.

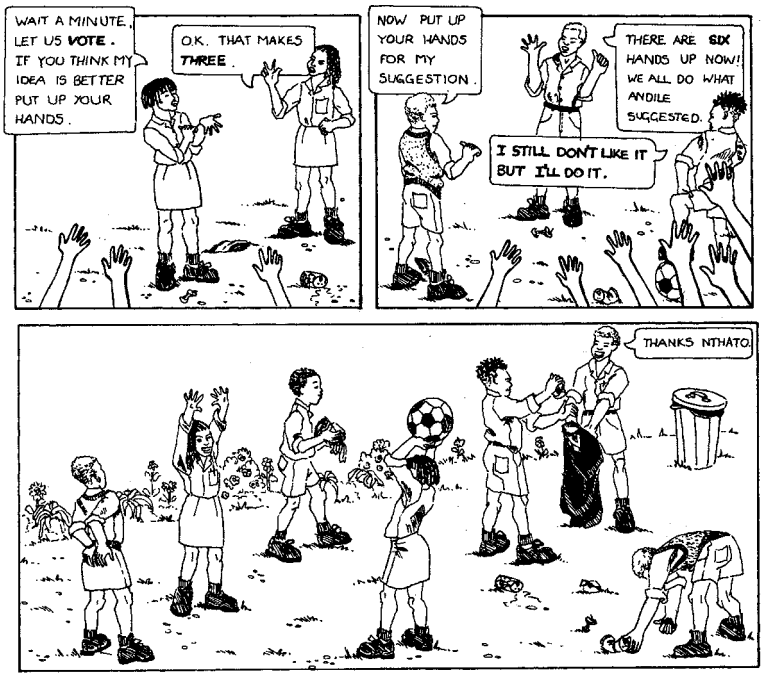
Any group of people working or living together can organise themselves democratically. A whole country can be run this way and so can smaller groups, like schools and clubs.

Something for you to do

1. Read this story carefully and then discuss the questions that follow.



This learning material comes from L. Marneweck *etal.*, *Making History 4* (Centaur Publications, 1992), pp. 40–41.



(a) Who makes decisions about things like this in your school?

(b) Give one word for how the children in the story solved their litter problem.

(c) What does voting mean?

(d) Nthato did not agree with either Andile or Tshepo. But what did he do in the end?

2. Pretend your teacher asks you to vote on the following classroom problems. Write down your suggestions and your reasons for them. Hold a class vote on them. What are your democratic decisions about these problems?

- ❒ Homework at the weekend
- ❒ Eating in class
- ❒ Wearing school uniforms

41

Spend about 30 minutes on this activity.

ACTIVITY 49

1 What do you think of the way in which the above history task is constructed?
2 How does it challenge learners?
3 How does it support them?
4 How does the task use what learners already know?
5 How does it draw attention to the technical language needed for the task?
6 What aspects of the task coach the learners to use language in a particular way?
7 Do you think this material shows learners how they must operate to engage in the task appropriately and successfully?

Teaching strategies that bridge the gap

5.4

At the beginning of this section we reminded ourselves that while we can't learn for our students, as teachers we play a major role in making sure learning does indeed happen.

Joyce ***et al***. describe this responsibility in the following way:

> *'As we teach, we try to find out what learning has taken place in our classrooms and what readiness there is for new learning. But teachers cannot crawl inside students' heads and look around – we have to infer what is inside from what we can see and hear. Our educated guesses are part of the substance of our profession as we try to construct in our minds the pictures of what our students are experiencing. The never-ending cycles of arranging environments, providing tasks, and building pictures of the minds of the students make up the character of teaching. […] The challenge of designing learning experiences is the central study of the substance of teaching.'*

Week 16 begins.

This is taken from B. Joyce, E. Calhoun, and D. Hopkins, *Models of Learning – Tools for Teaching,* (Buckingham, Open University Press, 1997).

Over the years, teachers have developed a vast selection of teaching methods and have chosen a variety of strategies to support learners as they move into the unknown.

We will look at some of the most popular and enduring approaches used by teachers around the world and ask ourselves how these approaches enable learners to do things they cannot do on their own. In other words, we will focus our attention on those aspects of each strategy that allow learners to learn ***with the help of others***, rather than alone.

Questioning

In Section Two we investigated how learners can use questions as a powerful tool to help them make their way from the known to the unknown. It is therefore not surprising that questioning is also an important and popular strategy amongst teachers. Some researchers estimate that twenty percent of teacher talk involves the use of questions.

> ***Not every question that teachers ask will achieve the correct balance between challenge and support that leads to learning.***

As we have already seen in the transcripts in this section, not every question teachers ask will achieve the balance between challenge and support that leads to learning. Let us therefore investigate the kinds of questions that seem to facilitate learning.

In her book, ***The Teaching of Science,*** Harlen points out that teachers ask questions for many purposes:

> *'for pupil control, for information, to check on or test recall, to provoke thinking, to prompt and lead in a certain direction, to reveal children's ideas'.*

Teachers need to think carefully about the consequences for learning different kinds of questions have. In particular, says Harlen, ongoing reflection on the difference between ***productive*** and ***unproductive*** questions will assist teachers greatly. As we have seen in Section Two, questions should deliberately seek to provide pathways from the known to the unknown for the learner. The content and nature of questions asked, as well as their timing, is crucial.

Harlen cites the following anecdote to illustrate the difference between productive and unproductive questions:

'I once asked a class of children, "Can you make your plant grow side-

ways?" For a short time they had been studying plants growing in tins, pots, boxes, and other contraptions made of plastic bags. I was just a little too anxious and too hasty and, quite rightly, I got the answer, "No we can't."

So we patiently continued with scores of "what happens if ..." experiments. Plants were placed in wet and dry conditions, in dark and in light corners, in big boxes and in cupboards, inside collars of white and black paper, upside down, on their sides, and in various combinations of these. In other words, the children really made it "difficult and confusing" for the plants. Their plants, however, never failed to respond in one way or another, and slowly the children began to realize that there was a relationship between the plant and its environment, which they controlled.

Noticing the ways in which the plants responded, the children became aware that they could somehow control the growth of plants in certain ways [...] When the question, "Can you find a way to make your plant grow sideways?" reappeared later, there was not only a confident reaction, there was also a good variety of attempts; all sensible, all based on newly-acquired experience, and all original.' (Elstgeest, 1985, pp. 39–40)

Productive and unproductive questions

Did you notice the crucial difference between the first time the question about growing plants sideways was asked and the second time?

- At first, it was a question that already ***assumed understanding*** of a new concept, and was therefore unproductive. The learners were simply confused by the question, and it did not encourage learning. Or, in the terms that we used earlier when we discussed the ***learning paradox,*** the question simply reinforced the children's existing understanding that plants did not grow sideways. This is a misunderstanding that was strongly and confidently held by the learners and so acted as an obstacle to further learning.
- Only once the children got active (through systematic observation) did they acquire the means to develop a new understanding. When the question was asked the second time, it was a productive one.

Later in her book, Harlen outlines a number of questions that she considers to be productive in the context of an extended classroom activity in which various plants are grown from seeds.

Children planted a number of different types of seeds in soil in plant pots, watered them each day, and observed them closely. The teacher's questions were designed by Harlen to encourage the children to use six key process skills related to the development of scientific concepts (more specifically, the development of an understanding of the scientific method). The six key process skills are:

- observing;
- hypothesizing;
- predicting;
- investigating;
- interpreting findings and drawing conclusions;
- communicating.

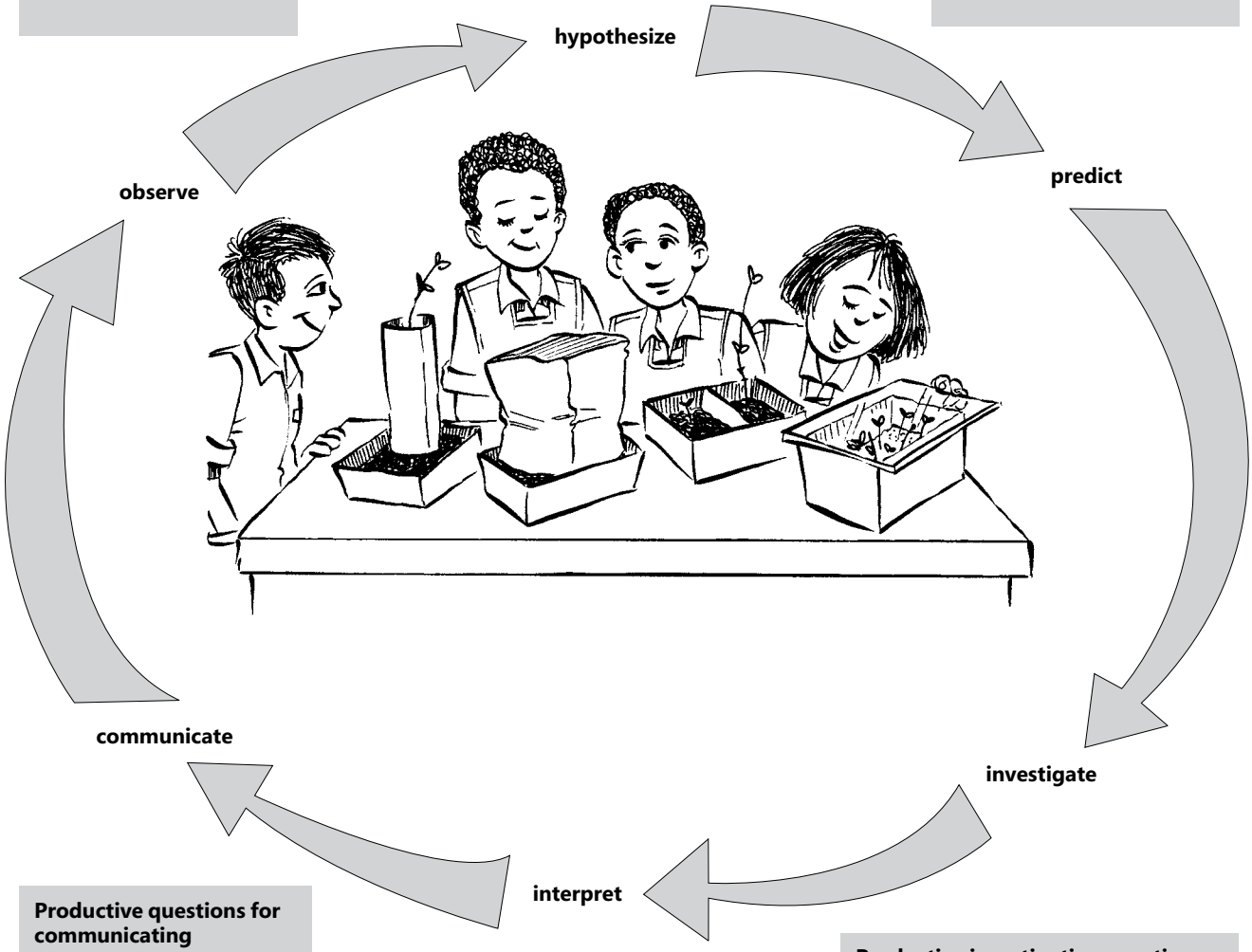
Carefully read Harlen's 'questions for developing process skills' on the next page (these are from W. Harlen, ***The Teaching of Science*** (London, David Fulton Publishers, 1992), pp. 109–116.)

Questions for developing process skills

Productive observing questions
What do you notice is the same about these seeds?
What differences do you notice between seeds of the same kind?
Could you tell the difference between them with your eyes closed?
What happens when you look at them using the lens?

Productive hypothesizing questions
Why do you think the seeds are not growing now?
What do you think will make them grow faster?
Why would that make them grow faster?
Why do you think the soil helps them to grow?
and later when seeds have been planted and are growing
Why do you think these are growing taller than those?
What do you think has happened to the seed?
Where do you think these leaves have come from?

Productive predicting questions
What do you think the seeds will grow into?
What can we do to them to make them grow faster?
What do you think will happen if they aren't in soil but get some water in another way?
and, in relation to growing plants
What do you think will happen if we give them more (or less) water/light/warmth?



Productive questions for communicating
How are you going to keep a record of what you did in the investigation and what happened?
How can you explain to the others what you did and found?
What kind of a chart/graph/drawing would be the best way to show the results?

Productive questions for interpreting findings and drawing conclusions
Did you find any connection between ... (how fast the plant grew and the amount of water/light/warmth it had)?
Is there any connection between the size of the seed planted and the size of the plant?
What did make a difference to how fast the seeds began to grow?
Was soil necessary for the seeds to grow?

Productive investigating questions
What will you need to do to find out ... (if the seeds need soil to grow)?
How will you make it fair (i.e. make sure that it is the soil and not something else which is making the seed grow)?
What equipment will you need?
What will you look for to find out the result?

Spend about an hour on this activity.

ACTIVITY 50

1 Read through Harlen's questions for developing process skills in the science classroom on page 169 again.

2 Use your knowledge about questions from Section Two to identify the relative power of each question used by the teacher to encourage the six key process skills. In other words, consider:
- **a** Which questions are relational? Which are explanatory? Which are evaluative?
- **b** Which questions set up gaps and challenges?
- **c** Which questions allow for mistakes and encourage learners to take risks?
- **d** Which questions encourage the use of imagination or analogy?
- **e** Which questions encourage the learners to make links between everyday knowledge and school knowledge?
- **f** Which questions focus the attention of the learners on specific features of the task?

What did we think?

You should have noticed in the above activity how different questions encourage different qualities of thinking.

Questions by their very nature set up ***gaps*** between the known elements of the question and the yet unknown answer. They also establish a ***learning relationship*** between the one who asks and the one who answers. The developmental potential of this learning relationship depends on two things:

- the nature of the questions asked;
- the quality of the feedback the teacher gives to the replies.

Teachers who only ask questions to get correct answers will tend to use unproductive, closed, and subject-centred questions. These kinds of questions will give them very little insight into the thinking behind the learners' responses, thus limiting the constructive feedback they can give when learners make mistakes.

By contrast, productive, open, and person-centred questions all have a relational or explanatory focus and so encourage the teacher and learners to pay attention to the learning process rather than the content of the question. That is why they are better tools for teaching.

Although Harlen's examples concentrate on teacher questions that help learning, we have illustrated with earlier activities that learner questions are equally powerful tools for learning. Both teacher and learner questions have their place and can be an effective strategy for promoting learning, provided they contain elements of challenge and support for the learning process. As teachers we cannot control learning, but we can increase the probability that learning will occur through our use of well-designed questions.

Group work

Group work is another common and, if used well, effective strategy used by teachers to promote learning. It is particularly popular with teachers who share a constructivist view of learning. Group work limits the time the teacher talks in class, and so allows learners more opportunity to be active, to clarify their thoughts, and to learn from each other.

Group learning, however, does not occur naturally. It is a complex strategy that involves more than simply dividing learners into groups and presenting each group with a task. Instead, teachers need to understand issues like:

- how talk and the sharing of ideas – key characteristics of group learning – help learners learn;

- how to manage group dynamics so that learning is maximized and conflict minimized;
- how to ensure that ***all*** learners are ***intellectually engaged*** and not just physically active.

Let's explore some of these issues.

ACTIVITY 51

Spend at least 30 minutes on this activity.

1 Study this picture carefully. It shows a group of learners working together on a reading and writing task.

2 Now think of your own experiences of group work and use them to answer these questions. Write down your thoughts as you go along.
   - **a** Can learners working in a group do exactly as they like, or do they have certain responsibilities in the group? What would these be?
   - **b** What attitude/s would help them to benefit from working in a group?
   - **c** What do you think would happen in a group if one learner had a completely different understanding of the text to the rest of the group?
   - **d** What skills do learners need before they can truly help each other learn?

> ***"Group learning does not occur naturally. It is a complex teaching strategy involving more than simply dividing learners into groups and presenting them with tasks."***

Facilitating good group learning

The fact that these learners are reading ***as a group*** gives the impression that they are busy with ***collaborative learning***. By talking to and questioning one another, the learners experience a process of enquiry that allows them to ***link*** their own questions and ideas to the text in a truly open-ended way.

Group work also creates opportunities for ***collective problem solving***. The teacher doesn't provide the answer to the questions learners have asked of themselves. Instead, learners are given the time to engage with the problem, make mistakes, talk about their thoughts, and construct their own solutions.

If learners bring misunderstandings or misconceptions to the task, other members of the group can effectively challenge these, either by asking for an explanation or

by providing an alternative view. The conversations that take place between the learners are usually more open and exploratory than the discourse of a class that is controlled by the teacher's voice.

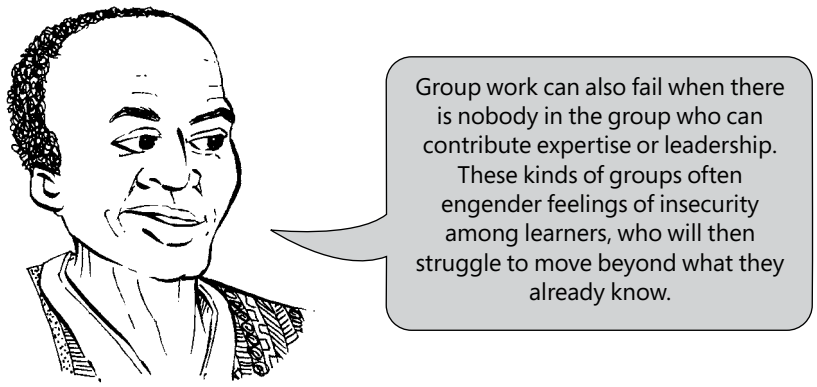
But when learners work in a group they shouldn't be able to do exactly as they please. They are part of a ***disciplined enquiry.*** It is only by working together and learning to share their knowledge and skills that the good of the whole group is served. But in order to work together successfully learners need certain skills and it is a teacher's responsibility to ensure they have these. Some of the necessary skills are:

- listening to each other;
- waiting their turn to speak;
- focusing their ideas and comments on the task;
- being serious about the ideas shared by other members of the group.

Some dangers of poor group work

Many learners, however, don't benefit from collaborative group work. Group work can also be an experience of wasting time and sharing ignorance.

This sometimes occurs when one learner emerges as dominant and tells everybody else what to do and how to think. The problem with dominant members like this is that they block other people's ideas by suggesting that they have the only correct solution for every problem. Less confident group members increasingly withdraw from the debates and so don't really have a chance to develop their own understanding of the task.



Effective group work must be designed so that learning is supported. Teachers need to think carefully about how the individuals in a group are likely to relate, and what different strengths they bring to the group. Groups require what Vygotsky calls ***more capable peers*** who can ***guide*** the group as a whole. These learners are ***knowledgeable,*** but are also able to ***facilitate*** group discussion in a way that:

- maximizes involvement by all learners; but
- moves in a clear direction.

In addition, it is important that the teacher structures clear and thought-provoking tasks for group discussion. Well-structured tasks can act as another group 'facilitator' by guiding learners' thinking and debate. Poor tasks – either those that only require simple recall answers (and so don't provoke debate), or those that are complex and confused (and so overwhelm learners) – don't provide the required support.

The strengths of good group learning

The power of collaborative learning lies in the fact that learners interact with each other on a task and pool their expertise, thereby constructing an understanding of their task that is far more complex than any work they would do on their own. As learners ask questions, listen, and talk to each other they can refine and extend their

ideas beyond their personal limits, and group work can have a supportive or scaffolding effect on their learning.

Although group work allows for increased activity of the learner, teachers nonetheless play an important part in making collaborative learning a reality in their classes. On the one hand, they need to stand back and allow learners the freedom to take control of their own learning. On the other hand, they need to focus the task in such a way that it supports the development of group skills and enquiry skills which are necessary if group work opportunities are to be made truly collaborative learning experiences.

Once again we need to point out that this will not happen naturally. Carefully-designed learning tasks that train and practise efficient collaboration are needed. Have a look at this example of a group task.

Group 1

Animal Talk

Before you start, check that there are four members in your group. Decide on the following:

- Who will be the secretary and keep notes?
- Who will make sure everybody has a chance to talk and keep order in the group?
- Who will be the timekeeper?
- Who will report to the class?

Once you have made these decisions you can begin your task.

Your task:

Step 1 (*spend 5 minutes on this*):

Pretend that you are all animals attending a meeting. Every member of the group must say:

- what animal they would like to be;
- where they live;
- what they eat.

Step 2 (*spend about 10 minutes on this*):

You are all – as animals – meeting because you have a problem. The problem is that human beings have moved into your area and are making your life difficult. You must discuss this problem. Begin the discussion by allowing every animal to answer this question:

How do human beings harm us?

> *Teachers play a vital role in making collaborative learning a successful reality in their classes.*

STOP. THINK.

Reread this task. Don't rush to read our comments before you can explain to friends how this task scaffolds learning.

Take some time to reflect on the issue being raised here.

This is a very simple example of a teacher scaffolding discussion through her instructions on a worksheet. You will notice that the teacher has not only focused on the content of the lesson (how humans harm animals), but has also provided clear guidance for the ***behaviour*** of the group. She has used the task to model effective group learning behaviour.

This has several powerful effects. Through this carefully-designed task, the teacher:

- introduces learners to the discourse and discipline of collaborative enquiry;
- addresses a number of attitude and value questions by encouraging learner independence, modelling a respect for dignity for all, suggesting that social enquiry is a way of life, and developing interpersonal warmth and affiliation.

If used well, group learning is a highly versatile and comprehensive model of learning and teaching, as it blends the goals of academic enquiry, social integration, and social process learning. If used in an unconstrained and unfocused way, however, chaos erupts and no learning can take place.

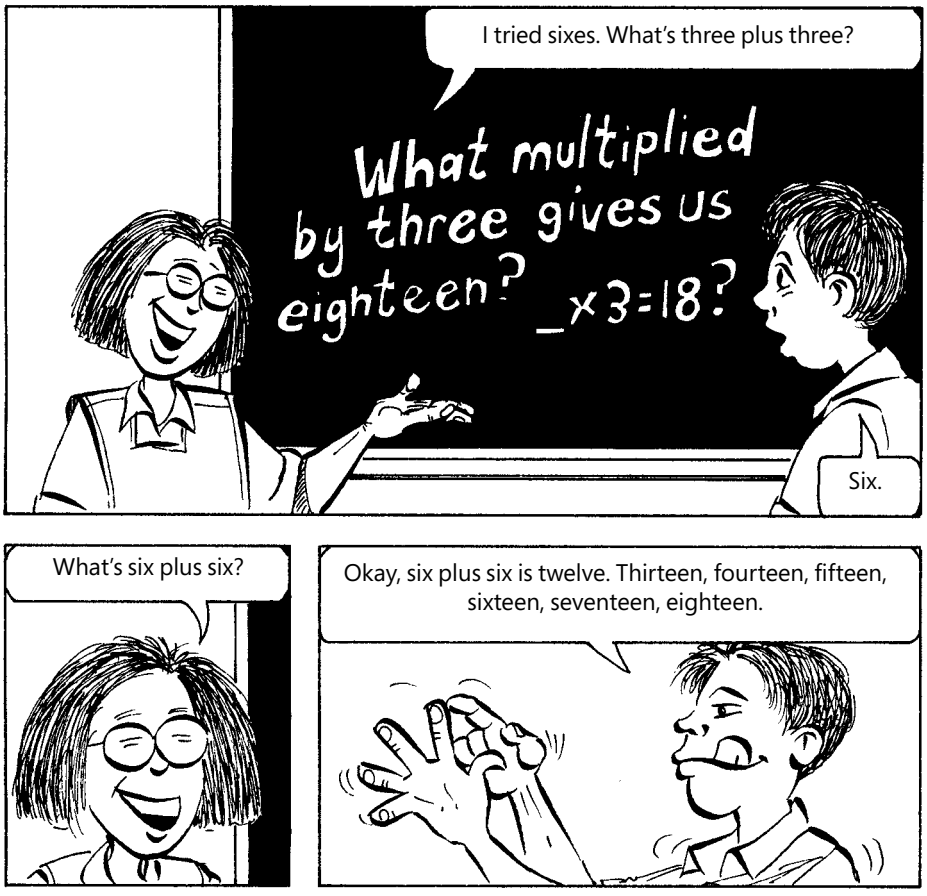
Peer coaching

Teacher questioning and group work present two very different approaches to providing learner support. But as we have shown, both can be very effective ways of keeping the learners actively involved in the learning process, provided the teacher knows how to ensure that learners focus on the learning task.

To conclude this section we would like to look briefly at peer coaching as a third strategy for helping learners in class. Peer coaching is commonly used by good teachers. These teachers realize that competent learners are often the best tutors of struggling learners.

But the strategy is also popular among learners. In the following example two children, Kathy and Ryan, are working on the problem 'What multiplied by three gives us eighteen?'

The dialogue begins when Kathy has solved the problem and spontaneously proceeds to explain it to Ryan.



ACTIVITY 52

1 Carefully reread the exchange between Kathy and Ryan.
2 Answer the following questions:
   a Is Kathy scaffolding Ryan's learning? Why? Why not?
   b What do you think about this kind of peer coaching? How effective is it? What are its limitations?
   c Use Vygotsky's notions of mediation and internalization to explain this situation. Why is this good or bad teaching?

Spend about 30 minutes on this activity. Do it with fellow teachers. You may want to reread Vygotsky's ideas (in the Learning Guide on pages 93–94 and in Reading 4) before you tackle question 2c.

What did we think?

Kathy is clearly Ryan's more capable peer and shows a clear intention to help Ryan succeed. She shows Ryan how she solved the problem by guiding him through her own thinking steps. This gives Ryan an opportunity to follow her thinking and imitate her method.

Ryan, however, is not entirely satisfied with this. He responds with 'Yeah, but I'm supposed to do the problem myself'. This shows that he feels Kathy did it ***for*** him and that he has not internalized the problem-solving skill.

Kathy and Ryan's interaction reveals two significant limitations of the peer coaching strategy:

- First, peer coaching often only offers opportunities for ***imitation***, but not for ***internalization***. As a result it is difficult for teachers to tell if learners are ***meaningfully*** imitating a ***process*** (which can lead to internalization of a new skill) or merely copying the ***content mindlessly***. This is important: imitation is an important step in internalizing new skills. We imitate when we learn a language, learn how to play soccer from a star, or when an expert shows us how to use a computer. But this is different from copying. Imitation ultimately must lead to the imitator being able to do these things ***independently.***
- Second**,** a child like Kathy is not in a position to offer carefully-structured support and guidance. She can show Ryan what she has done, but does not draw his attention to the ***salient*** features of the task or make ***explicit links*** between the specific example she uses (why three plus three?) and the ***general principle*** of multiplication they present. These explicit links are critical for the internalization process. In order to understand and internalize we need to understand the ***underlying principles*** of, for instance, mathematical concepts like multiplication. We must know more than simply the procedures involved in multiplying, and this is really all that Kathy can offer Ryan at this stage.

Thus peer coaching is a useful strategy for supporting learning, as long as the teacher can ensure that learners also have enough opportunity to engage with the ***general principles*** of the task. This usually requires some intervention by a knowledgeable teacher.

5.5 OBE and the role of the teacher

Teachers: facilitators not deliverers

See the National Department of Education, *Curriculum 2005 Orientation Programme* (Media in Education Trust, poster 5d and resource 3.1., 1997) for more detail about this new identity for teachers.

When the Department of Education called for a new way of looking at learners, it spoke simultaneously of 'a new way of looking at teachers' in the context of OBE. Traditionally, teachers had been considered to be ***deliverers*** of learning, whereas in OBE teachers were ***facilitators*** of learning. According to the national Department of Education teachers should now be:

> *'guides for the learning process, and not transmitters of knowledge'.*

This general idea of teaching has gained respectability all over the world. Learning is understood to be much more meaningful when learners are allowed to experiment and reconstruct on their own rather than merely listen to the teacher lecturing. It follows that the teacher should, in any learning situation:

- assess the children's present levels of understanding and their strengths and weaknesses;
- design activities and learning tasks that give learners the opportunity to communicate with each other, to argue and debate issues.

In this framework, teaching is regarded as the work of presenting learners with interesting learning materials, evocative learning situations, and learning tasks that allow them to discover new knowledge for themselves. The teacher's role during the learning process is that of guiding and managing the learning process.

The debate about teachers-as-facilitators

This notion of teaching as ***facilitation*** has led to an important debate amongst teachers in South African schools.

On the one hand, many believe that outcomes-based education requires that learners be entirely free to learn in whatever way they choose. In this view, teaching becomes, to recall the words of Carl Rogers, a relatively unimportant and vastly overrated activity.

The proponents of this view argue that formal instruction should no longer play a direct role in the learning process. It is also assumed that teacher talk always leads to passive learning. As a consequence, neither formal instruction nor teacher talk are regarded as acceptable by these educators. Teachers are no longer considered to have a central part to play in learning. Instead, they now play a background role of ***organizing*** and ***setting up*** appropriate learning environments. Self-motivated learning, they argue, arises in activity-based learning, group work, content that links with everyday life, and through practical involvement with the community.

On the other hand, others argue that teacher instruction and the active mediation of knowledge by teachers remain part of good OBE practices. They argue that while the notion of 'facilitation' is important, it is only one facet of the work of a teacher. One teacher put it as follows:

> *'To my mind, reducing the teacher to a facilitator greatly oversimplifies the complex roles that most teachers play every day – sometimes facilitating, sometimes mediating, and sometimes doing a bit of good old teaching.'*

This quote is from E. Potenza, 'Outcomes-based education: will it benefit our children?' in *Fairlady* (21 January 1998), p. 51.

Our understanding of teaching and the role of teachers

In this section, our focus has been on the role of the teacher in structuring learning experiences for the classroom. We saw that the relationship between a teacher and a learner is vital to the classroom. It creates the necessary condition for learning to occur, namely the experience on the part of the learner of a gap between the known and the unknown.

Concepts like the ***zone of proximal development*** and ***scaffolding*** helped us to understand how teachers challenge learners with new knowledge. We also saw the important role of teacher questions in informing and supplementing learner questions. It became clear that while teachers cannot learn for their students, they play an ***indispensable*** role in making sure that learning happens.

From a broad constructivist point of view, teachers are actively and necessarily involved in the kind of learning that is envisaged by OBE. In order to do this they will play different roles, as Potenza suggests.

- Sometimes they will explain or question.
- At other times they will construct good activities or tasks that guide group discussion.
- And at other times they will work individually with learners to explain their learning difficulties.

Common to all these actions by teachers, though, is the fact that the teacher understands that learning must happen in the learners' heads, and she or he acts so that the learners' minds are activated and this occurs.

In the above debate, we come down firmly in favour of the latter position.

Misunderstanding constructivism

There is a common misunderstanding of constructivist views that suggests that the teacher is not necessary to the learning process. Here is one sweeping version of such a mistake:

> *'Teacher lectures, demonstrations, audio-visual presentations, and programmed interactions are some of the teaching methods that do not fit in with Piaget's ideas. Piaget believes in active discovery within a learning environment – the schools. Children's learning experiences should be planned to facilitate assimilation and accommodation. Children should be allowed to explore, manipulate, experience, and question. Instruction should be individualized.* ***Teachers should just facilitate*** *[our emphasis].'*

You will find this statement in Gauteng Department of Education, *Theories of Teaching and Learning Facilitator Guide* (Johannesburg, 1999), p. 15.

But as Piaget himself puts it when he discusses 'active methods of education':

> *'[there is] the fear (and sometimes hope) that the teacher would have no role to play in these experiments and that their success would depend on leaving the students entirely free to work or play as they will. It is obvious that the teacher as organizer remains indispensable in order to create the situations and construct the initial devices which present useful problems to the child. Secondly, he is needed to provide counter-examples that compel reflection and reconsideration of over-hasty solutions. What is desired is that the teacher cease being a lecturer, satisfied with transmitting ready-made solutions; his role should rather be that of a mentor stimulating initiative and research.'*

See J. Piaget, *To Understand is to Invent* (New York, Grossman, 1978), p. 16.

If there is a sense in which Piaget can be said to view teachers as facilitators of knowledge, then this is it. From the point of view of the theory of equilibration, teachers have an important role to play in learning.

When we bring Vygotsky's ideas into play alongside those of Piaget, then it is clear

that teachers are active participants with learners in constructing learning. They set up interesting tasks that encourage and facilitate learning, exactly as described on page 177 in relation to Piaget's view of teaching, by creating conditions to provoke appropriate action.

But Vygotsky's notion of the zone of proximal development takes our thinking even further. Now we understand that teachers participate deliberately in learning activities with learners, and respond to their dilemmas and questions in the context of joint activity. They:

- identify the gap between the known and the unknown which will best challenge learners to learn;
- design appropriate learning tasks;
- guide learners through the tasks, and mediate new knowledge to them as they need it.

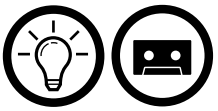
Conclusion and key learning points

5.6

Reassessing the half-truths

STOP. LISTEN. THINK.

We have come to the end of another section. Before you proceed, we'd like you to go back to the five half-truth statements at the beginning of this section and decide if you still agree with your original responses to them. Are there any statements that seem to have changed their meaning for you? Why?



Take some time to reflect on the issue being raised here. Relisten to Part 5 of your audiotape before you re-assess your initial responses to the half-truths at the beginning of this section.

Key learning points

The purpose of this section was to allow ***you*** to make explicit links between theoretical ideas about learning and the practice of teaching. We pointed out the choices that teachers make when they translate theory into practice, and showed how these choices affect the construction of learning tasks. We also discussed particular strategies teachers use to promote effective learning.

Ultimately it is our professional responsibility as teachers to teach for learning. This means we have to construct learning activities in such a way that we achieve the ***right balance*** between ***challenge*** and ***support***.

Here is our summary of this section's key points:

- Teachers cannot guarantee learning, but they can design learning activities in such a way as to effectively promote it.
- Teachers can use the notion of the zone of proximal development to deliberately create gaps between the known and the unknown.
- Two important principles for cognitive change are conflict and activity.
- Learner questions may be more powerful tools for learning than teacher questions.
- The way teachers use what learners know influences the structure of the learning task.
- Teachers have to make choices about the process as well as the content of the learning situation.
- Teachers use language to help learners become aware of their own thinking.
- In South Africa many learners have to study in a language that is different from their home language and this limits their access to learning tasks.
- Learning tasks have to be designed in such a way that they support the language and the thinking processes of the learners.
- Teachers cannot control all aspects of the learning process nor determine that learning will definitely happen. However, through well-designed tasks that focus learners' attention in particular ways, they can increase the probability that learning will occur.
- Collaborative learning can support and challenge learners beyond their individual limits.
- OBE tends to over-emphasize the learners' potential and freedom and underemphasize the important role teachers have to play in structuring learning situations.

> ***"We used to think about slow learners and fast learners, intelligent and less intelligent children. Today we know that opportunities to learn are more important than how bright you seem to be. Any teacher should think, "What opportunities to learn has this child had so far?" If you do not ask that question you will invariably make false judgements about children and what teaching they need."***

This quote comes from M. M. Clay, 'How children learn to read: an international perspective' a paper presented to the *All Africa Conference on Children's Reading* (Pretoria, August 1999).

SECTION SIX

Talking about theory

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6.2 How do teachers talk about learning? 184

6.3 How do theorists articulate their ideas about learning? 196

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Introduction 6.1

What will you learn in this section?

Week 17 begins.

So far in this module we have explored how people learn and then drawn some lessons from this understanding about how we can teach to maximize learning. We have deliberately ***not*** taken you through a series of famous educational theorists. Instead we have tried to use their ideas in action.

In this section we will look more closely at how both famous theorists and teachers make sense of their ideas about learning. In other words, we will be examining how they theorize their practices.

We begin with a series of interviews in which teachers share ideas based on their experience. We then look at four case studies that place different teachers' experiences into a systematic framework of ideas. This demands a more theoretical response from us, so we introduce four influential twentieth-century theories of learning. These ideas are highly abstract and concern themselves with the origin of knowledge in human beings. Finally we illustrate how our own ideas about learning fit into the broad framework of constructivist thought and the relationship between theory and practice in the teaching profession.

More half-truths to think about

Read the following statements. What do you think about them? As you read through the statements, once again record your responses.

Statement about learning	What is true about the statement?	What is inaccurate or false about this statement?
Education theory can tell teachers how to teach.		
Teachers share ideas about learning when they talk about their work.		
Teachers should develop their own theories about learning.		
There is no point in being all 'theoretical' about learning. It is the practice that counts.		
All theories of learning are equally true: all one has to do is choose one for oneself.		

6.2 How do teachers talk about learning?

Why is theory useful?

As we wrote this module and discussed it with various teachers and educational theorists they often asked us the question:

Obviously we do have a theory of learning, or at least we all share a commitment to a broad family of learning theories. This allows us to talk to each other sensibly and to write about learning together without having to argue too much about the meaning of the concepts we use. We share basic assumptions about how children and adults learn in schools and other learning situations. We also share a similar set of words and images that we use to express our ideas about learning.

This shared ***articulation*** of ideas and theories makes it possible to describe and explain learning in a new way.

The writing process was a theoretical activity. As you have worked through the module, and completed the various activities, you too have engaged in theoretical activity. In other words, you have:

- learnt to reflect on your own learning;
- articulated ideas about how children learn;
- applied these ideas to understanding the teaching process.

We all think about learning – we theorize – but we don't all describe the process in such formal academic language. Many of us actively resist getting involved in academic debates about education. We prefer to talk about teaching in terms of ***everyday*** experience. We like telling stories about actual events and behaviour in our classrooms, rather than sharing general principles about learning.

But even in such situations (where teachers aren't able to express their assumptions about learning clearly), we still draw on theoretical ideas. These theoretical ideas, in turn, influence the choices we make about the ways in which we teach.

The language of formal theories (an academic discourse) can, however, add to our understanding of our teaching. It enables us to describe classroom experiences in new and more generalized ways. We become able to analyse and explain how and why learning happens in ***many*** different situations. In other words we become more flexible thinkers and, ultimately, more flexible teachers.

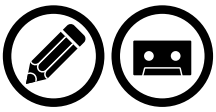
This ability is particularly useful when learning ***doesn't happen!*** Theory that has been built up from many other similar experiences in many different places, may provide teachers with insights from ***broad human experience*** that will enable them to adapt their actions in their own classrooms.

ACTIVITY 53

1 Find Part 6 of the audiotape. Listen to the interviews with South African teachers in which they *articulate* their ideas about learning. As you listen to the tape, jot down brief notes that will allow you to discuss the ways in which these teachers think about learning.

2 When you have finished listening, answer these questions:

- **a** Can you identify a main, underlying idea about learning that each teacher holds? In other words, does each teacher have a clear theory of learning in what he or she says?
- **b** Do any of the teachers contradict themselves in what they say? What do you think this means?
- **c** How theoretical is each teacher's model of learning? (If you are not sure how to go about answering this question, go back to Activities 19 and 20 to remind yourself of the features of theoretical thought. Look also at the account of theory below.)
- **d** Write down, in about half a page, your own theory of learning.



Spend at least 40 minutes on this activity. Part 6 begins with Shawn talking about charts and then arguing for a strong teacher role in classrooms. Next, Margie responds with an argument for learner-centred classrooms, but also for structure. Finally Jackie talks about group work, and the importance of working diagnostically. Do the activity alone at first, then discuss your ideas with other teacher-learners.

What is theory?

Before we tell you what we learnt from these teachers we thought we'd try and clarify what a theory is and how it is related to practice. We will come back to this discussion throughout the section, so don't be dismayed if you don't quite understand!

Theory is sometimes described as a body of law-like generalizations that are logically linked to one another. It is used to explain empirical phenomena. But this definition has been criticized. Some scholars point out that most theories are not as logically neat as this definition implies. They suggest that theory is more like a story: it is a set of ideas, assumptions, and concepts that are ordered in a way that tells us something about the world, about ourselves, or about an aspect of reality.

We tend to distinguish between ***theory*** (what we think and know about something) and ***practice*** (what we actually do).

In nursing examinations, for instance, a ***practical*** exam would probably involve diagnosing a client's condition and acting on the diagnosis (doing something). By contrast, in a ***theoretical*** exam, students' responses would largely be written (maybe with some oral exams too) and their theoretical knowledge of nursing science and its application would be tested.

If you are thinking, 'But practical exercises are guided by theory', you would be correct. Theories of diagnosis and pathology would be a ***prerequisite*** for the practice of diagnosis and nursing intervention. Imagine a nurse who knew nothing about how the body worked diagnosing your injury!

Exactly the same holds true for teaching. Yet so often we suggest that we don't need theory, we simply need to practise! Theory is sometimes thought to contain the rules that tell us how to do something: we say that theory precedes practice and, in this sense, ***drives*** practice. This means that we follow a method for doing something (practice) according to our theory of it.

We acknowledge A. Craig, H. Griesel, and L. Witz, *Conceptual Dictionary* (Cape Town, Juta, 1994), p. 193 for these ideas about theory.

Teachers theorizing

Each of the teachers you listened to on the tape provides us with a wide range of descriptions of what they do in the classroom:

- Shawn takes us through his reasons for using charts to get learning going, his methods for group-work sessions, and his teaching of the ideas of lateral-thinking specialist, Edward de Bono.
- Margie talks with conviction about the need for clear rules in discussions, the importance of children feeling confident, of experiential learning, and the importance of prior knowledge in any learning activity.
- Jackie talks about the weaknesses of group work and the interventions she makes to help learners overcome these limitations. She also explains what sparks a learner's interest and how much children can know at different ages.

Each teacher gives us an account of what has worked for them in their classrooms, and therefore of what they believe about learning. But did you notice that none of them link different observations to each other in any ***conscious and explicit way***? None of them talk in terms of a unified ***'set of ideas, assumptions, and concepts, ordered in a way that tells us something'*** about teaching and learning.

Instead, they share ***their experiences*** about 'what works' and talk about teaching in an everyday discourse. Their reflections aren't theoretical in the full sense of the word.

This doesn't mean that they aren't important! Teachers articulate their ideas as ***shared experience*** all the time, and they learn a great deal from each other by doing so. However, the problem with this kind of talk about learning and teaching is that it remains very close to individual people's immediate experiences, and is thus ***limited***. It is difficult to ***generalize*** from immediate experience to other contexts that may be similar to it or different from it in important respects. This is why it is difficult to identify a clear theory at the centre of what each of these teachers has to say.

Although Jackie, Shawn, and Margie come across as different personalities, each with a range of ideas about teaching, they do not come across as teachers with ***clearly*** different (or ***clearly*** the same) views about learning. We don't hear discussion of an ***underlying concept*** that ***links*** different observations about teaching to each other, or to the observations about learning that other teachers make, or to any wider, unified system of knowledge of learning.

Formal theories about learning and teaching provide us with a distance from particular experiences that allows us to develop general reasons and explanations for what we are doing. They provide the tool that allows us to stand back. This general level of analysis provides a more informed basis from which to interpret and respond to new problems encountered in our experience (and the experience of others).

When teachers use theory to think about what they are doing, they distance themselves from their practices. Theory helps us to sharpen distinctions and therefore critical understanding. When we ***articulate*** learning in theoretical terms, we

engage in a different kind of knowing to that which teachers engage in when they talk about 'what works'.

STOP. THINK.

Reread the short description of what a theory is and what it does on page 185. Do you see how what the teachers on the tape say and do can't achieve what a theory does? How would you work with these teachers to enable them to theorize their practices better?

Take some time to reflect on the issue being raised here.

Analysing the hidden theories in the practices of teachers

Consider these descriptions of four different teachers and the ideas they have about learning and teaching:

Miss van Oorsprong

Miss van Oorsprong is a dedicated, hardworking teacher who has taught in all grades of primary school during her long career. She thinks about teaching as 'opening up unique little boxes' and often speaks about the pleasure she gets from watching children 'come out of themselves through hard work and discipline'. When she teaches Grade 1 learners to read and write, she places a lot of emphasis on 'drilling the basics' and her class can often be heard reciting phonetic vowel sounds, 'aay – eey – eye – ohh – you'. For Grades 3 and 4, she is a great believer in the value of learning the times-tables off by heart for future mathematics success. When children leave primary school at the end of Grade 7, she strongly advises them to do Latin at high school because she believes that the discipline of conjugating nouns and declining verbs brings out the natural mental discipline that all children have.

Mr Ngaphandle

Mr Ngaphandle is a teacher who has always believed in the importance of environmental stimulation to support learning. He puts a lot of thought into the 'inputs' he prepares for his classroom, and he plans his lessons carefully so that they turn out as a set of steps that lead towards a final objective. He also produces lots of visual teaching aids such as wall charts and overhead projector slides. He is often accused of using the 'chalk and talk' approach, but Mr Ngaphandle knows that a good presentation stimulates the learners, and that this in turn leads to good learning.

In recent years he has improved the positive reward system he uses in his classroom, and has instituted merit awards that encourage every learner to

work quickly and to move on to new work as soon as possible. Mr Ngaphandle's ambition is to move to a classroom in which computer-based instruction is possible, because he believes that computers will help him to manage the learning environment properly. He wants each child to be rewarded immediately and efficiently for all achievements and to develop optimally at his or her own pace.

Mr Primechild

Mr Primechild thinks of himself more as a facilitator of learning in a classroom than as a teacher. For him, the preparation of learning activities is the most important part of teaching. He puts a great deal of effort into setting up materials and tasks for children prior to the commencement of a lesson. He believes that it is very important that he understands the prior learning and development of his learners, so that the learning activities he sets up are appropriate to their needs. For him, the design of learning tasks is the key professional responsibility of the educator. Once children arrive for a lesson, he introduces them to the tasks, and then steps back to leave them to their own devices. He believes that they will generate their own understanding of the situation and that they will find things out by themselves.

Part of Mr Primechild's strategy as a facilitator is based on group work. He tries to break his learners up into groups of similar ability before he presents them with tasks. This, he believes, helps them to generate new knowledge in natural interactions with others who are thinking and solving problems using similar strategies of thought.

Ms Buthu

Ms Buthu is a teacher who places great emphasis on critical dialogue in her classroom. She encourages her learners to ask questions, to argue, and to speak their minds on all issues under study. When she taught very young children in the past, she relied a lot on storytelling, and tried to get the little ones to express their ideas and feelings by identifying with, and playing the roles of, characters in stories. This year she is teaching Grade 7 learners and she consciously uses a questioning strategy in her classroom. This allows her to identify how children are thinking about any particular topic at any point in time, and also to provoke them to think about the topics in new ways.

Part of what she does all the time is to introduce learners to new ways of thinking about things, always in conversation with them and always within their current understandings of problems. She believes very strongly that learning is a social process in which the teacher has an important part to play as the organizer of frame-

works of knowledge for learners. Like her colleague Mr Primechild, she uses group-work strategies, but she prefers to establish mixed-ability groups from time to time in relation to particular problems or tasks, because she believes that the more skilled children will help to teach the less skilled children to solve the problems and complete the tasks.

ACTIVITY 54

Spend about 30 minutes on this activity. Do it alone at first, then work with a partner and share ideas.

1 The four case studies you have just read also express the teachers' ideas about learning. Read through them again.
   a Take note of anything that gives you a clue as to how each particular teacher thinks about learning.
   b Write these ideas down in your workbook.

2 Answer the following questions when you have finished:
   a Do you know of any teachers who think like the four teachers you have just read about?
   b Do you agree with any of these views of learning?
   c Do any of the teachers contradict themselves in what they say? Explain your answer.
   d Do you think these case studies are more theoretical than the interviews? Explain your answer and give examples to support your ideas. Use the definition of theory as 'an underlying, ordered set of ideas, assumptions, and concepts'.

What did we think?

We wouldn't be surprised to learn that you did know a teacher who operated and thought in a way similar to one of these teachers. We know a number of teachers who, over the years of their practice, have built up a clear (sometimes even dogmatic) set of ideas about what counts as good teaching and learning. However, most teachers don't operate with such a strong and consistent body of ideas in mind. As we saw earlier, they tend to be more practical and less theoretical in their approaches, and draw on a range of ideas about education to make decisions about their teaching.

For instance, when a teacher mentions the name of a theorist (like Piaget or de Bono), it is usually to claim support for her or his own practical idea about learning. Teachers usually think about learning in terms of questions like:

- 'Would that activity work with my class?';
- 'How can I help them improve their spelling?'.

If an idea works for them, they don't worry about where it comes from. As a result, there are often contradictions or different points of view within what a teacher has to say. You may remember Jackie (on the audiotape) describing her views on group work. She has a sense from her teaching experience that children need to do things on their own, and that working in groups prevents the 'weaker ones' from learning. But, at the same time, she recounts an event in which a group working together doing experiments with water provided ***all*** the children with an opportunity to express themselves and to learn something significant. No doubt both accounts have validity in the ***context of Jackie's teaching***, but in the way she describes them they do not ***articulate*** easily with each other. They seem contradictory.

You may have found it difficult to take a clear and consistent stand in your own response to the teacher interviews or the case studies. There are pearls of wisdom in bits of what all of them believe. This might lead you to agree with some parts of what they say or do, and disagree with other parts. Notice that where you have agreed or disagreed with a teacher, it is most likely on a particular point that has been made, rather than because you agree or disagree with his or her ***overall model*** of learning and teaching.

The case studies are written in a more theoretical discourse

The case studies are different to the audiotaped interviews. The main difference is that they ***articulate*** learning for teaching in a different way to the verbal comments on tape: they are organized, written accounts as opposed to relatively random, spoken responses to questions. Although Van Oorsprong, Ngaphandle, Primechild, and Buthu are real teachers who use their practical knowledge in class, the descriptions of the ways in which they think and teach are ***written theoretically***. If they were interviewed, they would probably not tell as tight a story about their ideas and work as these written descriptions do.

You will notice that there is a great deal of consistency in each written description. There are very few points that contradict each other. We noticed that the lack of contradiction has an important effect on the way we think. We were no longer concerned with particular experiences, but started to think about the four teachers in a more ***general,*** possibly even theoretical***,*** way. Where we agreed or disagreed with one or more of the ideas of one of the teachers in the case study, it tended to be because we agree or disagree with the ***overall model*** of learning and teaching that they present.

For example, we might agree with critics who think that Mr Ngaphandle's deliberate use of the chalkboard and lectures to convey facts and information to learners – 'chalk and talk' – is wrong. But our disagreement does not simply stem from a sense that the method 'does not work in our experience'. Rather, it brings with it a broader recognition that we are rejecting a ***system of ideas*** that Ngaphandle has about learning. We might, for instance, argue that such a teaching method is not conducive to optimum learning because it denies ***in principle*** the active discovery of knowledge by children.

> ***Information that is structured systematically provides us with an opportunity to see beyond our everyday experience.***

Because the description of Ngaphandle is couched in more theoretical terms, it tends to make us think in a more systematic way about the learning and teaching methods that he espouses. The written descriptions of the four teachers ***articulate*** learning in a different, more generalized way and so we tend to relate different points to each other much more critically and directly. We are persuaded by the discourse to think in a different way.

Do you remember Donaldson's caution at the beginning of Section Four? She said:

> *'As literate adults, we have become so accustomed to the written word that we seldom stop to think how dramatically it differs from the spoken one.'*

We discovered in Section Three that information that is structured systematically provides us with opportunities of seeing beyond our common sense, beyond our everyday experience. In Section Four we noticed that oral and written forms of communication present us with very different possibilities for expressing our ideas. We saw how written text can provide a ***special context*** for learning. This 'context' allows us to represent and express knowledge networks in ways that aren't possible in ordinary speech.

A theoretical text usually also provokes a theoretical response. For example, as you tried to evaluate the teachers' ideas in Activities 52 and 53, you were using your own general ideas about learning to judge theirs. In other words, you were ***articulating*** your own ideas on learning ***in relation to the ideas of these teachers***, and you were doing it ***in the context of this book***. You were not trying to find a solution to a practical problem, but you were rather ***creating text in response to text***.

The way you compared ideas and expressed them in relation to each other can be said to be a theoretical activity.

With the help of interviews, we showed how many teachers express their ideas about learning through shared experiences and storytelling. The case studies moved the discussion about learning to a different level of discourse. We no longer worked in the context of everyday experience, but looked at how we as teachers can ***articulate*** our ideas about learning in more systematic and theoretical ways.

An important feature of this theoretical activity is that we compare different ideas about learning and begin to relate them to each other.

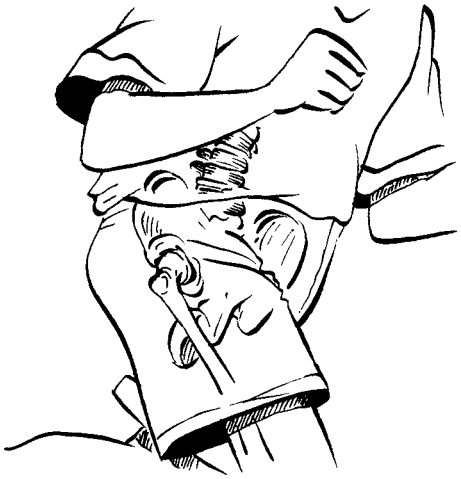
What is articulation?

Before we explore another level of theory let us take some time to understand the concept of ***articulation.*** The concept will become a useful tool to help us deepen our thinking about the ways in which teachers express their ideas about teaching and learning.

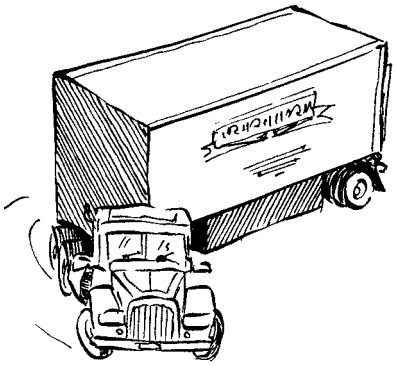
Articulation is a concept that allows us to understand what theory can do to help us improve our knowledge of the world. It refers to the relationship between two different entities where the links between them are smooth and efficient. You might be rather confused by this explanation. To help you understand, look at the illustrations below and on page 192. Then work through Activity 55.

ACTIVITY 55

1 Look at the first two pictures below again. Then answer the following questions:
- **a** What would an unarticulated hip bone do?
- **b** How does the process of articulation control the relationship between the truck and the trailer?



Our hip bone *articulates* with our pelvic bone. This means that it moves around smoothly and accommodates our skeleton to walking, running, jumping, jiving, squatting etc.

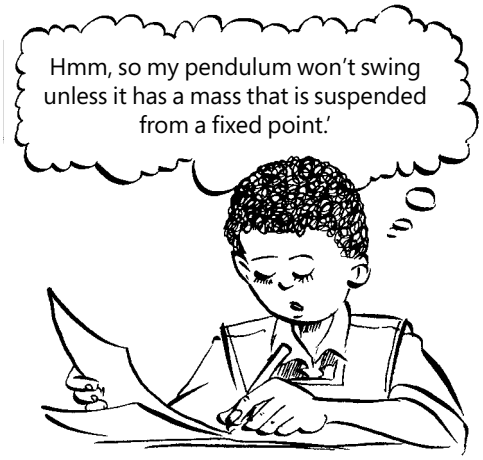


The trailer on an *articulated* truck moves around smoothly when the truck takes a corner and a quick change of balance is necessary to keep the trailer safely on the road.

Spend about 30 minutes on this activity.

2 Now look at the last two pictures again.
a Can you explain why the articulation of feelings and the articulation of ideas are not exactly the same process?

A young victim of bullying *articulates* his feelings very well when he is able to speak to a school counsellor in his home language, because then his feelings of anger can be easily and directly expressed.



A learner *articulates* new ideas as she practises a new theoretical language in which they are expressed and brings them increasingly into connection with her own thinking.

What did we learn about articulation?

The idea that knowledge is like a network of interconnected information should be familiar to you by now. If our connections or links between different areas of knowledge about learning are ***well articulated*** (in other words, if we can make links smoothly and efficiently), it is ***easy*** to share our ideas with others. (Notice how well-articulated joints make body parts work together well.)

Naturally, it is also possible to express ***poorly-articulated*** ideas. We all know how it feels when we want to say something important, but the ideas come out unfinished and lifeless. The ideas may be very good, but because they are not articulated well, they somehow get lost. On the other hand, when we are articulate, we express the exact same ideas in a richly-connected and powerful way.

Over time, as we become better at theoretical activity (the kind of thinking we did in Activity 53, for example), we usually also become better at articulating our ideas.

The reason for this is very simple. Theory allows us to make links between experiences and to fit these experiences into a broader network of knowledge. Theory also equips us with new concepts with which to reflect on what these experiences might mean. It provides us with a frame of reference within which we can move beyond our everyday experience and relate ideas to each other in different and efficient ways.

For example, we have seen in Section Four how cause-effect relationships between ideas are very different to sequences or to mere lists. All of this means that when we are articulating ideas about learning, we are doing more than simply saying what we think. We are actively establishing complex relationships between individual ideas or even whole systems of thought.

Different levels of articulation

In Activities 52 and 53 we considered two different levels at which teachers can articulate ideas about learning. There are others.

An exploration of what the most important theorists of learning and development in psychology have to say about learning can greatly help teachers to reflect on their own practices. These theorists articulate their ideas at a highly abstract level. (By

abstract we mean highly generalized or highly theoretical.)

The theorists we will consider here all seek to build a very complex 'set of ideas, assumptions, and concepts, ordered in a way that tells us something' about learning. They all attempt to create distance from their own and other people's everyday experiences of learning in order to sharpen their critical insights into learning. The theorists do not necessarily even mention teaching, or schooling, or classrooms, but they certainly do reflect on learning in ways that can help teachers.

Let's dip into their ideas. Carefully read what the theorists on page 196 have to say about learning. As you do so, make notes about how they speak to you as a teacher in South Africa at the beginning of the new millennium. Only move on to Activity 56 when you have finished thinking about this.

The differences between theorizing and everyday reflections

Week 18 begins.

Spend at least an hour on this activity. Link new ideas from each theorist back to what you have already learnt. Search for similarities and differences in how the theorists understand teaching and learning. Note that in the table, 'M' stands for Montessori, 'S' for Skinner, 'P' for Piaget, and 'V' for Vygotsky.

ACTIVITY 56

1 Carefully reread the thoughts of the four theorists. Then read through the statements about how children develop in the first column of the table below. Decide if you think each statement is true for any of the theories on page 194. We have filled in the first statement as an example:

	M	S	P	V
When children are born they know and understand nothing.		✔	✔	✔
The social environment has a strong influence on how children learn.				
Children learn by responding to external stimuli in their environment.				
The language you use with children has a powerful influence on how they learn.				
Learning arises from both our nature and our experience.				
Children learn only by experience.				
Children will learn naturally, with or without teachers.				
Teachers or other adults are key to the learning process.				
Children learn to do something by doing it.				

2 Now go back to the descriptions of the ideas of Mr Primechild and Mrs Buthu (pages 188–189). Both of them believe that the teaching environment is very important and yet their theories of learning differ from one another.

- **a** Which theorist would Mr Primechild be likely to identify with most strongly? Why?
- **b** With whom would Mrs Buthu find the most agreement? Why?
- **c** In what sense are the quotations on page 194 more theoretical than the descriptions of Primechild and Buthu? (Once again use the idea of theory as an underlying, ordered set of ideas, assumptions, and concepts.)
- **d** Which theorist do you identify with? What, in your practice of teaching, could you use to illustrate that your understanding of teaching and learning coincides with a particular theorist.

A child already possesses in its soul the faculty of speech even though its external organs are as yet incapable of giving it proper expression. The infant must be given the names of all things in his environment, not just 'tree', but 'oak tree' and 'blue gum tree' and so on. The child's absorbent mind will learn these things naturally. The same can be said for all the various aspects of his mental life. In a child there is a creative instinct, an active potency for building up a psychological world at the expense of his environment. These are sensitive periods, special sensibilities that a creature acquires in its infantile state. We, in our schools, discovered that they are also to be found in children and can be used in teaching. We must have infinite trust in the child's natural powers to teach himself. [Montessori]

Learning is a change in observable behaviour. Even more precisely, we may define learning as a change in the probability of a response, and to explain learning we must specify the environmental conditions under which it comes about. To do this, we must survey the stimulus variables of which probability of response is a function. The first step in designing school instruction is to define the terminal behaviour or response that we wish to bring about. What is the learner to do as a result of having been taught? Then we need to put in place arrangements which will strengthen the terminal behaviour through reinforcement. An educated person is perhaps better able to adapt to his environment or adjust to the social life of his group, but terms like 'adapting' or 'adjusting' do not describe forms of behaviour. They therefore do not belong to discussions on educational method. The 'mind' is an explanatory fiction: to make reference to thoughts or emotions or essential ideas defeats the business of good instructional design and practice. [Skinner]

We can only know about things if we act on them, and reach some understanding of the mechanisms of these actions. The maturation of the organism by itself does not explain development, and hence learning. For example, the sophisticated logic of a mature thinker is obviously not pre-formed in the brain. Experience is essential to a person's contact with the world, but it is inconceivable outside of its source in action. Knowledge derived from experience is not a static mental copy of the objects in view, but arises from the cognitive operations carried out on them. The child actively constructs its knowledge of the world as part of its adaptation to the world. And learning follows development. The child can receive valuable information via language or via education only if it is in a state where it can understand this information. This is why you cannot teach higher mathematics to a five-year old. He does not yet have the structures that enable him to understand. [Piaget]

Social relationships, especially teacher-learner relationships, create new mental formations and develop the higher processes of mental life. Learning is a social process. A child's thinking (an internal matter) is the internalization of a set of relationships in real activity between the child and more competent others (an external, social matter). The speech of adults around the child, with its constant and defined meanings, determines the pathways of the development of children's thoughts and actions. The child finds her own mental complexes constructed in the process of coming to understand others' speech. Teaching is the social activity within which meaning is mediated to the learner, eventually to become her own internal thought processes. Teaching and learning, which are inseparable, and which sometimes seem to wait upon development, are in fact its decisive motive force. [Vygotsky]

What did we think?

We have already mentioned that the ***written*** descriptions of the four teachers on pages 187–188 are very different to the style of the ***audiotaped*** interviews you listened to in Activity 52. The theories of learning on page 194 articulate ideas about knowledge and learning in yet another way: the articulation is at a very general or abstract level. The theorists attempt to explain learning ***in general*** which makes the statements much more theoretical than the descriptions of Primechild, Buthu, Van Oorsprong, and Ngaphandle. These teachers provided us with a theoretical framework for ***specific*** practices and not teaching and learning in general.

All four theorists on page 196 have similar departure points: they all want to explain how learning gets going. The cores of their theories therefore consist of strong statements about where knowledge originates and about how children learn. These statements are made in very general terms and claim to be relevant in all contexts.

As we try to articulate learning for teaching, it is important to realize that theorists of learning do not proceed from considerations of teaching or education. The fundamental question for them lies at a much ***deeper level***; it is about the origins of knowledge in human beings.

Nonetheless, all theories of learning have consequences or implications for teaching. We will now go on to investigate in more detail how these four theorists articulate their ideas so that we ourselves can use them to deepen our own thinking about learning. Before we do that, however, it is worth summarizing the elements that distinguish ***theorizing*** learning from ***everyday discussions*** about learning.

	Everyday discussion about learning amongst teachers	**Theorizing learning**
What is the nature of the discussion?	Shared experience, stories, and anecdotes about daily events. Provides reasons that are 'obvious' to all in a particular context.	Systematic, reliant on a central network of ordered assumptions, concepts, and ideas. Provides reasons that lie 'beneath the surface' and can, therefore, be generalized to other contexts.
What is the form of the discussion?	Conversation. Phrased in personal and idiosyncratic concepts.	Written texts and formal debate (therefore public and connected to the ideas of others). Phrased in a conventional, common system of concepts, words, and images.
What is the motive of the discussion?	Describing particular learning in a classroom. Identifying similar instances that have occurred in other classrooms.	Explaining learning in general. Identifying constraints within which something works or that give rise to something.
How are claims justified?	By reference to 'what works' in a particular classroom.	Substantiated by means of argument or evidence.

You will recognize this table as a version of the one that appeared in Section Three, page 90, which summarized the difference between everyday learning and formalized instruction in school. Theorizing, although very complex, involves adopting the same kind of orientation in relation to our everyday cognition as we did when we studied at school.

The quotes and paraphrases on page 196 are from M. Montessori, *The Secret of Childhood* (New York, Ballantine, 1966), pp. 37–39; P. Polk Lilliard, *Montessori: a Modern Approach* (New York, Schocken Books, 1972), p. 122; B. F. Skinner, *The Technology of Teaching* (New York, Appleton Century Crofts, 1968); B. F. Skinner, 'Are theories of learning necessary?' in *The Psychological Review* 57:4 (1950) pp. 199–200; J. Piaget, 'Development and learning' in R. Ripple and V. Rockcastle (eds.), *Piaget Rediscovered* (Ithaca, Cornell University, 1964); J. Piaget, 'Piaget's theory' in P. H. Mussen (ed.), *Carmichael's Manual of Child Psychology* (New York, Wiley, 1970); L. Vygotsky, 'The genesis of higher mental functions' in J. V. Wertsch (ed.), *The Concept of Activity in Soviet Psychology* (New York, Sharpe, 1979); A. N. Leontiev and A. R. Luria, 'The psychological ideas of L. S. Vygotskii' in B. B. Wolman (ed.), *Historical Roots of Contemporary Psychology* (New York, Harper & Row, 1968).

6.3 How do theorists articulate their ideas about learning?

Why did we choose these theorists?

One of the things you will quickly discover as you study to be a teacher is that there are far too many specific and detailed theories of learning for you to ever get to grips with in your lifetime. A visit to a library will reveal shelves and shelves full of books about teaching which draw in some way or another on models of learning. Very often you will choose books that deal with particular problems that you face in a classroom context, and even though you might find them useful, you will no doubt wonder at many of the theories of children, learning, and teaching that they support.

The difficulties that we always face in the midst of such a wealth of information are:

- How do we identify which are the most significant theories?
- How do all the theories relate to each other?
- Which books or articles do we choose to read in order to develop our knowledge of the field?
- How will they help us to be more effective teachers in the classroom?

> ***To understand theories of learning, we need to understand the networks of knowledge within which they operate.***

In short, to understand theories of learning we need to understand the networks of knowledge within which they operate. We need to find our way into the systematic nature of theories of teaching and learning so that we can identify useful links between different ideas about learning. We also need to understand what theories of learning have to contribute to practising and improving teaching.

In Activity 56 we chose to use the theories of Montessori, Skinner, Piaget, and Vygotsky. These four theorists are often put forward as the important ***formative*** theorists in the history of the psychology of learning. They are all important because their theories are the main ones that have originated or generated particular lines of thought about learning. They provide us with powerful concepts to articulate our experience in the field.

As we will see later, considering the disputes between them has allowed us as authors to make critical choices amongst them. It might surprise you, however, that all four theories start with some version of a common question. It is the question of the learning paradox:

You will have noticed that we also chose this question as our starting point in Sections One and Two, and we continued in other sections to explore how schools, books, and teachers provide particular kinds of pathways to the unknown.

Let us now look more deeply at how each theorist articulates his or her views of knowledge, learning, and teaching. Remember, in all cases they are trying to understand how knowledge originates in human beings. They want to know how it is possible for someone who doesn't know to come to know something.

ACTIVITY 57

1 Turn to Reading 1 by Montessori entitled 'The secret of childhood'. As you read through it, make notes about the following:
   a What counts as 'knowledge'?
   b What moves or motivates children to begin to learn?
   c What does 'teaching' involve?
2 Now find Skinner's article, 'The technology of teaching', Reading 2. Once again make notes that help you to understand the following:
   a What counts as 'knowledge'?
   b What moves or motivates children to begin to learn?
   c What does 'teaching' involve?
3 On what questions do Montessori and Skinner agree? Where do they disagree?

Spend at least two hours on this activity. You might want to break half-way. There is a lot of reading to do. Keep in mind the good reading tips we suggested earlier. As always, try and think of how these ideas impact on your practices as a teacher. After your reading and thinking, discuss these ideas with fellow learners.

Montessori and Skinner

*Montessori: we are **born** knowledgeable*

Montessori's answer to the problem of the origin of knowledge is very similar to that given by Socrates.

Socrates believed that the boy needed to be evoked to 'remember' certain universal things about mathematics that he already knew from birth. This knowledge was ***inborn*** (in other words, it existed at birth, prior to any kind of experience the boy had of it). The questions that Socrates posed to the boy sought to bring these innate ideas to the surface.

Look at the way Montessori emphasizes the importance of inborn knowledge. She talks of an instinct to learn about our world that is 'creative' in the sense that it is a power, inherited by us at birth. She believes that children are born with certain universally-given ideas which she calls ***sensitive periods.*** Learning is the realization of these innate ideas, and teaching (exposure to structured environments) triggers off such learning.

Do you remember the story of the slave boy in Section One? If not, turn back to page 10 and reread it before you continue!

Montessori rejects the opposite view, namely that learning is based on impressions we receive from the outside environment.

*Skinner: we are **made** knowledgeable*

Skinner clearly disagrees with Montessori. He quotes Socrates' ***learning paradox*** directly in his criticism of this view:

> *'the slave boy echoed … a series of statements, and the … correctness of his behavior was mistaken … for "knowing the proof". The mistake is easily made if one believes … such a proof is already known.'*

Skinner clearly does not believe that we are born with ideas; that ideas are innate. He believes that the teaching of knowledge involves bringing about a series of changes in learner behaviour and that this is achieved through the reinforcement of desired behaviours. This means that learning happens when teachers make careful use of rewards, which they hand out to learners in the classroom.

Skinner clearly believes that the origin of knowledge lies ***not*** in the mind, but in the environment. Spontaneous behaviours can be evoked by environmental stimuli, but very soon the reinforcing consequences of the environment take over and strengthen them. In other words, there are consequences for good behaviour or learning, and less desirable consequences for behaving inappropriately or not learning.

Similarities and differences

Both Montessori and Skinner would probably have told you that children learn by

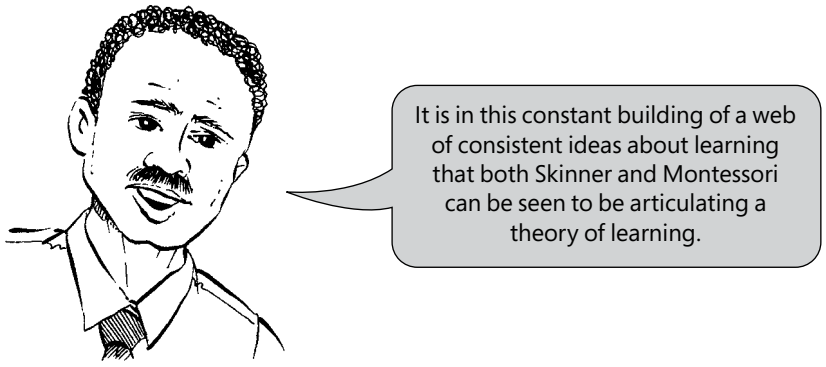
having knowledge ***given*** to them. But they would have argued about ***how*** this knowledge is given:

- Montessori would have said that it is given to the learner 'from inside', by different kinds of intelligence and aptitudes that children inherit at birth.
- Skinner would have said that knowledge is given to the child by 'inputs from outside', by the influence that the environment has on children's upbringings.

They would not have argued very much about their basic assumption that knowledge can be ***given*** to children. The reason is quite simple: we are all products of our time and we tend to think within the dominant spirit of our times. For both Skinner and Montessori, the idea that knowledge is passed on and given to children seemed completely acceptable during the times in which they lived, and so they did not question it.

Each theorist pursues an important underlying idea and tries to build up a consistent ***web of concepts*** which stem from that central idea:

- Montessori works from a notion of ***innate ideas***, and all her main concepts seek consistency with it. For example, she refers to 'sensitive periods', 'predispositions for acquiring language', 'internal vital impulses' etc.
- Skinner works from a notion that learning is only a matter of external, observable things – environmental stimuli and behavioural responses. He builds up a web of specialist terminology to support that idea. This terminology seeks to provide a consistent account of learning on the basis of the central idea of external forces. For example, he talks of 'terminal behaviours', 'reinforcement', 'behavioural contingencies' (by which he means precise connections in time and space between stimuli and responses), 'topographies' or 'repertoires' of behaviour (patterns of behaviour) etc.



Take some time to reflect on the issue being raised here.

STOP. THINK.

Skinner's ideas – the ideas of *behaviourism* – have enjoyed a resurgence recently. Behaviourists tend to deny the need for a concept of mind. Look, for example, at Skinner's claims that speech, reading, and writing are 'verbal *behaviours*' rather than *thinking* activities, or that 'the experimental study of behaviour has no need for a concept of *memory*'. Consider some of OBE's language. Do you think it is in any way influenced by behaviourism?

Debate about learning and teaching was dominated up to the 1960s by the nature-nurture debate. Montessori and Skinner both did their important work as learning theorists and educational thinkers before 1960, so it is not surprising that each of them provides a sophisticated articulation of the different, opposing poles of the nature-nurture debate.

Nature: Montessori	Nurture: Skinner
For Montessori, knowledge is part of our 'nature'. It is given from the inside and learning happens when we practise and perfect our innate talents.	Skinner believes that knowledge is the result of 'nurture'. It is given from the outside and therefore learning happens when the environment influences us and changes our behaviour.

Although we might disagree with both of them today, the ideas of Montessori and Skinner continue to help us think about learning for teaching. In education theory, the assumption that knowledge can be ***given*** to learners has been very influential in shaping the schooling system as we know it. In Section One we suggested that IQ testing was an influential example of ***innatist*** ideas, while the notion of teaching towards terminal, educational objectives was an example of the opposite extreme within the same doctrine.

Piaget and Vygotsky

Now let us look at the theorists who ***changed*** the idea that learners are ***passive recipients*** of knowledge, Jean Piaget and Lev Vygotsky.

ACTIVITY 58

1 Turn to Reading 3, 'Development and learning' by Piaget. As you read through the extract, make notes about the following:
   a What counts as 'knowledge'?
   b What moves or motivates children to begin to learn?
   c What does 'teaching' involve?

2 Now read 'The interaction between learning and development' by Vygotsky (Reading 4). Once again, make notes that help you to understand the following:
   a What counts as 'knowledge'?
   b What moves or motivates children to begin to learn?
   c What does 'teaching' involve?

3 On what issues do Piaget and Vygotsky agree? Where do they disagree?

Spend at least two hours on this activity. You might want to break half-way. There is a lot of reading to do. Keep in mind the good reading tips we suggested earlier. As always, try and think of how these ideas impact on your practices as a teacher. After your reading and thinking, discuss these ideas with fellow learners.

Piaget's contribution to our understanding of learning

Piaget is adamant that:

> *'to know an object is to act on it … to know is to transform the object, and to understand the process of this transformation'.*

What does he mean by this?

- First, Piaget rejects the beliefs of Montessori and Skinner that learners are ***passive recipients*** of knowledge.
- Second, he doesn't believe that learning is simply a reflection of the ***internal maturation*** of the nervous system (as Montessori thinks it is). In other words, he argues ***against*** the idea that we develop cognitively as we naturally age. Piaget argues that such an

Week 19 begins.

explanation must be inadequate by itself, since not all children develop cognitively at the same rate. But Piaget also disagrees with Skinner. He says that learning isn't simply a result of experiencing the physical properties of the external environment. In particular, he argues that a 'stimulus-response schema is entirely incapable of explaining cognitive learning' (as Skinner believes it can). Our knowledge is not a copy of an external reality, says Piaget. While he recognizes that experience of the environment is essential to learning, he argues that learners can only experience the environment through their mental engagement with it. In other words, they act on the world and learn by doing so. The world does not act on them.

For Piaget, neither acquired experience (as the result of ***nurture***), nor maturation and the exercise of intelligence (as part of our ***natural*** inheritance), are in themselves sufficient to explain learning. He moves beyond the traditional nature-nurture debate and argues that something much deeper and more ***active*** must explain how knowledge is constructed. This deeper activity is what Piaget terms ***equilibration***: the twin activities of ***assimilation*** and ***accommodation***. The way the learner acts on objects is ***operative***:

> *'operational structures […] constitute the […] psychological reality, in terms of which we must understand the development of knowledge'.*

In other words, the child learns simply because it is alive and therefore always seeking to adapt to its environment. And this is the answer that Piaget gives to the dilemma posed by the ***learning paradox***: the child acts on the unfamiliar by assimilating it into available knowledge and then accommodating itself to it. Action happens first, then understanding is ***internalized***.

How is Piaget building a web of theoretical concepts here? His ideas originate in the notion that ***learners operate on*** their environment. They build up thinking structures by structuring reality. They change their environment in order to suit their needs, and they change themselves by learning new things in order to fit in with the environment.

On the foundation of this theory of equilibration, Piaget develops his broader theory of learning and development. He emphasizes the dual functions of ***understanding*** and ***inventing*** as the core of intelligence. This leads directly to the rejection of ***innatism*** and ***behaviourism***, and answers detailed questions about how young learners, at different ages, construct knowledge in the course of development.

The argument in the article you have read is structured in exactly this way. In the end, we have a systematic picture of learners who adapt themselves to their environment (which includes the environment of the school and its knowledge-disciplines) by constructing new ways of knowing in order to survive within it.

What can we learn from Vygotsky?

Vygotsky's answer to the ***learning paradox*** is different from Piaget's. Vygotsky emphasizes the role of ***mediated*** activity in learning. He describes ***knowledge*** as:

> *'mental functions that have been established as a result of already completed mental cycles'.*

The ***zone of proximal development*** is a notion Vygotsky uses to theorize how new learning can take place. He argues that ***existing*** knowledge consists of those mental functions (intellectual and practical tasks) which children can carry out on their own. What the children don't know, they cannot do on their own.

However, the ***unknown*** can be made available to them though 'problem solving under adult guidance, or in collaboration with more capable peers'. In other words, Vygotsky argues that it is through engaging in joint, collaborative, task-related activity ***with others who do know***, that the learners eventually can come to know for themselves.

Very much like Piaget, Vygotsky thinks that ***activity*** happens first, and is followed by understanding (the internalization of activity). Vygotsky, however, places a much stronger emphasis on the need to ***use language and collaborative activity*** for learning. It is through ***social activity*** that the learners come to know that which they do not know.

Notice how Vygotsky also rejects both ***innatism*** (he says this view suggests that 'the processes of child development are independent of learning') and ***behaviourism*** (he suggests that Skinner's ideas reduce 'development … to the accumulation of all possible responses') in explaining and justifying his own ***social constructivist*** theory of learning and development.

Vygotsky builds up his theory around a central assumption about the ***social*** character of learning. In other words he argues that:

> *'what children can do with the assistance of others [is] even more indicative of their mental development than what they can do on their own'.*

Once again, one can see the value of a strong, consistent network of ideas here. In much the same way as we have seen that Montessori, Skinner, and Piaget do, Vygotsky is able to achieve particular insights into learning because he has a strong central idea with which to work.

The importance of emotions in learning

We have already made reference to the importance of emotions in learning:

- in Section Two we discussed ***resistance*** to learning and the ***terrible pressure*** that learners ***feel*** when they can't understand something;
- in Section Four we looked at the ***emotional power*** or ***'magic'*** of reading, and in the story of Ashok, we saw how poor teaching can create the ***emotional impetus*** for a young child to drop out of school.

Some people have accused Piaget and Vygotsky of ignoring the importance of emotions in education. Skinner, of course, thinks that emotions are important only to the extent that they are measurable behaviours. Montessori tends to make little distinction between the emotional and cognitive life of the child, seeing the sensitive periods as 'psychic passions'.

STOP. THINK.

What do you think? What role do you think emotions play in learning? Can you recall moments in your own learning (or teaching) where emotions either undermined learning or were used to develop learning. Write these down in your workbook.

Take some time to reflect on the issue being raised here.

Spend about 30 minutes on this activity.

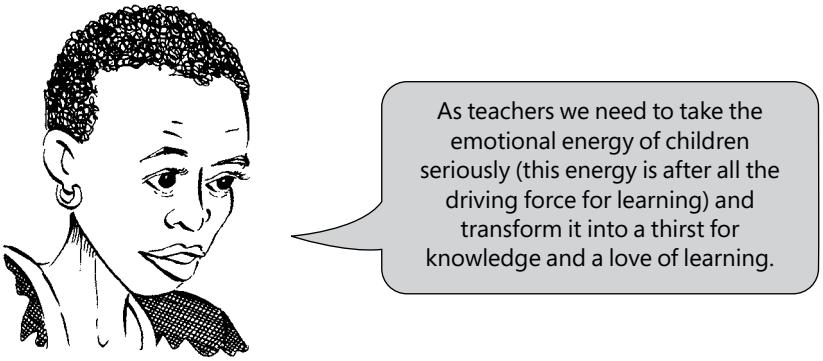
ACTIVITY 59

1 Turn to Reading 15, 'The magic of reading' by Bettelheim and Zelan. As you read through the extract, make notes about the following:
   a What counts as 'knowledge'?
   b What moves or motivates children to begin to learn?
   c What does 'teaching' involve?

What did we learn?

Bettelheim and Zelan's perspective on knowledge and learning differs from the four theorists we have studied so far in that they don't see learning as a process ***primarily*** of thought and/or behaviour. Instead, they link learning ***directly*** to the emotions and the unconscious imagination of the child. Furthermore, they suggest that education should ***first and foremost*** appeal to these 'most primordial aspects of the mind'.

Bettelheim and Zelan's concern with the internal, emotional world of children has important implications for teaching.



Although Piaget and Vygotsky might have underplayed the role of emotions (or 'affect') in learning, they were both aware of its importance in motivating cognitive development and learning. Piaget spoke of ***affect*** as the 'petrol' of cognition. In other words, he saw it as the ***source of energy*** that drives us to learn and to develop our knowledge. Likewise, Vygotsky wrote a monograph in which he wrestled with how ***affective*** development relates to cognitive development when both are considered as higher psychological processes. However, both of them primarily built theories of ***cognitive*** development and learning, and it is perhaps to theories of affect, like psychoanalysis, that we must look for a well-rounded explanation of the emotions of learning.

Although Bettelheim and Zelan's theory was formulated within the discipline of psychoanalysis, there is an interesting link between their ideas and those of both Piaget and Vygotsky. They ask that teachers move beyond the idea that reading is merely a practical skill to be given to us by our schooling.

By reducing it to a practical skill, teachers reduce the power of reading to that of 'inoperative knowledge' which cannot be used to imagine and think creatively. They also believe that active readers ***construct*** new knowledge, but their theory sees the ***emotional*** life of the child as the driving force for such learning.

The relationship between theory and practice

6.4

We have already commented on the libraries full of books about learning for teaching that you will encounter during your career as a teacher. We suggested that their diversity and sheer numbers will leave you somewhat bewildered, unless you have:

- an understanding of the field of learning theories;
- a strategy to read them.

The real issue, we suppose, is how we move from bewilderment to a productive perplexity. Yes, ***productive perplexity***! It is impossible to know everything and to be sure about what we must do. As teachers we have our own ***learning paradox.*** So how does a teacher make choices about which learning and teaching strategies to adopt in the classroom?

Just over 100 years ago, William James pointed out the biggest single trap that we can fall into when we try to articulate our ideas about teaching theoretically. He warned:

> *'You make as great, a very great mistake, if you think that psychology, being the science of the mind's laws, is something from which you can deduce definite programmes and schemes and methods of instruction for immediate schoolroom use.'*

This quotation comes from William James, *Talks to Teachers* (New York, Holt, 1898), p. 7.

His warning is as relevant for teachers today as it was in 1898. It captures another paradox that we need to grasp here. Particular theories of learning lead to particular ***ideas about how*** to teach. But we can't derive teaching strategies and approaches ***directly*** from theories. In other words, educational theories cannot be turned directly into a 'recipe' for teaching in a particular classroom.

So, for example, when you worked through the theories of Montessori, Skinner, Piaget, and Vygotsky, we asked you to think about the ***implications*** of each theory for teaching. We did not ask you ***what teaching methods*** each theorist prescribes. We did not even ask you the most common version of this latter question, which is, 'How do we apply this particular theory to the classroom?'

Why then have we not been 'practical' and asked you to apply these theories to practice? We mentioned earlier that theories are helpful tools when we are trying to articulate our ideas about learning:

- They allow us to ***think about*** our practices much more rigorously and critically.
- They ***challenge many aspects of our practice*** and often allow us to ***see what is wrong*** with what we are doing.

> ***"Theories of learning have implications rather than applications for teaching practice."***

But they seldom tell us what to do. The reason for this is that teaching practice is ***specific*** to a ***particular context***, whereas theories of learning are ***general.*** There are always other factors that influence the decision a teacher makes about what teaching method to use. In particular, teachers need to consider the resources they have available, the learning histories and existing knowledge of their learners, and other specific, contextual realities.

This is why we believe that theories of learning have ***implications*** rather than ***applications*** for teaching. To ask about ***applications*** of theory implies a belief on the part of the questioner that, if teachers know or understand how learning happens, then they will immediately know about efficient classroom practices. This is not so. Theories of learning do not give us direct answers about practice. They provide us with the tools for finding the most powerful questions to ask about what we should do in class.

This doesn't mean we can't write or think about particular teaching methods. It is

simply to say that they don't come to us directly from ***theorizing*** learning. This module's companion module, ***Getting Practical***, for instance, does suggest some teaching strategies that are ***consistent with*** (but not prescribed by) the ideas developed here.

It is worth noting that none of the theorists we have looked at in this section ***prescribe*** particular methods. The one amongst them who perhaps comes closest is Skinner, and this is understandable. He was closest amongst all of them to believing in the 'technological' ideal that we can predict and control learners' behaviour. But even Skinner did not want to prescribe exact methods to teachers in a classroom context. This is well captured in his description of the two kinds of expertise that he believes teachers must embody:

> *'the science of learning and the art of teaching'.*

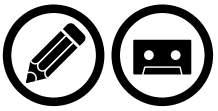
This quote is from B. F. Skinner, *The Technology of Teaching* (New York, Appleton Century Crofts, 1968), Chapter 1.

Conclusion and key learning points

6.5

Reassessing the half-truths

Week 20 begins.



Spend a few hours on this revision activity. Use all the scaffolds you have available (fellow learners, the Reader, the Learning Guide, the tape etc.) to help you overcome any lack of understanding.

ACTIVITY 60

To check your learning, we'd suggest you do the following:

1. Pull out all the half-truths in the various sections and write them down in one place. Then check the activities and/or your notes when you first thought about these ideas. See whether your thinking has changed, and in what ways, now that you have completed this module.
2. Rewind the audiotape and listen to it again. Concentrate on the overlaps between the ideas raised by the different speakers. Listen to how people construct arguments. Can you hear and understand more now than you did earlier?
3. Make notes of any half-truths or ideas in the Learning Guide or on the audiotape that you still have difficulty understanding. Then work on the relevant sections in the Learning Guide and Reader until you do begin to understand these ideas.

Key learning points

Throughout this section we have used the notion of ***articulation*** to explore ways in which we can make sense of our ideas about learning.

- We started with a series of interviews, where teachers shared ideas that were based on experience.
- We then looked at four case studies that placed teachers' experiences into a systematic framework of ideas and therefore demanded a more theoretical response from us.
- The next step was to introduce four influential theories of learning that were very important in the twentieth century, and remain so. These ideas are highly abstract and concern themselves with the origin of knowledge in human beings.
- Finally we investigated the relationship between theory and practice in the teaching profession.

In the context of the introduction of the new OBE curriculum, government has deliberately not prescribed teaching methods or strategies to be used in the classroom. As we have suggested in this section, all teachers ultimately have to articulate learning for teaching for themselves and animate learning in their classrooms accordingly. However, we believe, along with Bennett and Dunne, that it is crucial that teachers:

> *'are informed by current theories, ideas, and research findings, particularly when the theories that underpin current practices are seriously being questioned'.*

It is important that teachers reflect theoretically on their own practices in a context of rapid change in education. Classrooms are incredibly complex places and children are incredibly complex creatures, and thinking is therefore something that all teachers must do a lot!

Here is our summary of this section's key points:

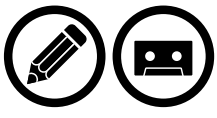
- The shared articulation of ideas helps teachers to reflect about teaching and learning.
- Teachers express their ideas about learning, orally and in writing, by sharing experiences or theorizing their experience.
- Articulating ideas about learning involves establishing complex relationships within our network of knowledge about education.
- Many theorists of learning are not teachers and do not reflect on classroom activities in particular.
- Theories allow us to distance ourselves from the immediate concerns of the classroom, and to think about learning in a more fundamental way.
- Skinner and Montessori present different sides of the nature-nurture debate.
- From the 1970s onwards, children were generally thought of as active constructors of their knowledge.
- For Piaget, this active construction is made possible by our biology, by the spontaneous activities of our minds right from birth.
- For Vygotsky, the knowledge and understanding of others can be the source of our action, directing us to think about the world in particular ways, particularly through language.
- Theories should not be misunderstood as recipes for action.
- Theories enable us to explain a particular event or situation in more general terms, linking our experience to the discourse and knowledge of others. This may provide us with a different perspective or new understanding.

What is our theory of learning?

We have now come to the end of this module. To complete your learning we'd like you to think about how we have used some of the theories in this module to answer our own questions about teaching and learning.

Let us go back to the module's central arguments and principles set up in Section One where we discussed the ***learning paradox***. Our enduring argument has been that learning is a relationship between the known and the unknown. In order to move between the two we have argued that learning must be ***active***.

All our arguments are built on this assumption, namely learning and understanding are the outcomes of ***thoughtful actions***. This would place us within the ***constructivist*** family of theories.



Spend at least an hour on this activity. It would be very useful to listen to Part 1 to 5 of your tape again at this point. See whether you can recognize the theoretical assumptions that underlie the arguments of the various speakers.

ACTIVITY 61

1 You may have seen 'proof' of our constructivist beliefs throughout this text. Select five excerpts from this module which you could use to 'prove' that the module is informed by constructivism. Write these down in your workbook.

2 Are you able to say which of the four theorist's ideas we have been discussing helped us to articulate the key concepts in Sections One to Five of this module? Draw a table similar to the one on page 207 in your workbook and fill it in, giving reasons for your choices.

Key ideas	Which theorist do you think influenced the articulation of these ideas? Why?
Section One: The learning paradox. How do we learn what we do not know?	
Section Two: We move from the known to the unknown by being active – taking risks, guessing, interpreting our mistakes, asking questions, and imagining new possibilities.	
Section Three: School learning is different from everyday learning. The discourse of schooling helps us to think in a more theoretical and systematic way.	
Section Four: Reading is a powerful tool in the act of study. It is an active construction of meaning. Learning to read depends to some extent on our desire to experience the magic of reading.	
Section Five: Teachers are responsible for the design of good learning activities. Teaching is not so much about passing on knowledge, as it is about scaffolding learning and supporting learners when they are afraid of the unknown.	

The theories of Piaget and Vygotsky provided the main theoretical insights that have generated the ideas in this module:

- Piaget is the main influence in Section Two. His central idea – that learners act on the world and then internalize the results of those actions as new ways of knowing – is the main concept behind our discussions of how learners take risks, interpret their mistakes, ask questions, and imagine new possibilities in order to know. In other words, this section departs from the recognition that people are by nature active in relation to the world.
- Vygotsky is the main influence in Sections Three, Four, and Five. We discussed the worlds of learning in which schools, books, and teachers provide the ***social relationships*** (and the scaffolding) which assist the learners to enter into new, formal knowledge.

While both Piaget and Vygotsky underpin the general constructivist orientation we have adopted throughout this text, we have used other theorists to help us articulate our ideas about learning and teaching. We looked initially at Socrates to help us set up our main question, ***'How can learners come to know something that they do not already know?'*** We also used texts which are not necessarily from the constructivist theoretical tradition. For example, we used an extract by Bettelheim and Zelan, who work within the psychoanalytic school of thought, because we also believe that ***affect*** (the motives, desires, feelings, and wishes that drive us to learn in the first place) is important.

We also presented you with a variety of articles from all over the world in the Reader. As authors, we have assumed that the debate about the active origins of knowledge is demarcated by the theories of Piaget and Vygotsky. We hope that all the articles support a coherent train of thought about how and why learners begin to construct knowledge about their world.

> ***"Thinking is sometimes easy, often difficult, but at the same time thrilling. But when it's most important it's just disagreeable, that is when it threatens to rob one of one's pet notions and leave one all bewildered and with a feeling of worthlessness. In these cases I and others shrink from thinking or can only get ourselves to think after a long sort of struggle. I believe that you too know this situation and I wish you lots of courage!"***

This quote is by L. Wittgenstein, in a letter to Rush Rhees, in R. Monk, *Ludwig Wittgenstein: The Duty of Genius* (New York, Penguin, 1990), p. 474.

APPENDICES

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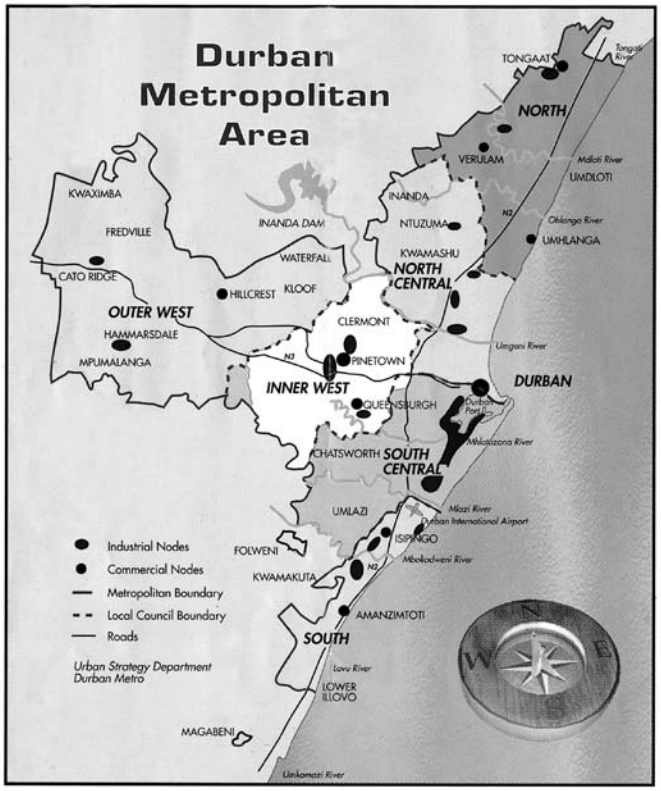
Appendix C: Photographs..... 223

Appendix A: The city of Durban

Some basic facts

Location

The Durban Metropolitan Area is on South Africa's east coast, in the province of KwaZulu-Natal. It includes the cities of Durban and Pinetown, as well as centres such as KwaMashu, Inanda, Tongaat, Verulam, and Umhlanga to the north; Amanzimtoti and Umlazi to the south; and Westville, Kloof, and Cato Ridge to the west.



Area of the Durban Metro Council

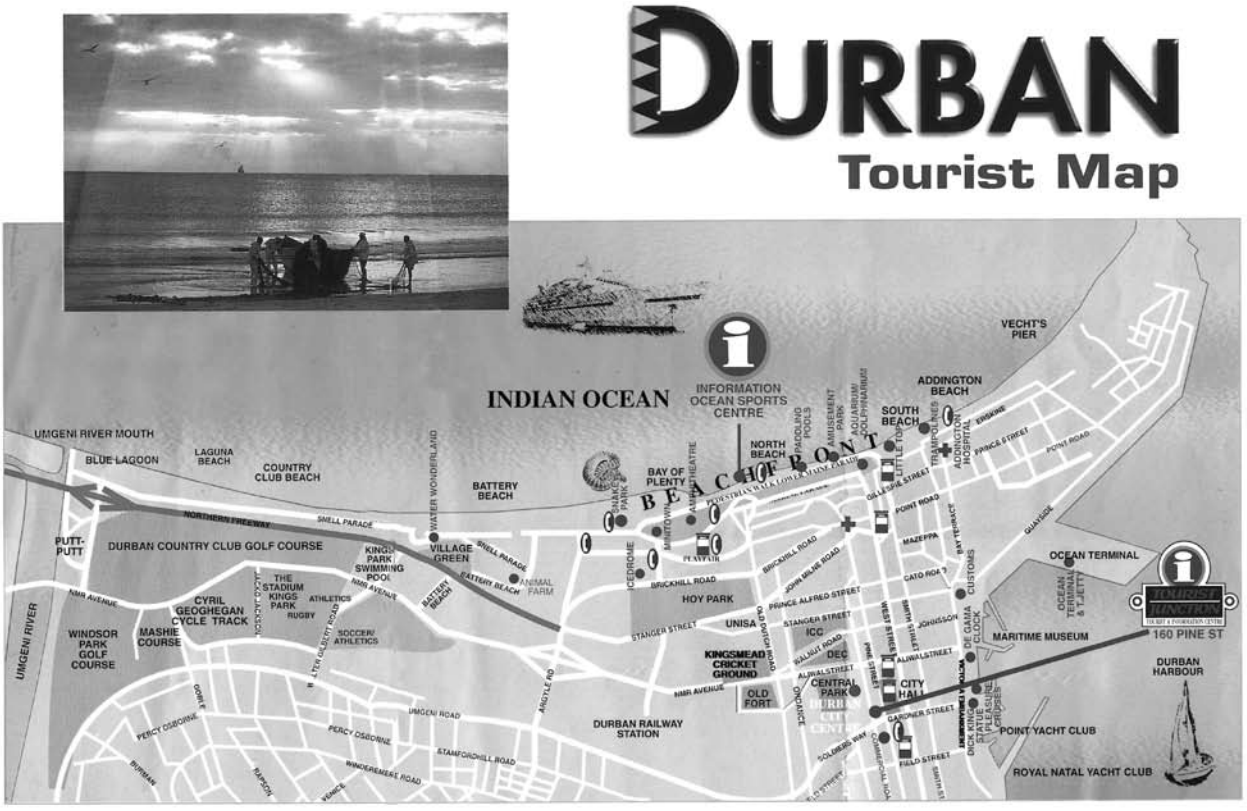
The Durban Metro Council was established after South Africa's first democratic local elections in 1996 and extends over an area of 1 366 square kilometres.

Languages

There are eleven official languages including Zulu, Xhosa, English, and Afrikaans.

Climate

A sub-tropical climate prevails almost throughout the year at the coast – ample reason for Durban to be known as 'the sunshine city'. Humidity levels may be high in certain parts at particular times of the year. Inland areas are more temperate. The average winter temperature is about 18 degrees Celsius. Swimming in the sea can be enjoyed all year – the warm waters of the Indian Ocean rarely fall below 17 degrees Celsius.



Time differences

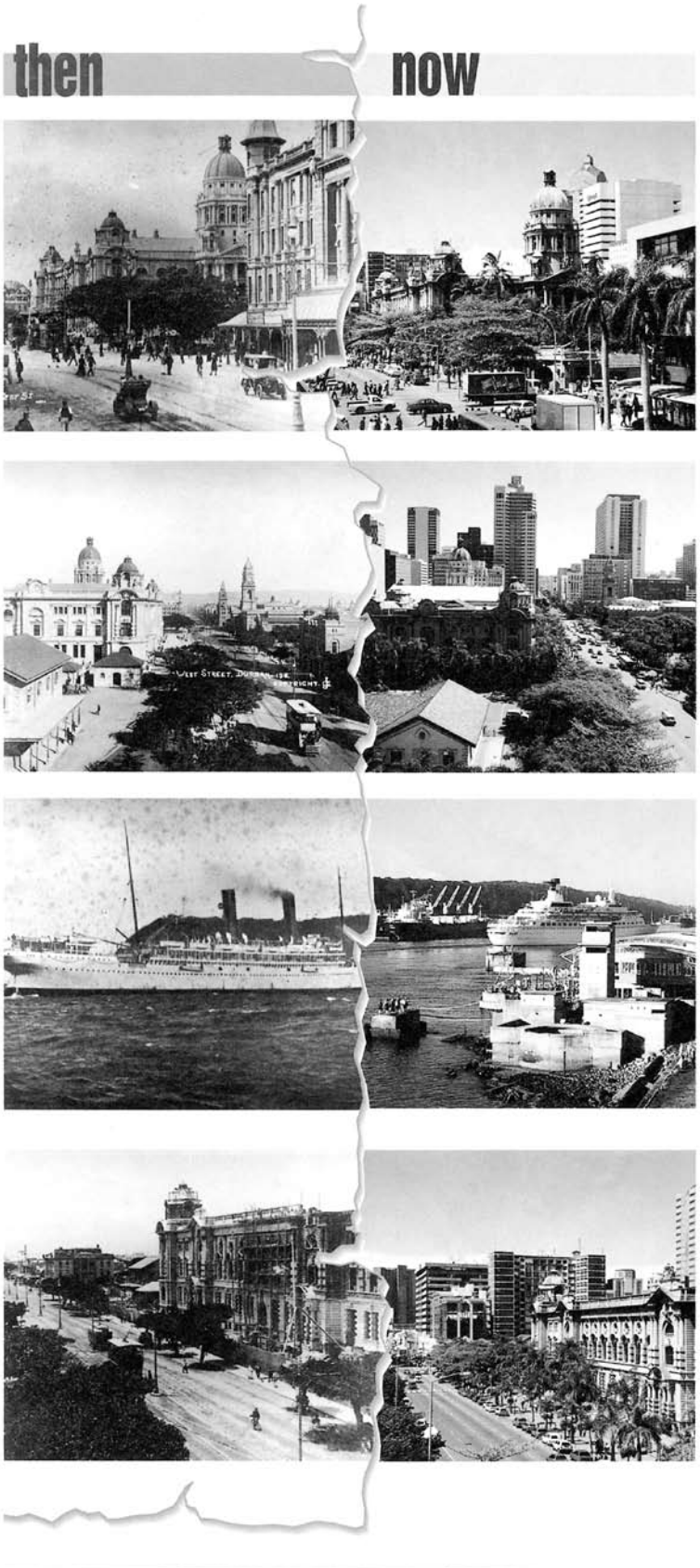
Standard time is two hours ahead of Greenwich Mean Time, one hour ahead of Central European Winter Time, ten hours behind New Zealand Winter Time, and eight hours behind Eastern Australian Winter time.

A general history

Durban's name

Vasco da Gama named Natal in 1947 when he passed its shores on Christmas day. He named the area Natal in honour of the Lord's Nativity. On 23 June 1835, Port Natal was renamed D'Urban in honour of Sir Benjamin D'Urban, then Governor of the Cape of Good Hope. D'Urban was subsequently changed to Durban by the excision

of the apostrophe. The Zulu name for Durban is ***eThekwini***, meaning 'The Place Where the Earth and the Ocean Meet'.



Durban 100 years ago

In 1900 Durban had a population of about 56 000. By 1911 the borough population was 71 000 comprising communities of diverse cultural and historical backgrounds. The white settlers included descendants of the early pioneers like Henry Fynn, as well as the Voortrekkers, the Byrne Settlers, and later arrivals from various corners of Europe. A large Zulu-speaking population also lived around Durban. Colonial conquest combined with drought and diseases had pushed many of them off their land, forcing them to seek a living through labour in the towns. Indentured Indians arrived between 1860 and 1911 to work on the sugar plantations. Many were also employed by the Natal Government Railways, Durban corporations, industries, and private households.

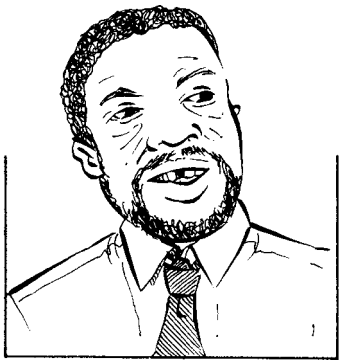
Social positions were fairly clearly drawn by the turn of the century: Durban's white colonists occupied the Berea and other breeze-cooled hillsides of Durban. By the 1870s they were already resisting the growing presence of Indian and African families in the city, and attempts were made to control them via 'slum control' measures and the erection of migrant labourers' barracks. As the number of Indians in Durban began to increase, colonists began seeing the indenture system as a threat. The Indian population increased from approximately 6 000 in 1894 to 16 000 in 1904. In 1893 the Natal Government introduced a Bill to prevent Indian people from voting. As Indian businesses grew in size and importance, many white traders found the competition too fierce, and began to demand restrictions on Indian traders. This led to the introduction of the 1897 Dealers Licences Act, which resulted in Indian traders being squeezed out of Durban's commercial heart into the Grey Street area. M. K. Gandhi arrived in Durban in May 1893 and was persuaded to remain in South Africa to help the Indian communities fight discriminatory laws and practices.

Political profile of the Durban metropolitan area

The Executive Committee

The Metro Council's Executive Committee (Exco) is composed of councillors from major political parties in the Metro. The Council takes no decisions of any importance without these first being fully discussed by Exco. One can find top city businessmen and poor informal settlement dwellers waiting their turn to plead their case before this influential group. In the 1999 elections, Durban voters elected councillors from a range of different parties, among which were the African National Congress (398 719 votes), the Inkatha Freedom Party (122 475 votes), and the Minority Front (32 083 votes).

Some members of the Executive Committee



Nigel Gumede

- The African National Congress.
- Chairs the Durban Metro Housing Committee and the Strollers Overnight Facilities Board, and is a board member of the Cato Manor Development Association.
- Believes people should respect, support, and protect their facilities which they pay for.

Rev Cyril Pillay

- The Inkatha Freedom Party.
- Serves on the South Central Council.
- Would like to see a crime-free Durban, and residents who are 'owners of their city'.

Visvin Reddy

- The Minority Front.
- Chairman of Community Services.
- Believes Council's main role is to bring about positive change in people's lives.

Councillor Margaret Winter

- The African National Congress.
- Chairperson of the Metro Executive Council.
- Believes Durbanites have to work actively for a non-racial city.

The demographics of the Durban metropolitan area

Metropolitan population

The total metropolitan population is 3 million people.

Housing

Of the total households in the Durban metropolitan area in 1998, approximately one-third were informal, semi-formal, and traditional dwellings. This constitutes just over one-third of the population of the Durban metropolitan area, and over half of the black population. There is a backlog of approximately 250 000 houses in the Durban metropolitan area. While most projects target the lowest income households and provide a serviced site and starter house, Metro Housing is also involved in the provision of rental or 'rent-to-own' housing through the establishment of the First Metro Housing Company (FMHC).

Water

Durban Metro Water currently supplies 270 000 households with water. Working on approximately five members per household, one can estimate that 1 350 000 of the 3 000 000 people in the area have direct access to water. Plans are on track to connect an additional 20 000 households in the formerly disadvantaged areas, out of a current backlog of 54 600.

Electricity

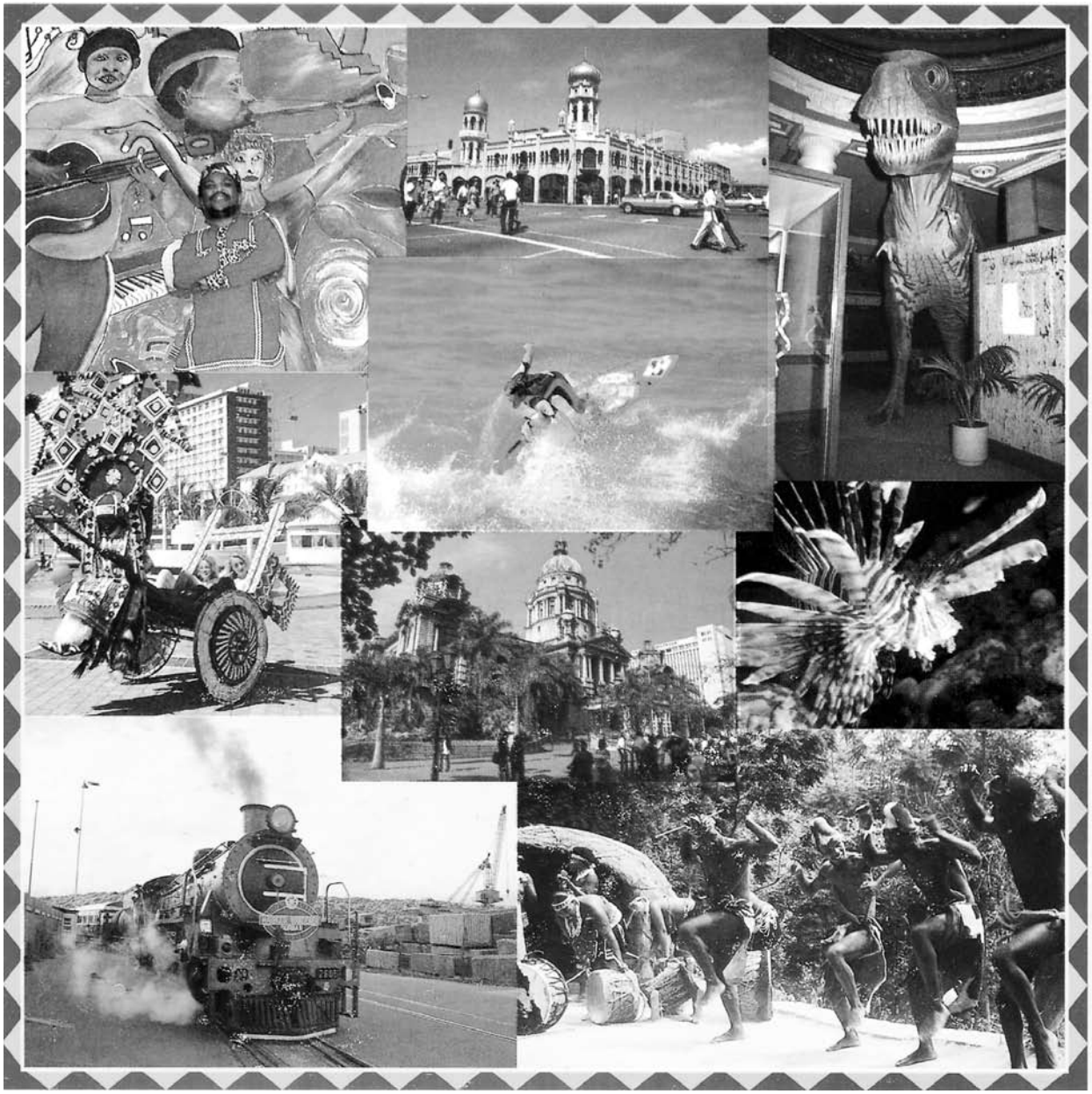
This rates high amongst the list of essential services not available to all households with 25% not being serviced. Durban Metro Electricity supplies more than 475 000 households in an area of nearly 2 000 square kilometres. Working on approximately five members per household, one can estimate that 2 375 000 of the 3 000 000

people in the area have access to electricity. Due to the 'Electricity for All' development project, the customer base is currently growing at a rate of about 2 200 every month.

Refuse disposal

This is one of the less accessible services provided by local authorities, with 28% of households presently not serviced.

The cover of a Durban tourist brochure.

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Durban's positive tourism points

- Durban's key strengths include its physical setting (coastal), vegetation (natural), good climate (all year round), and cultural diversity (Africa meets East meets West).
- Durban's people are friendly and good-natured and the city's generally free-spirited attitude to life is reflected in its thriving cuisine, music and arts scenes.
- Durban can compete with the best of Maputo, Zanzibar, Luanda, Mombassa, Rio de Janeiro, New Orleans, and Jamaica. While these destinations are characterized by different tempos, rhythms, and cultures, Durban also has an inherent 'Africanness' reflected in its heritage and image.
- Durban captures the spirit, atmosphere, and ambience of Africa.
- It is a vibrant, young, dynamic, creative, yet down-to-earth destination.
- There is huge potential for Durban to enhance its tourism portfolio.
- There is a willingness among industry players to focus on product and market development.
- Durban's multi-dimensional Arts and Culture heritage can be threaded through food, music, dance, theatre, literature, architecture, and lifestyle to strengthen the products.
- Current market trends point to a window of opportunity for Durban's future target market.
- Durban has the potential to complement other key South African cities, particularly Johannesburg and Cape Town.
- Durban's climate is excellent for leisure and sporting activities, and provides the opportunity to promote events and short breaks year round.


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Exhibition brings message of hope

'POSITIVE Lives: Positive Responses to HIV' is an exhibition dedicated to those living with AIDS, to those who have lost their lives to AIDS and to those who loved them, and to individuals and communities who continue to combat the impact of the disease.

The photographic exhibition, a collaboration between the Terrence Higgins Trust and Network Photographers, explores the impact of AIDS and the positive responses of diverse communities around the world.

Gideon Mendel, whose documentation of AIDS in Africa (entitled 'A Broken Landscape') forms part of the 'Positive Lives' exhibition, has received numerous awards for his work, including a World Press Photo Award and the Eugene Smith Award for Humanistic Photography.

'Positive Lives' at the Durban Art Gallery marks the start of a tour of the African region during which the exhibition will bring its message of hope to as many communities as possible.

The exhibition will be at the Durban Art Gallery until Thursday, 27 July.

CITY news
Your Staff Newspaper April 2000 Volume 12: Issue 15

Family fun at Easter

There will be plenty of fun activities at the Easter Affair, North Beach, from 22 April to 1 May. Retail cabins selling everything from clothing and CDs to delicious food will line the promenade, while local bands will fill the entertainment marquee. From hi-impact sport to clowns and jugglers, the Easter Affair has something for young and old.

With Durban's balmy weather and laid-back holiday style, what better way to spend the week than down at North Beach having fun in the sunshine city? There are not many cities where you can enjoy summer fun in winter!

Some of the more unusual attractions include:

The climbing wall
A seven-and-a-half metre fibreglass climbing wall will provide the perfect challenge to scale new heights. A first in South Africa, this newly-modelled climbing wall works with hydraulic cables and when climbers reach the summit a buzzer sounds to announce their success! The wall is open to anyone four years and older and every climber wears a safety harness, with strict supervision at all times. Four people can climb the wall simultaneously. The entry fee for a single climb is R5 or better still, R10 for three climbs.

Go-karts, mini bikes, and skateboarding
Don't miss out on the popular go-karts and mini bikes on the boardwalk, and find out who has the talent to be a Grand Prix star! The mini bikes have proved very popular with children in the past and are sure to be a hit again this year. Nearby, energetic skateboarders will enthral watchers with fast, hi-tech, heart-stopping manoeuvres.

Tailball tennis
A relatively new sport, tailball tennis is fast increasing in popularity in Durban. From the makers of the original swingball tennis, the Dunlop Tailball is extremely versatile and can be used for volleyball, badminton, or tennis. It is ideal for the beach as the brightly-coloured ball has a stream of multi-coloured tails attached to it which serve to slow down its flight so that you don't have to run far to fetch the ball.

Jumping castle
The Teletubbies Gladiator Jumping Castle is sure to leave children squealing with glee! This colourful, nine metre long attraction has a gladiator ramp, complete with a net. Children can be gladiators for a day, climb to the top and slide down into a ball pond filled with hundreds of brightly-coloured plastic balls, or enter into a large trampoline-like area and literally jump for joy!

Funworld
There will be an assortment of rides at Funworld. Little children can delight in taking a ride on a cute squirrel or elephant. Mini cars will also be available.

Come and join in the fun!

Durban features in urban revival conference

'WARWICK Avenue is not a way of life – it is a social disaster. That is why there is crime and lots of it,' says local Communications Director Fikile Mnguni.

But unlike many critics of urban sprawl, Mnguni has innovative plans for the area.

She will present these ideas at the Creative City Conference in Huddersfield in the United Kingdom this month.

From May 25–27, representatives from more than 30 countries will be presenting ideas on how to revive their inner cities.

Mnguni believes one of Durban's main problems is the number of rural people trying to carve a niche for themselves in an urban society.

She points to the notorious areas of Warwick Avenue, Albert Park, and Point Road where the violence and crime overshadow the creative and skilled nature of the people living there.

Skills which could better the outlying rural areas of Durban become redundant in the city atmosphere and it is these skills which Mnguni wants to 'give back'.

'So many of them are sitting waiting for hand outs. This must stop. I want to show them that they are skilled and have the ability to make a success for themselves and their communities.'

WHAT'S ON IN DURBAN

Featured events taking place in Durban and surrounding areas

Mondays
20:00 Live music at the DURBAN FOLK CLUB, Tusk Inn, Sarnia Road. (Syd 205-6951)

Tuesdays
19:30 DRUM CIRCLE meets at the BAT Center. (332-0451)

Tuesdays and Thursdays
17:30–19:00 Evening DANCE CLASSES in Rehearsal Room 410, Playhouse Complex. (Tania 369-9467)

Wednesdays
13:00–14:00 Durban Arts free LUNCH-HOUR CONCERTS on City Hall steps. (Patrick 312-1236)

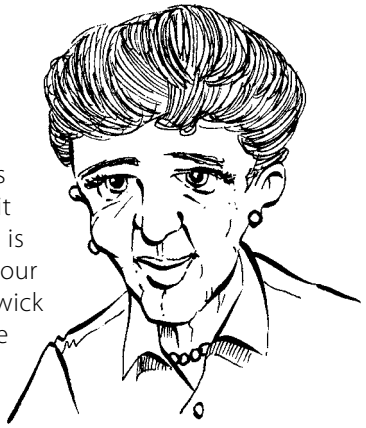
Thursdays
21:00 LIVE JAZZ featuring local artists and some out-of-town guests; pub meals available. Rivets, Durban Hilton. (336-8204)

Fridays and Saturdays
17:00 Unwind from the workday week with MUSIC ON THE DECK at the BAT Center – sip a sundowner, watch the sun go down over the harbour and chill out to some great sounds. (332-0451)

Sundays
15:30 Durban Arts Sunday BALLROOM CLUB at Playhouse Studio. (Patrick 312-1236)

Appendix B: Interviews with some Durban residents

Mary Bancroft



I have lived in Durban all my life. I grew up here, and got married and had my kids here. I used to be a teacher but I am now retired. I think Durban is a nice place to live but it feels far less safe than it did when I was young. Now it feels as if there is nowhere really safe in the city except perhaps your own home. One should never, ever go near Warwick Avenue or down Point Road at night as these are really dangerous areas. I also think that it's quite a hard city to find one's way around and so using taxis and public transport is preferable to walking.

I do, however, think that Durban is a very good spot for holidays as it has good weather and lots of things to do. It is also a very interesting city because there are lots of people of different cultures. I would think though that visitors would be relatively safe at venues like Mitchell Park, Sea World, Museums, or the Sharks Board. These are places that I know tourists like to go to and there is security provided. I don't really go to these places myself. For entertainment I like to go to music concerts; the Philharmonic Orchestra in the City Hall on Thursdays, or the Botanical Gardens on Sunday afternoons for really pleasant outdoor concerts. I also like to shop for fresh things at the two markets, in particular, there is a farmers' market held very early on Saturday mornings at the old drive-in site. You need to go by car and arrive really early – about 6.30 or 7 to get the best stuff.

Durban is a city that I think offers good opportunities for people wanting to start a new career and good schools for young families with children. In my experience, schools such as Marists Stella, Gordon Goad, Clifton, DHS, or Crawford are very good.

James Brown

My name is James but my friends mostly call me J or sometimes 'Better than' from the song 'I feel better than James Brown'. I have only lived in Durban for a few years; I come from a small town on the South Coast, went to school in Port Shepstone, and came to Durban to go to university. I live with friends in a 'digs' close to the university and am studying to become a lawyer. One of the big adjustments about student life has been learning to deal with household stuff like shopping for groceries and cooking – we shop at the nearby supermarket Checkers because it's cheapest and we are supposed to take turns cooking although I seem to land up doing more than my fair share – the other guys say its because my meals are better, but I think that's just flattery to get out of work!

I like living in a big city – there's lots more to do than where I come from. On weekends I like to spend time at the beach – I'm a surfer like most guys from the South

Coast! I think the Durban beachfront is an excellent place for entertainment for all kinds of people – families, kids, young people, and old. It's very safe in the daytime but at night I only go around in a group of other guys, not alone. The club scene is very cool in Durban – just always make sure that you park your car where there is a car guard on duty – otherwise it won't be there when you come out! My friends and I also like to listen to live jazz and there are a lot of good venues for this in Durban: Rivets at the Hilton hotel on Thursdays, the Bat Centre on Friday evenings, and the Jazz Centre at the university on a Wednesday. The big plus with these jazz performances is that they are either free or really cheap and they are great places to mix with and meet people of all races.

I wouldn't really think that Durban is a nice place for a holiday although I like living here and lots of tourists from Gauteng seem to see Durban as an excellent destination. I think that if you want a beach holiday its nicer to go somewhere a bit out of the city – in fact, like down the south coast where my family live – although they would kill me if they heard me say so as people in those small towns get really irritated with the floods of tourists over Christmas time. But for employment obviously the city is a much better option and I think I'll be staying in Durban when I qualify. I don't want to go to Jo'burg or overseas like many of my friends. I'll probably buy a house in the suburbs, Pinetown, Westville, or Umhlanga and would also prefer to work out there rather than in the city centre. I'll use family contacts and perhaps also the advice of one or two of the best lecturers at university to help me decide where to work. I also think that it's better to bring up kids in the suburbs as the schools are better in these areas than in the centre of town.

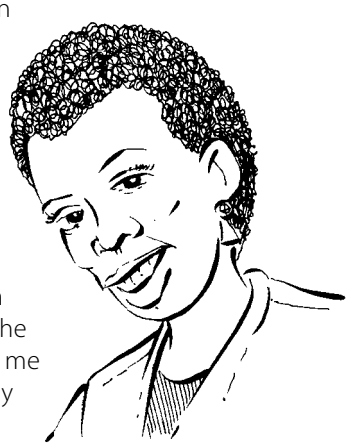
Fatima Nair

My family has always lived in Durban – my grandparents and even my great grandparents. So it's my city, very definitely. I will probably stay in Durban but I am considering going to Cape Town to do further study. I've been on holiday to Cape Town and I think its really beautiful so maybe it would be nice to live there. But I think my family would prefer me to stay close to home. I'm really looking forward to finishing my studies and getting a job. Although there is high unemployment, I think I will find a job fairly easily; I'll look in the newspapers but also use my family contacts – it really helps to know people.

I am quite a religious person and so my leisure time tends to revolve around family and community activities. As I am the oldest girl in the family I also have quite a number of household responsibilities, like shopping for groceries. I usually spend Saturday morning doing this – I always start at Sunrise Fruitery in Brickfield Road as they have an excellent selection of really fresh things and its close to our home. I also like getting fresh fish at Ganie's but for general household stuff I go to the big Hyperama by the sea or Macro because you can buy things in bulk there.

I don't really socialize much and although I know that the other students in my class go out jorling on the weekends, I don't really know the places that they go to because those things don't interest me. Some people say that Durban is not a very safe place but I think it is if you simply avoid certain places, like the beachfront, at night. It is a good place for holidays and we have family members who live in Johannesburg who come to Durban every year on holiday. There are really nice things to do in places close to the city up and down the coast, like dolphin watching.

Ntombizodwa Mthembu

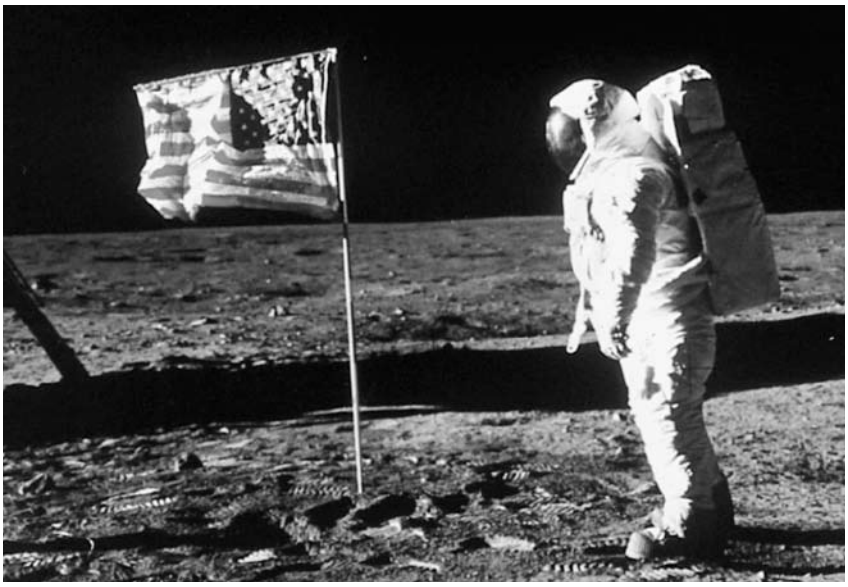


I grew up in Durban and now I live here with my own family, my husband and two children, Vusi and Penelope. But the Durban that I lived in as a child was quite a different one to the one I live in now. I grew up in a squatter camp on the edge of Umlazi township. My mother was an informal trader … she used to sell fruit and chips outside the gates of the primary school in the township that my sisters and I attended. My older sister was ashamed of my mother and didn't like to be seen talking to her during breaks and after school when the other kids came to buy from her. But it didn't bother me as a kid and now, looking back, I am proud of my mother's active fight to provide for her family. I have got where I am today because she always encouraged me to do the best I could and never to feel inferior to others around me. My husband and I now live in one of the nicer suburbs of Durban, Glenwood, which is close to the centre of town where I work in a local building society, and close to the school where my husband teaches. Of course, before, even if my mother had had money enough to buy a house where we now live, she wouldn't have been allowed to because of the Group Areas Act. It is sometimes strange to me to think that that small shack where I grew up and the lovely house that we now live in are part of the same city.

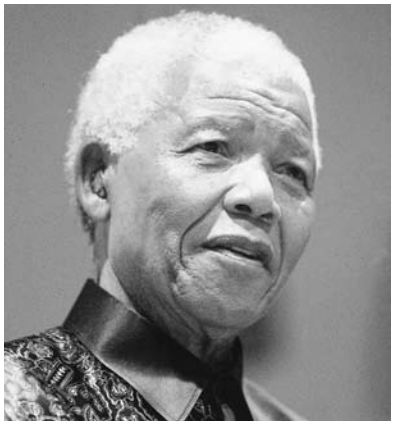
Because I live in the suburbs and work in town, I tend to shop in both places but for different things. I buy groceries at the supermarket near my house but shop for clothes in town in my lunch-hour. It's definitely cheaper to buy things from the traders in Grey Street and so I do quite a lot of shopping there – you can pick up bargains and really unusual clothes. But it is not a very safe area and there are a lot of pickpockets. I am confident shopping there because I know the place and you just have to be sensible and keep your eyes open! My kids don't often come into town. They go to a private school near where we live – we are lucky as my husband is a teacher and so we get discounts on the fees, which are really high. I think it's worth it though as education is the key to a brighter future – I always tell them that. On the weekends we visit friends, quite a number of whom still live in Umlazi, or we arrange to meet at the beachfront so the kids can play, or perhaps on a Friday night, we might meet up at the Bat Centre for a few drinks and to listen to music. I like living in Durban and can't really imagine living anywhere else.

Appendix C: Photographs

A woman who testified about the murder of her father at the Truth and Reconciliation Commission.

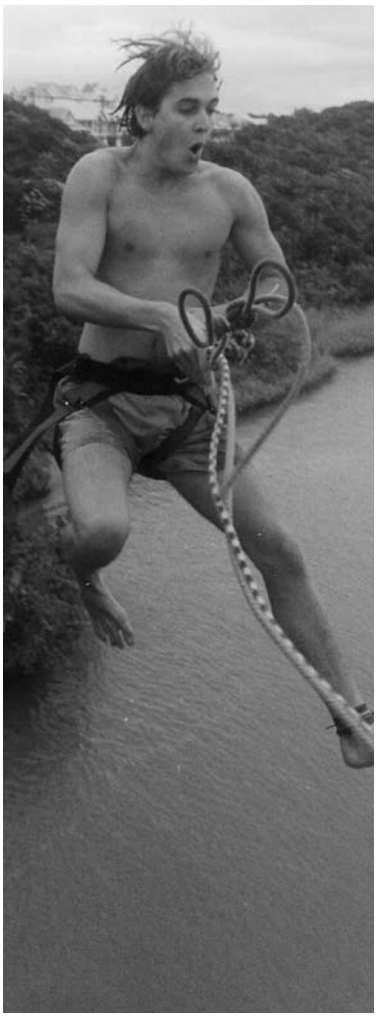


Landing on the moon.



A powerful, democratic leader.

A child swimming in a large pool.



A man jumping off a high bridge.

A vast crowd of people.

Select bibliography

Case, R., 1991, *The Mind's Staircase: Exploring the Conceptual Underpinnings of Children's Thought and Knowledge*, Hillsdale, New Jersey: Lawrence Erlbaum Associates.

The Mind's Staircase presents a neo-Piagetian framework in an accessible form. Case pays particular attention to the influence of schooling on children's conceptual development. He examines the importance of schooling for the development of children's understanding of number, their organization of two-dimensional space, and their ability to interpret literary, historical, and religious texts. Of particular interest for those involved in the assessment of learners who are not yet literate, is his use and analysis of children's drawings.

Flanagan, W., 1995, *Reading and Writing in Junior Classes*, Cape Town: MML.

Reading and Writing in Junior Classes is another short and accessible book about reading and writing in South African classrooms. It serves as a practical guide to the issues raised in Section Four of the Learning Guide as it provides a clear overview of the different approaches to teaching reading and explores strategies to develop and monitor reading competency across the curriculum. There is also a useful chapter on developing written language as well as a chapter on language as a tool for learning.

Labinowicz, E., 1980, *The Piaget Primer: Thinking, Learning, Teaching*, Addison-Wesley Pub. Co.

The Piaget Primer is an accessible and thought-provoking introduction to Piaget's theory, offering interesting analogies and explanations of key concepts. It provides a range of examples of children's thinking, learning, and problem solving which illuminate the different ways in which they make sense of their experiences at each stage of development. Every page is illustrated with drawings that contribute to the book's accessibility and help to maintain the reader's interest.

Macdonald, C., 1991, *Eager to Talk and Learn and Think*, Cape Town: MML.

Eager to Talk and Learn and Think is a short and accessible book about the role of language development in learning. It is based on fascinating research done in South Africa's *Threshold Project* and explores second language learning in the foundation and intermediate phases. It provides powerful insights into the role that the language of instruction plays in school learning, and also explores the language skills needed for learning and how these are developed in class.

Moyles, J. (ed.), 1996, *Beginning Teaching: Beginning Learning in Primary Education*, Buckingham: Open University Press.

Beginning Teaching is aimed at new teachers. It is a collection of essays that tackle some of the most common difficulties new teachers face. Part 1 deals with the issue 'teaching to learn', Part 2 with 'learning to teach' and Part 3 with 'responsibilities, roles, and relationships in the classroom'. Although British in focus, the book is filled with classroom examples to illustrate the different aspects of effective teaching.

Murphy, P. (ed.), 1999, *Learners, Learning and Assessment*, London: Paul Chapman Publishing in association with The Open University.

Learners, Learning and Assessment provides a theoretical framework that relates different views of the mind and learning to ideas about outcomes-based learning and assessment. It includes a diverse collection of articles that explore controversial aspects of learning theory. The second half of the book looks at how views of classroom learning and curriculum (and particularly assessment practices) are derived from different theories of learning and knowledge.

Olson, D. R. and Torrance, N. (eds.), 1996*, Modes of Thought: Explorations in Culture and Cognition*, Cambridge University Press.

This edited text provides different perspectives on the plurality of thought and ways of life that characterize human society. Our diversity is both puzzling and deeply treasured by all. We all want to claim recognition for our unique ways of being. Sixteen highly respected authors deal with topics ranging from the history of thought to the specific educational implications of our diversity. Central to the whole text is the influence of the context of our lives on our thought and being.

Piaget, J., 1978, *To Understand is to Invent*, New York: Grossman.

To Understand is to Invent is a good introduction to Piaget's ideas about learning and teaching, and his advocacy of what he calls the 'new methods of education'. These are teaching methods that overcome the legacy of rote learning and teacher sermons, and replace them with activity-based classroom methods. It provides a useful overview of the history of different approaches to learning in education, and explains why Piaget took such a strong constructivist stance in relation to them. It also dispels some myths about Piaget, particularly that he believed that the teacher is merely a 'facilitator' or that social influences have no part to play in learning.

Richardson, K., 1998, *Models of Cognitive Development*, Hove: Psychology Press.

Models of Cognitive Development provides a useful reflection on innatist and behaviourist theories, both historically and in relation to their contemporary versions. Richardson explores the legacies of Piaget and Vygotsky in these terms, examining how constructivism and socio-cognitive theories relate to what we know about children's learning and development. Students will find this text invaluable in deepening their knowledge of cognitive development and learning theory as a specialist discipline within psychology.

Vygotsky, L., 1978, *Mind in Society: The Development of Higher Psychological Processes,* Cole, M., John-Steiner, V., Scribner, S. and Souberman, E. (eds.), Cambridge, Ma.: Harvard University Press.

Mind in Society led to the explosion of Vygotskian thinking into the English-language world, some forty years after it was developed in Russia. This translation has been criticized for 'cleansing' Vygotsky but is a readable and exciting collection of important parts of his work. Part 1 covers key theoretical concepts, including the importance of spoken language to the learning and development of children, and the idea that children learn by 'internalizing' cultural knowledge networks. Part 2 contains three papers that explore the educational implications of the theory, dealing with such notions as the role of play in learning, the systematized nature of school learning, and the importance of the teacher as an active organizer of the frameworks of knowledge of the learner.