

Learners and Learning

Section Five: How can teachers
structure learning?

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The SAIDE Teacher Education Series

Saide 
South African Institute
for Distance Education



Learners and Learning

ISBN 978 0 620 46731 5

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The first edition was funded by the WK Kellogg foundation. This digital version has been funded through the International Association of Digital Publications.

SECTION FIVE

How can teachers structure learning?

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Introduction

5.1

What will you learn in this section?

In this module we have argued for a constructivist approach to teaching and learning. But in doing so, we have warned against an approach which suggests that learners are capable of learning all they need to know completely naturally, and that schools or teachers are unnecessary.

Instead, we have encouraged you to think about learning in a systematic and theoretical way.

- First, we introduced you to the *learning paradox* and the difficulty of becoming a learner.
- Section Two explored ways in which learners can construct their own knowledge as they journey from the known to the unknown.
- We then focused your attention on the particular nature of school learning in Section Three.
- In Section Four we discussed the great potential and specific demands of reading for learning.

Now it is time to shift our attention away from the activities of learners and focus more directly on the role that *teachers* play in learning. We will investigate how teachers can structure learning opportunities in such a way that learners can access all their available resources to help them learn. We argue strongly that even in a learner-centred curriculum it is the teachers' responsibility to teach so that learners learn.

In order to achieve this we have to construct learning activities in such a way that we achieve the right balance between challenge and support.

Some half-truths to guide your study

Before you begin, read and think about the following statements about how teachers can structure and direct the learning process.

Statement about learning	What is true about the statement?	What is inaccurate or false about the statement?
Teachers should avoid conflict at all times as it blocks learning.		
Learners should be encouraged to ask questions.		
Learning is best undertaken in a structured, orderly manner.		
The learning process should be designed to move learners from the easiest and most familiar tasks through to the most difficult and least familiar ones.		
The teacher's role is best understood as one that facilitates learning, rather than one that teaches.		



Week 14 begins.



You might want to relisten to the audiotape and note down in your workbook any ideas speakers have given you about how to structure learning; about how to teach. This section builds on these ideas.

5.2

Finding out what learners don't know

As teachers we cannot learn for our students. We also can't transmit what we know directly into their heads. We can only create conditions that are necessary for them to learn and construct their own understandings.

But what sorts of conditions, what sorts of tasks and teaching strategies, enable good learning?

Read through the following learning moment. This description of learning from a South African learner may draw your attention to strategies that teachers can use to intervene in the learning process and promote effective learning.

Learning moment 1

'Can I remember something that happened to me in class that changed my learning? Yes, there's one thing that I remember very well. Even now, about six years later, I can remember it so clearly that it's almost like it happened a few minutes ago.

It was in my Std 6 History class. We were doing all that stuff that we had done over and over again almost every year since I was in primary school – the Great Trek and why the trekkers left the Cape and all that. It was so boring and I already knew all about how the Xhosa used to steal cattle from the boers and how the English taxed them too much. All the stuff you were supposed to know if you were a good white South African kid.

And now we were doing it again. The eastern frontier problem, again. And even if it was boring, I still accepted it all: that the Xhosa were the bad guys and the boers were the good guys.

Then the teacher said something, which kind of changed the way I thought. It really was an awesome event for me in my learning. We were looking at our textbook, which had a chapter called 'The Eastern Frontier Problem', and he said:

Let me ask you this question. Maybe it wasn't really an eastern frontier problem. Maybe it was a western frontier problem. What do you think?



He didn't even make us answer the question. He just asked it slowly and then kept quiet for a while. I think, maybe he was too scared to do anything else because teachers could get into trouble for not sticking to the syllabus.

Suddenly, I could see that History wasn't just about facts, but it was about having different views of the past. I could see that when we learnt the 'eastern frontier' and the 'Great Trek' over and over again, it might have been just to teach us a lie. I think that a lot of my critical thinking about History started right there.

It was only at University that I learnt about the Mfecane and things like that, but I already somehow knew that History was about different views of our past, even if I didn't know all the right words to say it. It was my Std 6 teacher who taught me that, just by asking one little question. I reckon I've got a lot to thank him for.'

STOP. THINK.

What is the *teacher* doing to make learning happen? What moves is the *learner* making alone? What challenge does the teacher present to the learner? How does the learner meet the teacher's challenge?

Before you continue, reread 'Learning moment 1'. Then see whether you can answer these questions. Make notes in your workbook.



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

Using tasks to create learning gaps

This experience in a history classroom illustrates how important it is that learners experience a *gap* between what they know and what they must get to know. It also shows that these gaps don't always occur naturally; they are carefully set up through a challenge by the teacher.

In everyday situations we usually experience a real gap in our knowledge when we encounter practical problems that require immediate, practical solutions. These problems present themselves unexpectedly in a spontaneous, unstructured way. In school, however, the learning problems are very different. The gap between the known and the unknown may be of no practical consequence to the learner. It is an artificial gap, which the teacher sets up with the help of a carefully-structured task.

This task – this gap – exists in and through language only; it occurs in the form of words and isn't a concrete reality. So, in order to solve it, learners must understand the language being used.

The *quality* of school learning is greatly influenced by how teachers design gaps to create a conflict between what learners already know and can do with their words and ideas, and what they should know and should be able to do soon. But designing a learning task of this kind is difficult! Let's read to see whether we can find some ideas to guide us as we design these tasks.

ACTIVITY 43

- 1 Turn to Reading 9 'Education for all' by Craig. Read the introduction and the section called 'Basic principles for cognitive change'. They will give you a good idea of what the whole article is about.
- 2 Once you have done this, carefully reread the first two principles of cognitive change and the section entitled 'Conflict'. Then answer these questions:
 - a State these two principles clearly in your own words.
 - b How do these two principles of cognitive change apply in 'Learning moment 1'?



Spend about 90 minutes on this activity.

Manipulating form and content in task design

The *content* of the lesson in Learning moment 1 was very familiar to the learner. The teacher was probably aware of this and had thought about the boredom such familiarity would create. He needed to do something that would focus the attention of the learners on something new.

- By rephrasing the problem of the 'eastern frontier' as a question about the 'western frontier' he introduced a gap in the learners' understanding of history.
- The content of the usual history story was questioned, or understood in a new way, by changing the perspective from which it was told. By shifting the perspective, the teacher created an internal conflict for the learners.

If their all-too-familiar understanding of the frontier wars suddenly became only one of many perspectives, how would they know which version of the story is really true? Learners were suddenly forced to think, both about this content and about how they would set about convincing people of the strength of their particular perspective.

You can also imagine how, in the absence of this conflict, the thinking of these learners had remained static for many years. They probably thought they knew and understood all there was to know about this part of South African history. But as soon as the history task was designed in such a way that the familiar content was presented from an unfamiliar perspective, a whole new way of thinking about historical events became possible.

The unfamiliar 'form' of thinking about history – history as several possible and often conflicting versions of events rather than a list of facts to memorize – is highlighted for the learners. They experience a shift in thinking that *'really was an awesome event for learning'*.

Creating learner uncertainty

Learning moment 1 also illustrates the second principle of cognitive change, namely that learners have to discover the limits of their knowledge through their *own actions* before they can explicitly be taught about the task.

Once the teacher had set up the conflict, he did not resolve it himself. As the learner recounts, *'He didn't even make us answer the question. He just asked it slowly and then kept quiet for a while.'* This silence meant that the learners had to act themselves, not physically but *mentally*. They had to weigh up this new possibility of thinking about familiar facts in a very different way. They had to decide for themselves if they stood on the eastern or the western frontier line.

By acting upon the uncertainty that the teacher's question created, the learner was introduced into the critical discourse of history. This introduction was so powerful that years later he claims, *'I think that a lot of my critical thinking about History started right there.'*

The above discussion of Learning moment 1 echoes our debate about everyday and school learning on pages 81–82, where Floden and Buchmann argued that teachers should not always start where learners are at, but that school learning can also begin with very unfamiliar material that has no apparent connections to learners' everyday lives.

They argued that a deliberate break with everyday knowledge would create greater opportunities for learning. However, in the light of Craig's discussion we can see that the *quality* of the break is very important. The gap between what learners know and don't know will only encourage learning if it creates an internal conflict that learners *want to, and feel able to, resolve*.

As teachers we have to deliberately create a gap between the learners and the intended learning outcomes, but it is also our responsibility to structure the gap in such a way that it is not too vast (and if it is, we need to provide resources to enable learners to construct bridges of learning).

Here is another learning moment. Before you read it, scan the questions that follow the description on page 154. Use these to guide your reading.

The gap must provoke action rather than a passive sense of complete confusion.



Learning moment 2

'I was excited when our new teacher finally arrived. We had been without one for a while. I got on well with the teacher we had before. I did well in most subjects. The new teacher was, however, very different. I noticed that I was struggling to write creatively. I started being frightened of writing. The kind of writing this new teacher demanded was not familiar to us. Our writing for the previous teacher focused mainly on writing friendly and formal letters. We were always given a topic to write about, and the teacher's mark indicated that she considered grammar, spelling, and the logical flow of ideas to be important. These letters were easy. I did very well.

The new teacher introduced something completely different. We had an exercise book called our "journal" in which we had to write our own poems or stories. We had to write at least two things every week. She took the journals in and checked what we had written, but it was not for marks. I could not think of things to write, but I did not want to be exposed. So I used to copy from other books and magazines and pretended it was my original writing. There was a poem that I copied from the newspaper, about men digging in the street in Johannesburg. I remember some of it, "jackhammers pound, muscles gleam, to aid our traffic's angry stream".

My teacher must've known it was not mine, but she did not say anything. I also copied some stories from magazines and a poem from a birthday card. I tried to write my own but I could not do it. I used to be able to write. Our old teacher used to tell us what to write about. She gave us the form, and we had to fill in the details: beginning, middle, and end. We were given the topic and we knew what the correct language to use was and how many paragraphs to include. In essence, we just had to fill in our own sentences. We did not know how to write something completely new by ourselves.

Then one day I observed something that changed my approach to writing. I noticed that this teacher had a particular way of organizing information when she was teaching. She did not speak to me about how to write, she did not even punish me for copying and cheating, it was just the way she taught. Every lesson she presented was organized in the same particular way. She introduced the topic as a debate. She gave views in favour of the topic, and views against it. Then she would look at the evidence. At the end, she would reach a conclusion and say where she stood in the debate. This observation helped me a lot. It was the first time I had an idea of how to write confidently. I started writing like that. Soon I could write my own essays and I could even add my own ideas. In matric, I wrote an essay on censorship in the examination and I got a good pass.'



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

STOP. THINK.

- What is the teacher doing to make learning happen?
- What moves is the learner making alone?
- What challenge does the teacher present to the learner?
- How does the learner meet the teacher's challenge?
- Compare the nature of the challenge in Learning moments 1 and 2. Do you think the two teachers were equally effective?

Creating gaps that don't overwhelm learners

Learning moment 1 was a good example of the power of conflict in learning. Learning moment 2, however, presents us with a learning experience that nearly went wrong. Initially the learner felt so overwhelmed by the task, that she began to cheat and copy rather than attempt any work of her own. In the end, however, she did learn to write in a new way. But what does her initial reaction mean? Did the gap the teacher constructed help or hinder learning?



Spend about an hour on this activity.

ACTIVITY 44

- 1 Reread Learning moment 2. Also read over your responses to Learning moment 1.
- 2 Answer the following questions when you have finished:
 - a Use the principles of cognitive change from Craig's article 'Education for all' to explain how the learner in Learning moment 2 was able to change the way she was writing.
 - b Do you think every learner in the class made similar observations about the teacher's method? If not, what implications does this have for their learning?
 - c Do you think it was good that the teacher did not say anything when the learner was cheating and copying?
 - d Do you think the teacher offered enough support for the writing process? Explain your thoughts.

This activity reveals another difficulty teachers face as they think about constructing the learning process. It is not enough to set up a conflict to generate an internal crisis for learners. Too much insecurity and conflict can result in learners avoiding the task by cheating or copying. Conflict has to be balanced by support.

Scaffolding the gaps: supporting learners

Gaps, as we know, are places into which one can fall! We need *support* to traverse them.

The same is true in learning. Although creating a conflict in the learners' minds, or a gap in their understanding, provokes them to look actively for new ideas, it can also demoralize learners if we provide no support. A good learning task has to be designed in such a way that it provides two things:

- a sufficient *gap* between the known and the unknown to make learning *necessary*;
- enough *scaffolding* to make learning *possible*.

Wood described the dual responsibility of teachers to challenge and to support in terms of two rules of teaching:

'The first [rule] dictates that any failure by a child to bring off an action after a given level of help should be met by an immediate increase in help or control. Thus, if the teacher, say, had provided the child with a specific verbal instruction and then found that the child did not succeed in complying with it, the appropriate response is to give more help. [...]

The second rule concerns what should happen when a child succeeds in complying with an instruction. This dictates that any subsequent instruction should offer less help [than before]. In other words, after success the teacher should give the child more space for success (and error). [...]

Stated simply and boldly, the rules of contingent teaching sound easy. However, [...] it is difficult to teach all children contingently all the time. [...] Effective teaching is as difficult as the learning it seeks to promote.'

This quotation is from D. Wood, 'Aspects of teaching and learning' in P. Light, S. Sheldon, and M. Woodhead (eds.), *Learning to Think* (London, Routledge, 1991), p. 104.

The idea that teachers have to play an active role in constructing the kind of gap between the known and the unknown that will support and not hinder learning, should by now be very familiar to you. But, as Woods indicates, doing this is no easy task.



Activities 29 and 30 in Section Three introduced you to the notion that teachers can scaffold learning. At this point you might want to reread the article entitled "Scaffolding" learning in the classroom' (Reading 7). Also take another look at your notes on Activity 30.

Do you recall that **scaffolding** (like many other ideas in this module which focus on the responsibility of teachers to support learning) builds on Vygotsky's idea of the **zone of proximal development (ZPD)**?

The ZPD is the gap (or zone) in which learners can shift from solving problems **initially only with the help of the teacher (or more capable peers)**, to solving them on their own. In other words, the ZPD represents the kind of gap between the known and the unknown in which learning can take place. The idea of the zone of proximal development is very important in conceptualizing the teacher's role.

- It shows how important teachers are to the learning process, despite the fact that learners have to actively construct their own understanding of the task.
- Vygotsky argues that learners will not move from the known to the unknown unless they have a chance to actively observe and participate with their teacher (or peers) doing something they cannot yet do on their own.

In other words, while learners and teachers are busy on a task, the teacher can encourage learning by modelling actions that will arrive at the solution. However, **imitation** alone does not constitute learning. The learners still have to **internalize** the model of the teacher by reconstructing it in their own minds.

Designing tasks that disrupt familiar thinking patterns

In addition to providing a model for imitation, teachers must create conditions and opportunities for movement and change in learners' actions. By designing tasks that

require new kinds of actions from learners – tasks that disrupt their use of familiar, old patterns of thinking – teachers will help learners to negotiate the zone of proximal development.

As we have seen in Section Two, the teacher can support this process by:

- asking questions and interpreting the questions of learners;
- using what is known to help students imagine new things;
- encouraging guessing and risk-taking, and helping to interpret mistakes in order to draw attention to the important features of the task.

Finally, learners need to be encouraged to use their newly-constructed knowledge creatively and apply it independently to new problems and tasks.

True learning is a developmental process and cannot be achieved in a single task.

However, the role of the teacher is to structure each task in such a way that the task itself becomes an opportunity for development to occur. The notion of the zone of proximal development helps teachers to think about the developmental quality of learning tasks in very particular ways and to make choices about three important aspects of their work:

- First, teachers have to choose how they use what learners know. (What do learners already know and what can they already do on their own?)
- Second, teachers have to decide how they focus the attention of the learners on the rules, language, and expectations of the task. (What aspects of the task need to be modelled or mediated? In what way must learner activity be constrained or restricted and focused?)
- Finally, they have to choose specific strategies to bridge the gap between the learners and the task. (Do the learners have enough opportunities to imitate, internalize, and apply what they are learning?)

In the remainder of this section we will investigate each of these choices in more detail.

“
*True learning is a
 developmental
 process and cannot be
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 task.*
 ”

Working with what learners already know

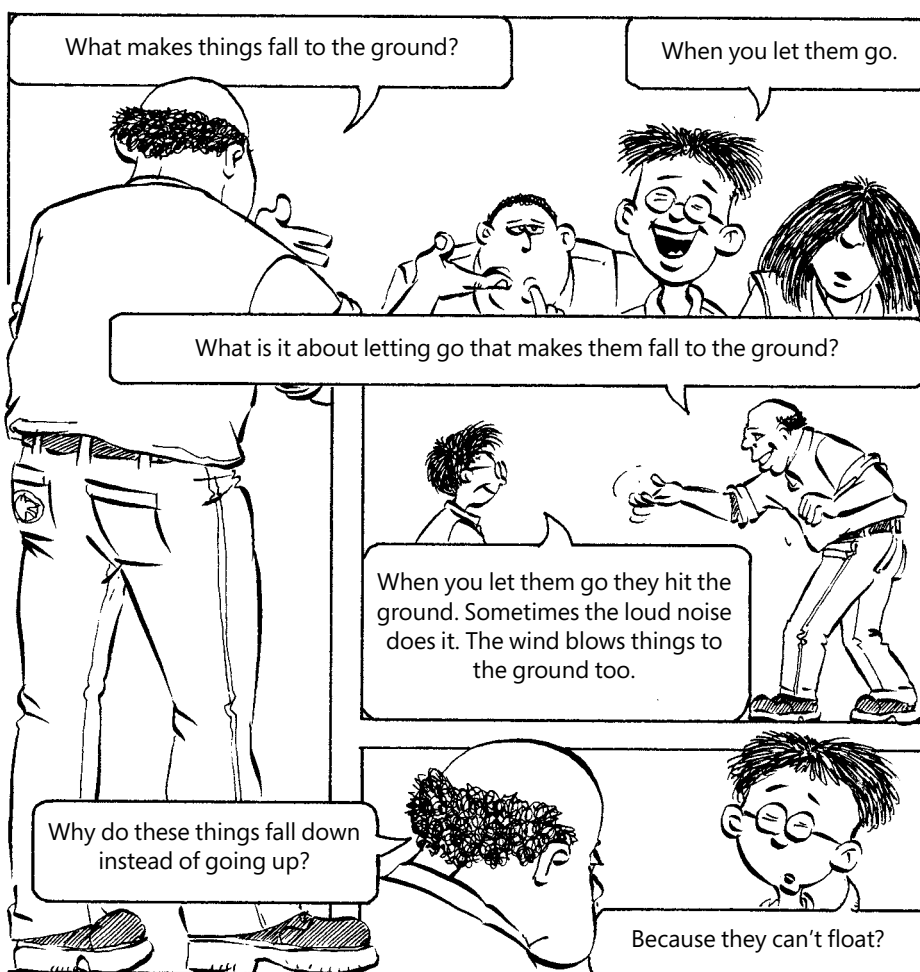
5.3

One **requirement**, if we are to use the idea of the zone of proximal development to inform teaching practice, is that we have insight into what learners already know. Teachers have many ways of probing their learners' understanding, but most teachers use direct questions such as 'Do you know?', 'Why do you say so?', 'Why did you do that?', or 'How would you explain that?'

Probing alone, however, often leads to a dead end and fails to move learners beyond a certain level of explanation to a new way of thinking. Here is an example of this:



Week 15 begins.



In this dialogue both teacher and learner are stuck, because the teacher is only using one kind of question ('What makes things fall to the ground?') to find out what the learner knows about gravity. By rephrasing and repeating this one question over and over again, the teacher gives the impression that he is looking for the correct answer rather than for the learner's ideas and understanding. In other words, he is using the question to test the learner's knowledge rather than to understand what the learner knows and why he thinks about things in this way.

This might be one reason that explains why the teacher fails to build on what the learner knows and move him beyond his everyday understanding of gravity. What do you think?

Using questioning thoughtfully

Here is another transcript from a lesson. In this case the lesson is on safety in the home, and the tutor is trying to build on what learners already know. Think about whether this teacher does it more successfully than the previous teacher.



Spend about 30 minutes on this activity. The transcript is from N. Mercer, *The Guided Construction of Knowledge* (London, Multilingual Matters, 1995), pp. 34–35.

ACTIVITY 45

1 Carefully read the following transcript:

- Tutor: (Looking around the group.) *Before we start, can anyone give me any ideas of the kinds of accidents that might happen in the home?*
- Kay: *Leaving toys on the stairs.*
- Tutor: *That's good. Anyone else?*
- Steve: *Trailing wires such as on an iron ...*
- Tutor: *Fine.*
- Steve: *... where a little child can pull it down.*
- Tutor: *Pull it down. Yes, fine. Can you think of anything, Amanda?*
- Amanda: *Just leaving things hanging around and everywhere, putting pots away ...*
- Tutor: *Mmm (nods).*
- Amanda: *... and things like that.*
- Tutor: *So being tidy is one of the main areas. I agree with you.*

2 Reread the transcript, this time paying particular attention to the moves the teacher is making. Consider the following:

- a How is the tutor using what learners already know?
- b Will this help the tutor to understand what learners can or cannot do on their own?
- c Can you think of any other methods the tutor could have used to find out what the learners know about safety in the home?

Teachers' questions

The teacher in Activity 45 uses a fairly traditional approach to her lesson. She tries to begin where learners 'are at' and then tries to find out what they know about safety in the home. She draws out their ideas by asking direct questions ('Can you think of anything, Amanda?'), indirect questions ('Anyone else?'), and by confirming what they say ('That's good!').

All her questions are *factual questions* and in the end, she reformulates what learners have said into a *generalized* point about home safety: 'So being tidy is one of the main areas'. In other words, she uses what learners know to illustrate or exemplify the general point she has chosen to teach.

Although this teaching approach is popular (the lesson about electricity in Section Three, for example, has a similar structure), it has several shortcomings:

- First, it concentrates on facts and does not explicitly challenge learners to draw on their network of knowledge in a relational way.
- Second, it does not generate a conflict or problem that challenges learners to rethink their perceptions of safety in the home.
- Third, the teacher (and not the learners) asks all the questions, so in the end it is difficult to know what the learners can or can't do on their own and where they need help from the teacher.

Are there any other ways in which we can use questions to evoke learning?

Teaching learners to question

As we showed in Section Two, *learner* questions are powerful tools for learning: we found out that they can reveal what learners know as well as what they don't know.

Let's see if we can redesign the task in Activity 45 to allow learners to ask questions and use what they already know about safety in the home to challenge and extend the way they think. Here is one example:

Step 1:

The teacher hands out a short accident report card and asks the learners to work in small groups and imagine an accident that happened in a home. They then use their imagined accident to fill in the report card.



Learners actively use their knowledge and their imagination to produce a coherent, meaningful scenario about the lack of safety in the home. They work in a group so that they can collaborate and support each other in a potentially daunting task. The accident report card constrains their activity and helps them to pay attention to the structure of the task.

Step 2:

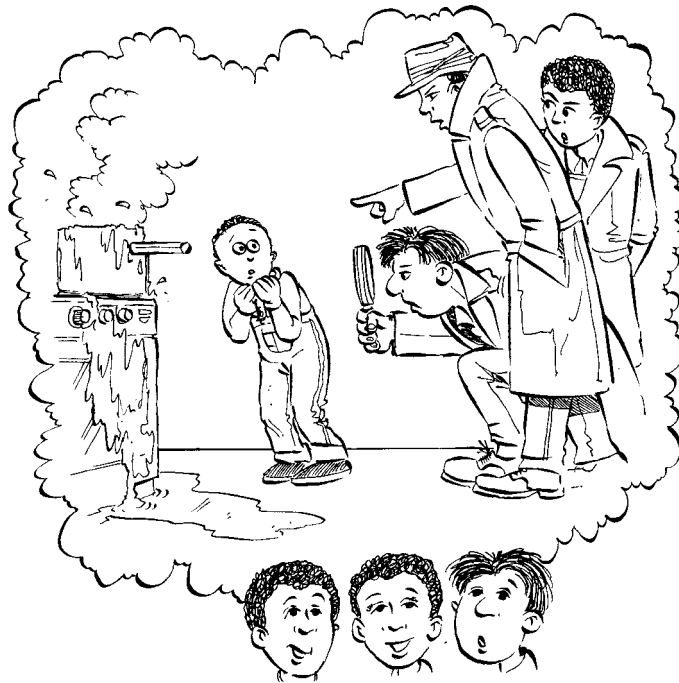
The groups exchange their accident reports. They then read through the new report they have received.



By exchanging the report cards, learners are suddenly confronted with unfamiliar ideas they have to 'explain' (unfamiliar content, familiar form).

Step 3:

Each group now works with the new report. They imagine themselves as people who have to investigate the household accident. Learners are asked to generate a few probing questions for their investigation.



In the role of 'investigators' they have to generate their own questions. They already know the facts on the report card and so the 'investigative' questions have to be relational, explanatory, or evaluative in nature. By influencing the kinds of questions learners ask, teachers can encourage them to enquire further about the problems of safety in the home.

The teacher in this example uses three deliberate steps to structure the learning situation. This structure allows learners to focus all their attention on the important features of the learning task. In addition to the very structured teaching sequence, this teacher also encourages learners to move to a qualitatively new position in their thinking about accidents in the home by:

- providing them with a *model* (using report cards to be filled in);
- allowing learners to internalize the problem (imagining themselves as investigators of the accident);
- asking them to apply their knowledge creatively (generating new and complex questions).

The task turns learners into questioners. Learners not only construct the *content* of the lesson (case scenarios), but also create a *problem* for investigation. As investigators of the 'accident', they find themselves in a 'real' yet carefully-designed confrontation with the unknown (their knowledge of home safety), and they are guided into using the power of their imaginations and their questions to learn.

The importance of thinking about the process of teaching

When we compare the above example with the first transcript in Activity 45, we are able to see how the *choices* of the *teacher* (in this case about the way in which to use what learners already know about accidents in the home) influence the structure and focus of the learning process. The method a teacher chooses makes a difference because it affects *what* is learnt and also *how* it is learnt. This is true not only for

individual lessons, but also for longer-term programmes.

Turn to your Reader and read a little more about how the choice of teaching method influences what and how learners learn.

ACTIVITY 46

- 1 Turn to 'Developing communities of reading and learning' by Brown and Campione (Reading 17).
- 2 Look at the headings and subheadings before you begin to read. You have already studied a part of the article in Section Four. However, reread the first few pages to get a sense of what the *Reciprocal Teaching Programme* is about.
- 3 Now carefully study the section under the heading 'Reciprocal teaching of coherent content' and answer the questions below:
 - a What problem or gap did the learners face?
 - b What methods do the facilitators of the programme use to bridge the gap?
 - c How did they structure student learning?
 - d What do you think was the secret of their success?

All of the above examples illustrate how teachers are able to make choices about how they use what learners know. They are choices about the process, rather than the content, of the learning situations and have a powerful impact on the structure of the learning task.

Teaching learners to analyse tasks

Craig makes it clear that it is important for learners to be able to focus on the *rules, language, and expectations* of any learning task. In the previous section you had an opportunity to work with *signal words* in a text. Your work illustrated how a specific language feature of a text can influence the way in which we think.

Awareness of language and how it works, according to Donaldson, is also an important part of intellectual self-control, as it allows us to make choices about our mental processes. This means that the language we use in a learning task (be it oral or written) should not be incidental, and as teachers we need to become aware of the choices we make in this regard.

Language awareness for the *teacher only*, however, is not enough:

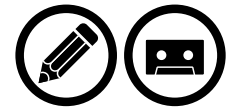
'As we help students acquire information, ideas, skills, values, ways of thinking, and means of expressing themselves, we are also teaching them how to learn. In fact the most important long-term outcome of teaching may be the students' increased capabilities to learn more easily and effectively in the future, both because of the knowledge and skill they have acquired and because they have mastered the learning processes.'

Understanding the demands of the task

Ultimately we want learners to become aware of their own thinking and so we need to find ways of focusing their attention on the discourse of the learning task.

Many learners are unaware of the way in which school discourse works and therefore struggle to understand exactly how they should use language to meet the demands of a particular learning task. A common problem, for example, is the use of new technical terms.

In order to support learners, we therefore need to understand how we as teachers can focus the attention of our learners on the more formal features of the task. Let us once again begin by looking at how this is commonly done.



Spend about an hour on this activity. Once you have completed the reading and answered these questions, listen to Part 5 of your audiotape. First, Moll and Lazarus draw from theorists like Vygotsky to explain what good teaching is. Then Tshule and Adler use these ideas to provide us with a number of practical teaching ideas. Does the tape add anything to your understanding of the Brown and Campione reading?

This quote comes from B. Joyce, E. Calhoun, and D. Hopkins, *Models of Learning - Tools for Teaching* (Buckingham, Open University Press, 1997).

Teacher: A string. Yes. In this case it's a ...?
She holds up the pendant's chain.

Children: Chain.

This comes from N. Mercer, *The Guided Construction of Knowledge* (London, Multilingual Matters, 1995), p. 36.



Teacher: Chain. So it has to be **suspended** doesn't it?
She raises and suspends the pendant by its chain.

Anthony: A weight.

Teacher: It has to have a weight, doesn't it? A mass at the end which this one has.
The discussion continues ...

Karen: It has to hang straight down.

Teacher: It has to hang straight down, Karen. There it is. So that's right isn't it? So it has to hang from a **fixed point**. It has to be **suspended** from a string or chain or whatever and it has to have a **mass** at the end. Right.

Towards the end of the lesson the teacher checks that the children are able to use these terms themselves.

Teacher: Now what did we say they had to have?

Jonathan: A pendulum? A weight at the bottom.

Teacher: Yes and yours has, OK? Yours is a washer.

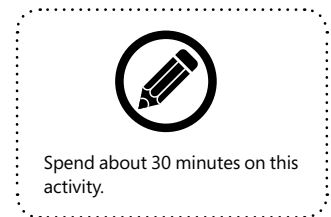
Jonathan: Hmm.

Teacher: Right. David, what else does a pendulum have to have?

- David: **A mass.**
- Teacher: Jonathan's mentioned that.
- David: A string.
- Teacher: A string or a chain or some means of hanging it down. Right. And Anthony what was the third thing it had to have?
- Anthony: **Suspended.**
- Teacher: Right.
- Anthony: **A fixed point.**

ACTIVITY 47

- 1 Take a critical look at the above classroom transcript. We have drawn your attention to the use of technical terms by printing them in bold.
- 2 Answer the following questions when you have finished:
 - a How does the teacher focus the attention of the learners on the language requirements of the task?
 - b Is she successful? How did you decide?
 - c Do you think the learners are aware of the importance of using technical terms? Explain your answer.
 - d Can you think of an additional task that would show you whether all learners are able to use the technical terms correctly?



The transcript of the science lesson shows how once again the teacher is asking all the questions. This time she has chosen to draw the learners' attention to the scientific definition of a pendulum (a mass suspended from a fixed point) by providing the technical terms and then expecting the learners to imitate her use of the words. This strategy seems successful, as the learners are able to name and recall the terms at the end of the lesson. Learning new terms by rote certainly is an important part of learning something new.

However, we can't be certain that all the learners have understood the concepts that these terms refer to. For example, David did not notice that mass and weight refer to the same idea, namely that a pendulum needs 'something heavy at the end'. If we wanted to be sure that learners like David understand the idea (and not only know the words), we would need to construct an additional task that allows them to apply the new concepts without guidance from the teacher. Such a task would present a real challenge (conflict) and in the process of application (action) the teacher and learners would come to know the difference between the ideas the learners can only apply with help, and the ideas they can already use on their own. Here are some ideas for the additional task:

- The application could take the form of a model-building activity, where the learners construct and label a pendulum.
- The task could also be structured as a problem-solving activity where the learners have to repair a pendulum that does not work and explain what needed to be fixed and why.
- A third possibility would be to ask the learners to find objects in the school that make use of the principle of the pendulum (a clock, a bell, a metronome etc.) and explain how they work.

It is important to note that all three of these examples involve a level of explanation by the learners. In other words, it is not enough for them to build the model, fix the pendulum, or find the object. The real learning task lies in the explanation – learners have to use language to help them make *explicit links* between the words they use and the ideas they present.

The importance of language support

Language is important in all kinds of learning, both the language used by teachers and the language competence of learners.



But in South Africa this poses a real difficulty. Many learners study in a language that is not their home language and this limits their access to learning tasks.

In other words, the language itself can create a barrier between the learners and the task and make it impossible for learners to succeed.



Before we can find solutions to this problem, we need to have a good understanding of the particular issues involved in language and education.



Spend about 90 minutes on this activity.

ACTIVITY 48

- 1 Turn to Reading 8, 'Eager to talk and learn and think' by Macdonald. The article is based on research done in South Africa from 1985 to 1990, which investigated bilingual primary education and its effect on learning and thinking.
- 2 Answer the following questions when you have finished reading:
 - a Why does Macdonald suggest that children should first become literate in their mother tongue? What reasons does she give?
 - b Do you agree with her? Explain your answer.
- 3 Now carefully look at the table that shows a model of thinking skills for science learning.
 - a At what level of thinking are the learners engaging with the lesson about the pendulum?
 - b What would the learners need to do in order to show that they can apply the concept of a pendulum?

As Macdonald points out, it is vital that teachers be aware of how many South African learners feel unsure about the language of learning and who will therefore struggle to do the task. They will struggle to explain their thoughts or ideas. In such a situation the teacher has a dual responsibility towards learners:

- First, the learning tasks have to be constructed in such a way that they offer *explicit language support*.
- Second, they must provide *support for the thinking process* that has to happen in and through the language of learning.

In Reading 9, 'Education for all', Craig refers to this dual responsibility as 'consolidation'. She argues that:

'at best this involves ... exposing the rules which constitute the task and which demand certain operations. This could be achieved through modelling mental processes, i.e. showing how one must operate to engage in the task appropriately and successfully. I think that this work is at best done through materials which bridge/support/scaffold learners' task engagement.'

Would the learning material below and on page 166 meet her criteria?

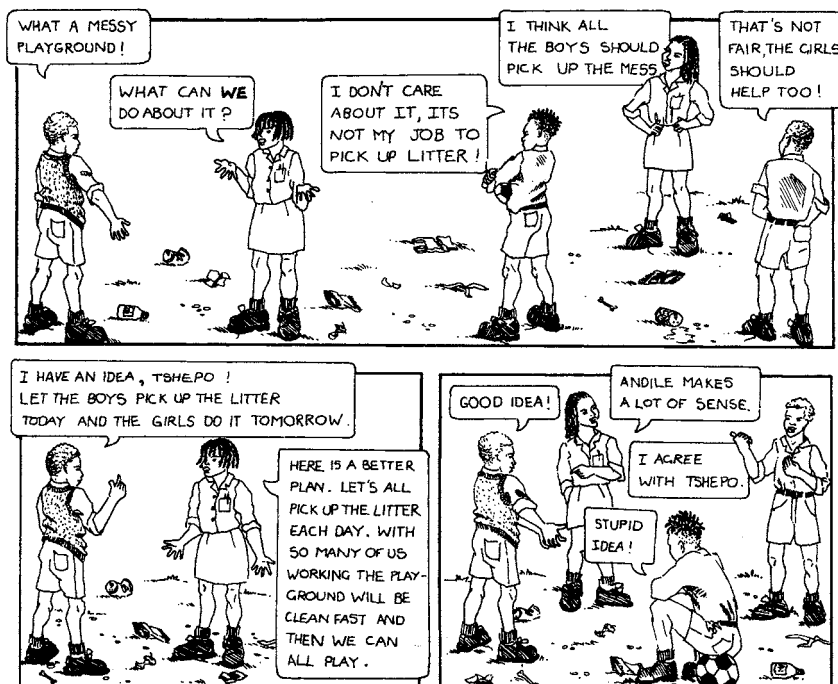
20 DEMOCRACY – ONE TYPE OF GOVERNMENT

There are many different ways in which people can govern themselves. One of the ways is called democratic government. In a democracy every person has a say in making the rules. Everyone agrees to obey the rules most people want.

Any group of people working or living together can organise themselves democratically. A whole country can be run this way and so can smaller groups, like schools and clubs.

Something for you to do

1. Read this story carefully and then discuss the questions that follow.



This learning material comes from L. Marneweck *et al.*, *Making History 4* (Centaur Publications, 1992), pp. 40–41.

(a) Who makes decisions about things like this in your school?

(b) Give one word for how the children in the story solved their litter problem.

(c) What does voting mean?

(d) Nthato did not agree with either Andile or Tshepo. But what did he do in the end?

2. Pretend your teacher asks you to vote on the following classroom problems. Write down your suggestions and your reasons for them. Hold a class vote on them. What are your democratic decisions about these problems?

- Homework at the weekend
- Eating in class
- Wearing school uniforms

Spend about 30 minutes on this activity.

ACTIVITY 49

- 1 What do you think of the way in which the above history task is constructed?
- 2 How does it challenge learners?
- 3 How does it support them?
- 4 How does the task use what learners already know?
- 5 How does it draw attention to the technical language needed for the task?
- 6 What aspects of the task coach the learners to use language in a particular way?
- 7 Do you think this material shows learners how they must operate to engage in the task appropriately and successfully?

Teaching strategies that bridge the gap

5.4

At the beginning of this section we reminded ourselves that while we can't learn for our students, as teachers we play a major role in making sure learning does indeed happen.

Joyce *et al.* describe this responsibility in the following way:

'As we teach, we try to find out what learning has taken place in our classrooms and what readiness there is for new learning. But teachers cannot crawl inside students' heads and look around – we have to infer what is inside from what we can see and hear. Our educated guesses are part of the substance of our profession as we try to construct in our minds the pictures of what our students are experiencing. The never-ending cycles of arranging environments, providing tasks, and building pictures of the minds of the students make up the character of teaching. [...] The challenge of designing learning experiences is the central study of the substance of teaching.'

Over the years, teachers have developed a vast selection of teaching methods and have chosen a variety of strategies to support learners as they move into the unknown.

We will look at some of the most popular and enduring approaches used by teachers around the world and ask ourselves how these approaches enable learners to do things they cannot do on their own. In other words, we will focus our attention on those aspects of each strategy that allow learners to learn *with the help of others*, rather than alone.

Questioning

In Section Two we investigated how learners can use questions as a powerful tool to help them make their way from the known to the unknown. It is therefore not surprising that questioning is also an important and popular strategy amongst teachers. Some researchers estimate that twenty percent of teacher talk involves the use of questions.

As we have already seen in the transcripts in this section, not every question teachers ask will achieve the balance between challenge and support that leads to learning. Let us therefore investigate the kinds of questions that seem to facilitate learning.

In her book, *The Teaching of Science*, Harlen points out that teachers ask questions for many purposes:

'for pupil control, for information, to check on or test recall, to provoke thinking, to prompt and lead in a certain direction, to reveal children's ideas'

Teachers need to think carefully about the consequences for learning different kinds of questions have. In particular, says Harlen, ongoing reflection on the difference between *productive* and *unproductive* questions will assist teachers greatly. As we have seen in Section Two, questions should deliberately seek to provide pathways from the known to the unknown for the learner. The content and nature of questions asked, as well as their timing, is crucial.

Harlen cites the following anecdote to illustrate the difference between productive and unproductive questions:

'I once asked a class of children, "Can you make your plant grow side-



Week 16 begins.

This is taken from B. Joyce, E. Calhoun, and D. Hopkins, *Models of Learning – Tools for Teaching*, (Buckingham, Open University Press, 1997).

“

Not every question that teachers ask will achieve the correct balance between challenge and support that leads to learning.

”

ways?" For a short time they had been studying plants growing in tins, pots, boxes, and other contraptions made of plastic bags. I was just a little too anxious and too hasty and, quite rightly, I got the answer, "No we can't."

So we patiently continued with scores of "what happens if ..." experiments. Plants were placed in wet and dry conditions, in dark and in light corners, in big boxes and in cupboards, inside collars of white and black paper, upside down, on their sides, and in various combinations of these. In other words, the children really made it "difficult and confusing" for the plants. Their plants, however, never failed to respond in one way or another, and slowly the children began to realize that there was a relationship between the plant and its environment, which they controlled.

Noticing the ways in which the plants responded, the children became aware that they could somehow control the growth of plants in certain ways [...] When the question, "Can you find a way to make your plant grow sideways?" reappeared later, there was not only a confident reaction, there was also a good variety of attempts; all sensible, all based on newly-acquired experience, and all original.' (Elstgeest, 1985, pp. 39–40)

Productive and unproductive questions

Did you notice the crucial difference between the first time the question about growing plants sideways was asked and the second time?

- At first, it was a question that already *assumed understanding* of a new concept, and was therefore unproductive. The learners were simply confused by the question, and it did not encourage learning. Or, in the terms that we used earlier when we discussed the *learning paradox*, the question simply reinforced the children's existing understanding that plants did not grow sideways. This is a misunderstanding that was strongly and confidently held by the learners and so acted as an obstacle to further learning.
- Only once the children got active (through systematic observation) did they acquire the means to develop a new understanding. When the question was asked the second time, it was a productive one.

Later in her book, Harlen outlines a number of questions that she considers to be productive in the context of an extended classroom activity in which various plants are grown from seeds.

Children planted a number of different types of seeds in soil in plant pots, watered them each day, and observed them closely. The teacher's questions were designed by Harlen to encourage the children to use six key process skills related to the development of scientific concepts (more specifically, the development of an understanding of the scientific method). The six key process skills are:

- observing;
- hypothesizing;
- predicting;
- investigating;
- interpreting findings and drawing conclusions;
- communicating.

Carefully read Harlen's 'questions for developing process skills' on the next page (these are from W. Harlen, *The Teaching of Science* (London, David Fulton Publishers, 1992), pp. 109–116.)

Questions for developing process skills

Productive observing questions

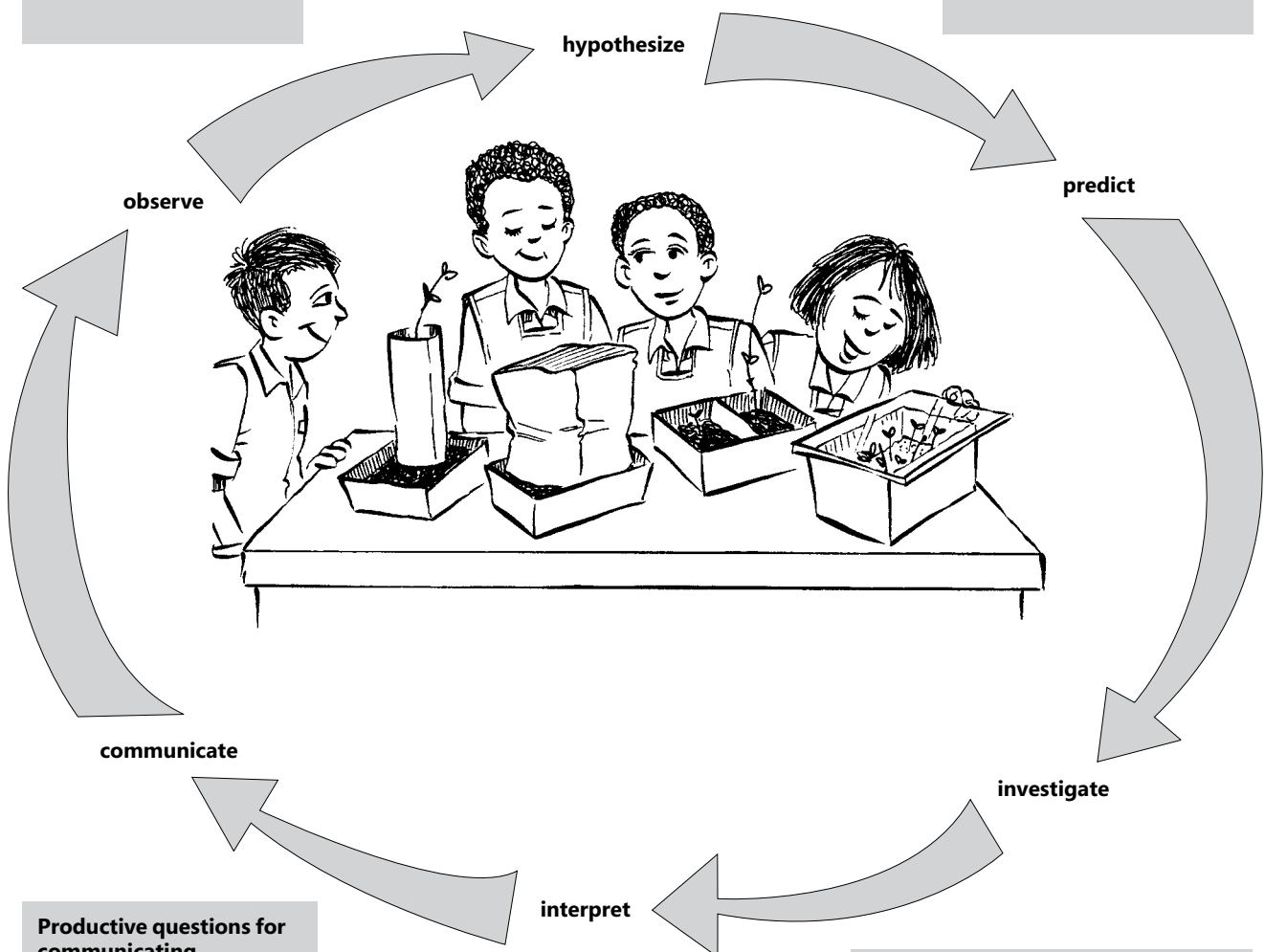
What do you notice is the same about these seeds?
 What differences do you notice between seeds of the same kind?
 Could you tell the difference between them with your eyes closed?
 What happens when you look at them using the lens?

Productive hypothesizing questions

Why do you think the seeds are not growing now?
 What do you think will make them grow faster?
 Why would that make them grow faster?
 Why do you think the soil helps them to grow?
and later when seeds have been planted and are growing
 Why do you think these are growing taller than those?
 What do you think has happened to the seed?
 Where do you think these leaves have come from?

Productive predicting questions

What do you think the seeds will grow into?
 What can we do to them to make them grow faster?
 What do you think will happen if they aren't in soil but get some water in another way?
and, in relation to growing plants
 What do you think will happen if we give them more (or less) water/light/warmth?



Productive questions for communicating

How are you going to keep a record of what you did in the investigation and what happened?
 How can you explain to the others what you did and found?
 What kind of a chart/graph/drawing would be the best way to show the results?

Productive questions for interpreting findings and drawing conclusions

Did you find any connection between ... (how fast the plant grew and the amount of water/light/warmth it had)?
 Is there any connection between the size of the seed planted and the size of the plant?
 What did make a difference to how fast the seeds began to grow?
 Was soil necessary for the seeds to grow?

Productive investigating questions

What will you need to do to find out ... (if the seeds need soil to grow)?
 How will you make it fair (i.e. make sure that it is the soil and not something else which is making the seed grow)?
 What equipment will you need?
 What will you look for to find out the result?



Spend about an hour on this activity.

ACTIVITY 50

- 1 Read through Harlen's questions for developing process skills in the science classroom on page 169 again.
- 2 Use your knowledge about questions from Section Two to identify the relative power of each question used by the teacher to encourage the six key process skills. In other words, consider:
 - a Which questions are relational? Which are explanatory? Which are evaluative?
 - b Which questions set up gaps and challenges?
 - c Which questions allow for mistakes and encourage learners to take risks?
 - d Which questions encourage the use of imagination or analogy?
 - e Which questions encourage the learners to make links between everyday knowledge and school knowledge?
 - f Which questions focus the attention of the learners on specific features of the task?

What did we think?

You should have noticed in the above activity how different questions encourage different qualities of thinking.

Questions by their very nature set up *gaps* between the known elements of the question and the yet unknown answer. They also establish a *learning relationship* between the one who asks and the one who answers. The developmental potential of this learning relationship depends on two things:

- the nature of the questions asked;
- the quality of the feedback the teacher gives to the replies.

Teachers who only ask questions to get correct answers will tend to use unproductive, closed, and subject-centred questions. These kinds of questions will give them very little insight into the thinking behind the learners' responses, thus limiting the constructive feedback they can give when learners make mistakes.

By contrast, productive, open, and person-centred questions all have a relational or explanatory focus and so encourage the teacher and learners to pay attention to the learning process rather than the content of the question. That is why they are better tools for teaching.

Although Harlen's examples concentrate on teacher questions that help learning, we have illustrated with earlier activities that learner questions are equally powerful tools for learning. Both teacher and learner questions have their place and can be an effective strategy for promoting learning, provided they contain elements of challenge and support for the learning process. As teachers we cannot control learning, but we can increase the probability that learning will occur through our use of well-designed questions.

Group work

Group work is another common and, if used well, effective strategy used by teachers to promote learning. It is particularly popular with teachers who share a constructivist view of learning. Group work limits the time the teacher talks in class, and so allows learners more opportunity to be active, to clarify their thoughts, and to learn from each other.

Group learning, however, does not occur naturally. It is a complex strategy that involves more than simply dividing learners into groups and presenting each group with a task. Instead, teachers need to understand issues like:

- how talk and the sharing of ideas – key characteristics of group learning – help learners learn;

- how to manage group dynamics so that learning is maximized and conflict minimized;
- how to ensure that *all* learners are *intellectually engaged* and not just physically active.

Let's explore some of these issues.

ACTIVITY 51

- 1 Study this picture carefully. It shows a group of learners working together on a reading and writing task.



- 2 Now think of your own experiences of group work and use them to answer these questions. Write down your thoughts as you go along.
 - a Can learners working in a group do exactly as they like, or do they have certain responsibilities in the group? What would these be?
 - b What attitude/s would help them to benefit from working in a group?
 - c What do you think would happen in a group if one learner had a completely different understanding of the text to the rest of the group?
 - d What skills do learners need before they can truly help each other learn?

Facilitating good group learning

The fact that these learners are reading *as a group* gives the impression that they are busy with *collaborative learning*. By talking to and questioning one another, the learners experience a process of enquiry that allows them to *link* their own questions and ideas to the text in a truly open-ended way.

Group work also creates opportunities for *collective problem solving*. The teacher doesn't provide the answer to the questions learners have asked of themselves. Instead, learners are given the time to engage with the problem, make mistakes, talk about their thoughts, and construct their own solutions.

If learners bring misunderstandings or misconceptions to the task, other members of the group can effectively challenge these, either by asking for an explanation or



Spend at least 30 minutes on this activity.

“
Group learning does not occur naturally. It is a complex teaching strategy involving more than simply dividing learners into groups and presenting them with tasks.
”

by providing an alternative view. The conversations that take place between the learners are usually more open and exploratory than the discourse of a class that is controlled by the teacher's voice.

But when learners work in a group they shouldn't be able to do exactly as they please. They are part of a **disciplined enquiry**. It is only by working together and learning to share their knowledge and skills that the good of the whole group is served. But in order to work together successfully learners need certain skills and it is a teacher's responsibility to ensure they have these. Some of the necessary skills are:

- listening to each other;
- waiting their turn to speak;
- focusing their ideas and comments on the task;
- being serious about the ideas shared by other members of the group.

Some dangers of poor group work

Many learners, however, don't benefit from collaborative group work. Group work can also be an experience of wasting time and sharing ignorance.

This sometimes occurs when one learner emerges as dominant and tells everybody else what to do and how to think. The problem with dominant members like this is that they block other people's ideas by suggesting that they have the only correct solution for every problem. Less confident group members increasingly withdraw from the debates and so don't really have a chance to develop their own understanding of the task.



Group work can also fail when there is nobody in the group who can contribute expertise or leadership. These kinds of groups often engender feelings of insecurity among learners, who will then struggle to move beyond what they already know.

Effective group work must be designed so that learning is supported. Teachers need to think carefully about how the individuals in a group are likely to relate, and what different strengths they bring to the group. Groups require what Vygotsky calls **more capable peers** who can **guide** the group as a whole. These learners are **knowledgeable**, but are also able to **facilitate** group discussion in a way that:

- maximizes involvement by all learners; but
- moves in a clear direction.

In addition, it is important that the teacher structures clear and thought-provoking tasks for group discussion. Well-structured tasks can act as another group 'facilitator' by guiding learners' thinking and debate. Poor tasks – either those that only require simple recall answers (and so don't provoke debate), or those that are complex and confused (and so overwhelm learners) – don't provide the required support.

The strengths of good group learning

The power of collaborative learning lies in the fact that learners interact with each other on a task and pool their expertise, thereby constructing an understanding of their task that is far more complex than any work they would do on their own. As learners ask questions, listen, and talk to each other they can refine and extend their

ideas beyond their personal limits, and group work can have a supportive or scaffolding effect on their learning.

Although group work allows for increased activity of the learner, teachers nonetheless play an important part in making collaborative learning a reality in their classes. On the one hand, they need to stand back and allow learners the freedom to take control of their own learning. On the other hand, they need to focus the task in such a way that it supports the development of group skills and enquiry skills which are necessary if group work opportunities are to be made truly collaborative learning experiences.

Once again we need to point out that this will not happen naturally. Carefully-designed learning tasks that train and practise efficient collaboration are needed. Have a look at this example of a group task.

Group 1

Animal Talk

Before you start, check that there are four members in your group. Decide on the following:

- Who will be the secretary and keep notes?
- Who will make sure everybody has a chance to talk and keep order in the group?
- Who will be the timekeeper?
- Who will report to the class?

Once you have made these decisions you can begin your task.

Your task:

Step 1 (*spend 5 minutes on this*):

Pretend that you are all animals attending a meeting. Every member of the group must say:

- what animal they would like to be;
- where they live;
- what they eat.

Step 2 (*spend about 10 minutes on this*):

You are all – as animals – meeting because you have a problem. The problem is that human beings have moved into your area and are making your life difficult. You must discuss this problem. Begin the discussion by allowing every animal to answer this question:

How do human beings harm us?

STOP. THINK.

Reread this task. Don't rush to read our comments before you can explain to friends how this task scaffolds learning.

This is a very simple example of a teacher scaffolding discussion through her instructions on a worksheet. You will notice that the teacher has not only focused on the content of the lesson (how humans harm animals), but has also provided clear guidance for the *behaviour* of the group. She has used the task to model effective group learning behaviour.

This has several powerful effects. Through this carefully-designed task, the teacher:

“
Teachers play a vital
role in making collaborative learning a
successful reality in
their classes.
”



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

- introduces learners to the discourse and discipline of collaborative enquiry;
- addresses a number of attitude and value questions by encouraging learner independence, modelling a respect for dignity for all, suggesting that social enquiry is a way of life, and developing interpersonal warmth and affiliation.

If used well, group learning is a highly versatile and comprehensive model of learning and teaching, as it blends the goals of academic enquiry, social integration, and social process learning. If used in an unconstrained and unfocused way, however, chaos erupts and no learning can take place.

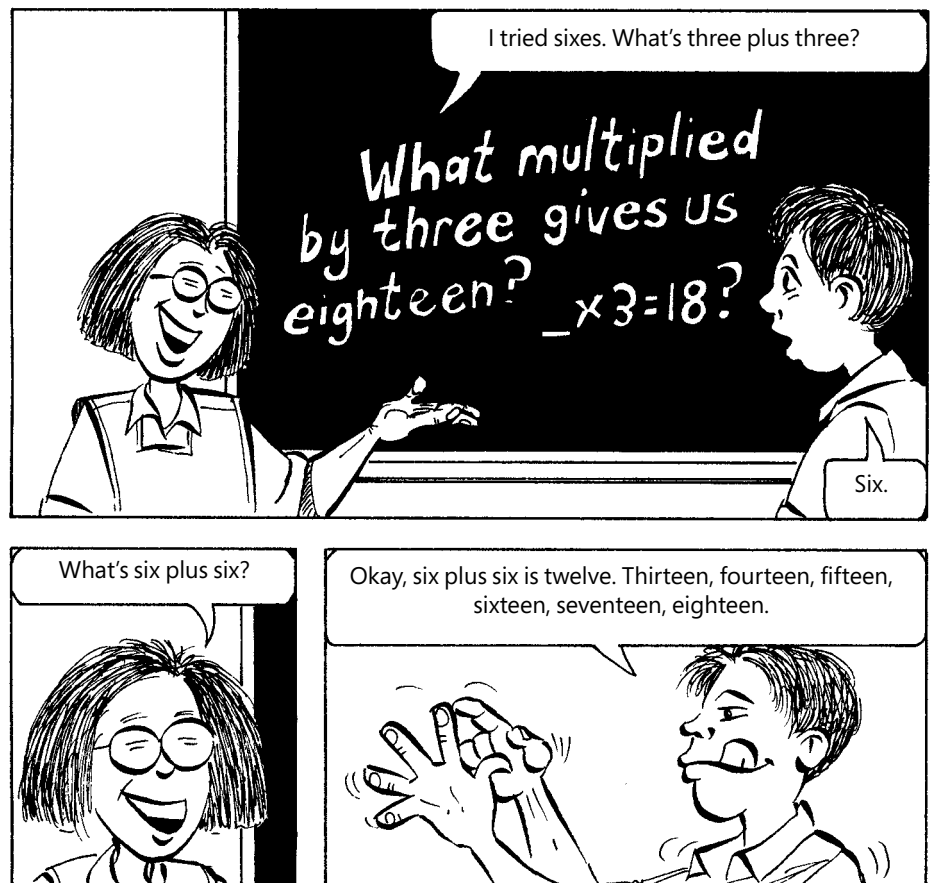
Peer coaching

Teacher questioning and group work present two very different approaches to providing learner support. But as we have shown, both can be very effective ways of keeping the learners actively involved in the learning process, provided the teacher knows how to ensure that learners focus on the learning task.

To conclude this section we would like to look briefly at peer coaching as a third strategy for helping learners in class. Peer coaching is commonly used by good teachers. These teachers realize that competent learners are often the best tutors of struggling learners.

But the strategy is also popular among learners. In the following example two children, Kathy and Ryan, are working on the problem 'What multiplied by three gives us eighteen?'

The dialogue begins when Kathy has solved the problem and spontaneously proceeds to explain it to Ryan.





ACTIVITY 52

- 1 Carefully reread the exchange between Kathy and Ryan.
- 2 Answer the following questions:
 - a Is Kathy scaffolding Ryan's learning? Why? Why not?
 - b What do you think about this kind of peer coaching? How effective is it? What are its limitations?
 - c Use Vygotsky's notions of mediation and internalization to explain this situation. Why is this good or bad teaching?

What did we think?

Kathy is clearly Ryan's more capable peer and shows a clear intention to help Ryan succeed. She shows Ryan how she solved the problem by guiding him through her own thinking steps. This gives Ryan an opportunity to follow her thinking and imitate her method.

Ryan, however, is not entirely satisfied with this. He responds with 'Yeah, but I'm supposed to do the problem myself'. This shows that he feels Kathy did it *for* him and that he has not internalized the problem-solving skill.

Kathy and Ryan's interaction reveals two significant limitations of the peer coaching strategy:

- First, peer coaching often only offers opportunities for *imitation*, but not for *internalization*. As a result it is difficult for teachers to tell if learners are *meaningfully* imitating a *process* (which can lead to internalization of a new skill) or merely copying the *content mindlessly*. This is important: imitation is an important step in internalizing new skills. We imitate when we learn a language, learn how to play soccer from a star, or when an expert shows us how to use a computer. But this is different from copying. Imitation ultimately must lead to the imitator being able to do these things *independently*.
- Second, a child like Kathy is not in a position to offer carefully-structured support and guidance. She can show Ryan what she has done, but does not draw his attention to the *salient* features of the task or make *explicit links* between the specific example she uses (why three plus three?) and the *general principle* of multiplication they present. These explicit links are critical for the internalization process. In order to understand and internalize we need to understand the *underlying principles* of, for instance, mathematical concepts like multiplication. We must know more than simply the procedures involved in multiplying, and this is really all that Kathy can offer Ryan at this stage.

Thus peer coaching is a useful strategy for supporting learning, as long as the teacher can ensure that learners also have enough opportunity to engage with the *general principles* of the task. This usually requires some intervention by a knowledgeable teacher.



Spend about 30 minutes on this activity. Do it with fellow teachers. You may want to reread Vygotsky's ideas (in the Learning Guide on pages 93–94 and in Reading 4) before you tackle question 2c.

5.5

OBE and the role of the teacher

See the National Department of Education, *Curriculum 2005 Orientation Programme* (Media in Education Trust, poster 5d and resource 3.1., 1997) for more detail about this new identity for teachers.

Teachers: facilitators not deliverers

When the Department of Education called for a new way of looking at learners, it spoke simultaneously of 'a new way of looking at teachers' in the context of OBE. Traditionally, teachers had been considered to be *deliverers* of learning, whereas in OBE teachers were *facilitators* of learning. According to the national Department of Education teachers should now be:

'guides for the learning process, and not transmitters of knowledge.'

This general idea of teaching has gained respectability all over the world. Learning is understood to be much more meaningful when learners are allowed to experiment and reconstruct on their own rather than merely listen to the teacher lecturing. It follows that the teacher should, in any learning situation:

- assess the children's present levels of understanding and their strengths and weaknesses;
- design activities and learning tasks that give learners the opportunity to communicate with each other, to argue and debate issues.

In this framework, teaching is regarded as the work of presenting learners with interesting learning materials, evocative learning situations, and learning tasks that allow them to discover new knowledge for themselves. The teacher's role during the learning process is that of guiding and managing the learning process.

The debate about teachers-as-facilitators

This notion of teaching as *facilitation* has led to an important debate amongst teachers in South African schools.

On the one hand, many believe that outcomes-based education requires that learners be entirely free to learn in whatever way they choose. In this view, teaching becomes, to recall the words of Carl Rogers, a relatively unimportant and vastly overrated activity.

The proponents of this view argue that formal instruction should no longer play a direct role in the learning process. It is also assumed that teacher talk always leads to passive learning. As a consequence, neither formal instruction nor teacher talk are regarded as acceptable by these educators. Teachers are no longer considered to have a central part to play in learning. Instead, they now play a background role of *organizing* and *setting up* appropriate learning environments. Self-motivated learning, they argue, arises in activity-based learning, group work, content that links with everyday life, and through practical involvement with the community.

On the other hand, others argue that teacher instruction and the active mediation of knowledge by teachers remain part of good OBE practices. They argue that while the notion of 'facilitation' is important, it is only one facet of the work of a teacher. One teacher put it as follows:

'To my mind, reducing the teacher to a facilitator greatly oversimplifies the complex roles that most teachers play every day – sometimes facilitating, sometimes mediating, and sometimes doing a bit of good old teaching.'

This quote is from E. Potenza, 'Outcomes-based education: will it benefit our children?' in *Fairlady* (21 January 1998), p. 51.

Our understanding of teaching and the role of teachers

In this section, our focus has been on the role of the teacher in structuring learning experiences for the classroom. We saw that the relationship between a teacher and a learner is vital to the classroom. It creates the necessary condition for learning to occur, namely the experience on the part of the learner of a gap between the known and the unknown.

Concepts like the *zone of proximal development* and *scaffolding* helped us to understand how teachers challenge learners with new knowledge. We also saw the important role of teacher questions in informing and supplementing learner questions. It became clear that while teachers cannot learn for their students, they play an *indispensable* role in making sure that learning happens.

From a broad constructivist point of view, teachers are actively and necessarily involved in the kind of learning that is envisaged by OBE. In order to do this they will play different roles, as Potenza suggests.

- Sometimes they will explain or question.
- At other times they will construct good activities or tasks that guide group discussion.
- And at other times they will work individually with learners to explain their learning difficulties.

Common to all these actions by teachers, though, is the fact that the teacher understands that learning must happen in the learners' heads, and she or he acts so that the learners' minds are activated and this occurs.

In the above debate, we come down firmly in favour of the latter position.

Misunderstanding constructivism

There is a common misunderstanding of constructivist views that suggests that the teacher is not necessary to the learning process. Here is one sweeping version of such a mistake:

*'Teacher lectures, demonstrations, audio-visual presentations, and programmed interactions are some of the teaching methods that do not fit in with Piaget's ideas. Piaget believes in active discovery within a learning environment – the schools. Children's learning experiences should be planned to facilitate assimilation and accommodation. Children should be allowed to explore, manipulate, experience, and question. Instruction should be individualized. **Teachers should just facilitate** [our emphasis].'*

But as Piaget himself puts it when he discusses 'active methods of education':

'[there is] the fear (and sometimes hope) that the teacher would have no role to play in these experiments and that their success would depend on leaving the students entirely free to work or play as they will. It is obvious that the teacher as organizer remains indispensable in order to create the situations and construct the initial devices which present useful problems to the child. Secondly, he is needed to provide counter-examples that compel reflection and reconsideration of over-hasty solutions. What is desired is that the teacher cease being a lecturer, satisfied with transmitting ready-made solutions; his role should rather be that of a mentor stimulating initiative and research.'

If there is a sense in which Piaget can be said to view teachers as facilitators of knowledge, then this is it. From the point of view of the theory of equilibration, teachers have an important role to play in learning.

When we bring Vygotsky's ideas into play alongside those of Piaget, then it is clear

You will find this statement in Gauteng Department of Education, *Theories of Teaching and Learning Facilitator Guide* (Johannesburg, 1999), p. 15.

See J. Piaget, *To Understand is to Invent* (New York, Grossman, 1978), p. 16.

that teachers are active participants with learners in constructing learning. They set up interesting tasks that encourage and facilitate learning, exactly as described on page 177 in relation to Piaget's view of teaching, by creating conditions to provoke appropriate action.

But Vygotsky's notion of the zone of proximal development takes our thinking even further. Now we understand that teachers participate deliberately in learning activities with learners, and respond to their dilemmas and questions in the context of joint activity. They:

- identify the gap between the known and the unknown which will best challenge learners to learn;
- design appropriate learning tasks;
- guide learners through the tasks, and mediate new knowledge to them as they need it.

Conclusion and key learning points

5.6

Reassessing the half-truths

STOP. LISTEN. THINK.

We have come to the end of another section. Before you proceed, we'd like you to go back to the five half-truth statements at the beginning of this section and decide if you still agree with your original responses to them. Are there any statements that seem to have changed their meaning for you? Why?

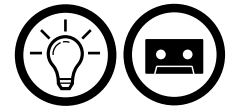
Key learning points

The purpose of this section was to allow **you** to make explicit links between theoretical ideas about learning and the practice of teaching. We pointed out the choices that teachers make when they translate theory into practice, and showed how these choices affect the construction of learning tasks. We also discussed particular strategies teachers use to promote effective learning.

Ultimately it is our professional responsibility as teachers to teach for learning. This means we have to construct learning activities in such a way that we achieve the **right balance** between **challenge** and **support**.

Here is our summary of this section's key points:

- Teachers cannot guarantee learning, but they can design learning activities in such a way as to effectively promote it.
- Teachers can use the notion of the zone of proximal development to deliberately create gaps between the known and the unknown.
- Two important principles for cognitive change are conflict and activity.
- Learner questions may be more powerful tools for learning than teacher questions.
- The way teachers use what learners know influences the structure of the learning task.
- Teachers have to make choices about the process as well as the content of the learning situation.
- Teachers use language to help learners become aware of their own thinking.
- In South Africa many learners have to study in a language that is different from their home language and this limits their access to learning tasks.
- Learning tasks have to be designed in such a way that they support the language and the thinking processes of the learners.
- Teachers cannot control all aspects of the learning process nor determine that learning will definitely happen. However, through well-designed tasks that focus learners' attention in particular ways, they can increase the probability that learning will occur.
- Collaborative learning can support and challenge learners beyond their individual limits.
- OBE tends to over-emphasize the learners' potential and freedom and under-emphasize the important role teachers have to play in structuring learning situations.



Take some time to reflect on the issue being raised here. Relisten to Part 5 of your audiotape before you re-assess your initial responses to the half-truths at the beginning of this section.



We used to think about slow learners and fast learners, intelligent and less intelligent children. Today we know that opportunities to learn are more important than how bright you seem to be. Any teacher should think, "What opportunities to learn has this child had so far?" If you do not ask that question you will invariably make false judgements about children and what teaching they need.



This quote comes from M. M. Clay, 'How children learn to read: an international perspective' a paper presented to the *All Africa Conference on Children's Reading* (Pretoria, August 1999).

