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UNIVERSITY OF FORT HARE

Eastern Cape Education Department

Distance Education Project

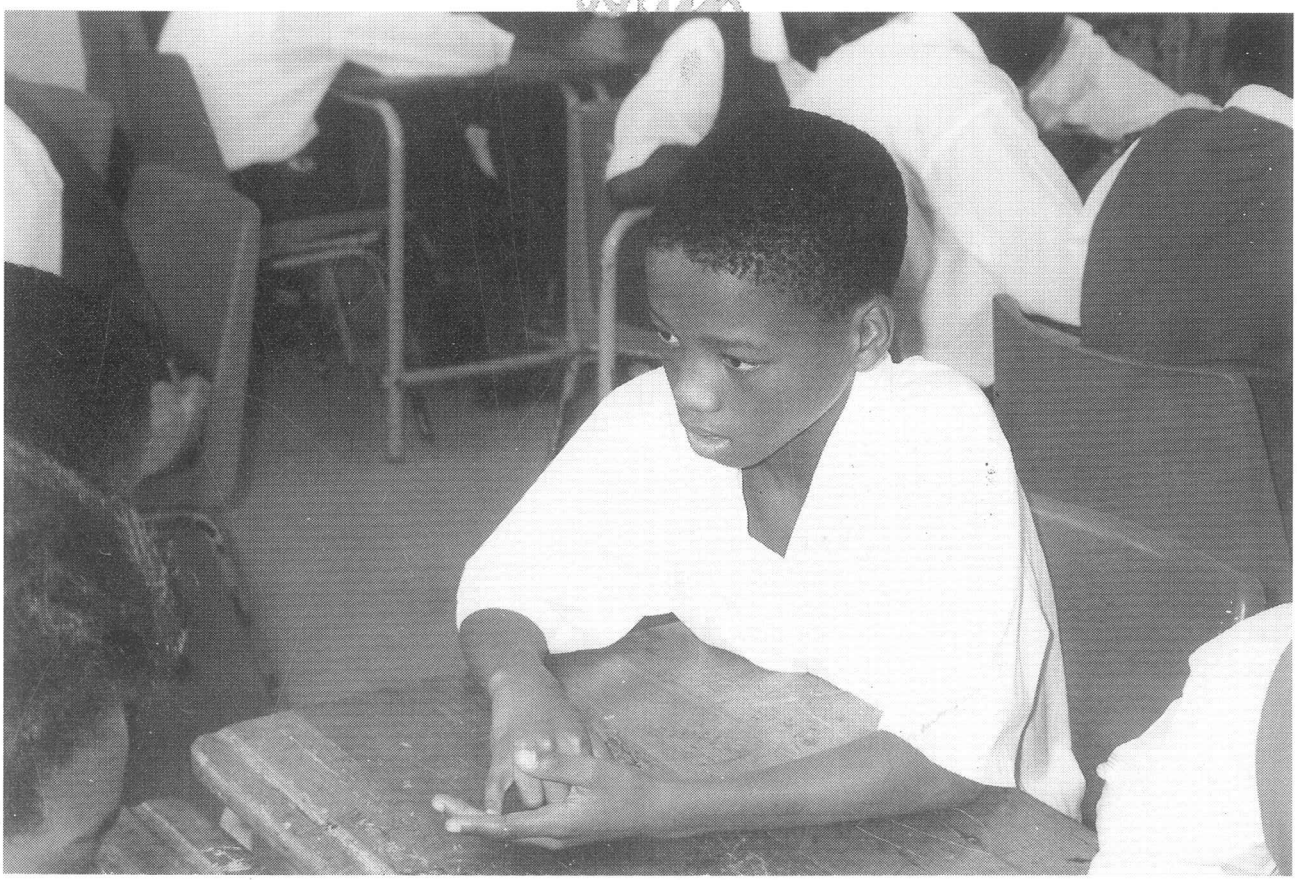
Core Education Studies Course

Learning about Learning

Umthamo 4

Powerful Thinking – Powerful Thinkers

(Pilot Edition) March 2000



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Introduction

I think therefore I am
Descartes

In this umthamo we will focus our thinking on a 'hot topic', that of **thinking about thinking.** Although thinking is something each one of us does, throughout the day, every day, it is not a topic that is discussed very often.

Our life is what our thoughts make it

Marcus Aurelious, a Latin poet 121 – 180 AD

You will find that this umthamo will raise more questions than it suggests answers. We hope that when you reach the final page of the umthamo, you too are left with several 'deep' questions. The most important purpose of the umthamo is to encourage you to continue researching the many ways our minds work.

Another very important purpose is for you to consider how what you do in the classroom (and at home, if you are a parent) is closely related to your theory of how children's minds work. Nurturing the development of powerful young minds is at the 'heart' of teaching. How each one of us goes about this can be an interesting area to research.

The big questions you will meet in this umthamo are:

- What do we understand about thinking?
- What opportunities do you and your learners have to think and talk about thinking?
- Do we all think in the same way?
- What ways of thinking do you actively encourage in your classroom?
- Can you talk with a growing confidence about the different ways of thinking you notice in your classroom?

As you work through this umthamo, you will be writing in your Journal, as you usually do. However, we think it might be a good idea to buy a pen of another colour to use when you write what you **think about your thinking.** Sometimes we will ask you to write about your *own* thinking, and at other times you will write about your *learners'* thinking. Do keep your Journal up to date.

Very Important – take careful note

We are introducing you to a new idea in this umthamo. You have been using a Journal for a while now. What about getting your own learners to keep Journals? In this umthamo you will need to ask your learners to record their thoughts about their thinking in their Journals. You will need to get your learners to start these Journals during the very first week that you start to work through this umthamo. You will also need to ask them to record their thoughts regularly during the next few weeks, and even throughout the rest of the year.

For younger learners, you can help them by writing for them whatever they tell you.

In Unit 2 and Unit 3 we will introduce you to two different ideas about thinking. Both these theories suggest that there are very different ways of thinking, and that everybody uses more than one way.

For the **Key Activity** you will write a Reflective Report on how **thinking about thinking** affects both **you,** and your **learners.** This report should be based on the writing about thinking which you do in your Journal. It will also be based on the discussions you have with your learners about their thinking.

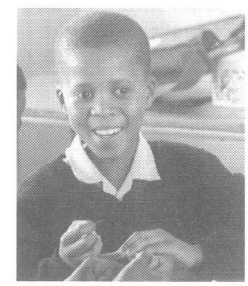
Intended Outcomes

When you have worked through this umthamo

- you will have thought about thinking
- you will have kept a Journal about your thinking
- your learners will have kept Journals about their thinking
- you will have had discussions with your learners about ideas and theories about thinking, and
- you will have used this research to write a Reflective Report.

In the paragraph below, Karen Gallas comments on the value of using journals with young learners.

> How do children incorporate their personal understanding of the world into the knowledge they receive in schools? .....As a teacher of young children, I have learned that the questions children ask often reflect a very deep effort to understand their world, and that their ability to form theories about difficult questions far surpasses my expectations. Through the medium of science talks and science journals, I have seen children develop ways to make their thinking visible in narrative. In doing so, they were more able to clarify what they knew, and created an expanded readiness for new information and new insights. Students also gained a stronger identity as scientific thinkers. Writing and talking about difficult ideas, building theories, asking questions - their stance as students of science changed to value their own role as thinkers and knowers. (Gallas: 75, 77)



Unit 1 - What is thinking?

*When you were at college, did anyone in any of your courses discuss ways in which teachers can **nurture** & **develop** learners' thinking?*

Most schools place thinking and the intellectual development of their learners high up on their list of goals. Often we hear curriculum planners, politicians and businessmen and women talk about the importance of developing creative thinkers who are able to solve problems. Yet, despite the popular call for schools to teach thinking, there is little, if any, consensus (or agreement) on what this means. And student teachers are rarely encouraged to think about how schools could go about nurturing and developing thinking. This seems a strange state of affairs. Thinking about thinking, and how to nurture thinking, is not a new area of study! Why then is there so little consensus about what we mean when we talk about thinking?

The importance of thinking is a topic that has caught the imagination of philosophers, educators, psychologists and researchers for hundreds of years! If you visit an education library, and look for books on thinking, you can be surprised, even overwhelmed. There are such vast numbers of books written on this topic. And making sense of the vast shelves of literature is no easy task.

Often the authors make conflicting claims, or recommend conflicting strategies to develop and encourage thinking. In some education circles curriculum planners have written new curricula, based on some lists of thinking skills. Other curriculum planners encourage teachers to incorporate thinking skills into the content matter that they teach.

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Contents

When we read books and journal articles on thinking, it is interesting to note the different words writers' use when they write about thinking. Some of the words used most include: *reasoning, exercising the mind, cognitive development, cognitive growth, intellectual development, skilful thinking.*

How do we talk about something as mysterious as the mind?

We understand that the brain is a physical organ with a particular chemistry and a definable, if mysterious chemistry. What the organ does, though – thinking – is not so easy to pin down. (Kirby & Kuykendal: 14)

Perhaps one reason why thinking is so hard to 'pin down' and understand, is that we can't 'see' thinking. We can't actually see what is happening inside a person's brain when the person is busy thinking. We *can* sometimes see that somebody is thinking, and we might be able to almost guess *what* they are thinking. Often there are *outward* signs that someone is thinking. But we cannot open the brain to see the actual process. We can, however, suggest theories about **how we think we go about thinking.**

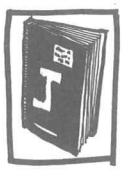
Although the brain weighs only 2 % of the body weight of an adult, it is so active that it uses 20 % of the oxygen we breathe in. (The Wisdom of the Body: 328)

Before you begin to read about what other people have to say about thinking, we would like you to first explore your own thoughts about thinking.

Thinking about thinking

In the next Activity, we want you to think about your own thinking.

*Psychologists often refer to thinking about thinking as **metacognition.***



Activity 1a - Thinking about thinking

Open your Journal. We want you to write at least four paragraphs on *Thinking about my own thinking.* Before you start writing, read *all* the questions below. We think that they will help to stimulate your thinking.

- **When do you think?** Do you only think when you are asked a question? Do you allow yourself time to think? Do you prefer thinking on your own, or do you enjoy thinking with others?
- **Do you always think in the same way?** Is some thinking quick, and light? Does some thinking take longer, perhaps taking weeks, or months? Do you always invite your thoughts, or are you sometimes surprised to find a new idea suddenly 'popping up' in your thoughts?
- **Where do you like to think?** Do you find yourself thinking anywhere, or are some places, or some environments better for thinking?
- **Are there times when you do not like to think?** Can thinking tire you?

Write carefully and thoughtfully. You will be expected to share what you have written at the face-to-face session where this umthamo is monitored.

*Remember, we suggest you use a new or different colour when you write about **thinking.***

When you are with your learners, make sure that they each have a book in which they can record their thoughts. If you work with pre-school children, or children who do not yet

write easily and independently, you can do one of at least two things. You can either ask them to record their thoughts through drawing. *Or* you can use your tape recorder to get them to record their thoughts and their thinking about their thoughts on to a tape.

In the early 1990s, Alan heard a story about a teacher who was doing post-graduate studies. She was carrying out some research in her classroom with very young children. She wanted to find out more about the way young children think. These children couldn't yet write independently, and so she use a few tape-recorders to get them to talk their thoughts on to tape. The children became quite used to this and would find quiet corners in the classroom where they could talk their thoughts onto a tape.

The story was told by Patricia Hewson, an expert in Science Education. She works in the United States as a lecturer and researcher, with her husband, Peter, who is also a South African.

One day, when this teacher was getting her young learners to tidy up at the end of the day, she found one little girl under the teacher's table. The little girl was sitting with her legs crossed and her hands open in her lap, as though she was holding something. She was busy recording her thoughts onto a tape-recorder. When the teacher told her it was time to stop, the little girl replied, "All right. I just want to put my thoughts back in my head!" And with that, she carefully lifted her open hands from her lap and put them flat on the top of her head!

Many teachers throughout the world are getting their learners to record their thinking and thoughts in Journals. And many of these teachers are teachers of very young learners. One such teacher is Karen Gallas. She has used Journals with Grade 1 learners to help them capture and recall their thinking.

Activity 1b - Getting children to start Journals

Start off by having a **discussion** with your learners about their thinking. Gather your learners around you and then use the questions in Activity 1a as a guide for your discussion. You may find that some of your learners find it very easy to talk about their thinking and their thoughts. Others may need more time to think about this.

You will need to judge how long to allow the discussion to continue. It will depend to some extent on how much your learners have to share. When you feel that they have said most of what they want to say, stop them. We think 20 minutes should be more than enough time for this preliminary discussion.

Then send your learners off to work on, and record, their thoughts. What happens in their heads when they think?

If you work with very young children, you may decide to work at a table with a group while the rest of your learners are busy with other activities. Then, as they draw their thoughts, you can talk with them about their drawings, and even write down in their Thinking, Journals whatever they dictate to you.

If you work with learners who can write independently, give them enough time to write down something. Don't forget to tell them that they will need to write in the date every they write down something about their thinking in their Journals. Tell them that they can draw as well as write in these Journals.

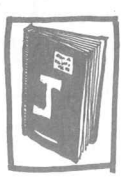
After some time, gather your learners together again into a larger group to **share** what they have written or what has been noted down. Let children volunteer to share their work with the large group. For those who are shyer, you can help them be standing them near to you, and reading or telling for them.

If you have time, or on another day, you may want to translate and read out what Sarah Gristwood, a seven-year-old girl has to say about her thinking.

My thoughts

I sometimes wonder what my mind is like inside, often I fancy that it is like this. I feel as if my mind goes round and round like the earth and if my lessons make me think hard it begins to spin. In my other class it was getting all stodgy and still and lumpy and rusty. I feel as if there is a ball in my mind and it is divided into pieces – each piece stands for a different mood. The ball turns every now and then and that's what makes me change moods. I have my learning mood, my goodlooks mood, my happy mood, my loose-end mood and my grumpy mood, my missrable mood, my thoughtful mood and my planning mood. At the moment I am writing this I am in my thoughtful mood. When I am in my thoughtful mood I think out my maths and plan stories and poems. When my kitten is in her thoughtful mood she thinks shall I pounce or not, and shall I go to sleep or not. This sort of thing goes on in my own mind too. It is very hard for me to put my thoughts into words.

Sarah Gristwood *aged 7*



Soon after finishing this work, make time to write in your Journal. Think about this Activity. Describe what happened. How did your learners respond? Were they interested? Why do you think this was? What sorts of things did they say? How did you feel about this activity before you carried it out? Why? How did you feel *afterwards?* Why? What will you need to do to make sure that your learners record their thoughts about how they 'think', *regularly?*

Finally, if your learners surprise you with some really interesting or exciting work, please share it with us.

You can copy and pass on anything interesting to the academic co-ordinators through your umkhwezeli.

Unit 2 - Multiple intelligences theory

Yes, I like that. I remember when my grandfather told me about . . .

What does he mean? I do not understand this.

In this Unit, and in Unit 3, we will introduce you to several people who have thought a lot about thinking, and about the very close relationship between thinking and learning. We would like you to read the theories critically. Perhaps you will not agree with one person's views. Perhaps some aspects of a theory seem useful, but not all aspects. We would like you to work through these Units carefully, and to make notes of your thoughts whilst you are busy reading. You can write your notes in this umthamo, or in your Journal. Your learners will also record their thoughts in Journals.

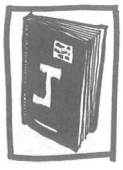
No, I am not sure whether I agree with this!

Yes, this makes me think of my colleague. He would agree with this theory. This is what he believes.

Remember that the **Key Activity** in this umthamo is to write a Reflective Report. In that Report you will need to state **your own views** on how **you believe** children's thinking can be nurtured (developed in a caring way). When you write this Report you can mention your views on the theories you meet in Unit 2 and Unit 3. By now, you should be able to do proper academic referencing if you use a quote, or refer to the ideas you have read.

The theory of Multiple Intelligences

What is the relationship between thinking and intelligence? To answer this question we must first agree on what we mean when we use the word 'intelligence'. Think of the learners in your classroom, or, of children you have taught. Are there two or three learners, (or two or three people you know), who you regard as being intelligent? What special qualities do these learners/people have?



Activity 2a - What is intelligence?

Open your Journal and write the heading *My thoughts about intelligence,* followed by the date. Then read the questions below.

What qualities do the learners (or people) whom you are thinking about have? What are they really good at? Are they gifted in a wide range of ways? Or is their intelligence really noticeable in one or two areas? Perhaps they are even poorly developed in some other areas.

Then write down your thoughts. When you have finished writing, please read through what you have written. These notes should reflect your understanding about what intelligence is.

From Chambers 20th Century Dictionary

Intelligence intellectual skill or knowledge: mental brightness: information communicated: a footing of mutual understanding: (rare): a spiritual being.

In 1983 Howard Gardner, a Harvard University psychologist, challenged the popular idea that someone could talk about students, or adults, as **lacking in intelligence.** He suggested that many people hold too *narrow* a definition of intelligence.

Gardner believes that many people, particularly within western culture, understand intelligence in a very limited way. Gardner proposed that we need to think about intelligence in a new way: a way that allows us to develop a much **wider,** more **inclusive** and **dynamic understanding of intelligence.** His theory, known as the **theory of multiple intelligences,** suggests that each person has numerous intelligences. Gardner suggested that there are at least seven intelligences. He also pointed out that his identification of the seven intelligences are tentative, and that the list is likely to change as the world changes, and as newer research and investigation take place.

He later added a new intelligence: one that focuses on children who are very interested in nature and the natural world. These children think in terms of patterns and systems in nature.

The seven intelligences proposed by Gardener

Gardner proposed that each one of us has the ability to develop the following intelligences:

- Linguistic intelligence (being able to use language well)
- Logical-Mathematical Intelligence (being able to think logically)
- Visual/Spatial Intelligence (being able to think in images and pictures)
- Bodily-Kinesthetic Intelligence (learning through physical sensations)
- Musical Intelligence
- Inter-personal Intelligence (being able to think and communicate easily with other people)
- Intrapersonal Intelligence (being able to think deeply and personally about oneself and the world)

Read the following extract about the seven intelligences. Don't feel that you need to remember the names Gardner has given to each intelligence. It's more useful to think about the wide range of ways he suggests we can use when we think.

The Seven Intelligences Described

Once this broader and more pragmatic perspective was taken, the concept of intelligence began to lose its mystique and became a functional concept that could be seen working in people's lives in a variety of ways. Gardner provided a means of mapping the broad range of abilities that humans possess by grouping their capabilities into seven comprehensive categories of "intelligences":

Linguistic Intelligence

The capacity to use words effectively, whether orally (eg as a storyteller, orator, or politician) or in writing (eg as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax

or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language. Some of these uses include rhetoric (using language to convince others to take a specific course of action), mnemonics (using language to remember information), explanation (using language to inform), and metalanguage (using language to talk about itself).

Logical-Mathematical Intelligence

The capacity to use numbers effectively (eg as a mathematician, tax accountant, or statistician) and to reason well (eg as a scientist, computer programmer, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include: categorisation, classification, inference, generalisation, calculation, and hypothesis testing.

Spatial Intelligence

The ability to perceive the visual-spatial world accurately (eg as a hunter, scout, or guide) and to perform transformations upon those perceptions (eg as an interior decorator, architect, artist or inventor). This intelligence involves sensitivity to colour, line, shape, form, space, and the relationships that exist between these elements. It includes the capacity to visualise, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix.

Bodily-Kinesthetic Intelligence

Expertise in using one's whole body to express ideas and feelings (eg as an actor, a mime, an athlete, or a dancer) and facility in using one's hands to produce or transform things (eg as a craftsperson, sculptor, mechanic, or surgeon). This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile and haptic capacities.

Musical Intelligence

The capacity to perceive (eg as a music aficionado), discriminate (eg as a music critic), to transform (eg as a composer), and express (eg as a performer) musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone colour of a musical piece. One can have a figural or "top-down" understanding of music (global, intuitive), a formal or "bottom-up" understanding (analytic, technical), or both.

Interpersonal Intelligence

The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This can include sensitivity

to facial expressions, voice, and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way (eg to influence a group of people to follow a certain line of action).

Intrapersonal Intelligence

Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem.

(Armstrong: 2-3)

Thomas Armstrong is someone who strongly supports Howard Gardner's' Multiple Intelligence theory. He has written a book called *Multiple Intelligences in the Classroom.* In this book he comments:

> Many people look at the above categories – particularly musical, spatial and bodily-kinesthetic – and wonder why Howard Gardner insists on calling them intelligences, and not talents or aptitudes. Gardner realised that people are used to hearing expressions like: *He's not very intelligent, but he has a wonderful aptitude for music.* Thus, he was quite conscious of the use of the word intelligence to describe each category. He said in an interview: *"I'm deliberately being provocative. If I'd said that there's seven kinds of competencies, people would yawn and say "Yeah, Yeah". But by calling them 'intelligences' I'm saying that we've tended to put on a pedestal (value) one variety called intelligence, and there's actually a plurality (several) of them, and some are things we've never thought about as being 'intelligence' at all".*
>
> (Armstrong: 3 & 4)

Activity 2b - Thinking about Multiple Intelligences

As a professional educator, in what ways do you think Gardner's theory is helpful or interesting?

Think again of the children you teach. Would you say that a musical child has a special 'gift', a special ability to express him/herself musically? Could we say that this child shows a musical intelligence? What about a child who is very skilled in social communication, and who has a special ability to express oneself and to relate to other people? Could we say that this child shows a social intelligence? In what ways are your views similar to those of Gardner's? In what ways do your own views differ?

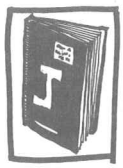
Return to your Journal, and write the heading: *My first response to Multiple Intelligences theory,* then write the date. Then write a careful response to the questions above. Try to include examples to support and explain what you write. You will be expected to share what you have written at the face-to-face session where this umthamo is monitored.

Key points in Multiple Intelligences theory

1) Each person possesses all seven intelligences. Most of us will find ourselves more developed in one or more intelligences, modestly developed in others, and relatively underdeveloped in others.
2) Most people can develop all of these intelligences if they are given the encouragement to do so. Each intelligence does not exist alone. It interacts with others. The intelligences usually work together in interesting ways.

   For example, a sportsperson has to constantly think when playing sport. A gifted soccer player is someone who is very skilled at controlling and kicking a ball, and also at constantly observing where his opponents are, and in keeping the ball away from them. This person is part of a team, and is constantly thinking quickly, and using the strategies the team has developed. He may be bodily-kinesthetically intelligent. But he also needs to think logically and to be able to work with the other people in the team. So he is also drawing on interpersonal intelligence.
3) There are also many ways of being intelligent in each category. A person may not be able to read, yet this person may be highly linguistic because she can tell a terrific story, be a very gifted imbongi, or write songs. (Howard Gardner would comment that this person shows linguistic intelligence.)

Similarly, a person might not shine on the sports field, but might be a gifted sculptor or someone who is very gifted at planning and constructing objects with his or her hands (Howard Gardner would comment that this person shows bodily kinesthetic intelligence.)



Activity 2c - Thinking more about thinking

Multiple Intelligences theory requires us to become aware of the rich diversity of ways in which we think. Think about yourself and Gardner's theory. How do you enjoy thinking? What are your strengths? Do you think there have been any shifts in your thinking in the last 2 years? Think about your studies. Are you becoming an even stronger linguistic thinker? Have you noticed any other shifts?

In your Journal write the heading, *Reflecting on myself and my thinking in relation to Multiple Intelligences theory,* and write the date. Then write one or two paragraphs about yourself and your thinking, and the ways you think your thinking has changed. Think about the ways you think your thinking is likely to change.

If each one of us knows what our strengths are, in what ways will this personal knowledge be of value?

Being able to **think** and **talk** about thinking is something every learner in your class should do frequently. Nowadays, thinking and talking about how each one of us thinks and learns is regarded as being very important.

Your learners might be interested in thinking about themselves and their special gifts (or multiple intelligences). Later on in this Unit, you will ask your learners to conduct their own personal research into how *they* think. When they do this research, they will be asked to think about what their strengths are. You will also ask them to think about what ways of learning are harder. Surely, if each one of us knows what our strengths are, we will then be in a good position to decide which other intelligences we would like to develop?

People who support the multiple intelligences theory believe that children start showing their *preferred ways of learning* from a very early age. They remind us that it is important to remember that we have strengths in **several areas,** and that we need to look for more than one intelligence.

Let's explore a little more the work of Thomas Armstrong. Remember, he worked with Howard Gardner's theory. He has developed a "Checklist for Assessing Students' Multiple Intelligences". Armstrong comments that this checklist is not

I've often suggested humorously to teachers that one good way to identify students' most highly developed intelligences is to observe how they misbehave in class. The strongly linguistic student will be talking, the highly spatial student will be doodling and daydreaming, the interpersonally inclined student will be socialising, the bodily kinesthetic student will be moving around, or fidgeting, and so forth. These students are saying through their behaviour, 'This is how I learn.' (Armstrong: 28)

a test. He says it should be used together with notes the teacher writes in her Journal. He also recommends that teachers **talk** to their *learners,* to the *parents* of their learners, and to *other teachers.* You will find a copy of this checklist in the Appendix of this umthamo.

How our strengths are closely linked to the ways we learn best

Teachers whose views are similar to those of Howard Gardner, try to provide a variety of learning opportunities in their classrooms. They also encourage their learners to develop a wide range of intelligences.

How are our strengths linked to ways we enjoy learning? Think of children who love dancing, touching, building, moving and thinking through physical sensations. These children need opportunities to touch and move. Learners like this have a well-developed **bodily-spatial** intelligence.

All Foundation Phase teachers have met children who need to move around. They have also come across children who always seem to be touching things or people. If these children spend most of their school day in chairs, sitting still, what happens to their special ability? Perhaps many of these children find school a difficult place to be; a place that seldom allows them to develop their special ability.

Look at the chart below carefully. It suggests practical ways of linking learning with each intelligence. You might find it useful as you try to provide for the different thinking and learning styles of your learners.

Seven Kinds of Learning Styles

Children who are strongly:	Think	Love	Need
Linguistic	in words	reading, writing, telling stories, playing word games, etc.	books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories, etc.
Logical-Mathematical	by reasoning	experimenting, questioning, figuring out logical puzzles, calculating, etc.	things to explore and think about, science materials, manipulatives, trips to the planetarium and science museum, etc.
Spatial	in images and pictures	designing, drawing, visualizing, doodling, etc.	art, LEGOs, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums, etc.
Bodily-Kinesthetic	through somatic sensations	dancing, running, jumping, building, touching, gesturing, etc.	role play, drama, movement, things to build, sports and physical games, tactile experiences, hands-on learning, etc.
Musical	via rhythms and melodies	singing, whistling, humming, tapping feet and hands, listening, etc.	sing-along time, trips to concerts, music playing at home and school, musical instruments, etc.
Interpersonal	by bouncing ideas off other people	leading, organizing, relating, manipulating, mediating, partying, etc	friends, group games, social gatherings, community events, clubs, mentors/apprenticeships, etc.
Intrapersonal	deeply inside of themselves.	setting goals, meditating, dreaming, being quiet, planning	secret places, time alone, self-paced projects, choices, etc.

(Armstrong: 27)

Exploring 'multiple intelligences' with your learners

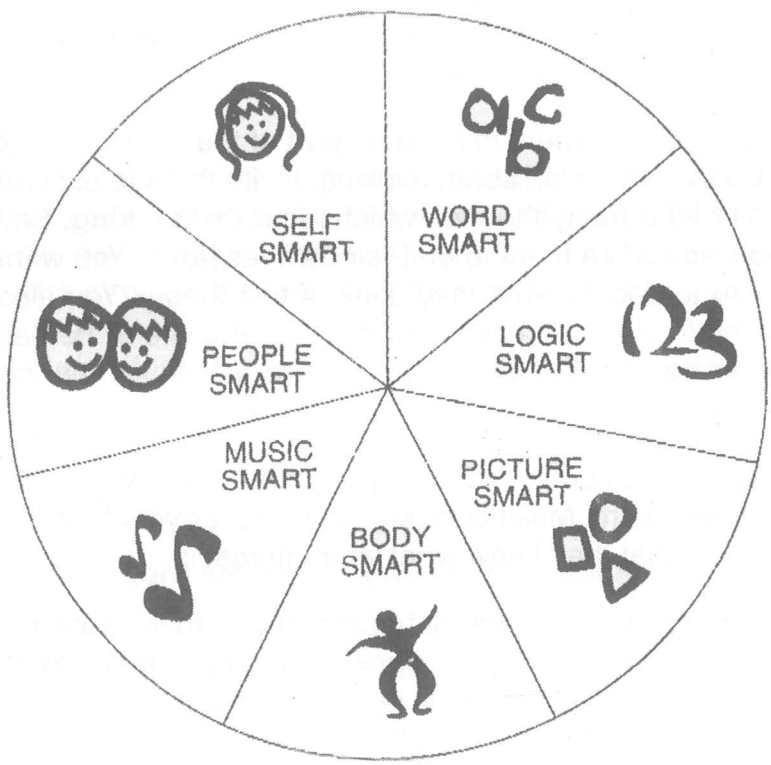
> *Give me a fish and I'll eat for a day.*
>
> *Teach me how to fish and I'll fish for a life-time.*
>
> *Proverb*

One interesting thing about the Multiple Intelligences theory is that you can easily talk to children, as young as Grade 1s, about this theory. If you have carried out the activities from Umthamo 2, Umthamo 10 and Umthamo 18 with your current learners, you will have already 'prepared the ground' for this type of discussion. In those imithamo you and your learners talked about how every person is a **natural learner.** You have talked about how human beings are 'wired to learn'. Our brains are busy all day long, working with us. One amazing thing about children, is that they *want,* and *like* to understand the world around them. This is true for all of us. Even when we sleep at night, our brains are still active. Whether we can remember or not, each one of us dreams many dreams every night.

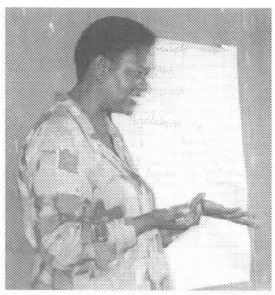
Activity 3 - Metagcognition: Getting learners to think about their powerful thinking

Preparation

Before you carry out this Activity, you will need to draw the diagram below on a large sheet of newsprint. Make sure that your drawing is really big, so that all your learners will be able to see the seven different segments, the small drawings and the words.

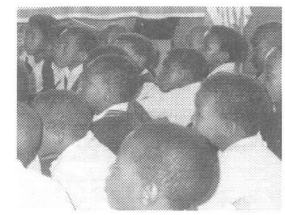


If you work with learners in the Intermediate or Senior Phase, we suggest that you make some question cards for their group discussions. Use the questions on pages 17 and 18 as a guide. This will mean that if some of your learners have a more visual way of learning they will still be able to carry out the Activity. And you will not have to repeat your instructions when they begin their group discussions.



Step 1 - Introducing the research project

We suggest that you start this Activity by talking, and raising questions, about the mysterious activity we call thinking. Remind your learners of the discussions you had earlier about our powerful ability to think and learn. Spend about 10 to 15 minutes talking about this.



Then tell your learners that for hundreds of years men and women have been fascinated by the topic of **how human beings think.** What makes this topic so exciting is that no one can actually see what happens inside our brains while we are busy thinking. However, not being able to see what is going on, doesn't stop people from investigating this topic. Instead it seems to stimulate people to think and they come up with many ideas.

Over the years, many people have developed theories about thinking. This is likely to continue happening for as long as people can think!

Invite your learners to become part of the community of thinkers who think about thinking. Invite them to explore one of the many theories which focus on **thinking.** Say you would like them to do their own research. You want them to decide what they think of this theory. You also want to find out if each learner feels that she or he has learnt new information about her/his own personal thinking processes.

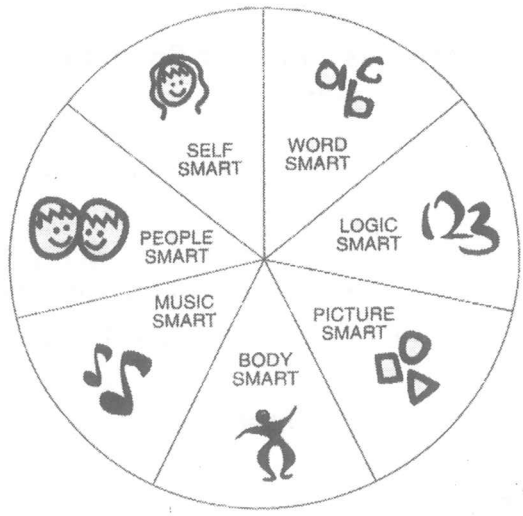
Your main interest in this project is to find out what your learners learn. Make quite sure that you tell your learners this, so that they know what your interest is.

Also tell your learners that at the end of their research, they will be expected to **report** on their findings. These reports can be presented in interesting and different ways. Each learner can choose whether they want to write (and read what they have written), or talk, or act, or draw, or sing or recite a poem etc.

Step 2 - Introducing the theory to your learners

Tell your learners that an American psychologist developed the theory they are going to explore. The theory, known as the Multiple Intelligences theory, suggests there are at least seven different ways in which we can think. According to this theory, each one of us is able to think in all seven ways. But each one of us is *better developed* in *some* of the seven ways, *modestly developed* in a *few,* and *less developed* in *others.*

Now put up the drawing of the "MI Pizza" (the pie-chart diagram which you drew before this discussion). Start anywhere in the circle, and talk about each way of thinking.



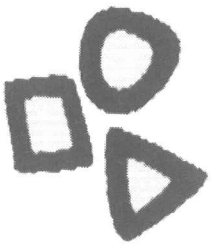
Thomas Armstrong recommends that the questions a teacher asks, need to be phrased in such a way that they allow each child to realise that she or he already uses each way of learning. He says, *"Essentially I ask questions that build inclusion. I steer away from questions that might exclude lots of students. E.g. how many of you have read 15 books in the past month?"*

We have included some examples of the kinds of questions you might ask.

- **Being 'word smart' (Linguistic Intelligence)**

  How many of you here can speak? (Let the learners think about this and then show their hands.) Well, in order to speak, you have to use words. How many of you can write? (Again let your learners think about this and then raise their hands.) As we know, we also use words when we write. Every one in this classroom can

talk and write. So, according to the theory, we are all **word smart.**

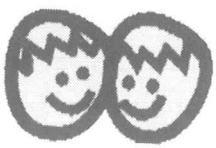


- **Picture Smart (Spatial Intelligence)**
  How many of you here can draw? (Let the learners think about this and then show their hands.) How many of you can see pictures inside your heads when you close your eyes? Let's see if you can do this. Close your eyes, put your head on your desk if you like. Who can imagine what a cold glass of delicious cooldrink looks like? What colour is the cooldrink? What does the cup or glass look like? Everyone in this classroom can imagine pictures inside your heads. So, according to the theory, we are all **picture smart.** (Use any image you think your learners will enjoy. If it is a cold day, they are unlikely to enjoy thinking about a cooldrink!)

- **Body Smart, Hands Smart or Sport Smart (Bodily-Kinesthetic Intelligence)**
  How many of you like to play sport? How many of you enjoy using your hands to create things. How many of you enjoy touching? How many of you enjoy dancing, or always like to be moving about? Everyone in this classroom enjoys moving around and using their hands. So, according to the theory, you are all **body and hands smart.**

- **Music smart (Musical Intelligence)**
  How many of you love music? How many of you sing songs or play a musical instrument? Everyone can sing. So, according to the theory, you are all **music smart.**

- **Number Smart or Logic Smart (Logical-Mathematical Intelligence)**
  How many of you can do Maths? How many of you enjoy doing experiments to find things out? So, according to the theory, you are all **number smart.**



- **People Smart (Interpersonal Intelligence)**
  How many of you have one or more friends? How many of you enjoy talking? How many of you enjoy working in a group? So, according to the theory, you are all **people smart.**

- **Self-smart (Intrapersonal Intelligence)**
  How many of you know when you are feeling sad, or happy? How many of you sometimes enjoy being by yourself, or doing things by yourself? How many of you can think about your thinking? So, according to the theory, you are all **self-smart.**

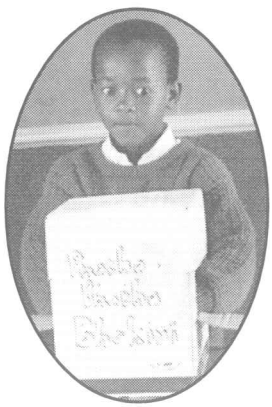
(Adapted from Armstrong, pages 37 and 38.)

Step 3 - What do your learners think of the theory?

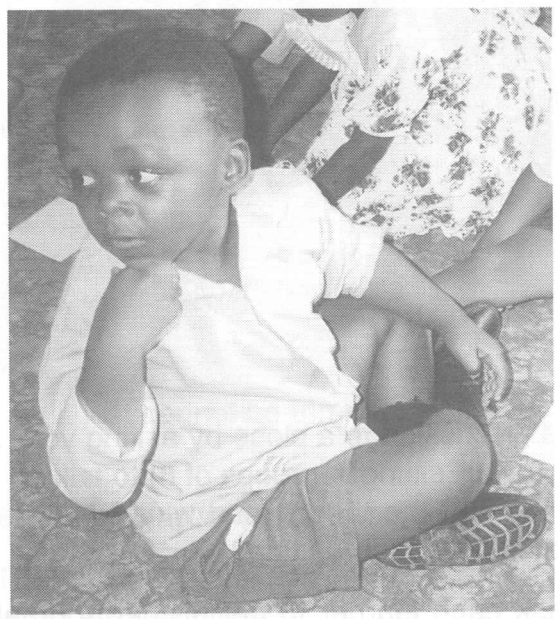
Foundation Phase learners

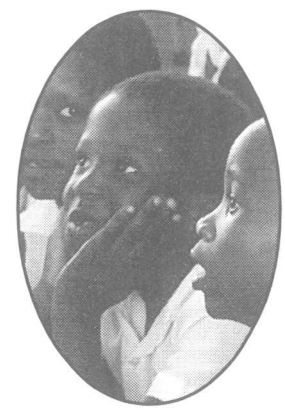
Conclude the first part of this activity by talking about what is interesting about these ideas. Ask your learners what they **think.**

- Do these ideas make sense?
- Did you find what you are good at?
- What do you think of these ideas?



Tell them that some people like this theory because it encourages each one of us to **think** about ourselves as having many ways of **thinking.** It encourages us to talk, to move around, to sing, to dance, to use our **imaginations,** to **daydream,** to talk to others, and to **think** deeply about ourselves. Having opportunities to work in all these ways is interesting and challenging.



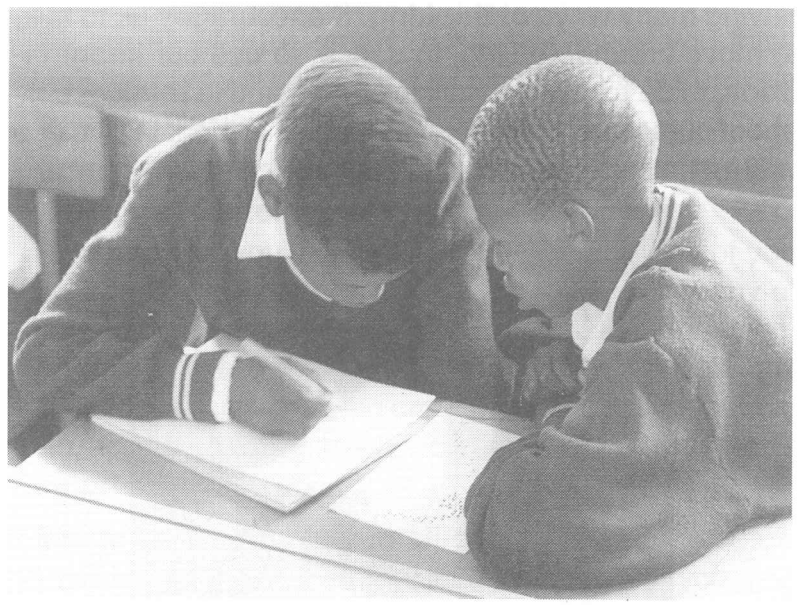


- Ask your learners to say what they **think** they are good at.
- **Think** of the learners who have not volunteered any information, and tell these learners what you know they are good at.
- Ask each learner to draw a picture of him or herself doing some **thinking** that s/he does well. Invite them to write (or dictate) a sentence or two under their pictures. Ask each learner to show his/her picture to another learner, and to read the text or share what he/she has drawn. It would be very nice if you can display your learners' work. Ignore spelling mistakes. (The purpose of the activity is to communicate ideas about thinking – not to spell correctly!)

Intermediate and Senior Phase learners

Ask your learners to sit in groups of four. Each group needs to think about each of the 7 intelligences, one by one. As they talk about each intelligence, ask them to suggest who in their group has that intelligence. They need to identify at least two intelligences for each person.

Each person also needs a turn to say what she or he is good at, and what intelligence she or he would like to develop. When they have completed this discussion, each group of four can talk to another group of four, and share their findings with each other.



Bring this discussion to a close by asking your learners (who will be still sitting in groups of 8) to talk about what they think about the theory, and why. What have they learnt that is new or surprising?

Finally, ask each learner to get his/her Journal and to write and/or draw a thought she or he had while doing this Activity. (This is the first part of their research. The next part will take place on another day.)

Later, on the same day, open your Journal and reflect on this Activity. What were your thoughts before you carried out this Activity? Why do you think this was so?

Then, in your mind, go over what happened. What surprised you? Why? What did you notice in particular? Write a description of what happened. Mention the things which surprised you, and explain why. Next think about what you learned about your learners. What did you learn that you didn't know before? In what ways could you take this Activity further?

Picture Smart

Word Smart

Number Smart

A Boy's Head

In it there is a space-ship
and a project
for doing away with piano lessons.

And there is
Noah's ark,
which shall be first.

And there is
an entirely new bird,
an entirely new hare,
an entirely new bumble-bee.

There is a river that
flows upwards.

There is a multiplication table.

There is anti-matter.

And it just cannot be trimmed.

I believe
that only what cannot be trimmed is a head.

There is much promise
in the circumstance
that so many people have heads.

Miroslav Holub
Translated from the Czech by Ian Milner

Music Smart

Nature Smart

Number

Unit 3 - Different speeds of thinking

In Unit 1, in Activity 1a, we asked you to think about whether you think at different speeds. Although this might seem a strange question, we want to come back to it. We want you to think carefully about this aspect of your thinking. Read the questions below, and spend some time thinking about your responses to them.

- Often we **think** very quickly. Can you **think** of two examples of **quick thinking?** One should be an example of **everyday thinking,** and one an unusual situation when you needed to **think at lightning speed.**
- Do **thoughts** sometimes 'pop-up' in your mind when you are not even aware that you are **thinking?** You might find that you are surprised, or even a little shocked at your **thoughts.**
- Can you **think** of situations that have required a long period of **thinking time?** Something might have taken days, weeks or even longer to resolve.
- Are there times when you do not want to **think?** Can you **remember** an occasion like this? What might make you feel this way?

Guy Claxton, in his book *Hare Brain, Tortoise Mind* suggests that our minds possess three different processing speeds.

Guy Claxton is a professor of psychology and education. He has written widely on how to become more peaceful, creative, skillful and alert in daily life.

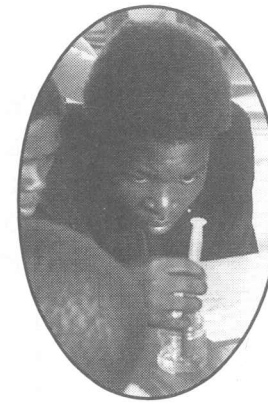
The first is **faster than thought.** Guy Claxton says that some situations demand instant, unselfconscious reactions. When this happens, we are able to take in information at lightning speed, and we are able to react almost as quickly as we become aware of the situation. He gives an example of this type of situation:

Choreograph - that usually means to design or create a dance

> When my motor bike skidded on a wet manhole cover in London some years ago, my brain and my body immediately choreographed for me an intricate and effective set of movements that enabled me to keep my seat – and it was only after the action was all over that my conscious mind and my emotions started to catch up.
>
> Neither a concert pianist, nor an Olympic fencer has time to figure out what to do next. There is a kind of 'intelligence' that works more rapidly than thinking. This mode of fast physical intelligence could be called our 'wits'. [The five senses were originally known as the five wits.] (Claxton: 2)

Claxton then describes another way of thinking. This is one we are all familiar with: **'deliberate' thinking.** This type of thinking is traditionally associated with schools. Schools and teachers often focus on, and restrict, their learners to ways of thinking that operate in a high-speed mental climate. Learners are encouraged to be articulate, explicit, purposeful and to show their reasoning. This way of thinking is very good at solving analytic and technological problems. In the following quote, Claxton defines what he means by 'deliberate' thinking in this way:

Then there is thought itself: the sort of intelligence which does involve figuring things out, weighing up the pros and cons, constructing arguments and solving problems. A mechanic working out why an engine will not fire, a family arguing over brochures about where to go for the next summer holiday, a scientist trying to interpret an intriguing experimental result, a student wrestling with an examination question: all are employing a way of knowing that relies on **reason and logic,** on **deliberate conscious thinking.** We often call this kind of intelligence 'intellect' – though to make the idea more precise, I shall call it d-mode, where the 'd' stands for deliberation (deliberate thinking). Someone who is good at solving these sorts of problems is thought of as 'bright' or 'clever'. (Claxton: 2)



Read the extract which follows in which Guy Claxton describes and explains what he means about this kind of thinking - **deliberate thinking.**

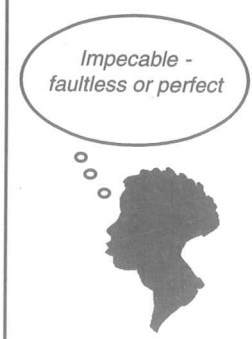
The Speed of Thought - D-mode

D-mode is much more interested in finding answers and solutions than in examining the questions. Being the primary instrument of technopoly, and as such centrally concerned with problem-solving, d-mode treats any unwanted or inconvenient condition in life as if it were a 'fault' in need of fixing; as if one's loss of libido or turnover were technical malfunctions which one ought - either by oneself, or with the aid of an 'expert', such as a counsellor or a market analyst - to be able to put right.

D-mode treats perception as unproblematic. It assumes that the way it sees the situation is the way it is. The diagnosis is taken for granted. The idea that the fault may be in the way the situation is perceived or 'framed', or that things might look different 'on closer inspection', does not come naturally to d-mode.

D-mode sees conscious, articulate understanding as the essential basis for action, and thought as the essential problem-solving tool. The activity in d-mode is predominantly that of gaining a mental grasp, or figuring out. This may involve the impeccable rationality of the proto-typical scientist, with her equations and flow charts and technical terms. Or it may involve the more common-or-garden kinds of thinking: weighing up the pros and cons of a decision; talking things through with a friend; jotting down thoughts or making lists on the back of an envelope; trying out arguments over dinner, discussing family arrangements, making a sales pitch. Though this latter kind of thinking may not match up to the exacting standards of the professional philosopher or mathematician, and is often full of unnoticed holes, nevertheless it is, in its form and intent, 'quasi' or 'proto'-rational.

D-mode values explanation over observation, and is more concerned about 'why' than 'what'. Sometimes figuring out is designed to get directly



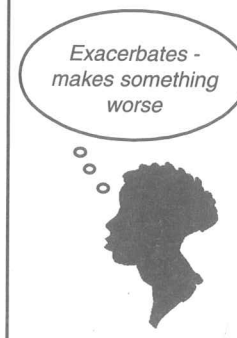
to the point of action. But commonly, either as a means or an end in itself, what it seeks is understanding or explanation. The need to have a mental grasp, to be able to offer, to oneself if not to others, an acceptable account of things, is an integral part of d-mode. Right from playschool, adults will be asking children: 'What are you trying to do?', or 'That's interesting; why did you do that?' And children quickly get the idea that they ought to know what they are up to, what they are trying to achieve; and to be able to give an account of themselves, their actions and their motives, to other people. They come to assume, with their parents and teachers, that it is normal to be intentional, and proper to have explanations to offer. As ever, there is no problem with this *per se;* it is a very useful ability. But when this purposeful, justificatory, 'always-show-your-reasoning' attitude becomes part of the dominant default mode of the mind, it then tends to suppress other ways of knowing, and makes one sceptical of any activity whose 'point' you cannot immediately, consciously see.

D-mode likes explanations and plans that are 'reasonable' and justifiable, rather than intuitive. The demand that ideas always come with supporting arguments and explanations may lead one to reject out of hand thoughts that are in fact extremely fruitful, but which arrive without any indication of their pedigree or antecedents. The productive intuition can be overlooked in favour of the well-argued case. And if explanation comes to be seen as a necessary intermediary between a problem and a plan of action - if one does not feel qualified to act without a conscious rationale - then again one might miss out on some short cuts and bright ideas. Doubt, in the sense of a lack of conscious comprehension, becomes stultifying rather than facilitating; a trap rather than a springboard.

D-mode seeks and prefers clarity, and neither likes nor values confusion. Because of its concern with justification, d-mode likes to move along a well-lit path from problem to solution, preserving, as it goes, as much of a mental grasp as it can. It prefers learning that hops from stepping-stone to stepping-stone, without getting its feet wet, like a mathematical proof, or a well-argued report that progresses smoothly from a problem, to a clear analysis, to a plausible solution, to an action plan. And while some learning may proceed in this point-by-point fashion, much does not. Often learning emerges in a more gradual, holistic way, only after a period of casting around for a vague sense of direction, like a pack of hounds that has lost the scent. An artist composing a still life, a client in psychotherapy, even a scientist on the verge of a breakthrough: none of these (as we shall see) would be functioning optimally in d-mode. To undertake this kind of slow learning, one needs to be able to feel comfortable being 'at sea' for a while.

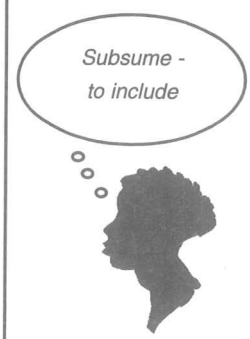
D-mode operates with a sense of urgency and impatience. It is accompanied by a subtle - or sometimes gross - sense of not having enough time; of wanting things to be sorted out soon; of getting irritable when the fix is not quick enough. Fuelled by this sense of urgency, we

find ourselves living, increasingly, in the fast lane. And the technology - be it planes or Powerbooks, microwaves or modems - tracks this need, but also channels and exacerbates it. If you have to wait for the TV news, or tomorrow's newspapers, to hear about the rumours on Wall Street, or a small earthquake in Peru, you're not a serious player. Our intolerance of dissatisfaction, or even of a delay in information, comes to dictate the kind of mind-mode with which we meet any kind of adversity.



D-mode is purposeful and effortful rather than playful. With problem-solving and impatience comes a feeling of mental strain, of pushing for answers that would not arrive by themselves, or certainly not quickly enough. In d-mode there is always this sense, vague or acute, of being under time pressure, and of being intentional, purposeful, questing: of needing to have an answer to a pre-existing question, whether it concerns a fault in the production line or the meaning of life. Once this busy activity becomes all we know how to do, the default mode, then we are going to miss any fruits of relaxed cognition.

D-mode is precise; it tends to work with propositions made up of clearly defined symbols, preferably the hyper-precise languages of mathematics and science, where every term seems to be transparent and complete. A model of the national economy which can be represented as a sophisticated computer program, in which everything which has no measure has no place and no value - is taken more seriously than one which may subsume a richer view of human nature, but which is less explicit and precise. The history of scientific psychology - a d-mode enterprise if ever there was one - is full of precise theories about how memory works, for example, which make quantitative predictions about arcane laboratory tasks, but which simply ignore almost everything that people find interesting about their own powers of retention. When I was working on memory for my doctorate, I stopped telling people at parties because they would inevitably start to ask me all kinds of fascinating questions to which my detailed knowledge was embarrassingly irrelevant. (Happily things in memory research have improved somewhat in the last twenty-five years.)



D-mode relies on language that appears to be literal and explicit, and tends to be suspicious of what it sees as the slippery, evocative world of metaphor and imagery. If something can be understood, it can be understood clearly and unambiguously, says the intellect. An intimation of understanding that does not quite reveal itself, that remains shrouded or indistinct, is, to d-mode, only an impoverished kind of understanding; one that should either be forced to explain itself more fully, or treated with disdain. Poetry does not capture anything that cannot ultimately be better, more clearly rendered in prose, and rhetoric is a poor cousin of reasoned explanation.

D-mode works with concepts and generalisations, and likes to apply 'rules' and 'principles' where possible. D-mode favours abstraction over

particularity. It works with what is generic or prototypical. It talks about 'the workforce', 'the rational consumer', 'the typical teacher', 'the environment', 'holidays', 'feelings'. Even individuals are treated as generalisations, collections of traits and dispositions. 'John Major' and 'Cher' are as much abstractions as 'the national debt' or 'the state of Welsh rugby'. The idea that a kind of truth could be derived from a close, sustained but unthinking attention to a single object is foreign to d-mode.

Language necessarily imposes a certain speed, a particular time frame, on cognition, so *d-mode must operate at the rates at which language can be received, produced and processed.* If you speed speech up it soon becomes unintelligible. If you slow it down beyond a certain point it loses its meaning. (Old-fashioned vinyl '45s', when played at either 33 or 78 revolutions per minute, demonstrate this phenomenon nicely.) Those modes of mind that work very slowly (or, for that matter, very fast) cannot, therefore, operate with the familiar tools of words and sentences. They need different contents, different elements - or perhaps no conscious elements at all. And without the familiar ticker tape of words rolling across the screen of consciousness, there may come a disconcerting feeling of having lost predictability and control. Thus d-mode maintains a sense of thinking as being controlled and deliberate, rather than spontaneous or wilful. (Claxton: 7-10)

Claxton then goes on to suggest a third 'way of thinking'. He says that this way is **slower,** and **takes more time.** This happens when we allow ourselves **time** to think. Perhaps we might have a difficult question, or a problem, that needs to be thought about very carefully. Or perhaps we allow ourselves to daydream, and to use our imagination peacefully to think about something that has captured our interest. Claxton talks about this **slower way of thinking** in this way:

> But there is another mental register that proceeds more slowly still. It is often less purposeful and clear-cut, more playful, leisurely or dreamy. In this mode we are ruminating, or mulling things over, being contemplative or meditative. We may be pondering a problem, rather than earnestly trying to solve it. What is going on in the mind might be quite fragmentary. What we are thinking might not make sense. Sometimes we may not be aware of much at all. . . These leisurely, apparently aimless ways of knowing are just as 'intelligent' as the other faster ones. (Claxton: 2)

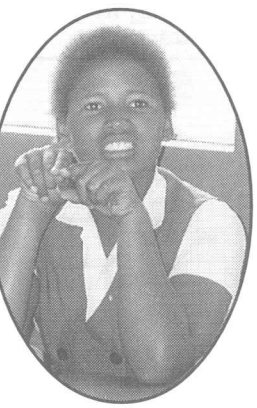
Claxton suggests that some kinds of situations are better, and more effectively approached with a slow mind. He argues that many problems and mysteries can only be penetrated and solved with a relaxed, and open mind. This type of thinking is suited to situations that are intricate, shadowy or ill defined.

Deliberate thinking, (what Claxton calls *'d-mode thinking'*), works well when the problem we want to solve is well defined. One example he

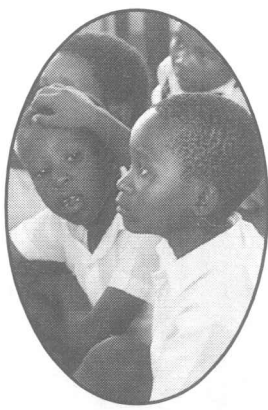
uses is that of a mechanic working out why an engine will not fire. Another is of a student answering an exam question. Both these problems use a way of thinking that relies on logic and reason.

But if the problem we want to solve is how to manage a difficult group of people at work, or whether to give up being a manager and retrain as a teacher, we may need to sit quietly, consult others, and ponder the problem. He comments that this third type of intelligence is *"associated* with what many people call creativity, or even *wisdom".*

In his book, *Hare Brain, Tortoise Mind,* Claxton challenges the view that only *'d-mode'* (deliberate) thinking is important. He argues that western culture values and recognises *'d-mode'* thinking, and undervalues creative and intuitive thinking. He says:



> For my argument is not just that slow ways of knowing exist, and are useful. It is that our culture has come to ignore and undervalue them, to treat them as marginal and recreational, and in so doing has foreclosed on areas of our psychological resources that we need.
>
> Despite the widely held assumption that the d-mode represents the most powerful thinking tool we possess – which makes it the one we call upon, or revert to, in the face of urgent demands for solutions – the truth is that our ideas, do not arrive as the result of faultless chains of reasoning. They 'occur to us'. They 'pop into our heads'. They come out of the blue. When we are relaxed we operate very largely by intuition. (Claxton: 49)



Does this 'slow way of knowing' that Claxton describes seem familiar to you? Think about your own thinking. Can you remember a certain problem, or question, that you attended to in a slower way? It would be interesting to find out whether some people think in this way more than others. Think about your own family, and the people you have known well in your life. Do you know anyone who makes good use of this way of thinking?

Many people have described this slower way of thinking. Interestingly it is not only people we think about as being creative, such as writers, poets, artists, musicians and dancers who think in this way. Many famous scientists and mathematicians also speak of the importance of thinking in slower, or visual, or shadowy ways.

Albert Einstein talked about thinking in images and pictures, and the importance of playing with images. He said this about his own creative process:

> The words of language as they are written or spoken do not seem to play any role in my mechanism of thought. The psychical entities which seem to serve as elements of thought are signs and more or less clear images which . . . are in my case of visual and some of muscular type. These elements take place in a rather vague play. This play seems to be the essential feature in productive

> thought, before there is any connection with logical construction in words or other kinds of signs, which can be communicated to others. In a stage where words intervene at all, they are, in my case, purely auditive, but they interfere only in a secondary stage. (Claxton: 56)

Another scientist, Kekule, also spoke about thinking in images. When pondering about the carbon atoms of the benzene molecule, he saw, in his mind's eye, snakes that turned round and bit their own tails! This image helped him take his thinking further.

Someone who has spoken beautifully about this shadowy way of thinking is Ted Hughes, a British poet. In the 1960's Ted Hughes gave a series of talks about writing for young people, on the radio. In one of the talks, he described this quality of gentle attentiveness to one's own mind, and of how he struggled to catch hold of his unclear, shadowy thoughts.

Ted Hughes has written a wonderful children's book called, The Iron Man. Try to get a copy to read to your learners.

> At school . . . I became very interested in those thoughts of mine that I could never catch. Sometimes they were hardly what you would call a thought – they were a dim sort of feeling about something . . . (and) . . . for the most part they were useless to me because I could never get hold of them. Most people have the same trouble. What thoughts they have are fleeting thoughts – just a flash of it, then gone, or, though they know they know something, or have ideas about something, they just cannot dig these ideas up when they are wanted. Their minds, in fact, seem out of their reach. . . The thinking process by which we break into that inner life . . . is the kind of thinking we have to learn, and if we do not somehow learn it, our minds lie in us like fish in the pond of a man who cannot fish . . . Perhaps I ought not to call it thinking at all. I am talking about whatever kind of trick or skill it is that enables us to catch these elusive or shadowy thoughts, and to collect them together, and hold them still so we can get a really good look at them. (in Claxton: 80)

The French mathematician, Henri Poincare has written:

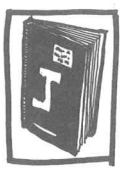
Poincare also tells the story of how he had been struggling for a long time, on and off, to solve a particularly difficult mathematical problem. He explains that one day as he was getting off a tram (bus) in Paris, the answer just came to him suddenly, without warning.

> Often when one works at a hard question, nothing good is accomplished at the first attack. Then one takes a rest, longer or shorter, and sits down to work again. During the first half hour, as before, nothing is found, and then all of a sudden a decisive idea presents itself to the mind . . . The role of this unconscious work in mathematical invention appears to me incontestable. (in Claxton: 60)

Michael Brown, a Nobel Prize medicine laureate, talks about how his team worked intuitively (by following their feelings). Often the team he was working in could not describe and tell you what steps they were taking. Instead they often found that they would move ahead, without really knowing whether they were doing the right thing. He talks about their work in this way:

As we did our work, we felt at times that there was almost a guiding hand helping us. Because we would go from one step to another, and somehow we would know which was the right way to go.

What do your learners think of this theory?



Spend a little time carefully reflecting on what you have read so far in this Unit. If necessary, go back and re-read parts to make certain that you are clear about what Claxton is suggesting. Write down what you think in your Journal. This is important because you want to help your learners think about this in the next Activity.

Activity 3 - What learners think

Foundation Phase Teachers

Read the Intermediate Phase text below. You will know best how to introduce the discussion to your learners. Perhaps first talk about a hare and a tortoise. The one is quick, the other slow. Ask your learners if they think we can **think** at different speeds – quickly and slowly. Let them think about this, and give you ideas, before you talk about Claxton's idea that we have 3 speeds of thinking. Also tell them the title of his book, and ask them what they think the book talks about. You might like to ask them if everything that is written in a book, is true. Or are books really about people's ideas?

Conclude the activity by first inviting your learners to draw a picture of themselves thinking. It would be nice if they could also write something underneath their picture. Don't worry about spelling. Ask them to show their picture to someone, and to read their story. If possible, display their pictures. Later select at least 6 pictures for your Concertina File. Put them into an envelope, and write the name and number of this Umthamo, and the date, clearly on the envelope. Store this safely for your next Portfolio Assessment.

Don't forget to ask your learners if they enjoyed thinking about their thinking in this way. Invite your learners to say what they think, and write in their Journals, if they choose to do so. They may want to copy or paste their work into their Journals. Make notes of what they tell you.

Intermediate and Senior Phase Teachers

In this activity your learners will think about Claxton's ideas. Then they will comment on whether they think his ideas are interesting, or useful, or not.

Start the activity by telling your learners that you are going to introduce another person's thoughts about thinking.

The person, Guy Claxton, is a teacher at a university. He has written a book called *Hare Brain, Tortoise Mind.* In his book he suggests that we have at least three different ways and speeds of thinking.

1) Sometimes we need to **think very, very quickly.** This often occurs when something unexpected happens, perhaps an emergency. Guy Claxton gives an example of himself riding a motorbike on a wet road one evening. He rode over a manhole cover, and suddenly his motorbike went into a skid. Somehow, and instantly, his mind and body worked together, and he was able to avoid an accident, and pull himself out of the skid. Only after he was safe did his emotions and thoughts catch up. Claxton suggests that in situations like this, our five senses play an important role – they give us information. Our eyes provide us with information, as do our ears, as do our hands and body (hands hold and steady the motorbike, and the body has to move in such a way that it helps keep the motor bike upright).

- Ask your learners if they have ever needed to think very quickly, like Guy Claxton.
- Get your learners to share such experiences with the whole class.
- You might also talk about how our five senses give us information. Whose sense of smell has provided important information? What information does tasting give us? Whose sense of hearing has provided important information?

2) The second way of thinking Claxton talks about is the type of thinking your learners do everyday at school. This way of thinking asks us to be clear, precise and rational. An example of this would be doing mathematics, (especially if learners are not encouraged to think creatively and talk when they do Maths, but are expected to all work in the same way), or the language exercise opposite, when learners are asked to read the sentences, and rewrite them in the correct sequence.

3. Continue this "string" of halves by filling in the missing numerators or denominators. Watch for a pattern.
$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{\square}{8} = \frac{5}{\square} = \frac{\square}{12}$

4. Vusi says that $\frac{1}{2} = \frac{3}{6}$ and $\frac{1}{2} = \frac{8}{16}$
Andile says that he can change these to:
$\frac{1 \times \square}{2 \times \square} = \frac{3}{6}$ and $\frac{1 \times \square}{2 \times \square} = \frac{8}{16}$

(a) What numbers should go into the frames (□)?
(b) What is the pattern or rule that joins these pairs of equivalent fractions?
(c) Test some other pairs of equivalent fractions to see if your rule always works.

5.

Equivalence rule

$\frac{1}{2} = \frac{3}{6}$ (×3 above, ×3 below)

If you **multiply** the numerator and the denominator of any fraction by the same number you will have **an equivalent fraction.**

$\frac{8}{16} = \frac{1}{2}$ (÷8 above, ÷8 below)

If you **divide** the numerator and the denominator of any fraction by the same number you will have an **equivalent fraction.**

Test the division rule for equivalent fractions in these:
(a) $\frac{4}{16} = \frac{1}{4}$ (b) $\frac{6}{8} = \frac{3}{4}$ (c) $\frac{6}{16} = \frac{3}{8}$

'Thank you', he said aloud, looking up at the heavens.

Suddenly he felt himself skidding.

One wet, rainy night Guy was riding his motorbike.

He did not know how, but he held onto his bike, and did not crash onto the ground, or into the oncoming motorist.

Claxton suggests this way of thinking is useful when we need to think quickly, (if we are short of time) or, if the problems we need to solve are straight forward. He uses the examples of a family planning a holiday, or a student answering an exam questions (This is a good example of a situation when we are expected to think very quickly.) Can your learners think of other examples when they think **deliberately** in this way.

When we think in this way, we almost always use words, and numbers. We also know that we are thinking.

3) The third way of thinking Claxton talks about is a **slow, gentle, unhurried** thinking. We might need days, or weeks, or even months to think about something. Often we use our imaginations. Many people think in images (pictures). Often we day-dream. Sometimes we are not even aware that we are thinking, when suddenly an idea 'pops-up' into our minds.

- Give a personal example of when you have needed to think in this way.
- Then ask your students to sit in groups of four and to talk about this way of thinking.
- Who enjoys thinking like this?
- Can each learner think of times when she or he has thought in this way?

In the next part of this Activity, ask your learners to take out their Journals, and to write or draw something personal about themselves thinking in one of the ways Guy Claxton has talked about. When this work in finished, encourage each learner to show her/his Journal to another person.

Make a note of any interesting Journals that you may want to collect and include when you do your Portfolio Presentation at the end of the second year of your course.

Draw this discussion to a close by asking your learners to talk about what they think about the theory. Why do they say this? Have they learnt anything new or surprising? Do they see any links with the multiple intelligence theory? What do they think of the title of Claxton's book, *Hare Brain, Tortoise Mind?*

Unit 4 - Understanding children's minds

Bruner has always been interested in the role culture plays in education. In 1987 he was awarded the International Balzan Award for his 'lifelong contribution to the understanding of the human mind'

In this Unit we are going to read some extracts from a book by Jerome Bruner. He is a psychologist who is highly regarded by many people. We will ask you to read several texts from *The Culture of Education,* in which he comments on the many theories about thinking. Instead of summarising what different theorists have to say about thinking, Bruner approaches *theories about thinking* in a **different** way. He looks at how theorists **think about children.** He is particularly interested in how theorists believe children learn, and what each theorist thinks about **the power of children's thinking.**

We sugget that you read this Unit with a colleague. In this way you can read each point, and then pause to discuss your reading of the text. This is likely to give you a much richer reading of Bruner's ideas.

In his book, *The Culture of Education,* Jerome Bruner suggests that there are "four dominant models of learners' minds that have held sway in our times."

1) Teaching is about expecting children to imitate one's thoughts and actions - the acquisition of 'know-how'.
2) Teaching is about passing on - the acquisition of 'facts'.
3) Teaching is about understanding what children think – seeing children as powerful thinkers - making sense of things.
4) Teaching is about helping children link their own personal knowledge to generally accepted knowledge in the world of work and school.

We will look more carefully at each of these four categories below. As you read, think about which category is closest to what you believe.

1. Seeing children as imitative learners: the acquisition of 'know-how'

Parents and teachers often demonstrate, or model, a way of doing something. Such parents, and teachers, believe that **children learn by imitation.** *"The expert seeks to transmit a skill he has acquired through repeated practice to a novice, who in turn, must then practice the modelled action in order to achieve".* (Bruner: 53)

One approach used in teaching children how to read, uses this model of learning. A teacher, or parent, or older child, will invite a learner reader to sit next her. The experienced reader will then read, inviting the learner to listen, look at the pictures. Slowly, as the child begins to predict some of the text, s/he is invited to join in and read the text together with the experienced reader. This approach to reading is sometimes called an **apprenticeship** or **shared reading** approach. You can probably think of several professions also make use of apprenticeship training.

Bruner suggests that simply demonstrating "how to do" and providing practice at doing something, is not enough. He suggests that a combination of practice and conceptual understanding is necessary.

2. Seeing children as learning from didactic exposure: the acquisition of knowledge

This teaching is usually built on the belief that pupils should be presented with facts, principles and rules, which must be learned, remembered and then applied.

"In effect this view assumes that the learners mind is a blank state. Knowledge put into the mind is taken as accumulative, with later knowledge building on prior existing knowledge." (Bruner: 56)

More important is this view's assumption that the **child's mind is passive,** a **receptacle to be filled.** Active interpretation or construction does not enter the picture. It is blankly one-way: **teaching is not a mutual dialogue, but a telling by one to another.**

Often, the teacher (or parent) assumes that the learner is ignorant, and that the teacher has all the knowledge. As Bruner says: *"what is to be learned by the pupil is conceived as 'in' the mind of the teachers, as well as in books, maps, art, computer databases, or wherever. Knowledge is simply to be looked up, or listened to. In this teaching scenario, abilities are no longer conceived of as knowing 'how to do' something skilfully, but rather as ' the ability to acquire new knowledge by the aid of certain 'mental abilities': verbal, spatial, numerical, interpersonal, whatever."*

Bruner goes on to say: *"The world is indeed full of facts. But facts are not of much use when offered by the handful – either by teacher to class, or in the case of from pupil to teacher (as in an exam). In this belief, if the child fails to perform adequately, her lack of 'mental abilities' or her poor home background, or her low IQ can explain her shortcomings, and the educational establishment gets off scot-free."*

3. Seeing children as thinkers: the development of intersubjective exchange

The teacher, in this view, is concerned with **understanding what the child thinks,** and **how she/he arrives at what she believes.**

"Children, like adults, are seen as constructing a model of the world to aid them in constructing their experience . . . Such a view presumes that all human minds are capable of holding beliefs and ideas, which through discussion and interaction, can be moved towards some shared frame of reference. Both adults and children have points of view, and each is encouraged to recognise the other's, though they may not agree." (Bruner: 56)

The purpose of teaching is to help the child understand better, and more powerfully. Understanding happens through discussion and collaboration.

"The child is not merely ignorant, or an empty vessel, but somebody able to reason, make sense, both on her own and through discourse

(discussion) *with others. The child, like the adult, is capable of thinking about her thinking, and of correcting her ideas through reflection – by going 'meta' as it is sometimes called."* (Bruner: 57)

4. Children as knowledgeable: the management of objective knowledge

This view suggests that teaching should help children grasp the **difference** between their own **personal knowledge**, on the one hand, and 'what is taken to be **known by culture**' on the other. Bruner says:

"They must not only understand the difference between these two types of knowing, but also understand its basis in the history of knowledge. In this way learners come to understand and view personal knowledge against a background of what has come to be shared with the historical past. So the fourth view holds that there is something special about 'talking' to authors, now dead but still alive in their ancient texts'. In this way students will be 'going meta on thoughts of the past." (Bruner: 62)

Bruner acknowledges that teachers seldom make use of only one way of understanding children's minds:

"Real schooling, of course, is never confined to one model of learner or one model of teaching. Most day-to-day education in schools is designed to cultivate skills and abilities, to impart a knowledge of facts and theories, and to cultivate understandings of the beliefs and intentions of those nearby and far away." (Bruner: 63)

Bruner then goes on to suggest that the four views of teaching-and-learning can be placed in two categories. Either as internalist theories, or externalist theories.

Externalist theories emphasise **what adults can do for children from outside** to *foster* learning. *Internalist* theories on the other hand focus on what the **child is doing**, and what the **child thinks she or he is doing.**

We would like to end this Unit with a last quote from Bruner.

Modern psychology is increasingly moving to the view that the child should be aware of her own thought processes, and that it is crucial for the pedagogical theorist and teacher alike to help her become more metacognitive – to be as aware of how she goes about her learning and thinking, as she is about the subject matter she is studying. Achieving skill and accumulating knowledge are not enough. The learner can be helped … by reflecting upon how she is going about her job and how her approach can be improved. Equipping her with a good theory of mind – or a theory of mental functioning - is one part of helping her to do so. (Bruner: 65)

We can think of the models as four roads meeting at an intersection. Each road represents a different way of seeing knowledge and thinking. Which road is the one most travelled by you?

Unit 5 - Reflecting on thinking about thinking

One issue we would like you to think seriously about is whether schools should encourage and develop their learners' visual and performance skills. What opportunities are learners given to do drama and dance; to compose and perform music; to write and perform their poetry, songs, stories and plays; to do art, whilst they are learning? Should these ways of thinking and expression have a place in the school curriculum?

In 1999, many teachers presented wonderful portfolios of their learners' creative work. It was clear that learners had been given opportunities to develop their visual and performance skills. Their teachers are to be congratulated!

Some people would argue against this, saying schools should not concern themselves with these types of experiences. A popular argument is that learners who want to do these types of activities, can do so after school. We hope that you are able to argue, clearly, in support or against the visual and performance arts as having a place in the school curriculum.

The trend - in South African state schools - is to exclude these ways of expressing oneself in the curriculum. A very small number of schools offer some of the above as extra-curricular subjects. If you consider the learners in your school, you are likely to have future song writers, dancers, film makers, actors, photographers and writers sitting in your classrooms.

The new OBE curriculum encourages educators to provide creative opportunities for their learners.

A good question to ask is, *What can students (and teachers) learn from expressing themselves in these ways?* We would like you to carry out the following research, with your learners, over the next few weeks. This work can continue throughout the term. Perhaps you can work with a colleague. We would like you to open-up opportunities for your learners to express themselves in some of the following ways:

- writing songs, or poems, or creative writing
- praise-singing - imbongi - and spontaneous poetry
- composing and presenting a piece of music
- expressing oneself through dance, or movement
- expressing oneself through acting, or mime
- having an opportunity to create works of art: this could be drawing, or constructing a three-dimensional work

Now we want you to reflect on your experiences and thinking as you have worked through this umthamo. Then you will write a Reflective Report.

Activity 5 - Key Activity - Reflecting on thinking

Part 1 - A reflective discussion

When you have this discussion with your learners, they will have been keeping a Journal about their thinking for about three weeks. Start off by asking them to think about their Journals, and what they have been drawing and writing in these books. Then tell them to work with a partner and to share with each other the ways in which their Journals have helped them.

After 5 minutes, chair a whole class discussion. Ask your learners what they have enjoyed most about drawing and writing down their thoughts in their Journals. Then invite them to say how the journals have helped them.

As your learners share their experiences and thoughts, make notes of what they say. You will need to refer to this discussion later when you write your Reflective Report.

Next, remind them of the discussions that you have had with them about Howard Gardner's theory of Multiple Intelligences. Ask them how learning about what he thinks about thinking and learning has affected them.

In the same way remind them about the discussion you had with them about Guy Claxton's ideas about three ways of thinking. In what ways have his ideas affected the ways your learners think about thinking?

End the discussion by telling your learners that they will be using their Journals throughout the year. Tell them that you want them to draw and write down any thoughts they have. Just as your Journal is somewhere where you can write whatever you think or want to say, their Journals, are the same. You may want to share with them the fact that many learners all over the world have Journals. And they put down in their Journals all the things that are puzzling them. These children find that keeping a Journal about their thoughts helps them to solve problems.

At the end of the day, spend some time writing about this discussion in your own Journal. Write down some of the things that your learners said. What surprised you? Why? What did you learn about the ways your learners think from this discussion? How will this help you when you are planning work for them to do? What else would you like to know? How can you find this out?

Make sure that they continue to record their thinking in their journals regularly throughout the year. We would like to hear how the use of journals effects your learners' thinking and learning.

Part 2 - Writing a Reflective Report

Reflecting on your experiences in this umthamo

In this Reflective Report we want you to write about what **you** think about **thinking.** First of all, you will need to re-read what you have written in your Journal as you have worked through this umthamo. If you have used a different colour pen, you will be able to easily find where you have written about thinking in general, your own thinking, and your learners' thinking.

You may want to re-read the Readings in Unit 2 and Unit 3. Your responses to these Readings, which you have recorded in your Journal, will also help you as you re-visit these extracts.

Then you need to think about how your learners' Journals have helped them. And you will need to think about how they responded to learning about Howard Gardner's and Guy Claxton's theories. In what ways have these theories affected them?

Planning what you will write

Now take a clean piece of paper and make a mind-map of all these aspects. What did you think about thinking when you first started working through this umthamo? In what ways has writing down your thoughts and your ideas about thinking affected you?

What did you gain from learning about Multiple Intelligences theory? In what ways is this theory affecting the way you work with your learners?

What do you think of Guy Claxton's notion that there are three speeds of thinking? How does his theory fit with the different ways you think? What effect has reading, thinking about and discussing his theory had on you?

What have you noticed about your learners? How has recording or noting down their thoughts and ideas affected them and the way they learn? What have you learned about your learners from your discussions about thinking?

How has your thinking about thinking changed? What do you think the effect will be if you and your learners continue to record your thoughts and thinking throughout the year?

Then take another piece of paper and start to write a first draft of this Reflective Report. Use the questions above as a guide. Refer to the Readings where you need to do so. Refer to what you have written in your Journal.

When you have written a substantial amount, put this draft in your Concertina File, safely. You may want to share what you have written with a colleague or a friend. It is a good idea to leave what you have written for a day or two so that you have time to think about it before you write your second draft.

Your second draft should be longer, and more substantial than the first. In fact, it should be quite thorough. You will need to include anecdotes of what your learners have said and done from the Activities you carried out with them.

It is wise at this stage to share what you have written with a peer or a friend. Ask them to tell you where you need to make what you have written clearer. Where would they like to know more, or to find more detail?

Finally, write your third draft. As you do so, you may wish to re-order some of your sentences. Check your spelling. Check that your Report makes sense, and that it is a true reflection of your experiences working through the ideas in this umthamo. Make sure that if you have copied anything from any of the quotes or Readings, that you have put it in quotation marks in your Report, and that you have referenced it correctly.

You will be expected to give a verbal report of this Reflective Report at the face-to-face session where this umthamo is concluded.

Conclusion

In this umthamo you have been thinking about thinking. You have thought about your own thinking, and about the way learners think. You have read, thought about and discussed the ideas of Howard Gardner and Guy Claxton with your learners.

Your learners have started to keep Journals. They have started by noting down and recording their thoughts. Very young children have drawn their thoughts, and dictated their thoughts so that they could be recorded and shared. We hope that you will continue to make time and space for both yourself and for your learners to record their thoughts on a daily basis throughout the year. We would like to hear how this practice affects the learning taking place in your classroom. We believe that you will find that it makes a difference to both your understanding of your learners, and to your learners' understanding of what they are learning.

We would like to conclude this umthamo with another extract from *The Languages of Learning* by Karen Gallas, a Grade 1 teacher. In this excerpt, Karen Gallas describes how she has found that encouraging young children to talk about their thinking, and to record their thoughts in Journals, helps them to develop their understanding of the world.

By incorporating journals and talks into my curriculum, I hoped to tap into the child's internal conversations, or personal narratives, which I remembered from my childhood as accompanying my exploration of the world, and which I often observed in my own children as they wandered alone outside. These conversations with oneself are filled with pondering and surprise; they contain strands of thinking and reasoning rich in association, personification, metaphor, and analogy. They also include what I call invisible questions, that is unvoiced questions that children form when they encounter a phenomenon that at the time seems inexplicable: a mirage on a hot road, the rainbow of an oil spill on a city street, an encounter with a person from another culture.

Normally in classrooms these narratives are not placed in the public domain. They are rarely voiced within the context of the school day, and hence their potential as powerful tangents of thought is never tapped. Occasionally they find their way into the classroom record through informal discussions, or more subtly, as images in painting or drawing.....The use of journals and talks, then, was established so that children would identify this type of thinking as an important resource in school. In essence, by developing

a formal structure that elicited their personal narratives as an integral part of the curriculum, I hoped to prod the children to make their silent conversations public. (Gallas: 79)

What emerges from these talks, however, goes beyond a search for correct or right-minded ideas. In these talks, children take over the discussions and moderate their own talk. They restate preceding ideas, modify them, extend them; they question, ask for clarification, give credit for early insights, and when necessary, call for order. In fact, I have found that every child who is silent during the early talks, begins to speak, question, and propose theories as the year progresses. In other words, the process of learning "how" to talk about thinking in this exploratory and collaborative manner occurs without my direct instructional intervention.

Rather, we talk very explicitly about the kind of talk we are using: what helps a discussion go forward, what stops it, how to enter a discussion, and how to give up the floor. In the early months of the talks, I have learned that I must model collaborative thinking with each new class so that they can see it as an important way of talking, even for a teacher. In addition, the children see me supporting ways of talking and giving voice to their thoughts that relate their personal sense of wonder about their world to their studies in school.

Thus, the process of making thinking visible through oral and written narratives becomes continuous with, rather than separate from, the subjects we study, and it promotes an integrated view of our curriculum. Children see that their thoughts about the world should not be neatly compartmentalized into the separate disciplines of science, history, geography, or literature, and that there are many ways to communicate that thinking. They realize that questions about the animal world lead naturally to considerations of human similarities and differences; that when they wonder about the beginning of languages, they must also consider the onset of writing; that a poem may best illustrate their understanding of the cycles of nature. Through the science journals and science talks, the use of personal narratives as important resources for understanding larger questions is recognized, and different ways of making sense of the world are valued. Children make tangible connections among the many subjects they study in school and, in a larger sense, relate their deep and very personal experience of the world to the process of their education. Gallas: 88-89)

Appendix

Checklist for Assessing Student's Multiple Intelligences

Name of Student: _____

Tick items that apply

Linguistic Intelligence

- writes better than average for age
- spins tall tales or tells jokes and stories
- has a good memory for names, places, dates, or trivia
- enjoys word games
- enjoys reading books
- spells words accurately (or if preschool, does
- developmental spelling that is advanced for age)
- appreciates nonsense rhymes, puns, tongue twisters, etc
- enjoys listening to the spoken word (stories, commentary
- on the radio, talking books, etc)
- has a good vocabulary for age
- communicates to others in a highly verbal way

Other Linguistic Strengths:

Logical-Mathematical Intelligence

- asks a lot of questions about how things work
- computes arithmetic problems in his/her head quickly (or if preschool, math concepts are advanced for age)
- enjoys math class (or if preschool, enjoys counting and doing other things with numbers)
- finds math computer games interesting (or if no exposure to computers, enjoys other math or counting games)
- enjoys playing chess, checkers, or other strategy games (or if preschool, board games requiring counting squares)
- enjoys working on logic puzzles or brainteasers (or if preschool, enjoys hearing logical nonsense such as in Alice's Adventures in Wonderland)
- enjoys putting things in categories or hierarchies
- likes to experiment in a way that shows higher order cognitive thinking processes
- thinks on a more abstract or conceptual level than peers
- has a good sense of cause-effect for age

Other Logical-Mathematical Strengths:

Spatial Intelligence

- reports clear visual images
- reads maps, charts, and diagrams more easily than text (or it preschool, enjoys looking at more than text)
- daydreams more than peers
- enjoys art activities
- draws figures that are advanced for age
- likes to view movies, slides, or other visual presentations
- enjoys doing puzzles, mazes, "Where's Waldo?" or similar visual activities
- builds interesting three-dimensional constructions for age (eg, LEGO buildings)
- gets more out of pictures than words while reading
- doodles on workbooks, worksheets or other materials

Other Spatial Strengths:

Bodily-Kinesthetic Intelligence

- excels in one or more sports (or if preschool, shows physical prowess advanced for age)
- moves, twitches, taps, or fidgets while seated for a long time in one spot
- cleverly mimics other people's gestures or mannerisms
- loves to take things apart and put them back together again
- puts his/her hands all over something he/she's just seen
- enjoys running, jumping, wrestling, or similar activities (or if older, will show these interests in a more "restrained" way - eg, punching a friend, running to class, jumping over a chair"
- shows skill in a craft (eg, woodworking, sewing, mechanics) or good fine motor co-ordination in other ways
- has a dramatic way of expressing herself/himself
- reports different physical sensations while thinking or working
- enjoys working with clay or other tactile experiences (eg, finger-painting)

Other Bodily-Kinesthetic Strengths:

Musical Intelligence

- tells you when music sounds off key or disturbing in some other way
- remembers melodies of songs
- has a good singing voice

- plays a musical instrument or sings in a choir or other group (or if preschool, enjoys playing percussion instruments and/or singing in a group)
- has a rhythmic way of speaking and/or moving
- unconsciously hums to himself/herself
- taps rhythmically on the table or desk as he/she works
- sensitive to environmental noises (eg, rain on the roof)
- responds favourably when a piece of music is put on
- sings songs that he/she has learned outside of the classroom

Other Musical Strengths:

Interpersonal Intelligence

- enjoys socializing with peers
- seems to be a natural leader
- gives advice to friends who have problems
- seems to be street-smart
- belongs to clubs, committees, or other organisations (or if preschool, seems to be part of a regular social group)
- enjoys informally teaching other kids
- likes to play games with other kids
- has two or more close friends
- has a good sense of empathy or concern for others
- others seek out his/her company

Other Interpersonal Strengths:

Intrapersonal Intelligence

- displays a sense of independence or a strong will
- has a realistic sense of his/her strengths and weaknesses
- does well when left alone to play or study
- marches to the beat of a different drummer in his/her style of living and learning
- has an interest or hobby that he/she doesn't talk much about
- has a good sense of self-direction
- prefers working alone to working with others
- accurately expresses how he/she is feeling
- is able to learn from his/her failures and successes in life
- has high self-esteem

Other Intrapersonal Strengths:

(Armstrong: 29-31)

Bibliography

Bruner, J. 1996. The Culture of Education. (Cambridge, Mass: Harvard University Press)

Claxton, G. 1996. Hare Brain, Tortoise Mind. (Fourth Estate Limited/The Ecco Press)

Fisher, R. 1995. *Teaching Children to Learn.* (Cheltenham: Stanley Thornes)

Gallas, K. 1994. The Languages of Learning. (New York: Teachers College Press)

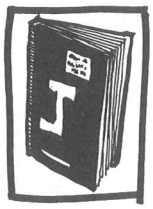
Gristwood, S. "My Thoughts" in McLeod, A (ed). 1972. *Penguin English Project Stage Two: Openings.* (London: Penguin)

Hall, N & Martello, J (eds). 1996. Listening to Children Think. (London: Hodder & Stoughton)

Holub, M. 1967. *Miroslav Holub: Selected Poems.* (London: Penguin)

Kirby, D & Kuykendal, C. 1991. Mind Matters, Teaching for Thinking. (London: Heinemann)

Armstrong, T. 1994. Multiple Intelligences in the Classroom. (ASCD)

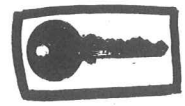


Journal

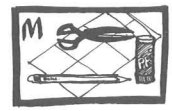
Thinking and Reflecting

Written Report

Classroom or School



Key Activity



Making materials

Reading and Thinking

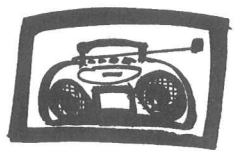
Discussion

Face-to-face umkhwezeli

Concertina File for Portfolio

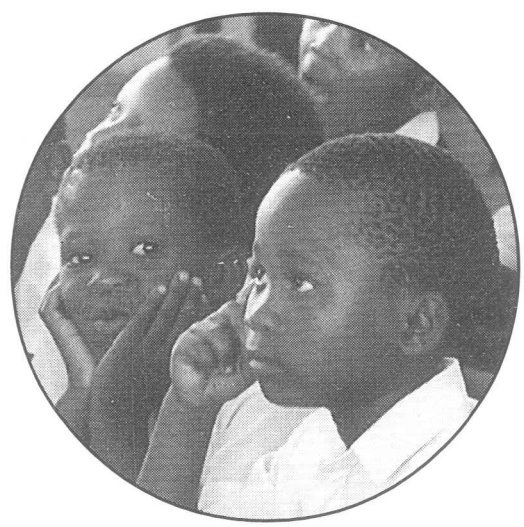
Time

Very Important – take careful note



Tape-recorder

Multigrade



For the past several years I have been talking with children about their thinking lives while they engage in reading and writing . . . As a teacher and researcher it never ceases to amaze me how articulate children are regarding their thinking lives and mental processes. Not only are young children articulate, but they are generally eager to engage in conversation regarding what goes on in their minds while playing, reading, writing and problem solving. Their enlivened feedback often indicates that they may even be flattered by the idea that someone, particularly an adult, really wants to know such personal aspects of their internal mental landscape at any given moment in time.

Ed, an eight year old, says:

"I think daydreaming is funner than thinking – 'cause thinking has to like think of ideas and you have to think of the ideas, but once you get it you can daydream with your ideas and play like – and once you get the idea you can daydream and play around with it, so you can change it and see which one you like most."

Nigel Hall & Judy Martello. 1996. Listening to Children Think (London: Hodder and Stoughton)

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