Being a Teacher

Professional Challenges and Choices

Section Five | The teacher as knowledge–worker

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SECTION FIVE

The teacher as knowledge-worker

Introduction 5.1

We have just explored the 'in authority' role of teachers with respect to managing the learning environment. Now we turn to the role of the teacher as 'an authority', one who is expected to have a sound knowledge base that includes the skill of imparting knowledge to learners, in other words, a curriculum practitioner.

Since 1997, the advent of Curriculum 2005 has had a tremendous impact on what is expected of South African teachers in the classroom. However, these expectations have also been strongly influenced by significant changes over the past three decades in how we understand terms like 'knowledge', and even 'teaching'. These factors all shape the learning outcomes for this section.

Learning outcomes for this section

Working through this section should give you the capacity to teach with added confidence based on an ability to:

- recognize and distinguish between the various roles teachers have been called on to play in South African classrooms: transmitters of knowledge, facilitators of learning, and developers of skills;
- analyse critically what we mean when we talk of 'knowledge', 'teaching' and 'learning', especially in the context of teaching in South Africa today; and
- identify how today's understandings of 'knowledge' and 'learning' shape the role that teachers need to play in the classroom, particularly that of the mediator of learning.

Let's drop in on a primary school staffroom to hear how the teachers are coping with their roles as 'knowledge-workers'.

5.2 Teachers and Curriculum 2005

Like Livingstone, the Grade 6 teachers of Mountain View Primary are concerned about a loss of authority, but in a different way. It's the beginning of the school year and they have to implement Curriculum 2005 for the first time at that level.

'My best lesson,' said Gillian, 'focused on map-reading and was based on an idea from a supplement in "The Teacher". It had all the specific outcomes set out one-two-three, and I just followed the suggestions. At the end of the lesson, just about everyone could find the right point on the map from the clues on the worksheet. I would not be worried if all my lessons worked that well. But until we get some new textbooks with more lessons linked to skills and outcomes, I don't know how I'm going to manage. I'm worried about lesson ideas.'

OBE stands for Outcomes-based Education.

'Well,' said Otsile, 'I don't intend worrying about that. Until we get new OBE books to replace the old ones, I'm going to go on teaching pretty much as I have for the past eighteen years.'

The words '**di tsie badimu**' mean 'claptrap'.

'But what about assessment?' asked Gillian. 'We're supposed to assess their competence against all those assessment standards throughout the year.'

'Oh yes, "Assessment standards!" I always thought they were di tsie badimu *from the beginning. Well, I suppose I'll be setting tests more regularly. My only problem is all the marking. I'll have to set one-word answer tests so that the kids can mark each other's work. It may not match all the assessment standards, but I'd like to hear anyone complain about that if we don't have the textbooks that match them.' Secretly, however, Otsile was worried.*

Lerato wasn't sure if she should mention that she'd hardly thought about using a textbook all week. Instead she said, 'Well, we had some interesting discussions, and our field trip to the stream was great. But I am worried about how to fit everything together in the new curriculum. You know, we all sound a bit lost. Maybe we should talk to Mmapule, the HOD.'

Mmapule's response took them all by surprise: 'It sounds as though you're all doing different jobs. And I think the new curriculum has something to do with it. Otsile, you want to go on teaching as you have always done – with the old textbook – it seems you're not too keen on the new ones.

Gillian, you seem to have taken to the new curriculum with enthusiasm. In my imagination I see you with a clipboard like a trainer at the tech, ticking off those children who have achieved skills. But do you know where you are going in your learning programme with those children? A learning area is not just a collection of skills, or a collection of lessons.

And Lerato, you are taking children out of the classroom, which is good, and having some interesting discussions in class, but you seem to be unsure of how to teach your curriculum in a systematic way.

In a way, that is one problem we all seem to share – we don't have enough clear guidance yet, in textbooks or anywhere else, to show us how to make this new curriculum work. I myself don't know how to assess a learning outcome when each child takes a different amount of time to achieve it. But it seems to me we need to start with the problem of what

our role as teachers is in this new curriculum, when we're all seeing our roles so differently. Maybe we should make this the focus for our staff development programme this term.'

Key characteristics of Curriculum 2005

Mmapule realizes that a central problem facing her teachers relates to their authority as knowledge-workers: their role in the new curriculum. In a way, these teachers are looking for the ***constitutive rules*** of teaching – those internal rules that constitute the very nature of teaching and learning in terms of Curriculum 2005.

To help them along, we identify the key characteristics of Curriculum 2005 in the table below. Note that we do not list 'Assessment' separately as a third category. It can sit comfortably alongside the 'Curriculum' and 'Pedagogy' categories, because in outcomes-based education, assessment is ongoing and forms an integral part of both what is learnt and taught, and how it is learnt and taught. It is not something that suddenly 'hits' learners at the end of a process. It involves assessing how the learner is progressing towards the goal of demonstrating various competences.

Key characteristics of Curriculum 2005		
Curriculum	1	A focus on competence, skill, and 'being able to do' (moving away from a focus on the recall of content knowledge)
	2	The integration of different areas of school knowledge (by arranging the curriculum into Learning Areas), and the integration of school knowledge with everyday life and the world of work
Pedagogy	3	A focus on the learner (moving away from a focus on subject content, with the teacher as the centre of attention and control)
	4	Learners themselves construct meaning, making sense of the world through active, collaborative learning.

ACTIVITY 24: TEACHERS AND CURRICULUM 2005

How would the three Grade 6 teachers identify with the key characteristics we have just listed? In the table on page 90, write each teacher's name in the second column, next to the characteristic you associate with each teacher. In the third column, write each teacher's name in the block that represents their problem and summarize that problem in a few words. To get you started, we have put Mmapule's name, with the problem she expressed, in the appropriate box. Note:

- **You don't need to put down general problems that all the teachers seem to have, such as confusion and a lack of guidance – just their particular, individual problems.**
- **You can have more than one teacher's name in a block.**

Spend not more than 5 to 10 minutes on this activity.

	Key characteristic	Teacher who identifies with a particular characteristic	Teacher who experiences a problem with a particular characteristic
Curriculum	Competence, skills, focus on being able to do		*Mmapule – how to manage assessment when learners achieve a particular competence at different times*
	Integration of knowledge		
Pedagogy	Learner-centred teaching		
	Active learning by experience		

If you had difficulty 'placing' Otsile, that is because he doesn't 'fit' anywhere in the table. What does this tell us? He does not identify with the goals of the curriculum or with the means of achieving them (the pedagogy). For this reason, he doesn't have any particular problems with the curriculum either – he dismisses the whole idea of Curriculum 2005.

Gillian, of course, is situated entirely in the first row of blocks: she identifies wholeheartedly with the competence approach, and that is where she experiences her particular problem – a lack of good ideas for OBE lessons. Mmapule also recognizes that she lacks a sense of where she is going, of direction and coherence, so she shares the same box as Mmapule, but for a different reason.

Lerato, who identifies strongly with a learner-centred approach and orientation, is also easy to locate. Her problem is in the area of integration, but, as Mmapule has seen, they all seem to have a problem with integrating the various aspects of Curriculum 2005.

Confusion about the role of the teacher

The key characteristics of Curriculum 2005 ***should*** make it easy for us to work out the key role that a teacher has to play in implementing Curriculum 2005, but they ***don't***. Some of the reasons for this confusion are:

- tensions in the curriculum;
- the problem of 'teacher-tell'; and
- confusion about the nature of knowledge.

Tensions in the curriculum

In the current policy there is a tension between learner-centredness on the one hand, and the more economy-driven need to make schooling efficient and productive on the other.

The ***Curriculum Framework for General and Further Education and Training*** (1997: 11) says that education 'should put learners first, recognizing and building on their knowledge and experience, and responding to their needs'. This leads to the re-identification of teachers as 'facilitators' of learning, and a focus on collaborative methodologies.

The same curriculum policy document, on page 15, says that the emphasis in education 'must be on what learners know and can do: on the ***intended results of***

learning […] rather than the prescription of content'. This, says John Gultig, a member of the technical task team who developed the 1998 ***Norms and Standards for Educators***, 'shifts the educational focus from internal educational processes to external outcomes, and from internal processes of learning to external measurements of doing' (1988: 6).

While both of these emphases in South Africa's new curriculum move away from the teaching of content knowledge, there are tensions (if not contradictions) between them. The one emphasizes the child as a spontaneous learner, the other emphasizes the practical use of learning, the 'product' of teaching.

'Teacher-tell'

Neither competence-based teaching nor learner-centred teaching 'comes naturally'. What does come naturally to most teachers is 'teacher-tell', the ability to tell children what to do and how to do it. No matter what teachers learn in their professional education, no matter what they hold as firm beliefs, research[1] has shown that what teachers ***do*** most of the time is 'tell' or talk.

Most teachers are great talkers, they seem to assume that information is what learners need, and that it will 'stick' if learners would only pay attention. Paulo Freire frequently called this compulsion to talk 'narration sickness'. It is so widespread that the role of facilitator, which includes the ability to keep quiet and listen, to observe learners demonstrating their competence, may seem unfamiliar and threatening to many teachers.

A recent study, part of the President's Education Initiative Research Project, found an average of 81.82% of the lesson time taken up by teacher talk (Taylor and Vinjevold, 1991: 142). This occurred in language development lessons, where the learners should presumably have been given the maximum opportunity to exercise their own linguistic skills.

[1] The President's Education Initiative (PEI) Research Project published in May 1999 is the latest among many research projects that have found significant discrepancies between what teachers say about learning and teaching, and what they actually practice. See Tayor and Vinjevold (1999: 142).

Confusion about the nature of knowledge

Confusion about the nature of knowledge is common. Remember Peter Adonis' problem in Section One: his doubts caused by the contradictory, pedagogic knowledge that he'd been introduced to in pre-service and in-service education? That was just one aspect of a much wider problem concerning knowledge itself, in fact, a problem with which many are grappling the world over, and not only in the field of education, which we will deal with soon.

Let's return to Mountain View Primary.

> *Gillian, Lerato, Otsile and Mmapule spoke to Andy Villiers, the Deputy Principal, and suggested 'The Role of the Teacher in the New Curriculum' as the next focus for their professional development.*
>
> *Lerato explained the difficulty: 'Mmapule was right when she said we all seemed to be doing different jobs. Are we meant to be facilitators, educators, teachers, or what? Should we be learner-centred, teacher-centred, subject-centred or skills-centred?'*
>
> *'I think our staff need a starting point, they need to know where they are heading,' Mmapule confirmed.*
>
> *'Well, okay,' said Andy. 'Does anyone have any good ideas of how we can go about this? Perhaps you can give me a clearer idea of what you see as the problem. I'll need to explain it to Mr Moloi, the Principal, when he gets back from the Department. Can you start us off, Lerato?'*
>
> *'Well, in our INSET courses last year we were told that we should see ourselves as "facilitators of learning", to discourage us from just drumming facts into learners. We need to encourage them to develop their*

own abilities as learners so that they can go on constructing knowledge with confidence when we're not there to help them.'

'I have a problem with that idea,' said Otsile. 'How are the children going to develop their ability as learners when they have very little idea of a subject like science on their own? If we don't teach them some solid facts, they can end up ignorant and confused. When children try to understand how plants obtain food, they think in terms of how people eat unless I teach them otherwise. I'm not ashamed to say that I rely a lot on the textbook. Textbooks are written by experts, they allow me to teach the subject with some certainty. So I think my business as a teacher ***is*** *to get facts into children's heads.'*

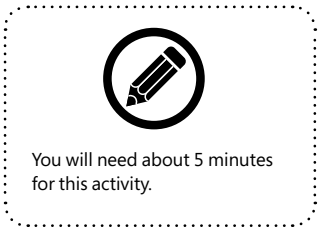
'Okay, I think I begin to see the problem!' said Andy Villiers. 'This talk about experts gives me an idea. We need help from someone who's thought through these issues more than we have. I think one of my Honours lecturers may be able to help us, or she may be able to suggest someone else who could.'

Andy Villiers described the confusion about teacher roles to his lecturer, Vaneshree Pillay, who agreed to run workshops around three basic teaching positions:

- *imparting knowledge to learners (Otsile's approach);*
- *facilitating in learners the ability and confidence to learn actively (Lerato's approach); and*
- *developing the skills required to undertake specific types of work (Gillian's approach).*

Vaneshree also wanted to encourage staff to question the assumptions that often underlie common sense ideas about knowledge, learning and teaching.

In the following sub-sections, we are going to adapt some of the materials and activities that Vaneshree prepared. Here is the first activity she gave the staff of Mountain View:



You will need about 5 minutes for this activity.

ACTIVITY 25: WHY IS THERE SUCH A THING AS TEACHING?

Take a look at the photographs below and answer the questions that follow.

a How do you think these birds learnt to fly?
b How do you think these children learnt to write?
c What would you say is the major difference between how young birds learn to fly and how young humans learn to write?

No-one has ever observed birds being ***taught*** by their parents or any other birds, how to fly. Many species push their young out of the nest when they reach a certain stage of growth. The young bird may falter at first, but it soon flies without aid. It is as if the knowledge or skill is automatic. We refer to this 'automatic' behaviour as 'instinct'.

Writing a simple statement in your home language may seem quite automatic to you. But this kind of behaviour only came to seem automatic after much practice. Although we are pretty much our own teachers when we learn to speak our home language, it is unlikely that most of us would have learnt to read and write without the help and support of a teacher or parent. In fact, we humans seem to have almost no true instincts to help us perform most of the actions we need to. Apart from a few simple behaviours, humans seem to have to ***learn*** almost everything they need to know in order to survive.

This may came as a shock – don't we talk of doing things 'instinctively', of the 'maternal instinct' and the 'survival instinct'? However, when we apply the word 'instinct' to animals, we realize that we are not compelled by instinct in the same way. A tired mother tern cannot decide that it would far rather sit out the winter at home and give the annual migration a miss. It will fly north with all the other terns, even if it dies in the attempt, because it is ***locked*** into an instinctive pattern that gives it no choice.

On the other hand, if the 'maternal instinct' or the 'survival instinct' were truly instincts in the sense that zoologists use the word, such acts as abandoning babies or committing suicide or sacrificing one's life for another, would be impossible. Yet these things happen. Clearly, human beings are not locked into behaviour patterns in the way that most animals are.

Put simply, human beings aren't capable of surviving on instinct the way animals do. The capacity of the human brain allows us very much more scope and flexibility of action than instinct allows to any other animal. But this same scope and flexibility require much more guidance, tutoring and initiation into the complexities of the world than other animals require. Humans are very much a learning species, and are probably more dependent on teaching than any other species. But we still need to ask what it means to teach and what a teacher is.

> ***"Human beings are very much a learning species, more dependent on teaching than any other species."***

ACTIVITY 26: WHAT DOES IT MEAN TO 'TEACH'?

Take a look at the illustrations below and answer the questions that follow.

a What do the actions of these people have in common?
b Which of these people are teaching?
c What enables you to answer **b**?

You will need only a few minutes for this activity..

All the people in these illustrations are communicating with others, but only the woman on the far right is teaching. Many humans provide us with information, but this is not what we would call 'teaching'. The information imparted by newsreaders

and advertisers is not intended to help people develop.

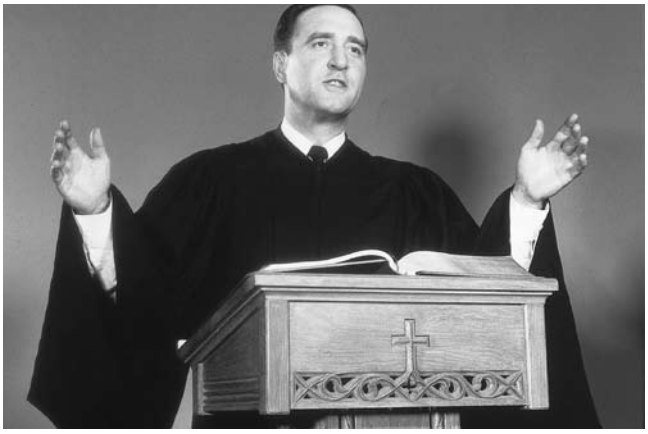
But this is exactly the intention of teachers; to make a lasting difference in the lives of learners by contributing to their growth and development. The music teacher on page 93 has a more direct, sustained, and committed relationship to her listener than either the newsreader or the advertiser has to theirs. Passing on information is only a part of that task.

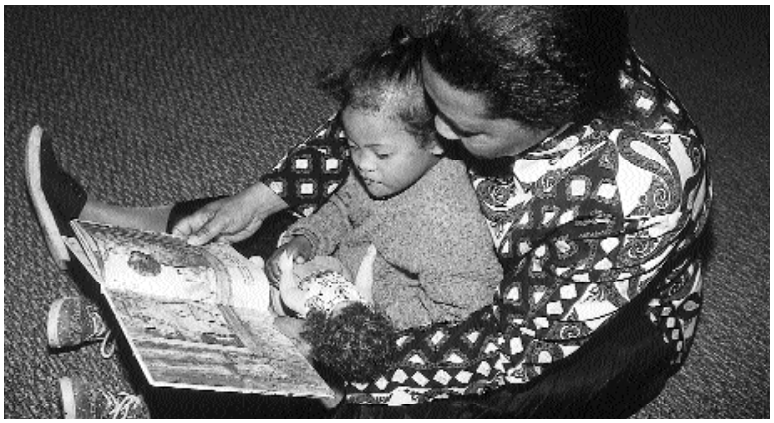
However, this does not entirely satisfy us if we want to know what a teacher is.

You only need about a minute for this activity.

ACTIVITY 27: WHAT IS A TEACHER?

Take a look at the three photographs below and answer the questions that follow.





a What do the actions of these people have in common?
b Which of these people would we call a 'teacher'?

All of the people on page 94 could be said to be teaching. In fact, in traditional societies, it was usually parents, grandparents or elders who performed the task of teaching the young. But today we would not normally refer to any of the people in these photographs as 'teachers'. In modern societies teaching, like tending the sick (doctors and nurses), or arguing disputes on behalf of others (lawyers), is a specialized occupation.

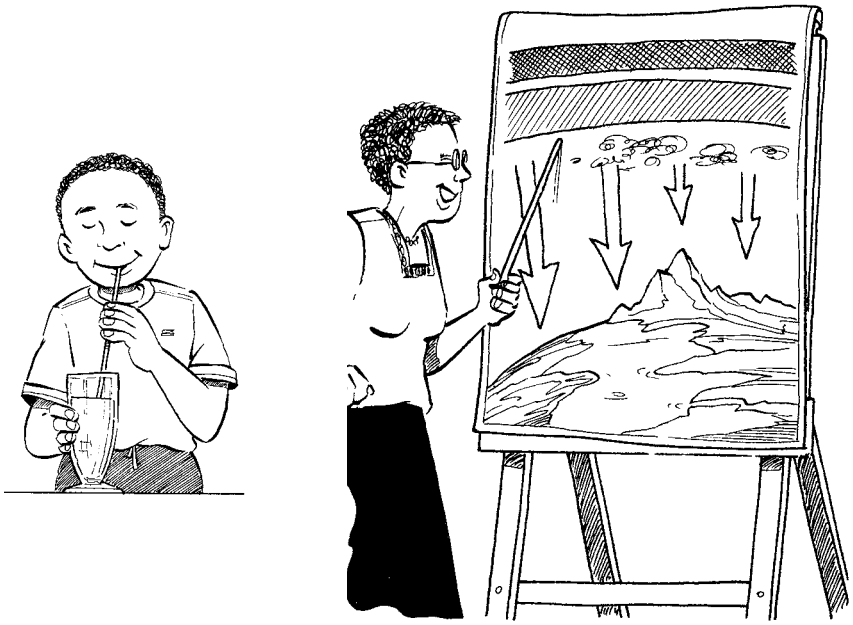
A teacher's special function is to aid and ensure the development of human learning in those areas that do not take place naturally and automatically. This specialization means that they need:

- a sound grasp of the knowledge, skills and values needed to equip learners for modern life (academic, or content knowledge); and
- a knowledge of how to ensure that content knowledge is learnt; this would involve a knowledge of learners, learning, and a variety of ways to make knowledge learnable, as well as skill in maintaining an appealing and effective learning environment (pedagogic knowledge).

We are building a fresh picture of the teacher's particular function – as a knowledge-worker in human society. But does this picture tell the whole story? We also need to ask what kind of knowledge it is that teachers teach.

ACTIVITY 28: WHAT IS IT THAT TEACHERS TEACH?

Take a look at the two illustrations below and answer the questions that follow.



a How do you think the child on the left would explain what he is doing?
b How do you think the teacher on the right would explain what the child is doing?
c How would you describe the difference between these two types of understanding?

You need about five minutes for this activity.

The child would probably say that he is using a straw to suck or 'pull' the cooldrink up into his mouth. The teacher would probably explain that the child creates a vacuum by sucking the air out of the straw, and that the ***weight of the atmosphere*** on the cooldrink does the rest of the work.

The teacher would probably also precede or follow this explanation by demon-

strating that air has 'weight', which would lead her to explain how this weight varies according to the amount of atmosphere above us, and that atmospheric pressure decreases with altitude. This would then be used to explain why climbers and athletes have to do so much more 'work' to breathe in air at high altitude than they do when they are at sea level, and so on. The teacher's explanation would be aimed at building a ***systematic conceptual framework*** that should enable the learners to understand ***more*** than how a drinking straw works.

Here we have a demonstration of the difference between learners' everyday knowledge and school knowledge. ***Everyday knowledge*** is drawn from our experience of life, and is based on common-sense understandings of that experience. It is limited in its ability to take one further in understanding the principles and concepts that underlie and explain other phenomena.

School knowledge takes place at a more abstract level than everyday knowledge. But it builds a conceptual framework to take the learner to the levels of understanding required in today's society. This type of knowledge is a key aspect of a teacher's specialization.

We will return to this important distinction between 'everyday knowledge' and 'school knowledge' later in this section. In the following sections, we will examine the limitations of teachers as knowledge-workers who impart knowledge, facilitate, and develop skills. As we look into each of these approaches, we will also be exploring different aspects of the nature of knowledge. And we will begin to see that each of these approaches only causes problems when used in isolation from the others.

What's wrong with imparting content knowledge?

5.3

'But so much "knowledge" isn't even reliable,' said Lerato. 'I mean, we're already teaching the weather differently from the way I learnt it when I was at school. Even facts seem to go out of date. And look at the history books we used to have not so long ago – they only told the story from the point of view of whites.'

'You may be right about history, which teaches us about people,' said Andy Villiers, 'but in science the facts have a more sound basis – experts insist on evidence for every explanation, and they test it over and over before they accept it as a fact and publish it.'

'I suppose you're right,' Lerato conceded, 'but I don't think people have as much faith in the knowledge of scientific experts as they used to. I mean, one day we read in the papers that certain kinds of exercise or food or medicines are good for you; the next day we read that other scientists have proved the opposite.'

'I think that's why the new curriculum puts such emphasis on skills, on what learners can do at the end of the day, rather than on how many ***facts*** *they know,' said Gillian.*

The next group task Vaneshree organized for the staff of Mountain View required each group to discuss a different map, picture, diagram or short passage, and then report back to the whole staff. Once again, these form the basis of your next activity.

ACTIVITY 29: POINTS OF VIEW

1 Have a look at the map of Africa below and consider the questions that follow on page 98.

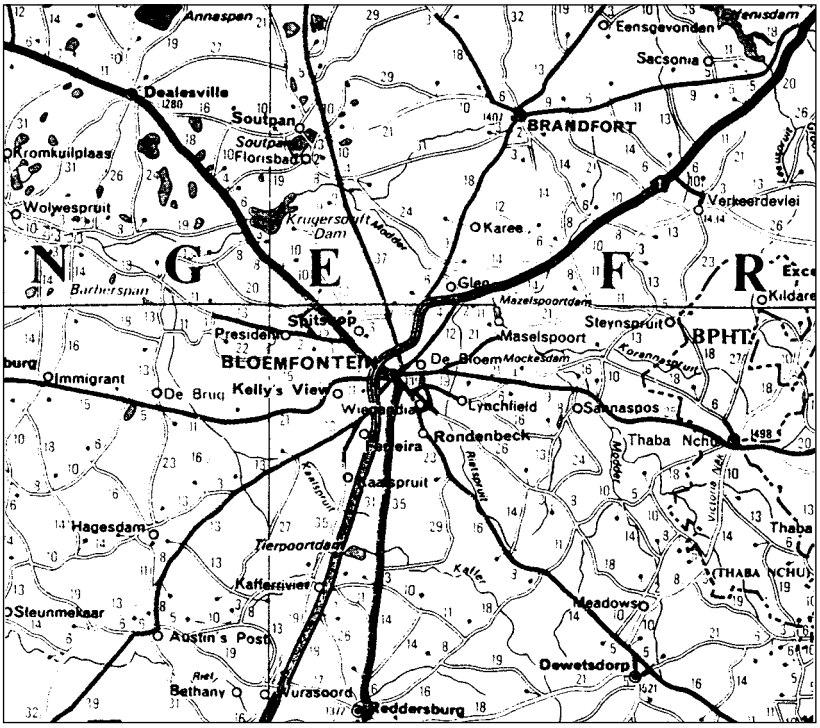
On your own, you need about 25 minutes for this activity. As a group you will need about 45 minutes to discuss all the questions.

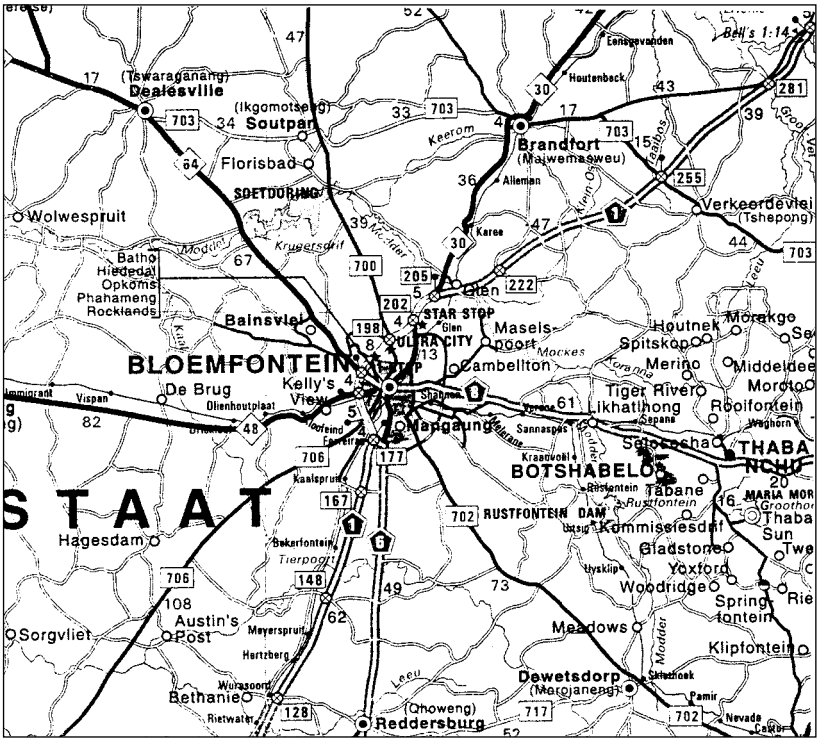
Note that we do not use the phrase 'points of view' to mean 'opinions'. Rather we are using it in the sense of 'perspectives', or different points from which to view things. The same scene, or experience, may appear quite different from a different vantage point.

The idea for Questions 1 and 2 in this activity came from H. Janks, 1993: 3.

a What is your first reaction on seeing this map?
b Is this a valid map of Africa? Why, or why not?
c Can you think of points of view from which this map could be considered acceptable?
d Why is it that we have come to know this map as the 'correct' representation of Africa only when it is inverted?

2 Carefully compare the two roadmaps of the area around Bloemfontein below. What strikes you as different about them? If you were told that the one above was printed in 1975, and the one below in 2000, could you explain how they came to be different? What does this say about our way of knowing South Africa?





3 Let's look now at an example from the history of crime and punishment – an area of human activity that involves 'knowing right from wrong' (Giddens, 1989: 121):

> *In pre-industrial Europe the most serious crimes, those which received the highest penalties, were religious in nature, or were crimes against the property of the ruler or the aristocracy. The transgressions involved are either not treated as crimes at all today, or are thought of as minor offences. Heresy (proclaiming religious doctrines other than Christianity), sacrilege (stealing or damaging church property) and blasphemy (using God's name in vain, or speaking negatively about religious matters) were for a long time punishable by death in many parts of Europe. Hunting or fishing, cutting down trees or bushes, or picking fruit on the lands of the king or the aristocracy by the common people were also capital offences (although the death penalty was not always enforced).*
>
> *The murder of one commoner by another was not generally seen to be as serious as these other crimes; the culprit could often atone for the crime simply by paying a certain amount of money to the relatives of the victim. However, the victim's family would sometimes take justice into their own hands, by killing the murderer.*

What can we make of these examples? Much of our knowledge seems rather ***tentative***, because the way we come to know the world can change if we view it from different points in time or space, or if different languages or cultures shape the way we experience reality.

Knowledge is **tentative** when it is uncertain. In this case we keep it provisional until we can judge for certain whether it works.

How *situation* affects our knowing

If we see the map of Africa as 'upside down' it's because we've inherited a point of view that regards Europe as the centre of the world, and that excludes other ways of seeing it. But from outer space Africa has no 'top or bottom'. Seeing the map displayed in Question 1 of Activity 29 shows us that this really is only a matter of convention.

When we compared two maps of the same region created at different points in time (Question 2), we realized that we were once discouraged from seeing black settlements and towns; they were 'invisible' in geography lessons. And relatively few thought to question this. Our knowledge of South Africa was strangely skewed, not only by biased history lessons, but by the apparently 'neutral' version of the country in our roadmaps.

The cultural history passage about crime and punishment (Question 3) demonstrates how some actions punishable by death two hundred years ago, are now not even considered to be crimes. On the other hand, some of the serious crimes of today (such as the murder of ordinary citizens) would not have been regarded by authorities in eighteenth-century Europe as grave enough to warrant setting in motion the machinery of trial and punishment. Again, point of view in time and place make all the difference.

Surely many of the discoveries and innovations that have advanced human knowledge have been made by people who have broken out of the moulds provided by the society they grew up in? This is undoubtedly true. Is it possible to escape these 'cultural maps' in our minds, which are bound to particular times and localities? Only partly.

No single culture or system of thought would provide a completely reliable grasp of reality, even if exposure to different cultures, broadens our perceptions. For many, including Andy Villiers, modern science has offered a culturally neutral way of achieving certainty, but even this claim needs to be examined critically.

"We are becoming aware of the fact that scientific method reveals only part of the "picture".

SCIENTIFIC REVOLUTIONS

Thomas Kuhn, the science historian, made an interesting discovery when he studied the actual manuscripts of Isaac Newton, the influential eighteenth-century scientist. He found that what he had read and been taught about Newton's work simply did not 'fit' with the actual questions and facts that Newton had been concerned with. Kuhn concluded that this was because everything he had learnt about Newton, as well as Kuhn's own training as a scientist, had been written from a different frame of reference, one that was based on the twentieth-century theories of Albert Einstein. Further studies of the methods and discoveries of leading scientists who worked at different times in history, led Kuhn to a remarkable conclusion.

When scientists reject something because it doesn't 'fit into the picture' it's usually because they are working from a particular frame of reference. Scientists regard this frame of reference or 'scientific paradigm' as 'normal science' until too many questions arise that can no longer be explained through its terms. Eventually, the unanswerable questions mount up until a switch into a new frame of reference becomes inevitable. Kuhn referred to such changes in the history of science as 'scientific revolutions', as they are not simple steps of logic or reasoning so much as completely new ways of understanding problems.

Kuhn's theories have cast doubt on the complete 'neutrality' of modern science, and raised strong arguments in favour of viewing science itself as a social process that involves loyalties to a particular type of reasoning, experiment and sifting of evidence.

In the same way that our particular language creates the 'grid' of meaning through which we observe the world, so particular scientific paradigms create the grids of meaning through which scientists observe it and make sense of it. Furthermore, as the German philosopher Jurgen Habermas has pointed out, the dominant form of modern Western science, which aims to arrive at explanatory 'laws' of cause and effect, conceals beneath its apparent 'neutrality' an underlying interest in ***controlling*** the area of study and what is studied.

Uncertainties surrounding the world of 'science'

Hypotheses are ideas that are thought suitable to explain things that we don't understand in depth.

Hybrid crops are specially bred from different varieties of crops.

Modern science, with its strict testing of all ***hypotheses***, seems to provide reliable knowledge – knowledge that we employ every day in the technology we use. Yet we are becoming more and more aware of the fact that scientific method reveals only ***part*** of the 'picture'. We have seen evidence of technology miscarrying in unforeseen ways.

Slow-ripening and low-yielding local grains in West Africa have been destroyed by the introduction of fast-growing, high-yield ***hybrid*** crops, which failed to ripen late in the season and so prevent famine. Drug-resistant micro-organisms such as those that cause malaria have begun to evolve as a result of the widespread treatment of disease by means of modern drugs and antibiotics.

These and many other technological disasters or potential disasters are not the fault of scientific method, which is after all just systematic discovery. Rather, they resulted from the human tendency to assume that science can give us ***all*** the answers when in fact the answers it gives us are quite limited, and the tendency to be over-hasty in turning these answers into technology. Yet this has been enough to make people rightly cautious about putting all their faith in scientific progress.

After their discussion about 'knowledge', the teachers began to feel that they were coming to understand the concept more fully. But at the same time they were feeling nervous about their own roles as providers of knowledge, when even the most certain form of knowledge (science) was beginning to look shaky. Those like Otsile, who saw his chief role as 'getting the important facts into the learners' heads', felt especially uncomfortable at this point. However, Vaneshree had another knowledge-problem for the staff.

Knowledge and power

> *'Before we call it a day, let's take a second look at the examples we've just discussed. Did anyone notice another factor, apart from our point of view in history, place, culture or language that affects the way we see and know our world?' Vaneshree asked.*
>
> *It was Mmapule who thought she might have an answer: 'In the road map example, I think oppression was an important factor. It was black settlements that were omitted from maps, and that must have suited the apartheid bosses very well. According to them, black people weren't supposed to be in the "white" parts of the country anyway.'*
>
> *'That's certainly the factor I was thinking of,' affirmed Vaneshree. 'The makers of school atlases might have left the towns out more consciously, but I imagine the makers of roadmaps might not even have been aware of their omission.*
>
> *That's how power works in the area of human knowing: not only in the consciously produced form of propaganda churned out by servants of the state deliberately manipulating facts, but also by simply pervading our ways of thinking, our everyday practices, and the artifacts of our culture like roadmaps – things that seem quite "innocent" and neutral, yet contribute to the continued dominance of groups with power.*
>
> *And this way of thinking does not have to be engineered by people; it is a manifestation of the strong links that exist between knowledge and power. Can anyone see this at work in the other examples we discussed?'*

It did not take long to identify the influence of colonial power in the way people accept that Europe is at the top of the map. The staff also identified the legacy of feudal power in the severe punishment inflicted on people who 'poached' and picked fruit on land owned by the aristocracy, and in the definition of those who questioned the authority or doctrine of the church as 'criminal' when the killing of a commoner might not even have been defined as a crime.

Vaneshree explained what she meant by the strong links between knowledge and power. She said that in every society, various 'groups' have different amounts of power. The staff suggested that men, the middle class, city dwellers, particular race groups, ethnic or religious groups, and so on, usually have more power. When she had recorded these on newsprint, she displayed another set of concepts:

- what is widely accepted as knowledge and truth in society;
- what counts as a legitimate, acceptable way of thinking;
- what people see as 'natural';
- what people see as possible or not possible; and
- those words, and their meanings, that are recognized, and those that are silenced.

> ***Things can seem quite "innocent" and neutral, yet contribute to the continued dominance of powerful groups.***

These concepts tended to reflect the interests of the dominant groups in society, rather than the ***interests*** of those with less power. Therefore, a dominant form of knowledge is related to the power of a particular social group. And if we think about this for a moment, we'll see that this has important implications for teachers as knowledge-workers.

Interests refer to whatever benefits a particular person or group, or puts them at an advantage.

Vaneshree asked the staff to read a handout as preparation for the second workshop. This was an extract from a book called ***Changing Teachers, Changing Times: Teachers' Work and Culture in the Postmodern Age***, by Andy Hargreaves, who has written about classroom interaction, teachers and educational change (see Reading 14 on page 93 of your Reader). Vaneshree warned the staff that the extract might make them feel even more unsure of the reliability of knowledge in today's world, but reassured them that it also pointed the way towards dealing with this uncertainty.

ACTIVITY 30: DEAD CERTAINTIES

Go to Reading 14 on page 93 of your Reader, 'Dead certainties: a postmodern world' (the extract referred to above). You may want to go through it twice, as it covers a lot of ground in three pages. When you have read it, write down your answers to the following questions in your workbooks:

You need about an hour to do the reading and answer the questions.

1. Hargreaves identifies five or six global trends that have undermined some widely-held 'certainties'. Select two, and explain in your own words how they have tended to do this.
2. Describe a long-cherished 'certainty' that is no longer certain in education (some are referred to in the extract, but you may have some examples of your own).
3. Hargreaves writes of accepting that knowledge is provisional, and of a shift from scientific certainty to situated certainty. What do you think he means by 'provisional knowledge' and 'situated certainty'?

In this context, **scientism** and **Marxism** refer to the belief that science will provide all the solutions to humanity's problems.

Hargreaves writes about the decline of nineteenth- and twentieth-century belief systems like ***scientism*** and ***Marxism***, and then mentions other reasons why certainties that have served us for a long time have begun to dissolve. The 'explosion' in the amount of information and knowledge that comes at us all the time, and constantly changes, dissolves a straightforward mental 'picture' of the world in which everything 'fits' and has its appointed place. No single, unified, coherent 'grid' of 'common sense' can make sense of it all (Usher and Edwards, 1994: 11).

Even as we come to know more about ourselves through sociological and psychological research, that very research often contributes to changes in the society that we are trying to understand better. Electronic communication also dissolves the isolation that has permitted societies to think that their ways were the only sensible ways to do things. And this trend is accentuated by the ease of international travel, and the migration of different cultures. Today's technology accelerates the pace of change more rapidly than most human beings can adapt to it. The more science and technology opens up the world to us, the more aware we become of how much more we need to know.

Where does this change and uncertainty leave teachers? Let's join the discussion at Mountain View as the staff grapple with this question at the beginning of their second workshop.

Provisional knowledge and situated certainty

Vaneshree asked the staff what they thought the main point was that the writer was making and whether the writer was suggesting a way of coping with this uncertainty.

Gillian ventured that old certainties were being replaced by a culture of uncertainty. 'But he doesn't really offer solutions. In fact, I think he's saying that single, supposedly "certain" solutions are out of date and don't work, and that the crisis of educational purpose is still unresolved.'

Andy Villiers added, 'Well, he does suggest that teachers need to rely on one another and have a wide stock of teaching strategies that they can use flexibly in different learning situations.'

'Yes,' said Vaneshree. 'In the last two paragraphs of the extract Hargreaves says that teachers need to accept that teaching knowledge is provisional and situated, that is, dependent on particular contexts. This allows them to adapt their approaches in different teaching situations and not become bound by a single tradition of teaching or by a favoured methodology. What do you think he means by knowledge being "provisional" and "situated"?'

'Well, by "provisional" I suppose he means that knowledge is not a fixed thing,' Lerato said. 'We hold it provisionally until something comes along to challenge it or change it. And by "situated certainty", he's suggesting that our language, where and when we grow up, make us perceive the world in a particular way. So the form of our knowledge is situated along with our situations. There is no such thing as completely "neutral", "un-situated" knowledge.'

'Yes,' said Vaneshree, 'Hargreaves is suggesting that the supposedly reliable knowledge about effective teaching based on scientific findings is probably less valuable than the combined knowledge of teachers "situated" in their own experience. Book knowledge about a practice like teaching is of little value unless it is interpreted within the real contexts that particular teachers find themselves in,' she added.

Knowledge as dynamic and provisional: implications for teachers and learners

So how can we use the concepts put forward by Hargreaves to help us as teachers? What are the implications of moving from deceptive 'certainties' to more authentic uncertainties?

Hargreaves' concepts show up the problems inherent in the 'transmission' model of teaching. 'Getting facts into the heads of learners' and transmitting the heritage of culture to the next generation appear more problematic than teachers like Otsile imagine. Human knowledge is not fixed; there is no single way of explaining the world.

Rather, it is a dynamic process, better conveyed by the verb 'knowing' than the noun 'knowledge'. It is an open-ended journey, an adventure. To be reliable, knowledge does not need to be fixed and unchanging for all times and all situations. To be relevant, it needs to be tried out continually in practice. This means taking risks.

Therefore it won't do to teach learners heaps of facts in the hope that this will prepare them for life in the twenty-first century. Instead, learners need:

- to be taught with a view to active knowing rather than with a view to storing knowledge like a library or museum;
- the opportunity to probe, discover, and make sense of their experience;
- to collaborate in pairs or groups;

When people **lose their bearings** they do not know where they are.

- to question the knowledge that comes their way;
- to learn how to select from mountains of information;
- to learn to live with uncertainty without ***losing their 'bearings'***; and
- to experience learning as a lifelong venture.

It is also necessary for teachers to model learning as an ongoing venture. As the British philosopher R. S. Peters said (1965: 110), 'to be educated is not to have arrived at a destination, it is to travel with a different view'. This is as relevant to the knowledge of teaching as it is to the knowledge to be taught. For example, a teacher can view a multicultural class as a source of stress, or as an opportunity for the class to experience the richness of different cultures and perspectives.

As for ongoing changes in the way we teach, our only real caution should be that singular models of teaching cannot claim to be 'the answer'. It is in fact this feature that contributes to teaching as a profession, as something more than technique. Teachers have to remember that 'today's solutions often become tomorrow's problems'. So the professional approach is to stay flexible, to cultivate a 'broad repertoire' of teaching approaches, and to use these approaches appropriately.

Knowledge and power: implications for teachers and learners

Earlier we pointed out that the ***situated*** element in human knowledge – the ingredient shaped by the knower's context – is integrally linked to ***human power***. We suggested that dominant ways of knowing usually benefit dominant groups in society.

This close relationship between knowledge and power places a responsibility on teachers as knowledge workers. If teachers are in the business of initiating learners into fields of knowledge, the relationship between knowledge and power means that they also have a responsibility to equip learners with the tools of ***critical thinking***.

Although we cannot do justice to this topic in a section devoted to the role of teachers, we introduce some examples in Activity 29, suggest further reading, and now provide a few guidelines.

- Encourage learners to question. Traditionally in South African schools, teachers have asked the questions. Now we need to encourage learners to use knowledge to explore, and to probe knowledge in and outside the classroom for its usually concealed 'power content'.
- Create activities, opportunities, and a general climate in your classroom in which exploring and analyzing ideas is not only accepted but expected. Critical thinking is a prominent element of the critical cross-field outcomes; it should be an important element of much of your teaching.
- Model a climate of critical thinking as a teacher. This is necessary because it's not easy for anyone to question the assumptions that have shaped their lives, especially if these assumptions have been fostered by their family, community, the mass media, and society as a whole.
- Keep yourself well informed on current trends and debates to model creative thinking. Think actively and critically about the knowledge you're imparting, and how it fits into the 'bigger picture' of life. Discuss it with friends and colleagues.

- Think relationally (as opposed to seeing things in a vacuum, or without cause and effect) about the everyday knowledge and experience that learners bring to the classroom and encourage learners to do the same.
- Bring the 'world' into the classroom. Collect items from newspapers and magazines for critical activities. Among South African newspapers, the ***Mail and Guardian*** often raises 'uncomfortable' questions on a wide variety of topics. Other periodicals like ***Mad Magazine*** and ***Noseweek*** poke fun at trends in society and entertainment.
- Launch critical activities with the everyday and commonplace. Hamburgers and Levi jeans, roadmaps and videos all provide an initial stimulus. If you have a world globe on your desk, use it to broaden learners' 'mental maps'. Get them to draw mental maps of their own living areas as a way to explore their lives.
- Make the familiar unfamiliar, and the unfamiliar familiar, in the words of Paulo Freire, whose theory and practice of awakening people's consciousness has been the model for critical teaching.
- Start preparing young learners to think critically for themselves. This section is as much for learners in the Foundation and early Intermediate Phases, as it is for later phases. Encourage them to investigate in ways that are appropriate for their age, to become active meaning-makers and problem-solvers. The 'Breakthrough' literacy materials encourage learners to build words and sentences, to create their own 'readers' from their own experiences.

Finally, an important caution. Don't make the mistake of thinking that critical thinking is not needed in a newly elected or even established democracy. There is truth in the saying that, 'The price of democracy is eternal vigilance'.

Ask questions like, 'What, or who, caused this to happen, or to be the way it is?' 'Who benefits, directly or indirectly, from it being this way?' 'Who, or what, might have suffered en route to things being the way they are?' 'Who, or what, may suffer in the future as a result?'

> ***"Make the familiar unfamiliar, and the unfamiliar familiar."***

5.4 What's wrong with facilitating?

In this sub-section we focus on the teacher as a facilitator of active learning and self-development and pick up on some of the themes from the previous section.

> *At the Mountain View workshop, Otsile asked whether the idea of all human knowledge as situated meant that all human knowledge was biased and therefore useless. He wanted to know how a teacher could be an authority in the classroom if all knowledge was seen as provisional.*

Rousseau argued that teaching practices and the curriculum should be focused on learners and what we know about them, rather than on society or the knowledge accumulated by society (both of which he regarded as corrupt and corrupting). He also saw children as natural self-teachers, whose innate abilities to learn required only well-chosen stimulation, encouragement and a minimum of guidance from the teacher.

The problem that Otsile raises relates to the learner-centred idea of teaching as the facilitation of learning and development. This idea is largely a reaction against the idea of the teacher as someone who transfers content knowledge to learners' minds. However, it has its own theoretical foundations in the theories of the eighteenth-century French philosopher Jean-Jacques Rousseau, and subsequent European theorists of child-centred education such as Froebel and Montessori.

Since the introduction of Curriculum 2005, South African teachers have learnt to refer to themselves as 'facilitators'. But we need to examine this idea closely to see whether the idea of the 'teacher as facilitator' involves any pitfalls for teachers and learners.

Two problems for the teacher as facilitator

We take a look at two of the problems that the role of teacher as facilitator can create:

- a disillusioned response to the idea that all knowledge is relative; and
- a tendency to blur everyday knowledge and systematic knowledge.

Firstly, an overemphasis on knowledge as fluid, provisional, and situated can lead to the inaccurate assumption by teachers and learners that all learners' ideas are equally valid, and to a general disillusionment that 'nothing matters' because 'anything goes'.

Secondly, when facilitators follow the ideals of learning as an 'adventure', but fail to distinguish between everyday knowledge and systematic knowledge, they begin to blur these two ways of knowing. This can result in teachers failing to teach what learners need to learn in order to progress.

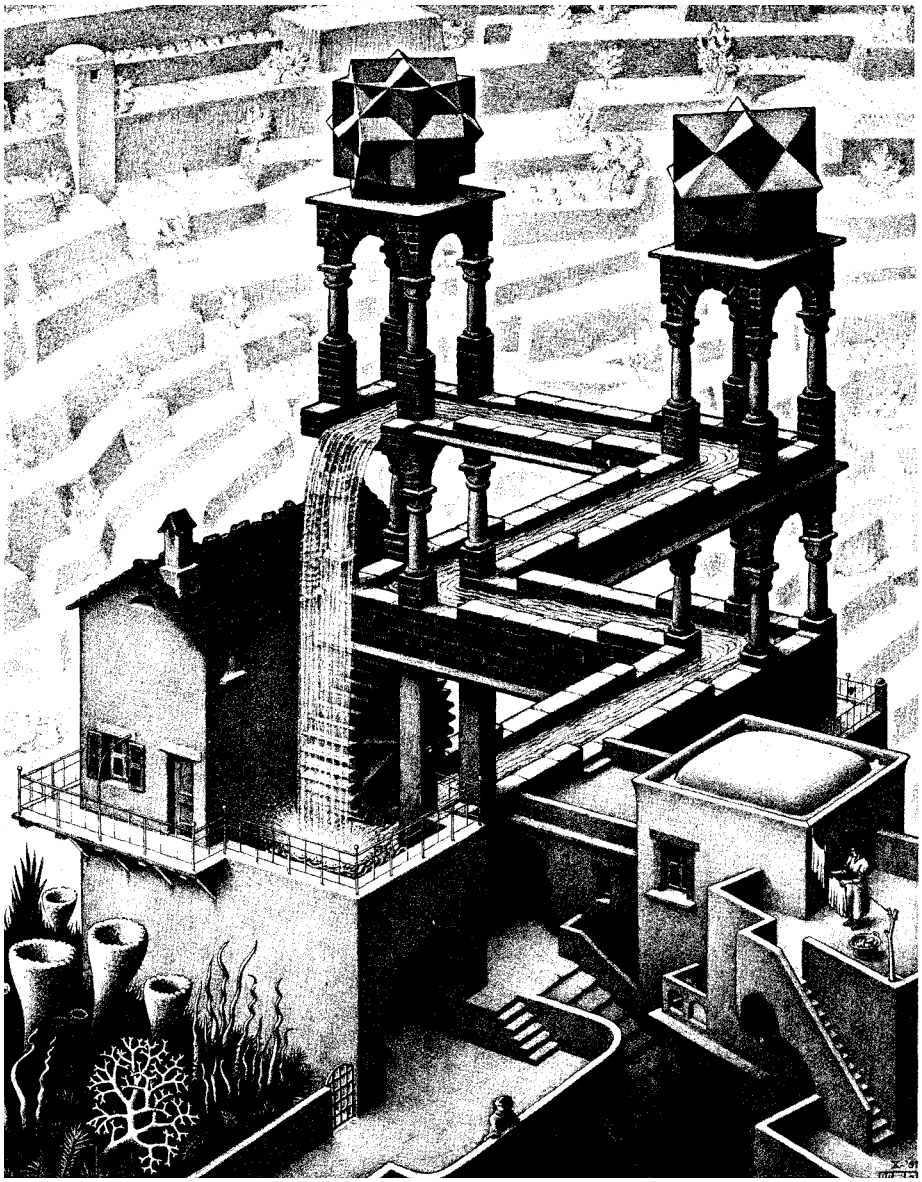
Problem 1: Relativism and disillusionment

Look closely at the drawing on the next page. As in most pictures by this artist, Maurice Escher, there is a visual 'trick' built into its structure. Look at it one way, and the water falls from a considerable height to the water-wheel below. Change your point of view (without moving your head), and the water that flows beneath the wheel is higher than the top of the 'waterfall'! In fact if you follow the course of the water's movement through the picture, you are made to change your perspective, making mental 'leaps' in the process. What you observe in the picture is entirely relative – what's happening in it depends on, or relates to, your 'point of view'.

The point that we want to make is that even though the picture is detailed and exact, the artist has created an optical illusion; what it depicts is an impossibility. And human beings could not live in such a world, where everything is entirely relative to their point of view.

Escher's picture is therefore an extreme version of the principle we demonstrated in Activity 29.

Earlier we suggested that a recognition of knowledge as provisional and situated (and hence relative) could make learning and teaching an adventure, cut free from the 'certainties' and thought systems of the past. That was the positive side of such



an approach. But there is also a negative side.

Uncertainty, and the idea that knowledge depends on one's point of view and is constantly changing, can easily lead learners (and teachers) to go too far, and to conclude that all knowledge is biased, and therefore worthless as a representation of reality. In other words, one person's understanding of any given thing is just as good (or worthless) as anyone else's. Underlying this idea is the suspicion that there is ***no real world*** that is independent of our different versions of it. Hence there would be nothing solid against which different 'knowings' could be measured.

Such views ultimately leave the thinker feeling helpless, afloat on a sea of meaningless truth claims in which 'anything goes'. The only factor that could make any one version of reality more important than others would be the power of the person or group holding it. There would be no such thing as better, more accurate, or true-to-life accounts of reality.

How might teachers contribute to this? Some teachers think that being a 'facilitator' means allowing all points of view an 'equal voice' in class or group activities, in the interests of preventing any one voice (including their own) from dominating – regardless of how weak or faulty some 'points of view' may be. If this happens, we should not be surprised if learners make demands like 'Pass one, pass all'.

To **refute** an idea means to prove that it is mistaken.

Refuting relativism

Fortunately, these notions of relativism aren't too difficult for teachers to ***refute***. Just because there is no absolute human knowledge of the world, doesn't mean to say that there is nothing out there for human beings to interpret or try to know. We can always try to check various versions of reality against the real thing. Poor descriptions or explanations give way to more accurate descriptions or explanations.

According to David Bohm, our knowledge of the world is a giant task that is inevitably 'in process' – a developing understanding that consists, at any one time, of more ***and*** less accurate representations of reality. We need to use our critical abilities to determine as best we can what is 'the best account we have so far'. And Bohm does imply that underlying all our varying interpretations, there is a real world out there.

We need to take this argument one step further and look at social achievements that would be impossible – unthinkable – if all knowledge were completely relative. Enterprises, organizations, schools, railway systems, government – all of these depend on the co-operation and shared understanding of many individuals. Our everyday communal life depends on a shared knowledge that works reasonably well – even if there may be many varying perspectives on how well the knowledge 'fits the picture'.

We have presented a response to teachers who might fear that ***all*** human knowledge is biased and therefore useless. We will return to the problem of relativism in Section Six when we look at values.

Problem 2: Blurring everyday knowledge and school knowledge

There are other dangers associated with the ideals of learning as an 'adventure' of discovery, and of learners making sense of the world for themselves. These ideals simply can't be realized if facilitators fail to distinguish between everyday knowledge and school knowledge; if they begin to blur these two ways of knowing.

We are not suggesting that 'everyday knowledge' and 'school knowledge' are completely distinct and separate, or that school knowledge cannot be developed from the starting point of everyday knowledge. But it is a mistake to believe that there are not significant differences in the nature of these two types of knowledge. We are ***not*** talking about differences in quantity – school knowledge is ***not*** just a matter of knowing more.

Group activities designed to draw on learners' everyday knowledge, do not necessarily lead to the kind of concepts that constitute school knowledge. Without the teacher's intervention (or a very carefully designed and prepared activity) this systematic knowledge, which organized society requires from its members in order to function, cannot form.

School knowledge often works by interfering with and ***disrupting*** learners' everyday knowledge as it focuses systematically on key structures and abstract principles in any given field. This is because everyday knowledge is more haphazard, unorganized, and closely linked to the circumstances of people's lives.

> ***"School knowledge is not just a matter of knowing more."***

For instance, everyone knows what a watch is, but if we were to try to define it in school we might say, 'It's a small clock' or 'Something I wear on my wrist that tells me the time,' based on our everyday and personal knowledge. Thinking systematically, a teacher would probably ask, 'What ***category*** or ***class*** of things does a watch belong to?' (precision instruments); 'What does the concept "watch" ***exclude***? (grandfather clocks, sundials, and large clocks); and 'What does the concept "watch" ***include***?' (stopwatches, wristwatches, lapel watches worn by nurses). The final definition would come out as something like, 'A watch is an instrument worn on one's person, for the purpose of measuring time or informing one of the time', in other words, a precise, but rather unfamiliar, description. School knowledge in this way removes concepts from everyday contexts and generalizes them so that they can be applied across many contexts[1].

We base the following comparison on the work of Ian Moll (1995), a student of the Russian psychologist, Lev Vygotsky:

Everyday knowledge is:	School knowledge is:
1. Informally acquired. Not organized systematically.	1. Formally acquired. Organized systematically. Consciously structured to enable learners to understand key principles and structures so that learners can use them across different activities.
2. Located in specific contexts – the familiar contexts of everyday life.	2. Removed from particular contexts, local understandings and everyday experiences. Abstract concepts. School knowledge removes concepts from everyday contexts and generalizes them so that they can be applied across many contexts.
3. Developed without conscious effort, in action.	3. Not *spontaneous:* learners submit themselves to the rules that constitute particular disciplines. Requires sustained intellectual effort.
4. Largely practical (for instance, riding a bicycle, shopping for bargains).	4. Knowledge has abstract, de-contextualized nature (for instance, water consists of two parts hydrogen and one part oxygen).
5. Acquired independently, in the course of everyday experience.	5. Developed through the *mediation* of teachers in schools. Beginning in familiar, everyday concepts, but often disruptive of everyday experience, rather than building on it in a smooth progression.

[1] Remember Paulo Freire's advice about making the familiar unfamiliar?

Something **spontaneous** happens naturally, without much influence or intervention from outside.

Teachers act as **mediators** in this context because they introduce learners to knowledge and supervise their learning; learning takes place through them.

Now that we have mentioned some of the dangers of relativism and the blurring of everyday knowledge with systematized school knowledge, we turn to the implications of these problems for facilitators.

Challenges for teachers, implications for learners

The problems of relativism and the failure to distinguish between everyday knowledge and school knowledge, are both linked to a loss of regard for ***formal, systematic knowledge.*** If knowledge is relative (if 'anything goes'), teachers can end by failing to make a distinction between everyday ways of knowing and higher-order concepts, principles, and cognitive operations.

A misreading of Paulo Freire

Equating different forms and levels of knowledge may derive from oversimplified interpretations of Paulo Freire's teaching methods, which have been highly influential in this country. Freire advocated that teachers (particularly literacy teachers working among poor communities) should always begin by listening to and learning from the common knowledge of those they intend teaching.

However, according to Freire's literacy method, for instance, the teacher identifies from this listening and learning a number of key themes in the learners' everyday lives. From these themes, the teacher generates key words to use in a highly systematic way to teach literacy, and, at the same time, to teach learners to think critically about their own situation. Learning to think critically would also be systematic, as the teacher provides the learners with conceptual frameworks to help them understand the workings of power that shape their lives in ways they might never have thought to question.

Clearly, there is no relativism, and no lack of regard for systematic content, in Freirean teaching. And Freire emphasized the difference between everyday knowing and more structured, critical knowledge. In fact, although the good teacher would listen to the learner, and take the learner's everyday knowledge as a starting point, that knowledge may soon need to be ***disrupted*** by the teacher's more critical, broader, and deeper understanding. This is, in fact, what teaching for critical thinking is about.

Neglecting content knowledge

Curriculum 2005 officially requires teachers to act as facilitators after decades of teacher- and content-dominated teaching. Many teachers are therefore confused about their roles and consequently neglect content knowledge, including skills like reading, writing, and numeracy. We look at the implications of this neglect in the following areas:

- teacher authority and responsibility;
- content teaching;
- surface learning;
- forms of knowledge;
- reading and writing; and
- groupwork.

> ***There is an authority role for teachers.***

Teacher authority and responsibility

There ***is*** an authority role for teachers. We have shown that it ***is*** possible to distinguish between weaker and stronger arguments. Therefore there cannot be equality between the roles of learners and teachers, by reason of the teachers' specialized role as 'an authority'.

This, of course, places a responsibility on all teachers to be authorities. In fact, the role of facilitator specifically requires teachers to have, not only a wide range of teaching strategies, but a thorough knowledge of their learning areas – including a critical awareness of those areas and how they are linked to other learning areas.

The role of facilitator does ***not*** provide a reason for 'getting by' with only superficial knowledge, on the misguided grounds that the learners will somehow come up with what they need to know themselves.

One Eastern Cape study for the 1998/99 President's Education Initiative (PEI) Research Project found that teachers' knowledge of key mathematics and science topics at the Grade 5 to 7 levels was little better than that of their pupils (Taylor and Vinjevold, 1999: 141). A number of the studies in this project confirmed that the level of conceptual knowledge of many teachers was unacceptably low.

Even if there are historical reasons for this being the case, it is exactly what teachers, individually and collectively, need to overcome if they are to be accepted by society as accountable professionals. Teachers need to maintain a reliable knowledge base to give them the necessary agility to depart from rigidly following the textbook when appropriate, to encourage exploration and dialogue in unfamiliar territory.

Content teaching

At the beginning of this section, we described the contradictory tensions of Curriculum 2005:

- the OBE focus on the ability to perform socially-valued (and work-orientated) operations and tasks; and
- the learner-centred pedagogic focus on building learner competence in making sense of the world themselves.

Clearly, both orientations reduce the importance of content knowledge. While OBE explicitly shifts our focus away from content knowledge, learner-centred teaching does so implicitly. The former shifts our focus to competence, while the latter shifts it to learners and their sense-making apparatus, which tends to emphasize the learners' everyday knowledge rather than systematic, formal content knowledge.

While we have to be grateful for moving away from a fact-laden syllabus requiring so much memorization, we need to be cautious about disregarding content knowledge. A South African teacher educator, Crispin Hemson, in an article describing lessons in which the trainee teachers pay little attention to content because they are so concerned to involve learners in simulated experiences and role-play, writes the following (Hemson, 1996: 192–194):

IN DEFENCE OF CONTENT

A common objection to an emphasis on content is that knowledge is always evolving, and that because of technological change, knowledge is increasingly rapidly outdated […]

Knowledge does not change in such a way as to make all previous knowledge irrelevant. Some knowledge continues to be more fundamental and core, and this should continue to have priority. What we learnt or tried to learn at school, perhaps a couple of decades ago, is not without value – the skills we learnt even with what now seems inadequate or insufficient content are still of value. What has changed with the rapid development of knowledge is a greater understanding that educators cannot achieve command over such a wide range of content as in the past. But what we must learn, in order to have a basic grounding in physics or English or mathematics, has changed little. The needs to know the Arabic number system, to be able to estimate likely answers in mathematics, to be able to extend from positive to negative numbers, to be able to compute percentages, do not I suspect disappear because of technological change.

But even where content knowledge does change greatly and rapidly, there must still be specific content from which to learn more generalized skills. Some content will be far more effective than other content in enabling that learning, and we will need to teach specifically the ways of transferring the skills to other content. 'Learning how to learn' is an important goal, but I would be interested in seeing how it is taught without a focus on some specific content.

Unfortunately, the PEI research revealed disturbing signs that a substantial number of South African teachers ***do*** show a disregard for content.

Surface learning

Much teaching in South Africa produces only 'surface' learning. This means learning facts or simple operations largely by rote, without any real understanding of the *concepts*, *conceptual structures*, or *principles* that enable the learner to make sense of those facts or to use those operations to solve problems.

This results in an inability to apply learning in unfamiliar contexts, to make conceptual connections between different learnings, or to understand what is wrong when errors are made. These higher-level cognitive operations require both that the teacher is an authority, and that the learners submit themselves to the discipline concerned.

In mathematics education, surface learning is referred to as 'procedural' learning. An example would be knowing to 'carry' values into the next column when subtracting a three-digit number like 479 from another like 823, without any real understanding of ***why*** one does this. A number of the PEI studies found that teachers tended to model procedural thinking and talking among learners by using predominantly procedural language themselves in their teaching, seldom moving into the explanation of higher-order concepts (Taylor and Vinjevold, 1999: 147).

> ***We need to be cautious about disregarding content knowledge.***

Other forms of teaching that produce surface learning are 'closed' questions that require answers of only a few words, teaching concepts well below the learners' level of 'readiness' (see Love and Mason's 'On readiness and "fading"', Reading 16 on page 103), and unnecessarily repeating or revising work done in previous grades or weeks.

The same report found that Grade 4 mathematics teachers spent a lot of time revising work that they should have done in the Foundation Phase. They also tended to teach only those aspects of calculation that learners found the easiest, avoiding

more complex examples and ignoring the need to get to grips with deeper conceptual structures. The pace and direction of the class were determined by the weakest learners and as a result, teachers were unable to complete the curriculum:

Everyday knowledge and school knowledge

Not surprisingly, teachers frequently find ways of beginning a lesson in the world of learners' everyday experience, and explain concepts by means of 'real world' examples. However, the PEI research (Taylor and Vinjevold, 1999: 147–149) found evidence of teachers:

- failing to extend such lessons and explanations beyond the procedural (for instance, by introducing questions designed to develop insight into principles or structures);
- neglecting to ensure that learners understand the relationship between ***analogies*** from everyday experience and the concepts they are supposed to learn from them (so that the analogy becomes the focus of learning rather than the concept it illustrates);
- having difficulty in helping learners distinguish between their own everyday knowledge and the sort of concepts required of them in science.

Analogies are explanations in which someone compares whatever it is you are trying to understand to something similar.

Reading and writing

A critical factor that contributes to surface learning is the inability of many learners to read or write at appropriate levels. Some PEI studies found that some teachers were even unsure of whether they had to teach reading, and some never used textbooks with learners (or gave them any other opportunity to read other than what was written on the chalkboard).

According to one researcher, the integration of reading with other learning in the Foundation Phase has in some classrooms led to the haphazard and sketchy teaching of reading. In some instances, very little writing was done by learners beyond short answers in their workbooks or on worksheets, and learners were never required to read or write extended passages.

Groupwork

The mere 'clustering' of learners in desks will not in itself produce systematic learning, and may even be counter-productive (ibid. pp. 150–151). Without careful preparation and monitoring, and without intervention, guidance and support at appropriate times, children's discussions tend to remain at an everyday level.

If teachers don't ensure that learners have access to a sufficient knowledge base, if teachers don't check that activity instructions and goals are clearly understood, and if the groups are left entirely to their own devices, they waste learning time and encourage behaviour to deteriorate.

Further, teacher/facilitators need to ask themselves whether learners''interesting' discussions always lead to new insights, whether the discussions consolidate learning in any way. Group discussions do not always require ***closure***, but learners need to have a sense of having learnt something at the end of the process.

A discussion has **closure** when it is complete, when all questions have been answered for all the participants.

All of the above points are well illustrated in the video, where we see a teacher, Heather Blankensee, beginning her unit on cells and cell structure with an experiential session. For this session she devises a type of simulation, with the learners in groups, in which they have, surprisingly, to design factories (as an analogy for cells). To do this they have to draw on their collective imagination and their observation of the world at large, but their success in designing factories depends on their exercising interpersonal skills such as collaborative problem-solving.

What makes this a successful unit? In addition to the obvious fun and the challenge of designing a factory together, the teacher:

- prepares the lesson carefully, reading up on the topics of cells and factories beforehand to become 'an authority' on the topic so that she is relaxed and able to deal with problems as they come up;
- organizes the structure and sequence of the various parts of the unit, and makes

sure that the materials are available and ready for the learners' use without the kind of delays that create behaviour problems;
- makes the instructions and the goal clear to the learners (not directly shown in the video);
- ensures that there is enough time to focus on the target knowledge (about cells rather than factories);
- monitors the groups' progress by providing information, keeping them on track, and asking questions that steer their learning indirectly and that get them to rethink things at a higher level;
- adopts a variety of teaching strategies: collaborative groupwork and reading, learner presentations, individual teaching while the students are working in groups, and fairly conventional lecturing;
- controls the learning unit rather than the learners (is 'in authority'). For instance, she relies on her own discretion in allowing only a few groups to do presentations since the main learning points have already been covered by producing the designs;
- teaches content when the time comes to convey a body of information that the class as a whole will probably not know, by drawing out a comparison between the design of a factory and the design of a cell through questions, as opposed to simply presenting the facts.

In the above account of challenges and implications, most of the teaching strategies for ***resolving*** the problems mentioned are implicit in the problems themselves, so we have spelt out only a few. But there is now widespread recognition of the need for in-service professional development programmes that specifically address these issues.

ACTIVITY 31: A 'REALITY CHECK' ON YOUR OWN TEACHING

Write a brief note on your own experience of groupwork, either as a participant or as a teacher, or both. Mention the following:

1 What was positive?
2 What was negative?
3 What you could do to make groupwork a more positive and productive learning experience in your classroom.

You will need about 20 minutes for this activity.

5.5 What's wrong with imparting skills?

In this section we look at the idea that in an OBE curriculum, teaching should be primarily focused on developing demonstrable competence, especially skills that can be assessed against clearly-set criteria of performance. This is the role that Gillian seemed to embody; she approached the teaching and assessing of skills in a rather technical manner.

You may remember that Gillian was particularly 'at sea' about what to do when she ran out of ready-made ideas for outcomes-based lessons. She tended to view the specific outcomes of the new curriculum as separate items, which she could work through mechanically, one at a time, and 'sign off' when they were achieved by learners.

As a teacher shifting from content-based teaching to competence-led teaching, she seemed at risk of losing sight of the 'bigger picture'. She had difficulty integrating skills and competence into a framework of knowledge and values that would provide a sense of purpose for the skills.

In the previous section, in the Crispin Hemson passage, we saw the danger of neglecting content knowledge. But teachers need to be aware of the fundamental place of ***values*** in learning as well. An over-emphasis on skills and content knowledge at the expense of values is a particularly dangerous path for a schooling system to embark on.

It is possible to illustrate this danger in many ways, but the revelation in the mid-1990s of the Aum Shinrikyo sect in Japan is a particularly vivid one. Members of this ***sect***, which gave allegiance to a self-styled ***messianic*** leader named Asahara, included highly qualified scientists. These graduates from Japan's top universities used their highly advanced skills to develop means of mass destruction, including the secret manufacture of sarin nerve gas, which was used in a devastating attack on a Japanese city in which 14 people died and over a hundred were injured.

A **sect** is an offshoot religious group with its own special teachings and practices.

A leader is **messianic** when he or she promises salvation to followers.

Chizuo Matsumoto changed his name to Asahara in 1984 when he founded the Aum Sect. Following the 1995 sarin gas attack in the Tokyo underground, Asahara and the Aum 'executives' were arrested and imprisoned.

These events led to the questioning of the intensive schooling received by Japanese learners (among the most competitive and efficient in the world), a schooling that could produce technically advanced graduates whose sense of values and powers of critical reflection were so grossly underdeveloped.

Mark Mason's article, written in 1997 when Curriculum 2005 had just been introduced (Reading 15 on page 99), makes use of a simple but powerful conceptual framework developed by the British philosopher Gilbert Ryle to make a similar point about the need for values.

Ryle pointed out that the knowledge we learn consists not only of content knowledge ('knowledge ***that***'), but of skill or 'doing' knowledge ('knowledge ***how to***'). In outcomes-based learning, these two types of knowledge may be seen in demonstrations of competence. In addition, Ryle argued that learners need to acquire a competence of a different sort, in the area of the values that motivate our doing ('knowledge ***for***', or 'knowledge ***to***').

ACTIVITY 32: THREE KINDS OF KNOWLEDGE

Read Mason's article, 'Outcomes-based education in the context of three kinds of knowledge' (Reading 15 on page 99), and then answer the following questions:

1. Which of the three kinds of knowledge: propositional ('knowledge that'), procedural ('knowledge how to'), or dispositional ('knowledge to/for') is most readily associated in people's minds with Curriculum 2005, possibly to the exclusion of the other two?
2. Why do you think people perceive it this way?
3. What reason does Mason give in support of his argument that 'propositional knowledge is not much good in and of itself?
4. Why does he suggest that a focus on procedural knowledge alone would undermine learners?
5. What does he suggest are the dangers of an exclusive focus on dispositional knowledge?

You need 30 to 40 minutes to read the article and answer the questions.

An emphasis on skills: implications for teachers and learners

Curriculum 2005 and its association with outcomes-based education, tends to be identified with procedural knowledge (skills), probably because of its emphasis on outcomes. The principles of OBE require that learning outcomes are specified from the outset so that learners as well as teachers know clearly what is to be accomplished. The principles of OBE also require outcomes to be stated clearly in terms of demonstrated performance, thereby reducing personal bias in assessment.

The committees that draw up assessment standards for OBE are discouraged from using phrases like 'Learners should be able to understand' since 'understanding' can be difficult to assess reliably, and because it might easily be taken as indicating that only content knowledge is required. Instead, active verbs like 'distinguish between' or 'design a plan' are called for. This focus on demonstrated, visible performance has the effect of emphasizing procedural knowledge at the expense of propositional or dispositional knowledge.

However, as Mason argues, too strong an emphasis on any one of these to the exclusion of the others is educationally unhealthy. Learning content knowledge is pointless unless it can be put to good ***use***, which involves skills and values (how it is to be put to use, and for what purpose). Learning skills without a grounding in propositional knowledge and an active set of workable values, creates unthinking technicians (the techno-demons of the Aum sect). Finally, an overemphasis on values and attitudes at the expense of other forms of learning would be suspect (think of some approaches to Christian National Education during the apartheid era).

The key point here, as Mason reminds us, is the need to include a ***balance*** of skills,

'content' knowledge, and values in our teaching, and to ***integrate*** all three so that they can interact with and influence one another in all fields of knowledge and action.

But if we need to balance these types of knowledge, we come back to the question of how to identify teaching with a ***positive*** role, something that signifies a definite approach, without committing to the role of teacher of content, teacher of skills, or facilitator. The suggestion for this positive role is that of the 'mediator'.

The teacher as mediator

5.6

We firmly believe that none of the ***teaching roles*** we have discussed are, by themselves, appropriate for teaching in schools – in much the same way as the three different ***kinds of knowledge*** are, in themselves, inadequate curriculum goals. If teachers adopted any one of these roles exclusively as a source of professional identity, each of them would have serious problematic consequences for teachers and learners, as we have tried to demonstrate in Sections 5.4 to 5.6.

So the teacher's role in the new curriculum needs to be flexible enough to occupy each of the teaching roles as the ever-changing situation of learner, teacher and curriculum demands. The name we have used for this complex and flexible role is 'mediator'.

Adopting the identity of mediators, teachers do not have to shed all traces of content teaching and give up their authority and responsibility. They do not need to become mere 'trainers' focused on developing skills. And they shouldn't resort to 'chalk and talk' methods in desperation if they come up against serious difficulties in either of these last two roles.

Rather, the role of mediator develops the wide range of strategies Andy Hargreaves speaks of in Reading 14, and moves comfortably between roles, even within a single teaching unit. Botlhale Tema has summed up this function of the mediator very well (1997: 6–7):

Note that we do *not* mean to suggest that the three teacher roles (imparter of content knowledge, imparter of skills, and facilitator) *neatly* correspond to Mason's structure of propositional, procedural, and dispositional knowledge.

Obviously the first and second of these sets *do* correspond, but it would be straining both of these conceptual frameworks to try to make the role of 'facilitator of learning' correspond closely to 'dispositional knowledge'.

In fact, an important focus of the facilitator of learning is usually taken to be the learner's *cognitive* development.

Self-actualization happens when you achieve your full potential as a human being.

WHAT TEACHING METHODOLOGY IS RECOMMENDED FOR OUTCOMES-BASED EDUCATION?

Child-centred discovery approaches need not lead to undirected learning [...] The methodology that will be used in any learning programme is suggested by the specific outcomes to be achieved. For example, when the outcome states that that 'learners should use process skills to investigate phenomena related to natural science', the teacher may design a learning activity which gives students an opportunity to go outside and investigate phenomena or to work in the laboratory or to read and analyse a publication which contains the information required. The teacher will then decide whether this activity will be best done individually or in groups, or by the teacher explaining. So, for example, 'teacher telling' is clearly not appropriate when pupils already know what is being taught or can work out for themselves what is being explained. But it *is* appropriate to explain things pupils would find difficult to fathom for themselves such as that matter consists of electrons, protons and neutrons. This explanation will be news worth hearing!

Similarly groupwork has clear advantages for certain learning activities. Pupils feel bolder to say things they might not say alone. Groupwork gives them an opportunity to test ideas on peers. Students in groups can also challenge each other's thinking, make the learning experience richer and more meaningful. However, it *is* important that groupwork is a learning experience. The teacher has to ensure that the pupils are aware of the deliverables or outputs so that groups are working groups and not chat groups. Groupwork also needs constant monitoring by the teacher to guide, act as a resource and to prevent dominance by one or two pupils.

The choice of teaching and learning methods is also guided by the critical outcomes – the cross-curricular outcomes such as critical thinking,

teamwork, problem-solving and effective communication. Groupwork would thus be suitable when attempting to meet the critical outcome of working co-operatively. Similarly, class discussions will provide opportunities for pupils to develop the ability to think critically and to communicate effectively.

OBE thus recommends the provision of a *variety* of learning opportunities or teaching methods which include groupwork. The teacher's role is to exercise professional judgement when deciding on which method is appropriate for any learning activity.

The success of outcomes-based education depends on the teacher's good judgement and on her possession of a *wide repertoire* of teaching methods.

If we relate these principles to the staff at Mountain View Primary, we can say that Lerato needs to carry her learner-centredness into the achievement of identifiable competences (including, perhaps, more coherent, structured knowledge). Gillian, on the other hand, needs to step back from her rather narrow focus on skills, and try to see the learners, and what they need to learn, in a wider perspective. And Otsile, too, should be prepared to make some moves towards engaging with the wider (economic and personal growth) needs of learners, even if sometimes he is required to 'fill their heads with facts'.

The term 'mediation' has taken on a number of meanings in different theories, including that of the Israeli educational psychologist Reuven Feuerstein, whose theory is outlined in the module ***Learners and Learning***. But one thinker's work has contributed immeasurably to our appreciation of the teacher's role in mediating knowledge for learners – in a way that comfortably includes all three roles of imparting knowledge, imparting skill and facilitating learners' cognitive development. That thinker is Lev Vygotsky, whose distinction between everyday knowledge and systematic, structured knowledge we referred to in Section 5.5.

Vygostky's theory of the teacher as mediator

Vygotsky was a Russian psychologist whose work in the twenties and thirties was largely unknown outside the Soviet Union until the seventies, when it was introduced to the West chiefly by the British educationist Jerome Bruner. Since then his theories of cognitive development have become more and more influential. Vygotsky's theory informs much of the content of ***Learners and Learning***, but in this module we will restrict our focus to his best-known concept, the zone of proximal development. This concept offers both a vivid picture of what it is to act as a mediator of knowledge to the learner, and a powerful theoretical 'tool' that will help teachers to meet the challenges set out in this section.

> ***For Vygotsky, the role of the teacher is to lead learners to higher levels of thinking by interpreting and giving significance to things and events.***

For Vygotsky, the role of the teacher is to lead learners to higher levels of thinking by interpreting and giving significance to things and events. This is a process Vygotsky called 'intentional mediation'. Mediation involves leading learners to increasing degrees of complexity by providing 'scaffolding' for the learners to reach the next level. The concept of 'scaffolding' is based on a metaphor taken from building.

When a builder wants to work at a higher level, he uses a scaffold, but once that level is reached, the scaffold is removed. When teaching, the teacher/mediator provides the 'scaffold' to aid learning. Once learners demonstrate competency at a particular task, the teacher reduces the help provided so that learners can refine and develop their thinking skills, without becoming dependent on the teacher. The teacher's role is therefore a constantly dynamic one. The teacher provides scaffolding by:

- ***explanation***: explaining the set tasks so that they are understood by the learner;

- *instruction*: giving clear instructions to the learner to aid completion of the set task;
- *interpretation*: allowing learners to make meaningful interpretations of the tasks set;
- *modelling*: demonstrating possible strategies to attain the task set by the teacher;
- *questioning*: using higher-order questioning to challenge and encourage the learner's thinking; and
- *feeding back*: feeding back information, not as a score, but in the form of detailed information on how the learner can improve his or her performance.

The teacher as mediator always tries to be as aware as possible of the learner's level of understanding – their ***Current Level of Development*** (CLD) – so that learning can be appropriately targeted. Vygotsky also describes the ***Potential Level of Development*** (PLD) as the level that the learners will reach at the end of a learning experience. Neither the CLD nor the PLD are suitable levels around which to design learning. If it is directed at the CLD, the learners will not find the work challenging. If it is directed at the PLD, learners will find the work too difficult.

Vygotsky advocates directing learning at the more advanced edge of the ***Zone of Proximal Development*** (ZPD), which lies between the CLD and the PLD. This is the level at which learners cannot quite manage to grasp a concept or perform a mental operation on their own, but soon will be able to, especially if assisted by the mediator. In this way, the mediator continually extends and challenges the learners, assisting them to move towards higher-level cognitive operations or concepts (for example, from everyday concepts to systematic concepts).

Unlike Piaget, whose theory depicts the learner's cognitive development 'unfolding' stage by stage, more or less as 'programmed' by nature, Vygotsky regards the learner's social and cultural interaction, mainly through the medium of language, as vital to the young learner's development. Given the central role of the teacher/mediator in this process, it is clear that Vygotsky credits the teacher/mediator with considerable authority.

ACTIVITY 33: LEARNING READINESS AND SCAFFOLDING

Read 'On readiness and "fading"' by E. Love and J. Mason (Reading 16 on page 103 in your Reader) and then answer the following questions.

1 The idea of learners being 'ready' or 'not yet ready' to understand concepts at particular levels of difficulty seems sensible enough. Yet the writers argue that this understanding of learning is problematic. Try to sum up Love and Mason's objections to this idea in about half a page or less.

2 In what way is Vygotsky's approach to readiness more 'elastic' than prevailing notions?

3 After reading accounts of the mediator role and scaffolding in the Learning Guide and the Reader, how 'comfortable' do you think a mediator of this kind would be with the three roles of imparting content knowledge, teaching skills, and facilitating learner-centred learning?

4 How 'comfortable' would our mediator be with the ideas of knowledge as 'provisional'?

5 How would a teacher-as-mediator respond to a learner's everyday knowledge?

Now that you have been introduced to the theory of scaffolding and the ZPD, you should not find Love and Mason's reading too demanding. It approaches Vygotsky's theory from the point of view of an interest in learning '*readiness*' – a matter of concern in South Africa, where the learning of far too many children is 'on hold' while their teachers, uncertain of their own knowledge base, opt to teach at a 'low level'. The questions in this activity, on the other hand, are fairly challenging, like Vygostky's 'mediator' – but worth the effort, so don't be tempted to 'skip' them. Allow about 30 minutes for the reading, and about 45 minutes to answer the questions.

Learning does not proceed in a steady fashion, where learners have to complete one step before taking the next. Just as we climb real stairs, not watching the step we're actually treading on but looking ahead, our learning often 'runs ahead of itself', assured that our forward motion will not let us lose our balance. In the same way, children learn to make sense of conversation before they have mastered it themselves – and that is how they come to master it. Yet in learning to speak, children seem to move forward in spurts between periods of seemingly slower growth while their minds are assimilating particular patterns of speech that they hear and try out for themselves.

Therefore keeping learners 'on hold' until they appear to be ready (or worse still,

> ***Learning does not proceed in a steady fashion, where learners have to complete one step before taking the next.***

until a whole class is ready) goes against the way human beings develop. Likewise, labelling learners as 'ready' or 'unready' will tend to make them feel and act as ready or unready, since what we are is partly a product of how we are seen by others. Even simplifying one's speech for the sake of being understood by everyone in a class, for instance, fails to 'extend' anyone.

Vygotsky links the learner's growth to social interaction with others in a much more liberating way. Higher psychological functions such as complex tasks or self-monitoring are learnt by interacting with others. Therefore growth may occur more, or less, rapidly, partly as a result of the type of social interaction that the learner experiences. Teachers working to extend learners within the zone of proximal development, or learners talking with co-learners about what they are doing, both strengthen and accelerate this learning.

Vygotsky's mediator has a crucial scaffolding role, one which also involves both initiating learners into the content knowledge and skills and competences that are valued by society, and helping learners to construct meaning themselves in an active engagement with their teachers.

The role of mediator is a particularly dynamic one, in tune with the idea of 'knowing' as an ongoing 'work in progress' – for the teacher as well as the learner. The notion of knowledge as provisional finds a parallel in the 'scaffolding' teacher, who 'dismantles' support as the learner moves on to a higher order of concepts and skills.

Although both of these concepts are dynamic, there is no place in the mediator role for an extreme form of relativism. Since the mediator's chief role is to organize the learning path of learners, the mediator needs to have a reasonably clear sense of where that path is leading, even if it is acknowledged that human knowledge is by its very nature subject to change. If one thinks about it, the very notion of 'scaffolding' must be hostile to an understanding of relativism in which 'anything goes'.

This is demonstrated clearly in the way a mediator will respond to a learner's everyday concepts. Working with the zone of proximal development means identifying where the learner's everyday knowledge reaches the upper limits of its range – where the learner cannot quite achieve an operation or understand a concept – and enabling the learner by various means to move towards more systematic understanding or more accomplished performance.

A final word of caution. You may have formed the impression that scaffolding can work only when a teacher has a small class to teach, allowing for a good deal of individual monitoring and instruction. While such a situation no doubt creates the ideal circumstances for teacher/mediator and learner, the emphasis in mediation is on forward movement, based on a firm belief (like Herb Kohl's) in the potential of all learners to grow. This therefore remains appropriate for South Africa's often-crowded classrooms where many learners are used to putting their learning 'on hold'.

Conclusion 5.7

In this section we have examined the confusion that surrounds the concept of 'knowledge' and the roles of teachers as knowledge workers in Curriculum 2005: imparters of knowledge, facilitators of active learning, and developers of skills. We pointed out that teachers often mistakenly adopt one of these roles exclusively, instead of integrating all three to develop a wide range of teaching strategies that they can draw from at appropriate times.

In the process of examining these roles, we developed a deeper understanding of the various characteristics of human knowledge. In each case, we identified the implications of these characteristics for the process of teaching and learning. We explored knowledge as provisional, situated, and closely linked to questions of power.

We discussed the disillusionment that surrounds relativism, which stems from the realization that knowledge is provisional and situated. And we pointed out the need for teachers to be able to distinguish between everyday knowledge and systematic school knowledge. Finally, we argued that the three forms of knowing (knowing that, knowing how, and knowing to), like the three roles of teachers as knowledge workers, need to be integrated in the teaching process.

We concluded the section by identifying an appropriate, fourth role for teachers: that of the teacher as a mediator of learning, which combines the strengths of the other roles in a dynamic focus on learner-teacher interaction. In the next section, we turn our attention to the teacher's role in developing values in the learner.

Key learning points

1. There seem to be three key potential roles that teachers might play as 'knowledge-workers':
   - to impart knowledge to learners;
   - to facilitate in learners the ability to learn; and
   - to enable learners to develop actual skills that will demonstrate that they are competent to perform specific operations and undertake specific types of work.
2. For each of these roles, teachers need to understand different things about the nature of knowledge. In each case this will help you to understand the limitations of the particular role.
3. The limitations of imparting only knowledge to learners:
   - The idea that imparting knowledge is the teacher's primary role tends to ignore the dynamic, unfixed, and 'situated' nature of knowledge – and to play down the learner's role as an active constructor of knowledge. Since there is no single system of human thought, not even modern science, which can give us a totally reliable overall grasp of reality, teachers need to move away from deceptive 'certainties' to a more authentic *uncertainty*.
   - Rather, knowledge is a dynamic process: knowing rather than knowledge. Therefore it won't do to teach learners heaps of facts. Learners today require to be taught with a view to active knowing, and to live with uncertainty. They need the opportunity to probe, discover, and make sense themselves of what they experience. This process is helped greatly by structured, co-operative work in small groups of peers.
   - Teachers need to remain open-minded and flexible, cultivate a broad range of teaching approaches, and know how to make learning more of an adventure.
   - The situated element in human knowledge is also integrally linked to

human power – it privileges some knowledge, and forms of knowledge, while concealing or 'silencing' others. Therefore teachers also have a responsibility to equip learners with the tools of critical thinking, encouraging learners to question knowledge.

4. The limitations of facilitating only active knowing and learning:
   - The idea that a teacher's primary role is that of a facilitator tends to play down the value of formal, systematized knowledge and teaching. Seeing human knowledge as situated and provisional can make learning and teaching an adventure, cut free from 'certainties' and thought-systems of the past. But such relativism may also give rise to the extreme notion that all human knowledge is biased (and therefore useless) or unreliable.
   - Such thinking makes it difficult for teachers to see themselves as an authority in the classroom. They may allow all points of view an 'equal voice' in class, no matter how faulty some of those 'points of view' may be.
   - Human knowledge is always a mixture of what is correct and what is incorrect. Hence poor explanations give way to more accurate explanations. We need to use our critical abilities to determine as best we can what is 'the best account we have so far'.
   - Teachers should not blur the difference between 'everyday knowledge' and systematic 'school knowledge'. The good teacher takes the learner's everyday knowledge as a starting point, but soon needs to 'disrupt' everyday understanding, to bring about broader, deeper, more systematic and critical understanding.
   - Teachers should not let the pace of the class be determined by the weakest learner, or teach only what learners find easy to achieve rather than deeper conceptual structures. Groupwork does not in itself produce systematic learning. It requires careful preparation, monitoring and intervention if it is not to remain at the 'everyday' level.
5. The limitations of enabling learners only to develop skills:
   - The idea that enabling learners to develop skills is the teacher's primary role tends to play down the need to integrate skills into a framework of 'content' knowledge. Teaching skills needs to be integrated with the cultivation of values in order to provide a sense of purpose.
   - Teachers do not have to shed all traces of content teaching, depriving learners of access to socially valued systematic knowledge. Neither do they need to become like 'trainers' focusing only on skills. Nor do they, when they experience difficulties as facilitators or imparters of skills, have to resort to 'chalk and talk' methods in desperation.
6. The value of mediating learning:
   - The teacher's role as a mediator is to exercise professional judgement in the choice of teaching and learning methods. This choice should be guided by learning outcomes.
   - The teacher as mediator also provides 'scaffolding' for learners to reach higher levels of thinking and understanding, without allowing the learners to become dependent on the teacher. The teacher continually extends and challenges the learners to undertake slightly more complex learning tasks.
   - The teacher's role is therefore a dynamic one, based on a firm belief in the potential of all learners to grow. The teacher does not keep learners 'on hold' until the whole class is ready to learn a new concept.

Tutor-marked assignment 3

Imagine that someone in a supervisory role at the school where you teach (the Principal, Deputy, Head of Department, or a fieldworker from a non-governmental organization helping with staff development) asks you to give a demonstration lesson in a learning area that you teach. Write down your plans for this lesson or unit, making specific provision for at least three of the following opportunities for learners, and pointing these out where you do so:

- to pursue knowledge themselves and make discoveries – whether as solutions to problems, knowledge in books, or facts in the real world around us;
- to develop some depth in the understanding of concepts (i.e. not superficial, or rote learning);
- to pursue meaningful groupwork in a structured setting that you direct (not aimless, chaotic or unorganized);
- to do some sustained reading (silent reading or reading aloud), and a writing task (this may not be appropriate if you are a Grade 1 teacher);
- to integrate critical thinking into the learning; and
- to integrate values or attitudes into the learning.