Being a Vocational Educator

A Guide for Lecturers in FET Colleges

Writers

Ian Moll, Carola Steinberg, Irene Broekmann

with

Anthony Gewer, Eileen Fisher,

Relebohile Moletsane, Saroj Sewlall

Editors

Maryla Bialobrzeska and Stephanie Matseleng Allais

South African Institute for Distance Education

South African Institute for Distance Education (SAIDE)
PO Box 31822
Braamfontein
2017
South Africa

Tel: + 27 11 403 2813
Fax: + 27 11 403 1814

Email: info@saide.org.za

Website: http://www.saide.org.za

Being a Vocational Educator
A Guide for Lecturers in FET Colleges
ISBN: 0-620-34915-8

First Published 2005

Editors: Maryla Bialobrzeska and Stephanie Matseleng Allais
Copy Editor: Paula Krynauw
Illustrations: Andre Plant
Design and Layout: Design Intervention
Printers: Fishwicks The Printers

The publication of this guide is sponsored by the Swiss Agency for Development and Cooperation (SDC)

This book is dedicated to

Irene Broekmann

friend, colleague and co-author

who died tragically
as we were
going to press

ACKNOWLEDGEMENTS

SAIDE would like to acknowledge and thank the following organisations, institutions and individuals who have generously supported and participated in the conceptualisation, planning, development and funding of this guide.

Funding

Funding for the initial research on learning and teaching, curriculum, and assessment in FET colleges and for the development of this guide was generously provided by the Swiss Agency for Development and Cooperation (SDC). Without this financial support the project would not have been possible.

Case studies

The case study research was done in the following FET colleges:

- Central Johannesburg College – Alexandra Campus
- Central Johannesburg College – Parktown Campus
- Tshwane North College for FET – Pretoria Campus
- Tshwane South College for FET – Centurion Campus

SAIDE would particularly like to thank the senior management and lecturers of these FET colleges for facilitating this research and for so generously giving of their time.

Names of lecturers interviewed as part of the case study research have been changed.

Participation in initial conceptualisation and planning

Mr Themba Ndlovu, Department of Education
Mr Steven Mommen, Department of Education
Ms Pat Telela, Department of Labour
Prof Michael Young, Institute of Education, University of London
Dr Jeanne Gamble
Mr Ivor Baatjes, University of KwaZulu Natal
Prof John Aitchison, University of KwaZulu Natal
Mr Andre van der Bijl, Cape Technikon
Mr Patrick Mafora, UNISA
Ms Stephanie Matseleng Allais, while FET coordinator at the SAIDE
Ms Maryla Bialobrzeska, SAIDE
Dr Ian Moll, SAIDE
Mr Glen Fisher, National Business Initiative
Ms Ros Jaff, National Business Initiative
Ms Marianne Scott, National Business Initiative
Ms Carola Steinberg, University of the Witwatersrand
Prof Relebohile Moletsane, University of KwaZulu Natal
Ms Irene Broekmann, University of the Witwatersrand
Ms Eileen Fisher, University of the Witwatersrand
Mr Anthony Gewer, independent consultant
Ms Saroj Sewlall, independent consultant

Critical readers

Ms Stephanie Matseleng Allais
Mr Ivor Baatjes, University of KwaZulu Natal
Mr Glen Fisher, National Business Initiative
Dr Jeanne Gamble
Ms Yvonne Reed, University of the Witwatersrand
Mr Andre van der Bijl, Cape Technikon
Ms Tessa Welch, SAIDE

Cover Photograph

Tshwane South College for FET – Centurion Campus

SAIDE gratefully acknowledges the use of the following extracts and adaptations of text, drawings and diagrams

- *A brief history of the development of the apprenticeship system in South Africa* on pp. 18–19 adapted from Gamble, J. 2004. Tacit Knowledge In Craft Pedagogy: A Sociological Analysis. Thesis for the Degree of Doctor of Philosophy in the School of Education, University of Cape Town. pp. 22–29.
- *Cabinet making case study* on pp. 61–64 based on Gamble, J. 2004. Tacit Knowledge in Craft Pedagogy: A Sociological Analysis. Thesis for the Degree of Doctor of Philosophy in the School of Education, University of Cape Town *and* Rose, M. 2004. *The Mind at Work: Valuing the Intelligence of the American Worker*. New York: Viking Books.
- Extracts on pp. 94 and 96 from Rose, M. 2004. *The Mind at Work: Valuing the Intelligence of the American Worker.* New York: Viking Books. pp. 59, 72 and 73.
- Illustration of child looking at a lizard on p. 102 adpated from Moll, I. et al. 2001. *Learners and Learning*. Johannesburg: SAIDE/OUP p. 47.
- Transcript of conversation held between two primary school boys on pp. 108–109 adapted from Maybin, J., Mercer, N. and Stierer, B. 1992. 'Scaffolding' learning in the classroom. In Norman, K. (Ed.) *Thinking Voices: The Work of the National Oracy Project*. London: Hodder & Stoughton. pp. 189–190.
- Extracts on pp. 119 and 120 from Schön, D. 1983. *The Reflective Practitioner*. New York: Basic Books. pp. 50–51 and 68–69.
- Illustration of *Curriculum as plan/Curriculum in practice* on p. 133 adapted from Hoadley, U. and Jansen, J. 2002. *Curriculum: From Plans to Practices*. Johannesburg: SAIDE/OUP. p. 35.
- Diagram of *Shared principles of curriculum theories and assessment theory* on p. 190 from Shepard, L. 2000. The role of assessment in a learning culture. *Educational Researcher*, 29: 8.
- Extracts on the theory of communities of practice and the diagram representing the different components of the social theory of learning in communities of practice on pp. 113–114 from Wenger, E. 1998. *Communities of Practice*. Cambridge: CUP. pp. 4, 5, 86 and 95.
- Drawings on pp 180 and 184 adapted from the Independent Examinations Board (IEB). 2004. Assessor Course Manual. Johannesburg: IEB.
- Drawing of a gymnast on p. 208 adapted from Weeden, P., Winter, J. and Broadfoot, P. 2002. *Assessment: What's in it for Schools*? London: Routledge Falmer. p. 73.

CONTENTS

INTRODUCTION

Background

Currently South Africa has an artisan shortage of about 20,000, this is according to research done by the Human Sciences Research Council (HSRC) in 2004. At the same time the spectre of mass unemployment is growing. The HSRC research also found that each year approximately one million youth leave school. Of these only about 19% go into further or higher education and training, the rest – 81% or 826, 000 – enter the labour market armed only with Grade 12 or lesser qualifications. The research also points to the dearth of skilled vocational educators in South Africa and the urgent need for a more credible and higher-quality technical and vocational education system.

Until very recently, the emphasis on change in the Further Education and Training (FET) colleges has largely been of a structural nature. Interventions thus far have focused on necessary institutional reconfiguration. Funds from Sector Education and Training Authorities (SETAs) have also begun to filter into some colleges, and there are various innovative projects on a small scale. However, there have been few systematic interventions focused on improving teaching and learning in FET colleges.

A number of higher education providers are now beginning to respond to this need by developing programmes and courses to meet the delivery requirements of the National Professional Diploma in Education (NPDE) for educators in the FET band as well as of the Occupationally Directed Education, Training and Development (ODETD) Certificate and Diploma. The South African Institute for Distance Education (SAIDE), supported by funding from the Swiss Agency for Development and Cooperation (SDC), embarked on a project to develop this guide. It is intended for use in a variety of educational modes from predominantly distance to predominantly face-to-face education, to support the delivery of these programmes. It is also envisaged that this guide will be useful for supporting the professional development of lecturers in FET colleges on an informal basis.

SAIDE developed an outline for the proposed guide, which was presented to representatives from the Departments of Education and Labour. SAIDE then convened a number of workshops with a broader range of participants to conceptualise more fully the content and structure of the guide, and to identify existing resources and writing expertise. Participation at the workshops included representatives from institutions that currently provide the NPDE-FET and the ODETD Diploma such as the School of Education, University of KwaZulu Natal, and the Cape Technikon. Additionally, a representative from the University of South Africa (UNISA) and another from the Institute of Education, University of London also provided valuable input, helping to refine the conceptualisation and design of the guide. Visits to four Gauteng FET college campuses and meetings with management and lecturers provided greater depth of understanding of the college context and facilitated the case study research.

Issues dealt with in the five case studies are threaded through all the other chapters and help to root learning and teaching, curriculum, and assessment in the FET college environment. The names used in the case studies are fictitious.

Purpose of this guide

Articulation between the NPDE–FET, the National ODETD Diploma and the guide

To ensure the relevance of the materials in this guide they are aligned with the broad exit level outcomes of both the NPDE for FET educators, as well as with the ODETD unit standards. Although they do not cover all aspects of these two qualifications, they cover a range of key competencies in both. It is intended that the guide will be a useful curriculum support for providers seeking to offer qualifications to college educators, as well as directly to those lecturers who are interested in some professional development outside of a formal qualification.

While there are significant differences in the professional development requirements of educators in FET colleges, as compared to educators in the schooling sector, there are also important similarities. Key among these are the craft of teaching, curriculum development, and assessment. In particular, it is hoped that this guide will be useful for supporting those qualified in a specific vocation (artisans, technicians, people in the service industries, etc.) to develop the skills and knowledge necessary for a vocational educator. Equally, it is hoped that this guide will be useful for those FET lecturers who might have qualified some time ago and have not engaged in any systematic professional development since the post-1994 college transformation project began.

Making the shift from craftsperson to educator

This guide is about enabling craftspeople (those qualified in particular vocations as say plumbers, electricians, etc.) to develop the skills and knowledge required to successfully fill the roles that are necessary for a vocational *educator* and to thus shift the emphasis from vocational identification to identification as a vocational educator.

Key to this process is the examination of the roles and competencies of educators broadly and linking these to the VET context and examining what is different in the roles of VET educators – for example, the need to know about the workplace, to be able to engage with the labour market, and the need to be responsive in curriculum change.

This guide is intended to assist the educator to understand why and how a particular strategy, method, or idea is useful, and not to just be a "how to" manual of tips. Yet it *is* at the same time intended to be relevant at all times to the context and practice of the vocational educator, offering realistic exemplars and demonstrating approaches and methods for implementation.

Why VET? The question of terminology

In this guide, we use the term *vocational education and training*, abbreviated as VET, to refer to the type of education and training that takes place in the FET colleges in South Africa. Historically, the system of VET was developed as college-based support for technical and craft apprenticeships – young men and women learnt the skills of their trade on the job, and they attended courses at colleges, in maths, physics, electronics, materials science and the like, which would supplement and deepen their on-the-job training. In the early days of the colleges, this kind of VET was largely focused in fields related to engineering and telecommunications. Since the 1970s, a much broader range of vocational programmes have been introduced, straddling such areas as hospitality, beauty and health, computers and business studies. Internationally, the term *vocational education and training* is widely accepted as one of the best ways of describing this range of programmes offered in specialised institutions.

However, we must acknowledge that there are other terms that we may have used:

- We could have spoken simply about *technical education*, and in so doing been in tune with the long standing designation of various institutions as "technical colleges", "technikons" (in South Africa) or "polytechnics" (in other countries). Historically, this has been the most frequently used term to refer to the sector.

- We may have used the more elaborate term *technical and vocational education and training* (TVET) to emphasise the fact that the sector has built on its foundations in education and training related to technology by expanding into workplace related education and training for many different trades and vocations. This terminology – TVET – is also in widespread use internationally. For example, the Second International Congress on Technical and Vocational Education held in Seoul in April 1999 under the auspices of UNESCO used the term TVET to characterise its work.

- Or, we may simply have chosen to speak about *further education and training* (FET), in order to emphasise the continuity between what now takes place in South Africa's FET colleges and in Grades 10–12 of the formal schooling system. This usage helps to give technical and vocational education the status it deserves in relation to other types of post-school education, and it has also come to be very familiar terminology in FET colleges in recent years.

Some users of this guide may still feel that these terms are more appropriate.

However, we have decided to use the term VET. The most important reason is that we have found that most South African FET sector people to whom we have spoken seem comfortable with the term VET. For us, the term has the following positive dimensions:

1. It emphasises the continuity between education and training that characterises the work that FET colleges do in the overall education system.
2. It acknowledges the equivalent status of a wide range of vocations, *all of which have specialist technical expertise* associated with them, that are brought together in the modern FET college environment.
3. It affirms the fact that what goes on in these colleges is distinctive – it is on a level with what goes on in formal schools, but it is about the specialist preparation of students for the many vocations that can be found in a modern economy.

Outline of content

Chapter 1: What is Vocational Education and Training?

This chapter focuses on contextualising VET in South Africa at the present juncture. It starts by examining the location of the VET lecturer in a community of practice where the goal is to help students in FET colleges learn. It analyses the changing role of VET in society, particularly in South Africa and looks at the types of skills and knowledge being produced by FET colleges in a more critical manner. The chapter also reflects on some of the complexities in matching skills and knowledge to the demands of both learners and the labour market in an effort to make lecturers more aware of the choices and needs of learners in their colleges.

Chapter 2: Scenes from FET colleges

This chapter consists of five case studies that illustrate some of the typical conditions and dilemmas that lecturers face in the FET college environment, including some of the problems experienced, and some of the ways that lecturers engage creatively with them.

This chapter serves to help the reader identify with one or more of the people portrayed, and to learn from the way in which the lecturers in the case studies see their situations. It is also intended as a mechanism for reflecting on professional identity as a VET lecturer.

Issues raised in the five case studies are threaded through the next three chapters (Chapters 3–5) and help to exemplify key points.

The remaining chapters of the guide focus on the roles of the vocational educator in:

- Learning and teaching;
- Understanding curriculum; and
- Assessment.

These three roles are briefly elaborated on below:

Chapter 3: Learning and teaching

In order to teach effectively, it is important to have a basic understanding of "how students learn". In this chapter, some ways in which people learn are explored. The chapter then provides an opportunity to examine what this tells us about how to teach. This theoretical understanding will be specifically linked to the vocational context with a focus on learning through practice.

Key questions in this chapter include:

- What is the best way to understand networks of knowledge and skills in relation to technical and vocational work?
- What is distinctive about learning and teaching in VET?
- What insights can different theories of learning provide for us in relation to our work in FET colleges?

Chapter 4: Understanding curriculum

This chapter seeks to understand what we mean when we talk about "curriculum" and to appreciate the complexity of curriculum, in particular, to understand the tension between curriculum planning and practice. It explores different approaches to curriculum design and identifies how social and political changes influence curriculum. Debates about what kinds of knowledge should be included in a vocational curriculum are opened and the lecturer's role in curriculum is explored. An approach to analysing and interpreting curriculum documents and unit standards is also provided.

Key questions in this chapter include:

- How can we best understand the complex nature of curriculum?
- What major changes have taken place in the South African VET curriculum in recent times?
- What is the role of lecturers in curriculum development and change?
- What are the necessary features of a sound curriculum document?

Chapter 5: Assessment

This chapter takes account of the central importance of assessment for teaching and learning. It also considers ways of integrating assessment with teaching and learning that focus on learning goals. Some common and unique aspects of assessing in vocational education are identified and understanding the complexity of assessment and the role of judgment and interpretation in assessing are investigated.

Key questions in this chapter include:

- How can assessment help our students in becoming competent for the workplace?
- How does one decide that someone is competent?
- How can assessment help to develop active learning and teaching?
- What are some of the complexities around professional judgment in assessment?

Using this guide

The guide

This guide operates as your "teacher" (especially for anyone working through it on their own). It will structure your learning and explain concepts – providing a learning pathway for you. It is filled with activities that we strongly recommend that you complete before proceeding to the next section.

If you scan through the contents page, it will give you an idea of what you will learn!

We strongly advise you to purchase a workbook or file in which you can do all the activities and also make notes of any additional ideas you may have as you study. This workbook will act as a record of your thinking and development.

The importance of active learning

Because we believe that new understandings depend on, and arise out of action, we have designed this guide to include many activities that we hope you will complete. Like all good learning materials, this guide will work best if you engage systematically with the activities. If you do not do the activities, you will miss out on the most important part of the learning pathway we have developed for you.

Thinking activities

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

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

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

Relating theory to practice

We will often introduce a concept by developing it from practical situations with which you are probably familiar. This process, which moves from your experience towards a more abstract level of theory is known as *inductive* learning. It makes learning easier and is very different from *deductive* learning, which starts by presenting abstract theories and principles, then requires you to "deduce" practical conclusions and concrete examples.

It is also important that you relate the ideas you learn from this guide to a context with which you are familiar, and try to think theoretically about your practice. This will make you a more effective student and a more effective lecturer. We encourage you to discuss the debates and issues that we raise in this guide with other lecturers to help you locate theoretical ideas in the context of your practice.

How much time should you spend on studying?

The following suggested guidelines should be applied flexibly, depending on circumstances. If this guide is used as part of a formal learning programme leading to a qualification, it will be up to the particular institution to determine how much of this guide is used, how it is used and the nature and length of assignments prescribed.

To work through this guide on your own, you will need about six hours per week for a period of about 20 weeks. In other words, you should set aside about 120 hours of time. Of course different people work at different speeds, so you may well find that you need more (or slightly less) time.

We would expect that you would spend the 120 hours as follows:

- Reading time: about 60 hours.
- Activity time: about 40 hours. This includes the time it takes you to think about your reading, do the activities and write them up.
- Assignments (prescribed as part of a formal qualification): about 20 hours. This includes the time it takes to prepare and write the assignments that you submit to your lecturer.

Assessment

The learning contained in this guide should be assessed in an outcomes-based assessment style. We understand this to be an assessment process that is continuous and formative, that assesses your ability to relate ideas to practice and that actually contributes to your development through the use of this guide. This, however, does not preclude the possibility of you still having to write an examination if you are enrolled in a formal programme.

CHAPTER ONE

What is Vocational Education and Training?

Introduction

The rejuvenation of the Further Education and Training (FET) colleges is currently a national priority in education and training in South Africa. It is widely recognised by government, industry and the trade unions that the country has lagged behind in educating and training enough people in important technical areas. There are huge challenges facing our country in developing the necessary skills and knowledge for social and economic development.

In February 2005, the Minister of Education, Naledi Pandor described the new government mood in relation to Vocational Education and Training (VET) as follows:

> There will be a massive campaign to reform further education and training programmes to reinforce the institutional reform project started in our public further education and training colleges. This will involve better matching of the requirements of SETAs [Sector Education and Training Authorities] and the employers they represent with public institutions providing further education and training. The recapitalisation of FET colleges remains a priority to ensure the best articulation of our national skills strategy with the programmes provided by colleges.[1]

What do you think about this recent emphasis in policy? No doubt, you are in broad agreement with it, given the importance of VET in any society. But you also may have found yourself thinking, "About time!"

It is worth remembering that this renewed focus on VET is not just a local one. While South Africa has its own particular problems to overcome in this area, there is also growing recognition worldwide that the whole area of the preparation of students for the workplace needs radical rethinking in modern, rapidly changing economies. Not only must young students be prepared to enter the labour market by acquiring the necessary skills and knowledge for a particular job, they must also be educated for employability, building a basis for lifelong learning, and assisting them to prepare for the challenges of working life. In VET, all over the world, the activities of education and training have increasingly come together.

As a result of this increasing recognition of the importance of VET, there are two points that it seems we must take seriously when we think about the role of FET colleges. We will carry these assumptions forward in the rest of this chapter:

1. The primary role of a FET college is to support the transition of young people from education to work, but an additional and important role is to prepare young people for further learning.

2. VET bridges education and training. It should provide its students with a solid foundation of knowledge, using sound educational principles of teaching and learning, and it should train for the workplace by getting students to put what they have learned into practice. As workplace conditions change, the way in which students apply this knowledge needs to change as well. FET colleges therefore need to be constantly finding innovative ways to expose students to the working world.

This chapter aims to provide an orientation to the broader role of VET within society. It will assist you as an FET college lecturer to locate yourself within the challenges facing our country in developing the necessary skills and knowledge for social and economic development.

Key questions

The chapter responds to three central questions:

- What is the relationship between practical knowledge and theoretical knowledge in a modern vocational curriculum?
- How has VET evolved to meet the challenges of a changing labour market environment?
- What are the implications of these changes for meeting the evolving needs of students in the VET system?

We shall return to these key questions at the end of the chapter.

Outcomes

By the end of the chapter, you should be able to:

- Understand how VET has changed in society over the last century.
- Analyse the changing role of VET in society, particularly in South Africa.
- Look at the types of skills and knowledge being produced by FET colleges in a more critical manner.
- Reflect on some of the complexities in matching skills and knowledge to the demands of both students and the labour market.
- Be more aware of the choices and needs of students in their colleges.
- Understand your goal as a professional VET lecturer to help students in FET colleges master vocational knowledge and skills.

UNIT 1 Thinking about Vocational Education and Training

Technical and vocational colleges, like our FET colleges, are found in many countries. They offer a particular kind of education and training which is different to that, that takes place in schools. It blends theoretical knowledge and practical skills, and links directly with the world of work.

What is this special kind of education and training that makes up VET?

ACTIVITY

Time needed 30 minutes

Activity 1: Practical knowledge and theoretical knowledge

Read the following extract written recently by Michael Young, who is an acknowledged British VET expert, and then answer the four questions that follow it.

> In referring to knowledge, I make a distinction between theoretical (or context-independent) knowledge and the practical knowledge that is necessary for work and everyday life (the latter is sometimes referred to as skills). …Vocational knowledge unlike school or academic knowledge always points in two directions – it has dual purposes and should always lead to 'dual' qualifications. One direction is towards the academic disciplines which have been involved in transforming workplaces and occupations in the processes of industrialisation and political and social change. Initially most disciplinary knowledge in the vocational curriculum was based on mathematics and the physical sciences and oriented to engineering. However, more recently the vocational curriculum has broadened to include the social, human and biological sciences that are involved in administration, finance, marketing, health and tourism. The second direction that vocational knowledge points to is towards the skill and knowledge demands of specific workplaces and occupations; in other words a form of workplace knowledge is always a component of vocational knowledge. This dual character of vocational knowledge is important for the vocational curriculum for two reasons. Firstly, the workplace knowledge component provides the possibility for the student or trainee both to develop workplace or broad occupational skills and knowledge. Secondly, the disciplinary component of vocational knowledge enables the student to see beyond the specific workplace or occupation he or she is involved in and can provide the basis for a student to progress to higher or professional education.[2]

1. Why should technical and vocational knowledge have a dual orientation?
2. How does VET prepare students to succeed in particular workplaces?
3. How does VET prepare students to succeed in the economy in general?
4. Think about your own area of specialised teaching in VET. Briefly list the main practical skills that you impart to your students, and also the important disciplinary knowledge underlying their work that you teach them. Do you think you cover enough of each kind of knowledge in your courses?

Our comment

Young suggests that vocational knowledge has an orientation both towards disciplines and towards workplaces – it always involves two different types of knowledge. This is what makes it different to what students do at ordinary schools. This is what makes VET so important in modern society. Firstly, it must equip its students to be highly competent, skilled practitioners of a particular job, because making sure that all jobs are done well from a technical point of view is important to the overall efficiency of the economy. Secondly, it must equip its students with the theoretical knowledge to comprehend change and innovation in the economy and to work flexibly, so that they can be active participants in a modern economy.

So VET is increasingly recognised as having a central part to play in modern economic life. Unfortunately, all over the world, FET college courses have often been seen in the past as low-status courses in which only those learners who fail to succeed in general education or academic programmes should be accommodated. The problem might be that such courses have not always contained enough of both kinds of knowledge in their curriculum. As Young puts it, "the possibility that a significant cause of the low status of vocational education among employers, students and the general public, and the low take up of vocational courses, might be that students completing such courses lack the kind of knowledge needed in a modern economy, has until recently received little attention".[3]

As we explore the nature and importance of VET in the remaining chapters of this book, we should keep in mind this claim – that in order for VET to become responsive to the needs of a modern economy, such as that which we would like to see develop in South Africa, it must teach both practical and theoretical vocational knowledge.

The main aim of FET colleges is to impart skills and knowledge about how to do particular kinds of jobs, to members of the next generation. Some of these jobs are extremely complex, especially in the modern world in which technology had developed so dramatically. Others are perhaps less complex, yet to train a skilled artisan in each of them requires a particular kind of learning that links the lecture room to the workplace. VET students must become adept in both on-the-job and off-the-job learning. Some jobs rely more on practical skills while others need more theory.

Let us think for a moment about how different occupations require different levels of complexity in technical skills and in theoretical knowledge.

ACTIVITY

Time needed 15 minutes

Activity 2: Skills and knowledge for the job

Think about the way industry works today. Reproduce the table below in your workbook and use it to brainstorm the level of skills and knowledge that you think the various occupations require.

Job description	Skills needed	Knowledge required
Telephone technician		
Machine operator		
Interior designer		
Sales person		
General cleaner		
Administration clerk		

Having completed the table, answer the following two questions:

1. Which job would be fairly easy to learn on-the-job, and which job would require a good understanding of theory?
2. Which of these people would find it most difficult to learn new skills if their job description had to change or they were forced to find new work? Why?

OUR COMMENT

Our comment

Answers to these questions are not easy or straightforward. This is because, no matter what job we do, we are always simultaneously *doing* something practical and *thinking* about what we are doing. In other words, every human activity always has both some element of practice and some element of theory at work within it. However, it is obvious that, for some jobs, we need to have a detailed understanding of the system that underlies the different things we do in order to be able to do them properly. So, telephone technicians need to understand how cabling networks work in order to be able to do their job. They need to understand these systems theoretically and have a high degree of practical skill in order, for example, to diagnose a fault in a telephone line. On the other hand, cleaners do not need a complex theoretical understanding of cleaning in order to do their job. They do not need to understand why different cleaning agents work; they simply need to know what to do in order to clean something.

In answering the above questions, you would have noted that some of the jobs need a higher degree of theoretical knowledge in relation to the task, while others simply need mastery of the practical skills of the job.

Think for a moment about how people in certain occupations would find it easier to learn new skills because of what they would have had to learn already. It is probably true that the telephone technician, having learnt certain theoretical knowledge about cabling, networking, electricity and the like, would be able to learn refrigeration maintenance more easily than a person who had been a cleaner all their life. Why do you think this is so?

The National Qualifications Framework (NQF), when it was established in South Africa, set out to recognise these different kinds of knowledge and skills that people acquired on different kinds of jobs. It sought to provide pathways towards further education and training for people who had acquired technical skills and the disciplinary knowledge of any vocational context. In principle, the NQF allows people to transfer their knowledge and skills horizontally, that is, from one kind of job to another that entails similar skills and knowledge. It also allows people to gain access to higher forms of knowledge, skills and qualifications.

One of the most important aims of the NQF was to act as a mechanism of change that would integrate skills and understanding across the VET environment, as well as those of schools and universities. There are many debates about whether or not it is succeeding in this role. To engage with this debate, it is important to consider briefly the history of VET in South Africa.

Key point

- VET involves two kinds of knowledge – theoretical, disciplinary knowledge and practical, workplace knowledge.

UNIT 2 Historical Role of Vocational Education and Training in South Africa

Given our country's past, one would expect that the VET system in South Africa was historically set up to support apartheid policy. And indeed, there are all kinds of indications of this:

- Separate technical colleges (prior to 1998, FET colleges were called technical colleges) with different levels of resources were established for white and black students.
- The apprenticeship system provided a steady flow of white youth into technical trades, which provided the skills base for mines and manufacturing.
- The apartheid government adopted a strong policy of labour market regulation aimed at restricting access to many jobs for blacks.
- The racially organised education and training system was an important mechanism for preventing black people from acquiring skills suited to competing for jobs in the labour market.

On pages 18–19, there is an extract from a recent doctoral thesis examining the nature of VET pedagogy in the South African context. It provides us with a good sense of how VET has changed in South African history in response to various economic and political demands.

ACTIVITY

Time needed 50 minutes

Activity 3: South African VET in the past and the future

Carefully read the extract from Jeanne Gamble's thesis (pp. 18-19), and then carry out the following task.

Here is a timeline of recent South African history of vocational education and training marked on it. Reproduce the timeline in your workbook, and then complete the VET side of the story that it tells. What kinds of things do you expect happened in South African VET as a result of the main developments in apartheid and post-apartheid education and training?

KEY DATES		VET developments
1652	**1652-1909 Colonisation: Dutch settlers colonise Western Cape**	
		
1795	**British occupation of South Africa**	
	"If we leave the natives beyond our border ignorant barbarians, they will remain a race of troublesome marauders. ... I propose that we make unremitting efforts to raise the natives … by establishing amongst them missions connected with industrial schools."[4]	Apprenticeship through indenture – introduced from Britain
	George Grey, British Governor of the Cape, 1855	
1881	*"If the natives are to be taught at all, they should be taught industry. [There is not] much use in teaching the natives to read and write without teaching them to make use of their hands as well."*[5]	
	Natal Native Commission, 1881	
		
1910	**1910-1947 Segregation: Union of South Africa established**	
1912	**African National Congress founded**	
	"We, the African people in the Union of South Africa, urgently demand the granting of full citizenship rights ... facilities must be provided for university and technical education of Africans so as to enable them to enter skilled, semi-skilled occupations, professions, government service and other spheres of employment."[6]	Apprenticeship Act 1922 – for whites only
	A.B. Xuma, President-General of the African National Congress, 1943	
		
1948	**1948-1993 Apartheid: Apartheid government comes to power**	
	"Native education should be controlled … If the native in South Africa today in any kind of school in existence is being taught to expect that he will live his adult life under a policy of equal rights, he is making a big mistake ... There is no place for him in the European community above the level of certain forms of labour … What is the use of teaching a Bantu child mathematics when it cannot use it in practice."[7]	Training of Artisans Act 38 of 1951 Bantu Education Act 1953
	Hendrik Verwoerd, National Party Prime Minister, 1953	
1955	**Freedom Charter adopted at Congress of the People**	
1960	**ANC and PAC banned**	
		
1976	**Soweto uprisings**	Big business pressurises government to end job reservation
1984	*"Apartheid has spawned discriminatory education, such as Bantu Education, education for serfdom… so many of God's children are prevented, by deliberate Government policy, from attaining to their fullest potential. South Africa is paying a heavy price already for this iniquitous policy because there is a desperate shortage of skilled manpower, a direct result of the short-sighted schemes of the racist regime."*[8]	Industry Training Boards set up-1981
	Archbishop Desmond Tutu, 1984	
1994	**Democracy: First democratic elections in South Africa**	SETAS established Training boards ceased to exist-2000
2004	*"The skills revolution is central to meeting our goals of halving unemployment and poverty, and accelerating the achievement of true equity in all workplaces across the country."*[9]	
	Membathisi Mdladlana, South African Minister of Labour, 2004	

A brief history of the development of the apprenticeship system in South Africa [10]

Jeanne Gamble

Early forms of formal apprenticeship in South Africa displayed most of the features traditionally associated with medieval apprenticeships in England and other European countries:

> Apprentices (who were usually male) were bound by indentures to a master for a term of years, commonly seven, and invariably between five and nine, while they were initiated into the theory and practice and other mysteries associated with a particular occupation. … Apprentices were provided with food, clothing, shelter and instruction by the master, and in return worked for him during the term of their apprenticeships. This system … was enforced both by custom and by law … [11]

In South Africa, many of the formal trades as we know them today were brought into the country by Dutch, French, German and British immigrants in the 1700s and 1800s. The forms of apprenticeship provided apprentices with an opportunity to work under the close supervision of an artisan or journeyman, in all facets of a trade. In terms of the apprenticeship contract the apprentice undertook to serve the master faithfully for the contracted period, to obey his lawful commands and to keep his secrets. The master undertook to instruct the apprentice in all aspects of the trade, to provide him with board and lodging and to pay him a set wage that would increase in each subsequent year of the apprenticeship.

From around the mid 1800s the establishment of trade protection societies or craft unions occurred in those trades that traditionally entailed a system of apprenticeship: moulder, engineer, mason, carpenter and printer. In order to maintain a monopoly on skills and to preserve demarcation lines, the craft unions assumed control of the apprenticeship system in crafts or trades so regulated, even though the nature of apprenticeships remained largely unchanged.

The introduction of specialised machinery brought about changes in the organisation of work, which, in its turn, changed the form and nature of apprenticeship. In an extract of evidence, presented to the Transvaal Indigency Commission of 1908, the complaint was that 'the apprentice is not taught the whole theory and practice of the trade, because there is no one in the workshop who does more than a fractional part of the process of manufacture'. Here the terms 'theory and practice' refer to the traditional master-apprentice relationship described above, with 'theory' referring to knowledge that was not formally taught yet considered crucial.

State regulation of the apprenticeship system was introduced with the passing of the Apprenticeship Act of 1922. This Act introduced a second component into the apprenticeship curriculum, namely classes in technical education to be undertaken at a technical college. In the apprenticeship contract that regulated this phase of the apprenticeship system, the employment relationship became more distanced in the sense that the term 'master' was replaced with 'employer' and compulsory attendance of classes in technical education was stipulated.

Further mechanisation in the years prior to and during the Second World War resulted in a massive shift from jobbing practices to largely semi-skilled production practices in factories, or what is known as mass production. The significance of the apprenticeship system was reduced to such an extent that the De Villiers Commission of 1948 recommended a restructuring of the system. The commission was impressed by the system of training, based on mass production methods, developed by the Central Organisation of Technical Training (COTT), which was established at the Pretoria Technical Institute in 1940, under the auspices of the Director-General of War Supplies, to organise training for the thousands of skilled workers required for work in munitions and civil defence and in support of the armed forces fighting in the Second World War.

The commission's main recommendation concerned the introduction of a trade test that would afford above-average apprentices the opportunity to shorten their period of training.

The apprenticeship curriculum now consisted of three components, namely:

- practical instruction in the workplace,
- formal theoretical instruction in a technical college, and
- a formal trade test.

The Manpower Training Amendment Act of 1990 devolved responsibility for training from the state to industry and made provision for the establishment of training boards that would be responsible for all training matters in different industry sectors, with a redirection of financial responsibility for training from the state to industry. Through accredited training boards industry sectors now had increased autonomy to make their training as broad or as narrow as they deemed appropriate, although within a strategic framework set by the state. The Act also required skills training for apprentices and other trainees to change to a competency-based modular training system (CBMT). Although the requirement for technical education at a technical college remained, a modular training system was introduced, with a compulsory period of training to be offered by an accredited training provider. The apprenticeship contract specified a number of credits to be obtained within specified minimum and maximum times. These credits were to be achieved through a combination of on-the-job instruction and attendance of practical training at an accredited training centre. The four components of the apprenticeship curriculum in place from 1990 onwards, but prior to further legislative changes in 1998, are set out in the table below.

Components of the apprenticeship curriculum prior to 1998

Component 1	Component 2	Component 3	Component 4
Trade theory taught in a technical college, or through distance-based study.	Modular practical training in an accredited training centre.	Practical workplace experience through on-the-job training.	Trade test administered by the Central Organisation for Trade Testing, or by an accredited testing centre.

In a CBMT system the role of the technical trainer changes from instructor to tutor or learning facilitator. Tutors are no longer at the centre of the instructional process, but act as additional resources to be consulted when learners experience problems. Learning materials include verbal and/or written progress or criterion tests, as well as practical exercises.

The Skills Development Act (No. 97 of 1998) replaced apprenticeships with learnerships, as a combination of unit standard-based structured learning and practical work experience that leads to a qualification on one of the levels of the NQF. Learnerships extend the old apprenticeship system into new areas not previously served by an apprenticeship system. With the approval of the relevant SETA, the practical work experience component may be obtained at one or more workplaces, or development projects, or job creation projects and provided by one or more employers working. The learnership contract signed between employer, learner and registered training provider [such as a FET college] specifies the unit standards to be achieved by the learner at a certain level of the NQF and sets out the times at which the structured learning component will be provided.

OUR COMMENT

Our comment

We are sure that what you have filled in on your timeline gives a picture of exactly how VET in this country has been conditioned by its past. There is no doubt that, stretching right back to the first colonial invasions of the country, VET has been packaged in ways that curtail it and restrict access to it to certain people. There is also a sense that, in our current context, efforts are being made to give VET its proper status in relation to other kinds of education, and also to overcome the historical inequities in the system that has delivered it. But there is still a long way to go. Let us look at some of the more important shifts that have occurred.

In the first half of the 20th century, we have seen that VET in South Africa shifted from traditional master-apprentice forms of training to introducing courses at technical colleges as part of the apprentice's overall training. There was also a political element to this, which is why Dr. A.B. Xuma, the then ANC president-general, complained as he did in 1943 (see timeline). VET developments in this period were focused on whites who were insufficiently educated and needed technical training to make them employable. The government was concerned that these young whites were beginning to present a social problem and wanted to ensure that they remained "civilised". Blacks had access only to industrial education aimed at making them productive labourers.

The apartheid government wanted to ensure that white economic interests were protected, so it created a VET system that gave higher-level jobs to whites and low-skilled jobs to blacks.

After World War 2, there were significant changes in the way production was organised in factories. The manufacture of arms during the war had accelerated the development of mass production methods and the use of big machines, and factory workers now had to be trained in new, more complex skills needed for the shop floor. This led to the expansion of apprenticeships, and changes in the way they were conducted. The Gamble extract makes it clear that not only were practical skills for the workplace emphasised in the VET curriculum, but also more theoretical training at technical colleges and the introduction of formal trade tests. By the 1960s, the apprenticeship system was also being expanded in relation to the political system: white institutions were upgraded and expanded to provide theory training for apprentices. Certain institutions were also transferred into separate government departments for Indians and Coloureds, so that more apprenticeships could be developed for these groups.

However, the apartheid government still stuck to its grand political vision – it focused on technical training for blacks for the homeland system only. The government introduced a vocational curriculum in homeland schools and restricted access of black youth to technical education in urban areas.

Pressure from industry in the 1970s and 1980s for increased skills amongst blacks forced the government to re-examine the VET system. It began to open access for blacks to technical education in order to meet the needs of industry. It also tried to release the apprenticeship system from government control and set up Industry Training Boards, run by the industries themselves, to guide training for each industry rather than being dictated by the state. This gradually led to a collapse of the apprenticeship system and provision in the VET sector was no longer linked to workplace realities. The VET sector shifted its role to provide more generalised skills and qualifications for the broader population which included people of all races.

In the decade following the end of apartheid, the new government put in place strategies to improve the education and training opportunities of black people. New SETAs have been established and a levy system for companies has been created. A new model of apprenticeship, termed learnership, has been introduced. The learnerships are aimed at holistic development of learners towards employability. SETAs plan their skills development priorities on the basis of reports from industry regarding their skills needs. Such planning is focused primarily on the upskilling and retraining of employed workers. Training of youth for employability is catered for primarily through the learnership system. The majority of young students pass through the VET system via FET colleges and do national certificate programmes in a narrow range of vocational fields. These programmes are made up of theory from textbooks, and little direct linkage to the realities of the workplace is made.

On the other hand, these national certificate programmes give students some basic knowledge from which they can develop more specialised skills and knowledge. The problem is that FET colleges do not offer links into workplace learning so that young people can apply their knowledge and skills. These young learners are therefore unable to develop their knowledge and skills in a manner appropriate to the demands of the workplace.

How is VET changing in South Africa?

In order to understand VET in South Africa, it is important to distinguish between general post-school VET, which takes place in an FET college or training institution and is aimed at young school leavers, and occupationally directed VET which takes place in the workplace or is directed more at adult learners:

- Post-school VET, delivered via FET colleges, is the responsibility of the Department of Education. Programmes for young school leavers are offered both within the FET band (levels 2-4) and the Higher Education (HE) band (level 5) of the NQF. These programmes are based on set national curricula, and offer general vocational skills and knowledge. Students pay some fees but these programmes are mostly funded by the state, which makes the fees in FET colleges more affordable than in other private training institutions.

- Occupationally directed VET, which is aimed more directly at adults and employed workers in the workplace, generally falls outside of the national curriculum, and is the responsibility of the Department of Labour. These programmes have to be funded by employers or individual learners themselves. The Skills Development Act (Act 97 of 1998) and the Skills Development Levies Act (Act 9 of 1999) were established by the Department of Labour to encourage VET in the workplace by allowing employers to claim back portions of a skills levy paid to government if they provide training to their employees.

There is some overlap between what the Department of Education and the Department of Labour does in relation to VET which can sometimes be confusing.

The Department of Education emphasises the primary role of FET colleges in providing general vocational qualifications as a learning pathway towards higher education or on-the-job training, particularly for those young people who have not made decisions about their careers. As such, the Department funds colleges for learners in these programmes. It does not view FET colleges as primarily delivering training for employed workers or for young people who are immediately entering the labour market and need occupational skills, and therefore does not provide funding for these occupational programmes.

However, colleges are able, through the Department of Labour, to access funding for occupationally directed programmes through entering into agreements with employers and SETAs to use colleges as service providers for skills programmes and learnerships.

So, often, an FET college is involved in both post-school and occupationally directed VET.

What is the situation in your college?

Activity 4:
A dual role for FET colleges?

Offering both general vocational qualifications and occupationally directed qualifications presents interesting challenges for FET colleges. There are important differences between these two types of qualifications.

Drawing on your experience and perhaps that of others in your institution, answer the following questions:

1. In relation to general vocational qualifications offered by your FET college:
   a. What kinds of skills and knowledge are being taught?
   b. How are these being taught?
   c. Whose needs do these qualifications meet?
2. In relation to specific, occupationally directed qualifications offered by your FET college:
   a. What kinds of skills and knowledge are being taught?
   b. How are these being taught?
   c. Whose needs do these qualifications meet?
3. Summarise what you think is the most important difference between the two kinds of qualifications.

Our comment

The important challenge for colleges is how to balance these two forms of VET. For general vocational qualifications, colleges need to worry about getting stuck in delivering the same programmes year after year and creating the situation of "over-supply" of learners into the labour market. For occupationally directed qualifications, the challenge is to be adaptable to the changing needs of employers, which can in turn affect the substance of the programme.

General vocational qualifications need to lead to higher levels of specialisation if learners are going to be able to compete for jobs. Under apartheid, the apprenticeship system allowed some young people opportunities to specialise in a particular occupation. The changing nature of the labour market outlined above means that learners need a sound foundation of knowledge before they become too specialised, so that they can adapt more easily to changing working conditions. This implies that a mix between general vocational and occupationally directed programmes is necessary.

One way to achieve this is through learnerships. In order to address the problem of unemployed and under-skilled youth, the Department of Labour also utilises a portion of the money collected through the skills levies to fund learnerships and skills programmes for unemployed youth. Employers receive tax incentives in addition to being able to claim money from the skills levy if they offer learnerships to unemployed youth. Learnerships have replaced the apprenticeship system in South Africa. They seek to offer young learners an occupationally directed qualification that incorporates both institutional and workplace learning. Learnerships focus on building both

theoretical knowledge and skills for the workplace. Through learnerships, young people have the opportunity to experience a real workplace environment, which hopefully better prepares them to compete for jobs when they have finished.

> ***What is a learnership?***[12]
>
> A learnership is a training programme that combines theory at a college or training centre with relevant practice on-the-job. There is no learnership if there is no on-the-job practice. The idea is that people really learn the "ins and outs" of an occupation by practising all its aspects under the guidance of an experienced and qualified person. In order to become qualified themselves, learners will have to be assessed against occupational standards that have been agreed in advance by industry stakeholders.
>
> Learnerships are based on legally binding agreements between an employer, a learner and a training provider. This agreement is intended to spell out the tasks and duties of the employer, the learner and the training provider. It is designed to ensure the quality of the training and to protect the interests of each party. Employers can offer learnerships to their own employees or can recruit unemployed people for training. Current employees who are provided with learnerships are referred to as 18(1) learners. Unemployed people who are offered learnerships are known as 18(2) learners.

However, not everyone is able to do a learnership. They are more expensive, more difficult to manage and require more time from staff members in colleges than the programmes usually offered by colleges. Also, learnerships rely on having enough employers in place who are willing to take on learners for a period of structured workplace learning. Finally, young people may not choose to follow the learnership route because they want to continue to develop more generalised skills and knowledge and do not want to follow the occupational route offered by the learnership. The bulk of young learners in colleges are likely to still enrol for general vocational qualifications rather than occupationally driven qualifications.

There is still a vital role to be played by FET colleges in offering general vocational qualifications. Activity 4 (p. 23) asked you, as a VET lecturer, to interrogate some of the current challenges in FET colleges trying to offer programmes that are both effectively preparing learners for ongoing learning and are responsive to employer demands. The important point is that changes taking place in VET are not just a response to the changing labour market, but also to the changing needs of learners.

Key points

- In South Africa, VET has changed historically in response to complex economic changes related mainly to changing forms of production.
- VET has also taken on particular forms as a result of the political history of South Africa. Black South Africans were denied access to various kind of VET up until the onset of democracy in the 1990s.
- FET colleges in the current environment are required to achieve a mix between general vocational and occupationally directed programmes.

UNIT 3 Global changes in vocational education and training

We made the point earlier that there is a renewed focus on VET throughout the world, in the face of the globalisation of the economy. So, while South Africa has its own issues, the new focus is not just a local one. There is a growing recognition that the whole area of the preparation of learners for the workplace needs rethinking in the context of modern, rapidly changing economies. In this section, we cast our gaze beyond South Africa, to examine how some of the issues we have already discussed exist in a relationship to what is going on in other countries, and in the world at large.

In the 19th century, the way that young people learned specialist technical and vocational skills relied on a system of workplace apprenticeships. We have all heard the story of the young person who, at age 16 or so, was packed off to go to live and work with an expert craftsperson, and over time acquire the knowledge and skills of a new trade. If a young man wanted to enter the clothing business, he would be formally apprenticed to a skilled tailor, if a young woman needed to become a servant, she might have been "attached to a household" to learn the various skills and crafts of housework from more experienced domestic workers; and if a young person wanted to become a herbalist, they might have left home to become a sangoma's apprentice. To be apprenticed to somebody was the way that one learned a new trade or vocation.

In this relationship between a master craftsperson and an apprentice, learning was based on modelling and practice. The craftsperson modelled how to do things (for example, making a piece of furniture) and the apprentice practiced doing it, over and over again, until they got it right and became a skilled craftsperson themselves, with their own apprentices. And so it was over generations. The focus of the traditional apprenticeship was on mastering the trade or vocation on-the-job. This mastery was not gained through formal learning in the classroom, but rather by "learning-through-doing" in the workplace.

As technology began to change in the early 20th century, governments started to realise that learning on-the-job was insufficient for adequate VET. There were a number of reasons for this:

- The introduction of more complicated machinery meant that there were fewer jobs for workers who had previously only worked with simple hand tools, and only had a narrow set of knowledge and skills.
- Workers no longer had to carry out all the tasks in the production process as the machines could do some of the tasks more efficiently.
- Workers needed to develop knowledge of scientific principles that could not be learned on-the-job, and would allow them to work with complex machines and do more complex tasks.
- Workers also needed skills that they could easily adapt to new technology as it emerged.

Therefore, governments began to change the provision of VET so that more emphasis could be placed on the sciences. The apprenticeship route was increasingly linked to a formal theory curriculum, either in a school or a separate college system set up for

training young people for occupations. In many cases, apprenticeships declined and even fell away, and the focus shifted toward the development of knowledge, sometimes with little or no application of knowledge in the workplace.

The classical craft apprenticeship system, in which the novice went to live and work with a master craftsperson and learned entirely on-the-job, had largely disappeared by the second half of the 20th century. In its place was a college-based VET system in which students received a basic theoretical education related to the trade or vocation that they would enter. Apprenticeships tended to be conceived in new ways – college students received some on-the-job training through placements in factories, companies or government institutions. These were usually organised and monitored by the college. Apprenticeship learning was now conceived as an adjunct to a college-based VET education, and not as the sole, or even best, vehicle for the development and training of new artisans.

Activity 5:
Adding theory to the practice

This activity requires you to think about the effects of concentrating more on theory than on practice in VET delivery. While we do not supply detailed information on the historical transition from apprenticeships to college-based VET curricula, you nonetheless have a sense at this stage of what it involved.

1. Explain how you think the following elements of VET might have changed as a result of the decline of apprenticeships:
   - Teaching approach
   - Curriculum and
   - Assessment.
2. How do you think the type of skills and knowledge gained by VET students has changed?
3. What effect do you think this would have had on students ability to find jobs?
4. Do you think these kinds of changes have been good or bad for quality VET?

Our comment

Your answers to these questions may have reflected on what it meant for VET to be moved from small, one-to-one relationships between apprentices and their mentors, to the larger, many-to-one, institutional contexts of colleges. The former, traditional apprenticeship system was entirely on-the-job; in the more modern college system, on-the-job learning came to be only part of the curriculum along with other more theoretical components. The role of apprenticeships had changed.

What did this mean for various elements of VET delivery?

You might have reflected on how teaching changed. When more theory is introduced in a curriculum, there is more emphasis on teaching whole systems of knowledge. Whereas in the past, apprentices were taught mainly details of actual job techniques and skills by being shown what to do and having their mistakes corrected, now students were taught much more explicit theory. One might say that once VET moved into colleges, there was much more of an emphasis on classroom learning (or lecture theatre learning) and much less on learning in the workshop, kitchen or salon.

You might have pointed out that a college VET curriculum would have introduced more of the basic disciplines – such as science, mathamatics, languages, perhaps even economics or accountancy – to students, as well as much more theoretical discussion of the trades and vocational jobs. In response to question 2, you would have reflected in some way on how skills and knowledge have now become more systematised, not specific to one location or job site, but more general and portable across different workplaces.

Your comments on assessment might have shown up similar historical changes. In the past, the master craftsperson would have judged informally when their apprentice had made progress. Now assessment in a college environment is much more formal and part of the institution. Students are now compared to each other, records are kept, examination systems are set up and run efficiently, summative and formative assessments are regulated and certificates are awarded by the proper authorities.

In principle, this means that the student has more flexibility in finding a job.

Tacit knowledge is an important concept in thinking about VET.

It helps us to understand the kind of knowledge and learning that we cannot really express in words, and skills that we carry in our muscles, bones, and bodies. This kind of learning is very important when we learn a vocation or a trade.

We shall take it up in detail in Chapter 3, which is about the kind of learning that is distinctive to and important in VET.

There is danger in all of this, however:

- Sometimes the theory taught in colleges becomes sealed off from workplace learning.
- Sometimes there is a complete shift away from the most important part of VET, namely the appreciation and acquisition of the tacit skills of any specialised job.
- Sometimes apprenticeship learning disappears completely from the college curriculum.

The knowledge developed in VET programmes must be the kind needed to operate and maintain technology in the workplace. The purpose of VET is not to provide students with a low-level version of the theoretical knowledge needed for research and development of new technology. The purpose is to teach them and train them to be skilled artisans. Historically, the problem has been twofold (think back to the extract we read from Michael Young's paper on p. 12):

- When some form of the apprenticeship learning route is not available, technical and vocational knowledge is learned only in the abstract. Students are only able to try to apply the knowledge once they get into a job.
- When theoretical understanding is not made available, technical knowledge lacks flexibility and VET comes to be perceived as second-class. Students need the disciplinary knowledge associated with technical practices in order to operate in a modern economy.

If these problems are not addressed by the VET system, the following consequences could arise:

a) There is no formal way of linking knowledge in the institution to application in the workplace. This means that when students are ready to enter into a job they have to find a way to translate the theory they learned in college into practical skills for the workplace, without the benefit of an experienced teacher. Employers then have to invest more money in providing initial training to these new employees on how to use machinery, specialist tools and the like.

b) The knowledge taught at the FET colleges seems to be unable to keep up with changes in the workplace. So young people enter the job market with knowledge that is not always flexible enough to be relevant to jobs that are actually available. Increased reliance on new technology in the workplace means that the kind of knowledge being developed in colleges is therefore unsuitable for the needs of employers.

c) Young students find it more difficult to access job opportunities. While it is true that the addition of theoretical content to the VET curriculum gives students more flexibility in the job market, the paradox is that the absence of any apprenticeship route in their training means that they are not ready for any of the jobs offered.

Some international comparisons

The importance of the apprenticeship route can be understood by comparing some countries that still have some form of apprenticeship in place with those that do not.

Although there are a number of different models of VET across different countries, we have chosen three that have been extensively researched and written about: Germany, the United Kingdom and Botswana. These countries provide interesting case studies for the South African context as each has developed distinct VET programmes for young people at a senior secondary level. In the cases of Germany and the United Kingdom, there are high numbers of junior high school-leavers who enrol in VET programmes.

Germany

In **Germany**, the education and training system is strongly aligned to the labour market, and its "dual system" ensures that young people are adequately prepared with general education, theoretical knowledge of their profession or occupation, and structured workplace training. This ensures that they have the necessary knowledge, skills and socialisation to enter the labour market.

Through strong relationships between government and industry in the formulation of economic policy, employers are highly supportive of the training system. The employers appreciate the value of the qualifications, which are of high quality, and there are agreements in place to prevent employers from stealing employees from each other and to avoid cheap labour costs. Young people are motivated to further their training because the qualifications result in work opportunities.

Germany's apprenticeship system is at the centre of its post-school education and training system. It is rooted in craft traditions dating back hundreds of years. It is referred to as the "dual system" because it provides both practical training in the workplace and theoretical training in vocational schools. Large numbers of young learners (more than 50% of school leavers) enter the apprenticeship system rather than going on to university. It is generally felt that the apprenticeship system owes its success to high levels of cooperation between employers and government. In fact, the apprenticeship system in Germany is funded by employers rather than by the state. Furthermore, the apprenticeships covers most areas of the economy, from craft to banking. The German system offers a strong occupational route into the labour market.

A young person in Germany experiences a smooth transition from education to the world of work. Through the apprenticeship, learners are socialised, not only into a particular craft or occupation, but also into appropriate work habits. They develop pride in their work and they have a sense of purpose, of belonging to the craft group of which they are a part. Employers know what kind of skills and knowledge to expect. There is a high level of stability in employment. As a result of the strong networks within the labour market, young learners are also exposed to leading-edge innovation which provides a platform for ongoing innovation and learning.

United Kingdom

The **United Kingdom** economy is characterised by a highly flexible labour market, with high levels of fluctuation in the job market and accompanied job insecurity. Education and training is based on individual choice, especially in the post-16 phase (post-compulsory education) and socialisation therefore occurs through individual social structures rather than through collaborative networks.

Employers focus on firm-specific training which is rudimentary and there is a continuous move towards a small core of permanent employees and largely casual labour. The one consequence is that the motivation for ongoing, lifelong learning diminishes as there is little associated incentive. There are also high levels of mobility across jobs and little sharing of knowledge and skills. This results in poor labour productivity.

In the United Kingdom, the apprenticeship system has undergone substantial change in recent times. Due to changes in the education system and the decline of manufacturing during the 1980s and 1990s the traditional apprenticeship system largely disappeared. The "modern apprenticeship" system was introduced in 1995 and broadened the VET route to new sectors of the economy. The new system is funded by government and as such is adapted continuously, usually as a means to address youth unemployment. The system is less structured than the German system, offering more flexibility in the way in which the training is delivered.

A young person in Britain has a wide variety of choices in the senior secondary education market. There are few structured learning pathways, so work socialisation is less dependent on the post-schooling education system and more on family, peers and school.

The labour market is uncertain and unstable, giving employers a high level of flexibility to hire and fire as they wish. Employers are often concerned with firm-specific training linked to particular tasks. There is an increased move to casual work and outsourcing which limits the commitment of employers to the development of their workforce. Individuals therefore are not able to access structured and systematic learning in the workplace and the responsibility for further development of skills rests solely with individuals. Individual capacity, networks, and creativity therefore form the basis for advancement in the labour market.

Botswana

Botswana has experienced substantial economic growth since independence in 1966. While the economy is still heavily reliant on diamond mining, government is actively promoting diversification in the economy. This is however hampered by high levels of inequality within the society and the pervasive HIV/AIDS pandemic. VET in Botswana is relatively young. Around 1966 the government started to train artisans and administrative staff for civil service in anticipation of independence. Botswana policy views VET as providing skills for specific occupations. Hence its focus is strongly on the traditional trades. Apprenticeships were introduced in 1988, based on the German system. These apprenticeships are only in technical trades. There has not been a large enough uptake of young people into the apprenticeship system and it has been accused of needing modernisation. A contract with an employer sponsor is needed to enter the apprenticeship but Botswana has a small industrial base, meaning that not many young people can access the apprenticeship system.

There has recently been an introduction of business and other related programmes into the technical college system. There is very limited space available in these programmes so few young people are able to access them.

The system also focuses on community development and income generation through the Brigades, which is a community driven programme aimed at combating youth unemployment. Training in the Brigades incorporates theory and practical training with a strong focus on the building industry. The training in the Brigades has sometimes been criticised as being of low quality and viewed as inferior to the technical college training. This is because the training has not kept up with new developments. However, communities are still very supportive of the Brigades system and wish it to continue.

After 10 years of schooling a young person in Botswana can enter the Brigades for technical training. The limitation of this system is however that it does not allow direct access to higher education. After 12 years of schooling learners can work towards national craft certificates or the new Botswana Technical Education Programme (BTEP). However, there is little space available in these programmes which means that many potential learners are not able to access this system.

ACTIVITY

Time needed 30 minutes

Activity 6: Germany, the UK and Botswana

Consider the three country models of VET outlined above.

Using the following table as a guide, list aspects of these three models that you consider to be strengths or weaknesses:

Country	Strengths (Positives)	Weaknesses (Negatives)
Germany • skills • apprenticeships • institutions • economic competitiveness		
United Kingdom • skills • apprenticeships • institutions • economic competitiveness		
Botswana • skills • apprenticeships • institutions • economic competitiveness		

OUR COMMENT

Our comment

The apprenticeship system has evolved in different ways in different contexts. There are various strengths and weaknesses that one might identify in each of the case studies we have set out above. It is important to realise that there will be some debate in this regard. So, as you read our comments below, ask yourself whether or not you agree with our assessment of how VET works in each country. More importantly, ask yourself what lessons may be carried forward to better help us understand changes in our own FET colleges in South Africa.

The key difference between the three country contexts seems to be the value placed on skills as a key ingredient of economic growth:

- Germany places substantial emphasis on the development of occupational skills.
- The UK, while strongly promoting the development of skills post-schooling, leaves the development of such skills to market choice.
- Botswana is struggling to diversify its skills base and there is still strong focus on technical skills which are perhaps too narrow and limited.

Another key difference between the three systems is that Germany is substantially more successful in keeping young people in the education system up to the age of 18 than the UK or Botswana. The reason for this is probably that Germany places significantly more importance on the VET strand as a learning pathway than does the UK or Botswana. The

result is that there is a larger proportion of young Germans with higher level skills than there is in the UK or Botswana, which has been highly beneficial to the functioning of the German economy.

In comparing strengths and weaknesses of VET systems in Botswana, Germany and the UK, you would have thought about the benefits of skills development for the economic health of the country. Here is our assessment – compare it to the ideas that you came up with:

- The German apprenticeship model appears to have a positive effect on productivity, and allows German firms to access higher value-added niche markets. In addition, German firms have been able to integrate different aspects of design and production due to the availability of a range of qualified skilled workers within the firm, while British firms are more reliant on external suppliers of services for design and development.
- Research has suggested that the rigidity of the German education and training hampers the ability of German system to adapt to changing conditions in the market. The high levels of specialisation amongst workers prevent them from becoming multi-functional teams. This has negative consequences for the competitiveness of the firms.
- The apprenticeship model adopted in Germany provides for a strong mentorship role. The *Meister*, or master craftsperson, oversees the training of apprentices and ensures their integration into the workforce. This entrenched role is not in evidence in the UK, which makes the development of effective workplace learning less systematic. At the same time, unlike the UK, the German qualification system is driven by occupations and is therefore highly rigid. This impacts on the ability of young people to engage in flexible learning pathways, and thereby be adaptable to changing labour market opportunities.
- Some commentators feel that there are substantial flaws in the German system regarding its ability to adapt to changing market conditions. There is a suggestion that the system will continue to struggle as the challenges of globalisation intensify.
- Botswana presents a scenario quite distinct from the UK and Germany. It is still a developing country with a relatively young education system. Young people passing through the VET system are largely locked into narrow technical trades and the system is in a process of transformation aimed at expanding VET. At present the system is under-utilised and under-resourced. However, Botswana is moving towards the development of an integrated qualifications framework which is aimed at bringing more cohesion to the system and enhancing the standard and quality of the qualifications. This is in line with emerging VET systems throughout the world.

Key points

- In the 20th century, the classical apprenticeship system declined, to be replaced by college-based VET systems in which theoretical knowledge became more prominent in addition to practical on-the-job training.
- VET fails if it does not include both apprenticeship learning and theoretical understanding.
- Different countries have responded to these imperatives in different ways.

UNIT 4

The changing demand for skills

There is an increasing emphasis internationally on the importance of high-level skills as a measure of a country's ability to compete in the global economy. We have seen that mastery of these skills entails both complex practical knowledge and related theoretical knowledge.

The argument is that high skill-levels are necessary for people to remain employable in a modern economy. Technology is changing so rapidly that people without the necessary levels of knowledge and skills will either struggle to find jobs or will be stuck in low-paying and low-status jobs. This view is supported by the fact that many job losses due to changes in technology have directly affected people with lower levels of education and training. Therefore, equipping oneself with more knowledge and skills presumably increases one's chances of not becoming redundant, and being able to compete for changing job opportunities.

ACTIVITY

Time needed 20 minutes

Activity 7: Changing skills for changing jobs

Consider two occupations: the motor mechanic in a local garage and the chef in a large hotel or restaurant.

Choose whichever of these occupations you are more familiar with. Using the following table as a guideline, indicate how you think skills have changed over the last 50 years or so, and particularly the effects of technology on jobs in that occupation.

Types of skills needed half-a-century ago		Types of skills needed today
	Consider things such as basic knowledge required, simple or complex work, complexity of customer requirements, number of customers, and general knowledge required.	

OUR COMMENT

Our comment

Fifty years ago, hotels and restaurants tended to be patronised by wealthier members of society. Chefs employed in these establishments generally knew a great deal about the food and drink that they prepared, and they were able to engage with diners in a sophisticated way, making suggestions, describing tastes, and matching different courses and wines with each other. Then, in the latter part of the 20th century, there was an explosion of popular restaurants and budget hotels. Now people who cooked and prepared the food did not have to know too much about what they were serving and customers did not require them to have extensive knowledge – menus and options were in fact quite limited, and stuck to particular formulas. The level of skills and knowledge required for the job was not very complex. Nowadays, however, the demand for multi-skilled, knowledgeable chefs is on the increase again. Many more people seek quality when they eat out, they are more health conscious, they want a wider choice of meals, and they are more discerning about what they pay for. Consumers demand more choice when it comes to restaurants and hotels, and customer service and satisfaction is the key to retaining clientele. The chef is now expected to know about food and to be responsive to people's nutritional and gastronomic needs. The more educated and articulate the chefs, the more effectively they are able to understand their customers and adapt to their requirements. Increasingly, therefore, hotels and restaurants are requiring their chefs to have a good educational background and have flexible food preparation skills.

The same kind of thing can be said about motor car maintenance and repair. When cars first appeared, they were individually constructed works of mechanical art. Then mass production kicked in, and by the 1950s, cars were all relatively simple and similar to each other in their components. A motor mechanic required a basic knowledge of internal combustion engines, transmission systems, suspension and braking systems, and the like, and then could get on with the job. Nowadays, however, it seems that what

most cars are about is the fancy bits and pieces, the "add-ons" and special features that distinguish different brands from each other. Cars seem to be more about status than about transport. Many more people own cars, they want a choice of many different kinds of "wheels", and they are more discerning about what they pay for. Motor mechanics now have to be highly specialised on particular kinds or makes of vehicle, bringing not only mechanical knowledge, but also computer skills, electronic knowledge, communication skills and customer service and satisfaction into the picture. For the modern motor mechanic, flexibility is the key to retaining clientele. Increasingly, therefore, garages and motor dealers are requiring their staff to have a good educational background and have flexible technological skills.

In general, then, the technological shifts of the last century have caused a significant change in the types of skills required for the workplace.

Craft knowledge originally required a complete understanding of how to use all the tools required for producing something or making something work. Increased complexity of technology in the early 20th century split the various tasks into isolated units and workers were not required to be able to do all of them. So instead of being able to use all the tools, workers only needed to know how to use tools that were relevant to their particular sets of tasks. This resulted in workers only having to develop a narrow range of skills, which limited their chances of finding work in other types of occupations. Economies were well served by such narrowly skilled workers in the middle years of the 20th century (although it must be said that the workers themselves were not well served by their limited skills).

However, in the latter part of the 20th century, economic trends started to go in the opposite direction again. Today there is an increased focus on using technology flexibly to improve efficiency and productivity in the workplace. Companies now have to compete in the global market. New demands are placed on workers to work as members of multi-functional teams and to be more adaptable to changing technology. Increasingly there is a need to broaden workers' skills and create a more effective link between general

knowledge and occupation-related knowledge, to ensure that workers are able to learn more effectively and able to adapt to changing demands in the workplace.

This changing demand for skills has had a negative effect on the working lives of low-skilled or under-skilled workers. With increased reliance on technology, low-skilled workers no longer have the necessary skills demanded by the employers in key economic sectors. Fewer low-skilled workers are needed due to the increased reliance on technology to the do the job.

However, it is also argued that the development of higher levels of skills does not automatically increase chances of employment. In order for this to be true, there would have to be no need for low-skilled labour. Despite the decline in employment for low-skilled workers generally, there are still sectors of the economy that are reliant on low-skilled workers. On the other hand, it is likely that there will be no new jobs created for people with low levels of literacy and numeracy. Even having some secondary education means that young people will find it easier to learn new skills on-the-job.

These shifts in employment have made trends in the labour market difficult to predict. This is a particular challenge for VET. FET colleges are always expected to align the programmes they offer with the skills demands of the labour market. However, where there are no obvious jobs available, the task of aligning programmes with demand becomes difficult. FET colleges need to be able to engage with employers to establish what skills are in demand. FET colleges also need to be aware that employers' skills demands can change all the time as they seek to enhance their own productivity and bottom-line profit. Therefore, FET colleges need to be engaging with such employers on an ongoing basis so as to keep ahead of the changes.

Responding to the demand for skills in VET

Think about your experience of the apprenticeship system in South Africa, and in particular its replacement by the system of learnerships. What effect do you think the decline of apprenticeships has had on the role of FET colleges?

Since the 1970s, employers have been demanding different kinds of skills. Employment in mining and agriculture, which had been the backbone of the South African economy, has been declining and service-oriented industries such as finance, wholesale, retail, and computing have offered more job opportunities. Low-skilled black workers suffered most because their skills were less in demand.

When the democratic government came to power in 1994, it introduced new policies and strategies to improve employment opportunities for black people. However, black people still occupy most of the low-skilled and semi-skilled jobs. Employers have also been reluctant to invest much money in improving the skills of black workers, which means black workers have little opportunity of competing for new jobs.

It also seems to be more difficult for young black school-leavers or graduates to find jobs than it is for young whites. There appears to be a particular mismatch between the skills and knowledge of young blacks and the demands of the labour market. As a result of their poor educational experience, many of them still choose learning pathways which give them skills that are not in high demand. Either their school subjects do not allow them to gain entry into programmes that offer skills in high demand, or they do not feel confident enough to take on more difficult programmes and would rather choose easier programmes which give them skills that are not necessarily in high demand.

From this we can begin to see the challenge facing young people when making decisions about their careers. As a result of the decline of the apprenticeship system, the skills and knowledge produced through the VET system have not kept up with the realities of the workplace. Without the ability to apply what they have learned in practice, there are large numbers of young graduates coming out of the FET colleges with general skills and knowledge which are not necessarily in high demand. This means that they all offer employers the same, non-specific skills and knowledge. The system leads to a situation in which there is little opportunity for any one college graduate to offer the employer something different from another.

This is a "supply-driven" model of VET. The danger of such a model is that it can lead to an over-supply of college graduates with the same skills and knowledge.

The challenge in any country is the extent to which the learning and career choices made by young people are responsive to the demands of the labour market. Labour market demands are those arising from employers' expectations of their workforce. These will not necessarily match with the expectations of students. However FET colleges, if they are to be responsive in this environment, must ensure that they train young people in the skills that are in demand in the current economic situation. In a word, VET must have currency.

However, there is a paradox here, which helps us realise what the problem is if VET focuses only on the development of a narrow, specific set of skills. In the modern economy, employers also demand from their workforces the ability to change or adapt their types of skills and knowledge, depending on trends in the labour market. So, it is crucial in VET that your students also gain a sound foundation of flexible knowledge and skills that can allow them to learn new things when necessary and adapt to different working conditions.

This is a "demand-driven" model of VET. The danger of such a model is that it might try to match what happens in the classroom too closely to trends in the labour market at any point in time.

We can conclude from all of this that VET provision must maintain a balance between the needs of students and the demands of employers. As a VET lecturer, you need to think about and develop your understanding of what your students need in order to develop their overall knowledge and skills. But you also need to think about what employers seek at any point, and make sure that your courses and programmes are responsive to these demands.

ACTIVITY

Time needed 15 minutes

Activity 8: Responsiveness to employers and students

Consider your particular field of expertise:

1. What are the different kinds of skills and knowledge your college should be offering in this field to meet the demands of employers? From your experience with students and employers, what more do you think your college could be offering that would better meet demands?

2. What skills and knowledge are students demanding? Are these the same as what employers require or do you think there is a difference between students' programme choices and employers' expectations?

Our comment

VET traditionally was tied to the development of apprentices in particular workplace contexts. As we have seen, the narrow version of this model proved to be ineffective as the industrial economies started to change in the last century. There is now general agreement that a sound general education system is critical to the success of any country. Schools are expected to provide a solid foundation of general knowledge that prepares young people for lifelong learning and development. In the post-school arena, education becomes more concerned with what skills are needed for particular professions or occupations. Once students have completed compulsory schooling, they have a range of learning pathways available to them. They embark on a learning pathway which will, hopefully, eventually lead to employment. One route is to enter into VET and work towards a qualification that will either help them to enter the labour market, or help them to access higher education.

Unlike its original role in society, VET is no longer just about training in skills for specific occupations. Rather, it is training for the development of knowledge that may provide a route to employment in the workplace, but may also provide a basis for further development of knowledge at a higher level, so that the individual can cope with changing technologies in the workplace. Also, whereas VET previously was viewed as an alternative to formal schooling which at the same time provided an easier route into jobs, VET has now become more about a learning route after formal schooling. In fact, the importance of VET in this regard has increased throughout the world – colleges no longer offer only the traditional areas of "hard" technical or manual skills, but have been extended to incorporate business skills and service-sector industries such as hospitality, tourism, haircare and early childhood development.

But given this context, there is still a sense that employers look to VET to provide them with focused employees able to work flexibly in specialised industries and who are able to communicate well with both clients and fellow workers. VET in South Africa has come under fire for failing to provide sufficient numbers of graduates skilled in this way for the new economy.

How do VET lecturers think about responsiveness in the work they do?

ACTIVITY

Time needed 45 minutes

Activity 9: Being responsive in your practice

To help you to get your mind going on this question, you may want to glance ahead at one or two of the case studies of actual FET lecturers that appear in Chapter 2. Each of these lecturers tries to makes sense of the different pressures that they face in the current VET environment. These social, moral, economic, technological and educational pressures are typical of change in South African education at the moment. In all likelihood, you will be able to identify to some degree with one of the following people:

- Maria, a hospitality lecturer (pp. 56–60);
- Quinton, a cabinet-making lecturer (pp. 61–64);
- Reuben, a lecturer in refrigeration (pp. 65–67);
- Vusi and Lizette, lecturers in business studies (pp. 68–72); and
- Lindi, a cosmetology lecturer (pp. 73–77).

Each one of them seems to have particular ideas about how to be responsive to these pressures. However, the purpose of this activity is to think about yourself and your responsiveness as an FET lecturer. We shall come back to the case studies in more detail later.

Make brief notes in answer to the following questions:

1. Describe:
   a) how your teaching tries to respond to the needs of learners;
   b) how you respond to ongoing developments in your discipline area and vocational speciality, such as hospitality, engineering or business studies;
   c) how you respond to cultural diversity in the workplace and amongst your students; and
   d) how you respond to the needs of employers in your courses and teaching.

2. When you have finished describing yourself and your roles, note down a few of the most important questions that you have about the way FET colleges need to change in order to become more responsive to current demands being made on them. If you are a relatively new lecturer in a college, you may find it useful to speak to some of your more experienced colleagues to be able to answer this question.

OUR COMMENT

Our comment

It is obvious that responsiveness in an FET college requires careful attention to the needs of employers, so that courses are designed in such a way as to provide both the general knowledge and the specific practical skills that are required by the modern economy.

Each one of the lecturers portrayed in Chapter 2 is very concerned about understanding what their students need, but at the same time they understand how this links to what their different industries require of new graduates. One thing they understand well is what "being employable" is all about:

- Likewise, Maria, the hospitality lecturer, worries a lot about getting her students "more geared up to what industry wants". She sees the general scientific subjects as the starting point for good training, because a wide understanding of nutrition and health is demanded. But she also insists that good skills in food preparation, cooking, and catering are shown by her students, because she knows that this is what will make them employable in restaurants and hotels (pp. 56–60).

- Because he understands what the industry requires, Quinton, the cabinet-making lecturer, wants to ensure that well-rounded, holistic furniture-making skills are developed in his students (pp. 61–64).

- Reuben, the lecturer in refrigeration, seeks at all times to "improve on the methods used in the college's theory classes by opening up a real refrigerator". While he knows that theory is crucial to his students' ability to fix any fridge, anywhere, he also knows that it is not enough to get them jobs in the industry (pp. 65–67).

- Vusi and Lizette, the lecturers in business studies, debate the relative merits of learnerships and college-based courses. Informed by their understanding of what students need to be able to go into the business world, they end up agreeing that there must be more work-related content in learnerships, and more theoretical depth in their college courses (pp. 68–72).

- Lindi, the cosmetology lecturer, pays careful attention in her planning to making the link between theories of beauty and the practical skills of actually making a woman beautiful. She knows that this is what the beauty parlours want in order to be perceived by their customers as being at the head of the field in the beauty industry (pp. 73–77).

At the same time, responsiveness in an educational institution involves other things. Our students come to us with particular learning needs. They have particular histories as learners, in schools and elsewhere – this means that they have particular ideas about how to learn and particular expectations of their lecturers. They come from a range of cultural backgrounds – this means that lecturers must be sensitive to different cultural meanings and values that are contained in knowledge. We shall look at these issues in more depth in Chapter 4, which is about the VET curriculum. But what we need to note here is that it is not enough, as a VET lecturer, to be responsive only to the needs of the economy. Responsiveness to the needs of learners is also called for. In the next section, we look a bit more closely at student choices and the changing role of VET in this regard.

Key points

- As jobs have changed with the modernisation of the economy, so new and different kinds of skills have been demanded in the workplace.
- VET provision must maintain a balance between the needs of students, which are "supply-driven" and the demands of employers, which are "demand driven".
- In order to be "responsive", FET colleges must consider the needs of employers for particular kinds of knowledge and skills in the workplace, but they must also take into account the cultural and learning needs of their students.

UNIT 5 Students' choices and the purposes of vocational education and training

ACTIVITY

Time needed
15 minutes

Activity 10: Career routes

1. Think about why a young school leaver would choose to enter the VET system rather than the other education routes available. List some of the reasons that you think they might have.

2. What is the advantage of entering the VET system? What does the VET system offer to young students that other learning routes do not?

OUR COMMENT

Our comment

VET has often been considered to be an inferior learning route, even though governments all over the world have tried to raise its status. However, VET plays an important role for young people. The programmes offered in VET institutions are generally easier to access than those offered in institutions that are more academically focused, particularly for a young person who has not coped well with or is not suited to academic studies. VET also provides the opportunity to develop vocational skills and knowledge that are more suited to entry into occupations.

In many countries, learners are able to access VET while still in secondary school, and are able to combine general education with vocational or occupational education. This helps to ensure that they still get a sound foundation of general knowledge while beginning to prepare themselves for careers. In a few countries, such as Germany and Switzerland, young people are able to access an apprenticeship route, where they combine institution-based and workplace-based learning leading to high-level general and occupational skills. In Japan and the United States, government encourages academic achievement and young people access vocational knowledge and skills after successful completion of general education.

At the same time, young learners often use VET as an alternative route to higher learning, because they have begun to recognise that qualifications are important for longer-term careers. Across many countries, young people are not entering into VET so that they can gain immediate access to occupations, but are viewing it as part of their overall learning pathway. Their transition to the working world thus takes longer, and they are taking more general education programmes. This can lead to tertiary education rather than vocational education programmes that restrict future education pathways.

The learning pathways that are made available by VET differ from country to country. The choice to enter VET, and the pathway that young learners take, depends on the way in which the education and training system operates, particularly at the level of post-compulsory education and training. What is undeniable, however, is that VET is increasingly becoming the career pathway of choice amongst more and more young people, who recognise their ability to earn a good living on the basis of sound vocational skills and knowledge.

In South Africa, many people hope that the learnership system, if it is properly implemented, will be able to expand career possibilities for many young people and also contribute significantly to national economic growth and development.

All over the world, young people's career choices are changing. VET is playing an increasingly important role in opening up these possibilities.

ACTIVITY

Time needed 15 minutes

Activity 11: Learning routes for young South Africans

1. Map out the different learning routes, as you understand them, that are available to young school-leavers in South Africa.

2. Which routes are young people likely to take, and why do you think they would choose these?

Our comment

South Africa's education system provides compulsory education for ten years. As with most other countries, access to a number of different learning pathways begins at the level of senior secondary education. Learners who successfully complete Grade 9 then enter the FET education band (or, of course, may leave formal education entirely and either choose or are forced by circumstance to go straight into the job market or family life). In the FET band, they are able to choose either a general education route, often with the aim of preparing for tertiary education, or a vocational education route, which provides a combination of general and vocational subjects, focused on preparation for a specific role in the workplace. The latter route is chosen by a relatively small number of young learners – usually those who are not academically successful in school.

While schooling provides a strong general foundation for learning, VET qualifications prepare young people with knowledge suited more to the workplace and also form the basis for advanced studies and greater specialisation. Taking such a qualification after general education also forms the basis for learning in the workplace. With a foundation of general knowledge from the schooling environment and development of knowledge and skills in a particular field of study, young people are able to enter into jobs and quickly learn how to apply their knowledge.

Unfortunately, to a large extent, South Africa's education system has up to now emphasised a general education pathway, with alternative pathways perceived as being for low-achievers. But as we have seen, national education and training policy, as well as the labour market itself, is starting to change the situation. Many more young learners are now seeking to access VET once they have completed their general education. They are looking to gain qualifications in general business studies, engineering, utility studies, art, music, educare or social services.

The challenge facing the FET college will always be how to balance the immediate demands of employers for particular skills with the career development needs of the learner, which requires that their decisions are not informed by a narrow view of the working world.

Key points

- Students often use VET as an alternative route to higher learning.
- FET colleges are increasingly called upon to provide both good general education and specific practical training related to different trades and vocations.

UNIT 6

The professional role of the vocational lecturer

In coming to the end of this chapter, it is worth reflecting on the various roles that you play as a lecturer in an FET college. As we have learned so far, the labour market today is difficult to understand and often changes very quickly. Employers have changing needs. This does not make your job easy.

It is important for you to think about the question, "How do I develop and change professionally to best serve the needs of the students in FET colleges?" The idea of professionalism is very important in this context. Teaching and training are not mechanical activities, they are professions.

STOP THINK

Think about what it means to conduct yourself professionally as a lecturer in an FET college. We all know that "unprofessional conduct" includes, amongst other things, not preparing properly for your lectures and practical training sessions, not keeping up to date in your field and arriving late for work. But what does it mean to act professionally?

You may want to jot down some ideas about this in your workbook as you think about it.

What do we mean by "professional"?

Lecturers in an FET college are professionals. They understand themselves to have a professional identity, they are trusted by their students to behave professionally, and they are generally expected (for example, by the South African Council for Educators [SACE]) to maintain high professional standards in the work they do. But what do we mean when we use the term "professional"? We can learn a great deal from the complexity of ideas around the concept. Wordnet tells us that the word "professional" has multiple meanings, as follows[13]:

The *noun* professional has three meanings:

- Meaning 1: a person engaged in one of the learned professions
  Synonym: professional person
- Meaning 2: an athlete who plays for pay
  Synonym: pro
  Antonym: amateur (meaning 2)
- Meaning 3: an authority qualified to teach apprentices
  Synonym: master

The *adjective* professional has five meanings:

- Meaning 1: engaged in a profession or engaging in as a profession or means of livelihood
  Antonym: non-professional
- Meaning 2: of or relating to or suitable as a profession
  Pertains to noun: profession
- Meaning 3: characteristic of or befitting a profession or one engaged in a profession
  Antonym: unprofessional
- Meaning 4: of or relating to a profession
  Pertains to noun: profession
- Meaning 5: engaged in by members of a profession

By taking on a "professional identity", a lecturer takes on the responsibility to look after the needs and interests of those whom s/he serves (in this case it would include employers, students, colleagues, the Departments of Education and Labour, and the workplace).

When we think about professionalism in VET education, we include at least the following ideas:

- Being very competent in a specific field of knowledge or skill. Knowledge of and competence to deliver the curriculum is required of a professional lecturer.
- Having autonomy, or the ability to make judgments, as a result of competence. Professional interpretations of the curriculum for implementation in any situation are part of the lecturer's job.
- Bearing responsibilities for the people who trust you to use your special knowledge to their benefit. Students trust lecturers to teach them in a manner that will equip them to be well-informed, knowledgeable workers in their respective fields of skill and expertise.

- Reflecting on your practice and its effectiveness. In Chapter 3, we will discuss the idea of reflective practice as a cornerstone of teaching and learning in VET.
- Developing your expertise in an ongoing manner.

In thinking about yourself as a professional, you will no doubt have thought of the various things you are expected to do as an lecturer. You have to plan lectures and keep on top of developments in your trade or vocation. Outcomes Based Education (OBE) has brought with it new demands that require you to have curriculum development expertise and the ability to mentor your students. It demands that you constantly think about and implement innovative teaching methods. Continuous assessment is now one of your primary responsibilities. And that's not all – as a lecturer in a complex modern world, you are expected to act as counsellor, health advisor, disciplinarian and social worker for your students.

To be able to respond to changes in the FET college sector, you need to be able to reflect on what VET is, how it has fitted into South African education and training systems in the past, and what changes it is expected to respond to now. This holds for you as an individual lecturer, and for all other members of the community of practice to which you belong.

ACTIVITY

Time needed 30 minutes

Activity 12: Your role in your college

On the following page, in two separate boxes, you will find the following:

- The seven roles of lecturers, as specified in national policy by the Department of Education. In policy terms, they apply as much to FET college lecturers as to any educator in the schooling system.
- A quotation form Carl Bereiter, an American psychologist and lecturer, expressing concern and scepticism about all the work that lecturers are expected to do.

Based on these two excerpts, answer the following questions:

1. What are the most important roles that VET lecturers should concentrate on in order to ensure the best possible educational and training experiences for their students?
2. Does your college allow you to fulfil these roles adequately? What can you do to improve the situation?

The seven roles of the educator described in the national policy document, *Norms and Standards for Educators*, are as follows:

1. **Learning mediator**
2. **Interpreter and designer of learning programmes and materials**
3. **Leader, administrator and manager**
4. **Scholar, researcher and lifelong learner**
5. **Community, citizenship and pastoral role**
6. **Assessor**
7. **Learning area/subject/ discipline/phase specialist.** [14]

Teacher education has a bad reputation … these dissatisfactions may be well justified but they are not helpful in identifying what is wrong or what needs to be done. Student teachers that I have encountered tend to be overwhelmed by the multiplicity of responsibilities that teaching entails. They may have chosen teaching with the idea that it consisted of planning and teaching nice lessons or being a friend and mentor to young people. Then they learn that they must also be a social worker, a health officer, a disciplinarian, a psychologist, and a legal custodian; that they must be incessantly concerned with the rights and sensibilities of minorities, the downtrodden, and the impaired; that they must assign grades to students on the basis of evidence that will stand up in court; and that their teaching and the academic achievement of their students must meet the expectations of a society that has little appreciation of what they are trying to do. All that and more dawns on them as they come to see teaching through the eyes of those who do it. No teacher education program could possibly provide them with everything they feel they need.[15]

- Carl Bereiter

Our comment

As authors of this book, we are probably not as well placed as you are on a day-to-day basis to make these judgements. Nonetheless, our sense is that, as VET lecturers, your primary responsibilities relate to the role you play in helping young people shape their careers and their lives. The manner in which we are able to make meaning of the curriculum for students will play some role in determining their job prospects. It seems that VET lecturers play three primary roles:

- Assisting young students to develop a strong knowledge base which will prepare them to learn further.
- Supporting the transition of young students from school to the world of work.
- Providing ongoing career guidance and general advice on personal development to one's students.

With regard to the development of a sound knowledge base, we have already learnt some important lessons in this chapter so far:

- Young people are interested in further learning. They don't want narrow qualifications that only equip them for relatively low-skilled occupations.
- Training in a FET college cannot be only about theory. The theory must be linked to the workplace context in some way.

The VET lecturer faces a dual challenge – to ensure that young students have a sound base of theory that can prepare them for higher levels of specialisation, but within an overall curriculum that prepares them for immediate access to the workplace.

Another key feature of VET is the way in which it helps young people enter and understand the workplace. This workplace socialisation is concerned with how the students' identities, aspirations and motivations are formed. Sound education and training assists young people to learn, adapt and grow within the workplace. Students' emerging identities as students and as artisans impact on their success in their chosen career paths and the role that they play in the economy and the society. The students in your college have chosen to enrol in a VET institution because they believe the skills and knowledge they will gain will add value to their lives in some way, either by improving career prospects or possibly for personal growth and development, or both.

Career guidance is about helping students to see the bigger picture, helping them to think longer-term about their lives and plan appropriately. Even if the students are primarily concerned with just getting a job, they should still be able to plan beyond this and work towards their chosen career. At the same time, a common problem raised by FET college lecturers is that students are not interested in "getting their hands dirty". They do not want to do work that involves too much manual labour and are expecting to get jobs in higher-level positions when they enter industry. Through effective career and personal guidance, the student can be helped to see the value of entering at a lower position in order to get workplace experience and ensure that through their broader foundation of knowledge and skills, they can work their way to better job positions.

ACTIVITY

Time needed
25 minutes

Activity 13:
Your context and working across communities

Think about the field in which you work – such as business studies or engineering. Now think of your specific area of expertise within the field – such as mathematics, refrigeration, fitting and turning, design or computers.

Describe how you link this expertise in your college to practices outside the college. Think about links with:

1. colleagues on other campuses;
2. other colleges;
3. other educational institutions or professional organisations; and
4. the world of work.

Our comment

As we have learnt in this chapter, education in the VET sector needs to respond to modern requirements in the world of work. It needs to create pathways to higher education and it needs to promote social upliftment. For this to happen, we as lecturers need to:

- understand our particular role in technical and vocational education;
- look at what we teach and how we teach it;
- get to know the needs and abilities of the students and how to support them as they learn; and
- think of ways in which we can best help students develop thoughtful practices, and prepare for the workplace or institutions for further study.

Just as the stock exchange has brokers who know the commercial world and who buy and sell shares for people, the lecturer in a FET college is a broker between education and the world of work. Through their knowledge of both these fields, they sort out what students should know from each field, and feed this information into their teaching and curriculum.

Key points

- FET college lecturers need to be accepted as professionals – this has a range of implications for their role and their identity as VET lecturers.
- Professionalism includes ideas of competence, autonomy, trustworthiness and expertise.
- Professionalism implies ongoing engagement with the needs of students, the workplace and with other professionals in one's field.

Conclusions

Towards the beginning of this chapter (p. 11), we highlighted three focal questions which we have tackled from various angles in what has followed. These questions related to how VET in South Africa is being transformed to meet the challenges of a changing labour market , and how this process impacts on FET colleges with regard to their ability to meet the needs of their students.

The answers we have suggested in this chapter have been the following:

- In a modern economy, quality VET requires both high quality training in the particular practical skills associated with a particular vocation and the development of an understanding of the theoretical principles that underlie those practices.
- The world of work has changed in many ways over the past century. In contemporary times, it demands of employees a range of knowledge and skills which enable them to think flexibly, to produce quality products and to work across a range of different practical contexts as the market demands from time to time. This means that VET must provide both theoretical knowledge and well-rounded practical skills to meet the needs of students.
- In FET colleges, the requirement is that both the theory and practice of any vocation or trade must be covered in an integrated way in quality programmes that are responsive to the needs of industry. This will ensure the maximum employability of FET college students, in that they will have both what employers want and what they need personally to gain access to further education and training, if that is the route they wish to take.

CHAPTER 2

Scenes from Further Education and Training Colleges

Introduction

As in any other sector of education, or indeed any sector of the economy, the Further Education and Training (FET) colleges in South Africa are populated by a marvellous range of people. They bring their different histories, personalities and idiosyncrasies to bear in developing the technical and vocational skills of their students. In this chapter, you will encounter a range of different characters who work as committed lecturers in several of our colleges. While the names that appear below are not necessarily the people's real names, all of the case studies are based on interviews with and observations of actual members of FET colleges. The second case study, that of the cabinet maker, is inspired by the recent doctoral work of Vocational Education and Training (VET) expert, Jeanne Gamble from Cape Town. The other case studies emerged from visits to FET colleges by the team who wrote this book.

In the previous chapter, we learnt of the different pressures (social, moral, economic, technological and educational) that have led to a demand for change in the South African VET sector. As you read the case studies that follow, we would like you to think about how these lecturers have adapted to and coped with the changes that are currently taking place in FET colleges throughout South Africa. What are their strengths as VET educators based on? What enables them to adapt what they do to the demands of new curricula and assessment systems? Are they generally positive or negative about the coming of Outcomes Based Education (OBE) to the FET sector and what does this mean for their work?

We shall be encountering these people a number of times throughout the rest of this book. The main purpose of this chapter is to give you an opportunity to get to know them a bit better. Do you perhaps identify closely with one of them?

Key questions

This chapter sets out to respond to two central questions:

- What is the typical experience of lecturers on the job in South African FET colleges?
- What are some of the ways in which these lecturers respond to demands for change in their institutions?

Outcomes

By the end of the chapter you should be able to:

- Recognise in these case studies some of the typical conditions and dilemmas that you face in your FET college environment, some of the problems you experience, and some of the ways that you engage creatively with them.
- Identify with one or more of the people portrayed here, and learn from the way in which they see their situations.
- Reflect on your own professional identity as a VET lecturer in relation to the insights of the case studies.

At the end of each case study there is an activity in which we have posed a series of questions that will help you think about the lecturers in relation to the critical issues faced by VET at this juncture. We do not in any way provide comments on the activities in this chapter compared to activities in the other chapters which generally do have comments.

UNIT 1

Hospitality case study

My name is Maria. I have been teaching catering since 1984. At that time all of our students were employed in hospital kitchens. They came to us because they only had a Std 7 (Grade 9) and wanted a qualification. Our role was to teach them about the theory of cooking. We were not concerned about teaching practical skills because that's what the students were doing at work anyway.

By 1986 the colleges were getting students who were interested in catering as a career. They wanted to work in industry – hotels and restaurants. We realised that our curriculum was only geared for hospitals and so it needed to change. The Department of Education consulted with us as lecturers and with industry, and then made some changes to the curriculum.

A lot of that curriculum was still very theoretical. For example, there was a subject called Applied Science. It was basic science – students had to study about the effects of alkalines and acids in cooking, how acids were formed and their formulae. Generally the students were not interested in this so they did not do well. There was also Applied Physiology. Of course we need to know about the digestive system and the nutrients that people need, but the students had to know the whole human body from head to toe - how the blood circulation system works, how the heart pumps and all the muscles and bones. How do you link that back to cooking? The curriculum was also based on household cooking and it taught basic recipes that work at home. But industry needs large quantities and if you just increase the amounts it doesn't mean you get the same result. So we felt that, in spite of the changes, the curriculum did not really provide what was needed for industry.

Finally, in 1996, the Department of Education changed the curriculum again. These changes were quite dramatic and they helped us to get more geared up to what industry wanted. The curriculum dropped Applied Physiology and Science and introduced subjects like Catering Theory, Catering Practical, Food Administration, and Sanitation and Safety.

For example, this is what the curriculum for the National Intermediate Certificate (NIC) looks like:

- Catering Theory has about 18 modules dealing with menu planning and all the foodstuffs – meat, chicken, fish, vegetables, cereals, eggs, dairy products, sauces, soups, cakes, wines. For each one we have to teach the various cooking methods, presentation and preparation. Students therefore get a very broad knowledge and they have to learn about 200–400 pages of information for the subject.
- Catering Practical concentrates on practical cooking methods in the kitchen. The two subjects (Theory and Practical) are taught by the same lecturer so that the timing of the modules can be coordinated. It would make no sense doing eggs in Theory and then three months later doing eggs in Practical. Catering Practical also includes teaching the students how to write out a recipe, plan a work schedule, draw up an order list, and do the costing. This means that even Catering Practical has quite a lot of paper work.
- Food Administration includes a lot of calculations. Students have to do more costing, learn to standardise recipes and do basic bookkeeping such as writing out a cheque or keeping a ledger of expenses and income. The students really struggle with decimals, accountancy calculations, and multiplications and divisions required for standardising recipes.
- The fourth subject is Sanitation and Safety. The students do not always understand the importance of this subject but industry wants to know what training students get with regard to this discipline. We have to teach the Hygiene Act, the Health and Safety Act and similar things.
- NIC students are also required to study two languages.

This curriculum is good in some ways and problematic in others. What's good is that students are getting both head and hand knowledge – they are gaining broad, textbook knowledge in Catering Theory and getting real cooking experience in Catering Practical. So they are learning to think and do.

But sometimes I worry that the practical work does not get enough recognition. Out of 29 hours of teaching a week, only 8 hours are allocated for practical cooking. And when you subtract the time used for hygienic purposes – sanitising the kitchen before we start, cleaning up, packing away and sanitising again at the end – it leaves only 6 hours a week for actual cooking. In addition, the marks are weighted in favour of the theoretical components. You can pass your practical with distinction, but if you don't pass the theory, you won't pass. The overall mark appears on the final report and a learner can't see what mark he got for the practical alone. I can't tell you how many students I've had who ask, "Please, can I just get something that will indicate what my practical mark is?" And the employer is not able to decide that, "Okay, this person has a problem with reading and writing, but if I put him in the kitchen, he is very good".

The college has tried to increase the amount of practical work by saying that students must do six weeks of continuous in-service training in the kitchen of a restaurant or a hotel during their second year. When they come back, they usually say, "We are so sorry we couldn't have done it earlier, because we've learned so many things about what industry is really like". This practical experience opens their eyes, and makes their studies more meaningful.

I like the system that some colleges developed for their pilot programmes to experiment with OBE and unit standards. The idea was to get students working in a real situation while they are studying, so that when they leave the college they know exactly what it is like to be working in industry. For example, Tshwane North College for FET has a restaurant, a coffee shop, a hostel kitchen and a fast-food outlet on the Pretoria campus. So students are exposed to a range of experiences – preparing meals or fast-foods, being waiters, ordering stock, etc. This new way of training is really exciting and much better than just describing the equipment or telling students what they must do.

My colleague Angie does not agree with me, but I think another problem is that the curriculum is too broad. There is a lot of information the students must remember. It is impossible to learn everything because the syllabus is so long. And the way the examination questions are asked, requires students to know the information in the textbook off by heart, like a parrot. The feedback we get from industry is that students have done all of the work, but not all of it was relevant. Industry would rather have more specialised courses. Their requirement is for skilled workers – they want people to be trained in specific aspects, like grilling, baking or preparing flaky pastry.

I think that the introduction of unit standards might solve this problem. The unit standards designed by the Tourism and Hospitality Sector Education and Training Authority (THETA) all cover short, specialised courses. The idea is that students could come and do just one course and leave. In time, they could return and do another course. Eventually the courses would build up to a fully-fledged qualification. It's like a mosaic – you are putting together various pieces and in the end you have got the big picture.

But, as I said, Angie disagrees. She argues it's important for students to gain a broad knowledge which covers many aspects of cooking. Firstly, it opens up a range of job opportunities. If a learner can do only baking or grilling, their job choices are very limited and they have no basic foundation for learning new skills on the job. Secondly, it teaches students to think about cooking in a creative way – maybe a learner can combine their knowledge of baking and grilling to invent a new recipe for meat pies. Angie says that knowledge cannot be cut up into little pieces and that students must be shown the bigger picture of what is involved in good cooking right from the beginning.

Where Angie and I agree is that the current curriculum and the learning materials are outdated. Although we constantly request it, nobody is keeping it up-to-date. The last revision was in 1996, and so much has changed in our country and in the industry since then. The intervals between revisions are too long. As lecturers, we would like to improve on the official curriculum in our classrooms by including knowledge gained from the latest books and TV programmes. But it's frustrating because we are limited by the fact that we don't assess our students. The assessment is done externally. We cannot deviate from the textbooks, even though they are outdated, because the exams are based on them.

Maybe the implementation of unit standards will help. The THETA says that unit standards are going to be constantly reviewed and adapted. However our campus manager was telling us the other day about the complex processes and discussions she was involved in on a standards generating body, deliberating about some tourism unit standards. I realised then that adapting unit standards might take just as long as revising the curriculum.

So I tell my students that cooking is constantly changing and they must carry on learning. I tell them, "I can teach you the basics, but in hospitality it is lifelong learning that counts. There is always something new regarding food preparation, and if you want to be successful you've got to keep up with the developments." I try to be a role model by not becoming stagnant. I keep my eyes open to the new trends and I constantly update myself. Take the DSTV cooking channel for example – the amount that I have learned there!

In the last few years there has been a lot of talk about changes in the curriculum, teaching and assessment. Sometimes, as lecturers, we are made to feel that everything we do is outdated and even wrong. But I realised I was already teaching in an outcomes-based kind of way when we had to do our assessment portfolio for assessor training. We had to take a specific unit standard and work out how we would assess a student for that unit standard. That is when I realised that we have been doing continuous observations and looking for practical competence since we started teaching in this field. It is just a different vocabulary – it used to be about "objectives", "content", and "syllabus," and now they talk about "outcomes" and "curriculum".

Still, my teaching and the way I implement the curriculum in the classroom has changed in the last few years. I concentrate more on competence and continuous assessment. I worry less about what students are writing and I look more at whether a student can or cannot do the skills – like cutting with a knife or sanitising the cooking area properly. But I can't always be sure about the assessment. What if the student can cut the potato today, but makes a mess of it tomorrow? Or if a student can bake a cake, but only a very simple one? Then are they competent or not yet?

I think that the biggest change that is happening in hospitality is a shift in focus. The trend is not to teach about household cookery anymore, but rather to teach things related to industry. Students must be exposed to what it would be like in industry because industry needs people who can work with large-scale equipment and who can do the job when they walk in there.

I would say that the biggest challenge at the FET colleges is to survive these changes.

ACTIVITY

Time needed 60 minutes

Activity 14: Learning from Maria

1. Maria appears to have a strong identity as a VET lecturer. What do you think she regards as the strongest personal asset that she brings to her job?
2. How does she understand the relationship between the practical side and the theoretical side of her work as a lecturer? Provide some quotations from the case study in order to support your answer.
3. What are some of the ways in which she has changed regarding her work in recent times? Why has she done this?
4. If you were Maria, what would be your biggest concern about the changing context of VET in South Africa?

UNIT 2 Cabinet making case study

Quinton Paulse is worried. He is a master craftsman in cabinet and furniture making with 35 years experience. At least, that's the way he likes to think of himself because he can't quite get round to using this modern word "craftsperson" about himself and his colleagues. He is worried because he has a young learnership candidate who is about to go through his final assessments yet the boy can't put together a decent piece of furniture!

They are busy making some new display cabinets for the museum in Cape Town. The cabinets are quite a simple design and that was why Paulse decided that they could be made in the workshop by the learners as part of their training. However they have to match the cabinets that are already in the museum. The main point is that they have to be beautiful and well made. His learners are doing fine. They are producing some really

nice cabinets and Paulse is confident that ordinary members of the public will not be able to tell the difference between them and the cabinets already in the museum which were made over 100 years ago.

Except there is this boy, Ian. Somehow, he just does not have an eye for a good piece of furniture. Paulse is worried because the boy has been assessed on all the different stated outcomes of the qualification as being competent. Cabinet making begins when you do a design drawing of the furniture which can tell you what type of materials you need and what method of construction you should use. Ian has passed this part – technical drawing – of his programme. He has also passed in relation to all the other outcomes that he needed to be able to make the cabinets for the museum - the outcomes about the use of tools to cut, shape and plane wood before sticking the parts together and the outcomes about adding brackets, hinges, handles and locks. Paulse can picture the outcome statements in his mind:

Produce profiled timber and board product components and products
Produce jointed timber composite board product components and products
Produce bored timber and board product components and products
Produce turned timber components and products
Produce edge banded components and products

Yet Ian does not seem to have a clue about how to make the basic carcass of a cupboard or its drawers and doors. Paulse can't understand why. Maybe it is because each outcome has been assessed in isolation from the others. The trouble is that Ian has qualifications from different centres in Cape Town and Bellville and he might not have been assessed in the same way as is done in Knysna where Paulse's workshop is. On paper, Ian's track record says that he should be able to make all the components of the cabinet. It seems to be true if you look at each bit – he can fit a lock, make a bevelled edge with a router and do French polishing on a piece of wood. He can even cut a decent dovetail joint and fit the two pieces together. But he cannot make a cabinet and that is why Paulse is worried. The boy is about to go into his final assessment and he is clearly not going to make it.

Paulse realises that he is struggling to understand what has gone wrong here. He thinks about what he does when he teaches learners how to finish a good piece of furniture. The trouble is that you cannot write down the most important things in woodwork; you cannot even talk about them very easily. You feel good furniture when you make it; you don't talk about it or write it down! It's a bit like learning to dance – we all know how to do it, but it is very difficult to tell someone how to do it. You just have to watch other people dancing, and then try it yourself. That is how you learn to dance. When you learn to make furniture, the most important things you learn are not what you are told, but what you learn by watching other people do it.

When his learners are busy putting together a piece of furniture, it is difficult to follow what they are doing. Paulse does not think there should be a fixed sequence. He lets

them fiddle around and find out ways to do things. They must practise doing the lay-out, cutting the wood and the joints, and using the drilling and routing machines. They all do it differently and everyone has their own sequence. Paulse knows that this is important. It is in this freedom that the creativity of being a good cabinet maker is born. Paulse often tells anyone who asks, "As long as they stay within the boundaries of cabinet making, there's no one way".

At the moment, Amber, another learner in the group, is using the band saw to cut a half-circle shape into a wooden panel. Paulse watches her, and realises how much she is learning – how much she is teaching herself – as she works. Power tools bring their own challenges, their own opportunities to master sequence and procedure and physical skill. Amber has had to use a whole number of different tools to get to the point she is at now. She started with the table saw (a circular blade that comes up through a slit in the table) to cut 60mm off the width of the board. She had to make sure one edge of the board was straight, so she had to plane it first. Then she had to adjust the height and angle of the table saw blade, account for the width of the saw blade in her measurements, set the guide against the board appropriately, and control the wood by using her stance and movements. "It's the preparation that's hardest," thinks Paulse, "remembering all the steps and then doing them right." Of course, once a learner is actually operating the tool, further knowledge and finesse are necessary. The blade on a band saw is narrow and can twist as it curves through the wood. To protect against this – and to ensure a smooth cut – Amber is moving slowly and precisely, making a series of relief cuts into the section of the panel to be cut away, essentially breaking up the curve into smaller units, and cutting each in turn. Although power tools "build the skill into the machine", the effective use of such tools requires, at the least, some degree of that skill: in order to know what the skill should yield, to adjust the machine accordingly, to troubleshoot problems and repair them, and to judge the outcome.

Over the past hour, Amber has run into a number of possible problems with the tools that she is using to fashion the panel. As she encountered each problem, she adjusted the way she used the tools, fitted different blades or drill bits, or checked the gauges on the machines to see they were not faulty. She learned from her mistakes all the time, and so built up her knowledge of the way power tools work and of the physics they embody. Paulse recognises the pattern. He knows that as his learners spend more time with these power tools, their mastery of procedure will increase as will their feel for the tools, their finesse in handling them, and their capacity to express themselves through variations in design. In addition, considering the wide range of ways one can cut and join, they will begin to make informed decisions about which kind of saw, router or sander to use, given the materials and task at hand. They will become skilled at adapting a tool to their need. Paulse knows this is something he cannot teach his learners directly, but he still watches them all very carefully, and moves about the room talking to them, sometimes encouraging them, but usually just intervening when he sees them making mistakes. If he speaks he'll say something like, "Glue that up now so that after lunch it will be dry. By that time you'll have finished making the carcass and tonight you can assemble and clamp." And so it goes. As the learners work, learning for themselves, and getting guidance day after day from their master trainer, so they develop an eye for good furniture. And this is what is so important if they are to be good cabinet makers.

Paulse is proud of what he is achieving here. His thoughts go back to Ian. It is this concentrated time as a learner in a workshop – it doesn't matter to Paulse whether it is called a learnership or an apprenticeship – that Ian appears not to have had. This is what makes Amber and Ian so different, even though they might have passed the same examinations or assessments.

It also does not help that Ian has just passed a technical drawing examination, because the most important drawings you make in learning to be a cabinet maker, are the rough ones that you constantly make to help you get a piece of furniture right. You need to be able to link the drawings to the practice. Learners do drawings on any surface and all the time – they are rough and crude, but not out of proportion. Paulse himself, whenever he is supervising and teaching, makes rough sketches of pieces of furniture that he had made during his time as a foreman in a factory years ago. He uses them to point out particular construction details and to impress upon the learners that they must think about what they are doing. He remembers an incident that happened only yesterday, when he responded to a mistake that Amber was making. He went to the board and made a drawing of a cabinet with its door open. As he did so, he said something like, "You don't do hinges like that on a cupboard! You allow 20 cm between them. You have to check the distance between them, their sizes and the sizes of the screws. Think about the furniture that you're making and the way people use furniture. You need to know your overall sizes – height, width and depth. You need to know the thickness of the wood."

It didn't come from a manual, it came from his long experience, and he could see exactly what Amber needed to do to correct her mistake. She learnt something from this experience. Paulse knows she is making a great cabinet that the museum will be proud of.

Paulse realises that this is what Ian does not have. He has never been in a situation in which he builds good pieces of furniture over a long period of time. He has never been in a situation in which he is part of a community of learners also building furniture, and learning how to do so from a good master trainer who can guide him day after day in the right direction.

ACTIVITY

Time needed 60 minutes

Activity 15: Learning from Quinton

1. Quinton Paulse appears to have a strong identity as a VET lecturer. What do you think he regards as the strongest personal asset that he brings to his job?
2. How does he understand the relationship between the practical side and the theoretical side of his work as a lecturer? Provide some quotations from the case study in order to support your answer.
3. What are some of the ways in which he has changed regarding his work in recent times? Why has he done this?
4. If you were Quinton Paulse, what would be your biggest concern about the changing context of VET in South Africa?

UNIT 3 Engineering case study

The first refrigeration workshop class for the day comes into the building. Reuben, the lecturer, intends demonstrating and (he hopes) getting these students to really understand the basic wiring and operating principles of refrigerators. He knows he can improve on the methods used in the college's theory classes by opening up a real refrigerator and showing the students what goes where and what safety precautions need to be followed.

After he has finished the demonstration, to test their knowledge, he asks the students one by one to take the tools and replicate the process while the other students fire questions at them and try to catch them out. Some surreptitiously look at their theory handouts for answers to what they've forgotten: Reuben knows there's no harm in that because they're developing their curiosity. However he also knows that they are not going to find the answer to the immediate problem in their notes – it is something they will have to learn on the job. They must learn to fix fridges by fixing fridges! Engineering is a demanding field

because expertise also depends on the development of small motor skills while on the job. There is quite a lot of joking and teasing but Reuben doesn't mind. He knows the students are all learning together and getting a lot out of it. He also knows they are being socialised into what it means to be a refrigeration maintenance technician.

It is important, however, to make sure that the students have a thorough knowledge of theory and so tomorrow he will take them to the classroom and relate all the wires and condensers that they have fiddled with today to formal theory in refrigeration. Reuben thinks that this overall picture is crucial to understanding and with his own detailed knowledge of theory from his NATED (National Technical Education) courses, he is at an advantage. The problem facing any workshop instructor is that, on the one hand, you can't learn everything through practical work alone, and workshops tend to de-emphasise theory; on the other hand, theory alone is inadequate for practice. Perhaps the answer is that theory and practice go hand in hand: that the practical is an application of the theory, that the practical helps understand the theory, and that a symbiotic relationship exists between them. So Reuben sees himself as wearing two caps: one as a teacher of practical skills, and one as an overall refrigeration expert. For the one, he must constantly develop his own practical expertise, and for the other he needs to increase his technical knowledge of refrigeration and keep it up to date.

Most of these N1 workshop students have come straight from school, and are starting from scratch. They discuss the practical demonstration together and then he explains, with a lot of attention to technical details, what goes on inside the refrigerator when it is switched on. They need to know the system within which a fridge operates, and this they will get from both identifying and fixing faults in real fridges and from developing their general theoretical knowledge of refrigeration. Reuben realises that this is initially a difficult process in their learning and that he must be patient.

With the first set of workshops, Reuben supports what he calls the "crawl before you can walk" principle. Workshops are dangerous places and engineering doesn't operate purely on theoretical knowledge, like mathematics. Some maths is very important in engineering, but once the basics are in place, it is the practical problem itself that becomes the focus. A woman has sent in her fridge because it is making "funny noises". Another fridge has come in because it's "stone dead". Reuben finds this approach to teaching very challenging. His students will soon have mastered the basics, and then his job is to give each individual student a chance to work problems out on their own, to develop confidence and technical skills. So, while Reuben shares his knowledge from time to time, he tries to get the students to think for themselves as they learn to repair fridges. For example, if the student uses an incorrect tool, Reuben can point it out, and get him to choose a better one. If the chosen tool is still incorrect, Reuben finds that a simple conversation about what the tool has to do is enough to get the student to start thinking. Lessons like these are not easily forgotten.

Another aspect of the outcomes-based workshops that Reuben enjoys is that they allow for constant revision of process and content. In the refrigeration workshop, there are built-in "spaces" (once a trimester) for discussions amongst staff on curriculum effectiveness and whether it meets the requirements of the workplace. Reuben sees this process as a basic tool with which to reflect on the shortcomings of the curriculum, teaching and assessment. The

staff members believe that constant reflection and self-evaluation make them proud to be on the leading edge and one of the best college departments.

Today, Reuben finds himself thinking about the progress his students are making, and how assessment works in the new outcomes-based system. The workshops rely mainly on practical assessment. Reuben likes practical assessment because one of the advantages is that it lends itself to flexible time frames. He thinks back to his own time as a student, realising that some of his buddies who failed the national exams at that time could have passed if they had been given a little more time. These days, in the refrigeration department, the emphasis is on "can you do the job" so students only apply for assessment when they feel they have achieved the necessary expertise and are ready to be assessed.

The practical aspect also has advantages for students coming in from industry, who already have experience. Reuben can test their prior learning in an action-based way, like asking them to repair a problem in an appliance. Whatever "gap" is found in theoretical or practical knowledge is then given attention. These "updating" students usually go into the more senior groups, but the system certainly prevents the waste of duplication and student frustration.

But, of course, there are negatives. Practical assessment is very time-consuming and needs care. Rueben has been part of a discussion where some of the lecturers have pointed out that practical assessment is not always taken seriously, for example, in industry. People in business are very busy with core business, and there is no formal control of learners in most factories beyond a log book, and no manpower to check up on it. Such a system is open to abuse, as learners only have to apply for practical assessment through a letter, which the managing director will duly sign, sometimes without checking the proficiency of the candidate.

But Reuben has learnt that, in a world where a diploma or other certificate could mean the difference between a job or unemployment, fairness and honesty is an issue. The college is therefore insistent that practical accreditation and certificates are the responsibility of the professional bodies, formally backed by the Department of Education.

ACTIVITY

Time needed 60 minutes

Activity 16: Learning from Reuben

1. Reuben seems to have a strong identity as a VET lecturer. What do you think he regards as the strongest personal asset that he brings to his job?
2. How does he understand the relationship between the practical side and the theoretical side of his work as a lecturer? Provide some quotations from the case study to support your answer.
3. What are some of the ways in which he has changed regarding his work in recent times? Why has he done this?
4. If you were Reuben, what would be your biggest concern about the changing context of VET in South Africa?

UNIT 4

Business studies case study

The place: FET college staffroom
The time: Tea time
The people: Vusi, Senior lecturer, Business studies
Lizette, Senior lecturer, Business studies

VUSI: Eish, Lizette, those N2s are giving me a headache this morning! I don't know how many times I have shown them how to send a fax in the office training unit, but still some of them don't have a clue. So here we go again!

LIZETTE: You need to just hang in there, broer.

VUSI: Of course. I take my job seriously. But after ten years, I need to re-think ways of motivating my students. You're lucky, trying something new. How are the learnerships going?

LIZETTE: This week has really been so exciting! The N4 Retail learners are here for their week in college to study theory. They mastered Pastel and Power Point in the first semester and now they are consolidating their skills by preparing a presentation. We've had two presentations in the class so far. Very professional! I'm looking forward to the others. They come up with lovely work…really creative.

VUSI: What kind of businesses are they working for?

LIZETTE: Furniture and ladies fashion – both nationwide firms. There's a mix of secretarial, business admin and accounting expertise in the class, because some of our ex-students were selected. We suggested they apply for the positions.

VUSI: You say they're doing creative work. How do you manage the assessment, if what they're doing is so different?

LIZETTE: It's all about practical outcomes and demonstrated skills. And we do a lot of it together. This morning, for example, the group gave critical feedback on the two presentations and helped me complete the assessment sheet.

VUSI: How long are they staying?

LIZETTE: Well, next week they go back to their companies to expand and apply what they have learnt. I wish I'd had that opportunity!

VUSI: But you know, even though the old courses are crowded and there aren't many chances for doing the exciting stuff, they do play a role in all this. Skills like computing and typing seem hard and need practice, practice, practice. I keep telling my students that in a year's time it will all pay off and open the door to a real job.

LIZETTE: You're absolutely right, although getting a job is not all that easy. Look, I don't see learnerships as alternatives to the old courses but as complementary. They can't cope with large numbers of learners like the old courses can and we still need the classes to develop skills, like computer skills. But learnerships give effective workplace experience.

VUSI: Does the training duplicate N course work at all?

LIZETTE: Not really … it is more open-ended and directly linked to practical skills.

VUSI: Of course the N courses also try to introduce the *real* business world to the students. For example, I took a group to the Stock Exchange last week. But time is a problem and because the world changes so fast it is difficult to keep the syllabus and learning materials up to date. You know, when I arrived at the college nearly ten years ago, we were using exactly the same syllabus. I mean, the world has changed! What about email? The syllabus should be geared more to the realities of electronic communication!

LIZETTE: (laughs) Last year, I actually saw a compulsory question in the national exam, "How do you send a telegram?"! The last time I sent a telegram was before these kids were born! And TELEX? With faxes and scanners and other technological breakthroughs, I should think the idea is totally redundant. You've got to move with the times, or as my kids say, "get with it".

VUSI: Well, I have heard that telegrams are still a major form of communication in the rural areas. So, maybe the question is relevant for other colleges but certainly not for us here in an urban setting. What's happened is that the concept of business training has changed radically. Ten years ago, it was for clerkship – learning how to organise manual filing systems – but that has changed a lot. The Internet and the computer have revolutionised the way things are done in the office.

LIZETTE: So technology changes the way we think!

VUSI: Yes … but I have heard of a college that is not even using computers, asking their students to memorise which keys to press for particular computer functions. Though I suppose that is the exception rather than the rule.

LIZETTE: I can't believe the Department of Education has allowed that to happen! And it's not just for the actual content of courses that we need computers. They help our students perform better. Their assignments and projects look professional when done on a computer and in some cases a computer programme can help with the assessment. For example, if you are working on a course in computing, the assessment can be done on-line, immediately after completing the course.

VUSI: I like that … so some of my students could write off a course and use the leftover time productively, rather than sitting around waiting for the national exam. Of course other students need more than the semester to reach the required standard … at the moment, they fail, which is a pity.

LIZETTE: Hmmm … flexible time frames … learner-centred education … recognition of prior learning … I've seen that in policy somewhere.

VUSI: But apart from the two core courses in computers and communication, what else is there in these learnerships?

LIZETTE: The third course is related to their place of work, in theory at least. Although the syllabus looked fine when we signed the learnership contract, some problems have come up.

VUSI: Like what?

LIZETTE: Well, for example, there is a workbook which includes stocktaking, but in reality there is no stocktaking because, for example, new stock arrives from head office in a truck. Businesses are all different and so I'd like to see a process in which options can be developed so that local factors could be taken into account. We need to help students learn things beyond a set curriculum.

VUSI: What you're saying is that curricula need to be examined for relevance by the lecturers on an ongoing basis. Isn't that one of the principles of business management – responding to the environment if you don't want to go under?

LIZETTE: Well, colleges are not just businesses because our outcomes and values may be different. But yes, I think flexibility is an important issue.

VUSI: Then what is holding us back?

LIZETTE: I think (and don't quote me) that our problem comes partly from the fact that the textbooks we use and the question papers in the national exam are often written by the same people. The one feeds the other. It's like a broken record going round and round in the same groove – frustrating to the students and lecturers. The examination questions and the course materials remain basically the same from year to year so that there is little development in spite of a new policy framework.

VUSI: But you say that, with a relevant and practical curriculum, you have been able to get really creative?

LIZETTE: Yes. Although things have a theoretical basis, there needs to be space for the practical skill component. This is so important when you're looking for a job and when my learners return to the workplace next week they need confidence in their practical ability.

VUSI: You see, that's the difference between what you do and what I do. My students leave after two years but with too little practical experience and companies are often very critical of them. We have to do something about it. Theory is very important and I think we do quite a good job in that respect but we also need to prepare the students for the workplace.

LIZETTE: What can we do, that we are not doing now, to meet the needs of the students?

VUSI: I think part of the answer lies in assessment. If we could change that, I think we could get somewhere. The weight given to the final exam affects the way we teach.

LIZETTE: Ja. On its own, "sit down" assessment at the end of the course can't always reflect the learner's true ability. Exams do have their uses, of course.

VUSI: I think ongoing assessment evaluation is excellent because constant feedback and praise recognises success and spurs students on. We can use it all the time to help develop the student. But you mustn't forget its drawbacks, it's potentially too subjective. Student A may end up being evaluated against different criteria to student B and this institution may mark less generously than the institution down the road. So it is not very good in terms of reliability and not satisfactory when it comes to testing on a national scale. There, all students must be judged in the same way.

LIZETTE: Well, as professionals we need to do the right thing for the right reasons and for the benefit of the students. One has to judge when the things you do are appropriate. One good thing in the colleges now is that there is space to innovate. For example, my colleague Hettie and I had problems with the national introductory course to N4. We thought it had zip all to do with the needs of the incoming students so we sat down and wrote a different version for this college.

VUSI: Very brave, and how has it worked out?

LIZETTE: Very well, so far. We also got fed up with the accounting course which was old and wasn't in any case recognised internationally. Our new accounting diploma course is certified by the SETA [Sector Education and Training Authority] and is registered with an international book-keeping institute.

VUSI: Don't you also have an entrepreneurship course in the pipeline, in partnership with some other institutions and the SETA?

LIZETTE: Yes. It's based on real business needs and includes start-up capital and on-site mentoring. I wouldn't mind registering for a course like that myself.

VUSI: What for?

LIZETTE: For myself and because I want to keep on learning all the time. Vusi, I feel like a completely different person to the one I was five years ago. Through creating new courses and solving some of the problems we face in the college, I have developed a sense of freedom and of my own abilities which has made me ready for anything the future might throw at me.

VUSI: I also feel I have more power to do the things I feel are right. I read somewhere that this is what makes one a professional.

ACTIVITY

Activity 17: Learning from Vusi and Lizette

Time needed 60 minutes

1. In their conversation, Lizette and Vusi show us something of their respective identities as VET lecturers. What do you think each regards as the strongest personal asset that they bring to the job?
2. Focus on either Vusi or Lizette. How does he/she understand the relationship between the practical side and the theoretical side of his/her work as a lecturer? Provide some quotations from the case study to support your answer.
3. What are some of the ways in which they have changed regarding their work in recent times? Why have they done this?
4. Imagine that you are either Vusi or Lizette. What would be your biggest concern about the changing context of VET in South Africa?

UNIT 5 Cosmetology case study

Today, Lindi will conduct a session on make-up for different kinds of faces. She has done it many times before. When she ran her own beauty salon, she was famous for knowing just how to shade and highlight different parts of the face. Today, the topic in the syllabus is facial shape, and everybody knows what the theory is. It has stood the test of time. All the textbooks tell it the same way: the perfect face is the oval face. The most beautiful women around obviously all believe it – she thinks of Khanyi Dlhomo-Mkhize, Minki van der Westhuizen and Hlubi Mboya. Her trained eye in cosmetics tells her that they use make-up in exactly the right way, to create the perfect oval face! Now Lindi's task is to convey this knowledge to her students in practice.

Triangular-shaped face

Diamond-shaped face

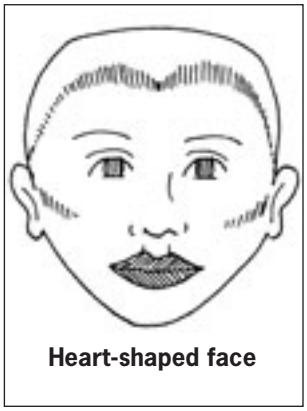
Lindi has been a cosmetology lecturer in a FET college for eight years. She has built up very comprehensive files in that time, and she is very proud of them. There are detailed plans for each and every session that she teaches throughout the year, based on the syllabus and on the notes that she gives out to students. She has her own year plans, weekly plans and actual lesson plans. There is not really a textbook any more – there used to be one, with an old, tatty green cover, she remembers, but now the college gives the students the official book of notes from the Services SETA for Cosmetology. It's called *Make-up: fundamentals of cosmetology for southern Africa*. It is designed for OBE, as "a competency based modular training programme". But the notes are really not good enough - that's what she misses about the old textbook which had a lot more detail. Now she has to give supplementary photocopied materials to the students. At least she can give them interesting stuff from different textbooks and magazine articles.

The syllabus is still the one that came from the old Industry Training Board (ITB). It has now been approved as an interim syllabus for cosmetology by the Services SETA. Lindi thinks about what the Department of Education official said to her last time. She was asked to use the word "outcomes" and not "objectives" on her plans. She knows that in future, when the cosmetology unit standards are complete, the talk will be of outcomes, but for the moment she still uses the word objectives. Anyway, don't they mean the same thing? That's what was so confusing when the Department was here! The official said she must change the word, and then said that, anyway, they mean the same thing. Ag! It doesn't matter - the unit standards will be completed soon, and she knows that they will not be very different from the interim syllabus. One of her old colleagues is on the committee that is drafting the unit standards for the Services SETA Personal Care Chamber. Lindi has seen some of the drafts and she likes them. Actually, she likes OBE very much, because it tells it like it is in the classroom. At the college, they've actually been doing OBE for years, and in cosmetology it's no problem.

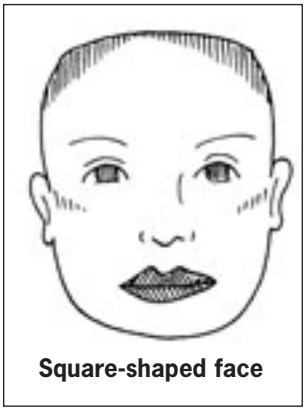
In fact, the really good changes happened when cosmetology became a separate area in itself. In the old N days, it was just a small part of the haircare syllabus, and she thinks the idea was just to make sure that hairdressers came through their courses with some background in cosmetics. But when the ITB took over, cosmetology got the recognition it deserved, and became a separate course of study in its own right.

But her mind is wandering! The session is about to start. Lindi gathers her things together and makes her way to the studio. One of the nice things about the college is that the room she teaches in actually looks a bit like a salon. There is an attractive entrance area, and the training room has a lot of skin care equipment and special tables on wheels to get all the make-up and skin care products to where they need to go. She gives all her lectures in the same studio as well, because it is quite comfortable and the students like being in there too. She can also easily do demonstrations with live models – the students love volunteering, because it means they get free facials!

But before the practical stuff, Lindi must give a lecture on the theory part. If there is a lot of theory, like in the section on using make-up to correct blemishes, then the lecture will be quite long. But today it will be quite short – she just has to make sure the students know about the different face shapes that you get and what the rule is about



Heart-shaped face



Square-shaped face

where to use dark make-up and where to use light make-up to get the face right. She will move onto her demonstration very quickly. She is quite looking forward to it, because the practical side of this topic is always a lot of fun. Lindi says good morning to the students, and gets right on with the lecture. She starts by showing the class pictures of different faces, and asks them to explain what is beautiful about them and what they think could be fixed with make-up. The posters from cosmetics companies are very useful in this part of the lesson. But Lindi also uses some pictures of women who are a bit ugly, have lost control of their body weight or have very uneven features. Lindi realises that this is her way of saying these things politely and these are the words she will use in the lecture. The discussion very quickly gets to the point where Lindi wants it to go. What is it that makes these faces beautiful? Can the students see that what they are talking about is the perfect oval face?

Lindi now starts the theory part of her lecture. She talks about how the forehead and the jaw line are the most important determining features of facial shape, and about how facial shape is the basis of cosmetology. She then goes on to talk about how the theory of beauty says that there must be facial symmetry. "The oval is the perfect shape," she emphasises, "and that is why all cultures have this idea about the basic shape of the face." Facial features like noses, lips and eyes differ culturally, but that is the subject of later sessions in the course. First, students need to understand what the basic theory is in cosmetology. Lindi is very careful in her lecture to make sure that the students understand the difference between the basic oval shape of the face and separate facial features like noses and eyebrows. Then Lindi gets onto the theory about how to use light and dark shading to create the perfect oval face. The diagrams in the notes show the basic principle – to take something away, like a jaw line that is too prominent in the triangle-shaped face, use dark make-up; to bring something out, like a curved forehead on a rectangular-shaped face, use light make-up.

At this point, Lindi moves to the demonstration. The straight theory is over. She has already chosen the model for the day, Sonia. Lindi starts the demonstration by asking the class to analyse what facial shape Sonia has. Some of the students say that it is a heart-shaped face, and some say that it is a diamond-shaped face. Lindi has, of course, already made her diagnosis: she knows that Sonia has a diamond-shaped face, which is much narrower than a heart-shaped face. She can see from what the students are saying that this is the basic mistake many are making. She points this out to them in the discussion and some change their mind. But there are still a few who think the face is a heart. Lindi now points out on Sonia's face what the features of a diamond shape are, and asks each of the students who are making the wrong diagnosis if they can now see what their mistake is. Eventually they all agree that Sonia has a diamond-shaped face. Good! Now Lindi can get on with applying the make-up. She takes some darker shades, and applies them to the top part of the face in order to take away the high forehead, and to the chin area, so that the sharp point can also disappear. All the time she talks about what she is doing, telling students which make-up she is using, and showing them how it helps to shade away the uneven features of the face. She then applies lighter make-up to the sides of the face, to highlight those areas and bring out the oval more clearly, and talks the students through that as well.

Round-shaped face

Rectangular-shaped face

In the final and longest part of the session, the students have to work in pairs. They must first draw a picture of their partner's face and say what shape they think the face is. Then, on the drawing, using the theory that they have learned, they must shade in the areas that must be highlighted and those that must be shaded away to make the face more beautiful. All the while that this exercise is going on, Lindi moves from group to group, discussing the drawings that the students are doing, pointing out mistakes, making suggestions for improvements, and helping them get their plans for the face correct before they start to apply the make-up. Once the drawing has been finalised and Lindi has given the go-ahead, the student can now apply make-up to her partner's face. Lindi continues to move around, helping students to apply the make-up properly, to choose the right colours and to stick to their plans. Most of her interventions point out to the students where the facial work they are doing is deviating from the plan they have drawn on paper. Lindi knows very well that if the students can visualise the perfect design for any kind of face on paper, and then translate it accurately using real make-up onto a real face, then 90% of her job as a cosmetology lecturer will have been done. Eventually, as they get more practice, they will not need the paper, but will be able to do the visualisation in their own heads. But at this stage, they must still have the actual drawings to help them, otherwise they will not get it right. So Lindi is hard on students as she moves around the room, making sure they get every little detail right in the drawings and in the application of facial make-up.

By the end of the morning, the students have all had a turn to plan and apply make-up to a friend's face, and they have learned a great deal about how to use make-up to create an oval face. Lindi is satisfied with her morning's work. Now that the basic knowledge is in place, the students will get one or two more chances to practice the skills, changing partners so that they can get experience on different kinds of faces. Lindi is confident that the students will have mastered this section, and be ready to move on to the next section of the syllabus. All that remains then is for the assessment to be completed.

The assessment is quite easy. Lindi has anticipated it in her weekly plan and lesson plans, and has drawn up detailed assessment grids to help her. It was a lot of work at first, but now that she has the grids she knows exactly what to do. New policy requires that there be three different types of assessment, to be fair to all the students on the course. Lindi has found this new guideline very useful. In the past, she could see that some students knew their work but did not do well in the exams. Now there is also a possibility for some of them to be assessed verbally, and others practically. In fact, the assessment of this section started when the students were working in pairs. Lindi was able to observe, quite easily, which students could identify facial shapes correctly and then use make-up skilfully to change facial appearance. At the end of the session, she collected their drawings with the make-up designs on them, and she will now assess these to see which students have achieved the required outcomes. And then, of course, there will still be an exam in a couple of weeks time. So Lindi feels much more confident of giving her students a chance to pass, now that she uses three different assessment modes: observation, illustrative planning sketches and the examination. This is one of the reasons why she thinks OBE is an improvement – in the past, she used the sketches and the practical work as part of her course, but it was never part of assessment. Only the exam counted, and Lindi can see now that this was unfair to many of her students.

ACTIVITY

Time needed 60 minutes

Activity18: Learning from Lindi

1. Lindi seems to have a strong identity as a VET lecturer. What do you think she regards as the strongest personal asset that she brings to her job?
2. How does she understand the relationship between the practical side and the theoretical side of her work as a lecturer? Provide some quotations from the case study in order to support your answer.
3. What are some of the ways in which she has changed regarding her work in recent times? Why has she done this?
4. If you were Lindi, what would be your biggest concern about the changing context of VET in South Africa?

Conclusions

When we conducted our research for this book, it became clear to us that there are many highly committed lecturers working in the FET college sector in South Africa. Our belief is that the characters you have met in this chapter provide us with good examples of the better ones amongst them. Each one of these lecturers engages with the VET job in creative and yet well-grounded ways, and they do their best in what is a demanding and often difficult environment. Each of them seems to take particular pleasure in the success of their students. Our view is that the case studies set out above provide us with good examples of sound VET practice in the work of lecturers in South African FET colleges.

Of course, this does not mean that the tensions and problems of the FET college environment are not felt by these individuals. Nor does it mean that everything they do can be considered progressive in the broader South African education and training environment. However, what it does mean, we believe, is that a supply of sound knowledge and practices exists in our FET colleges on the basis of which an effective VET system might be built in future. Sufficient will and knowledge exists on the part of our VET community to make a go of it. All that we need now is for government to show the same amount of political will.

CHAPTER 3

Learning and Teaching

Introduction

Technical learning and vocational learning have just as much importance in any society as academic learning and professional learning. Traditionally, the former two have taken place at technical colleges and the latter at universities. Recently, educationists have started to think that the two kinds of learning have more in common than was previously thought. For example, there is now a new mood in education and training in this country. The *White Paper on Education and Training* in 1995 put forward a view of learning which rejects a rigid division between

"academic" and "applied",
"theory" and "practice",
"knowledge" and "skills",
"head" and "hand".[1]

In the first chapter, we have seen how these different kinds of knowledge have been brought together in Vocational Education and Training (VET) policies and practice. We have seen that the modern economy requires a wide range of *general* skills related to technical and vocational knowledge and not just specific skills tied to a specific job. We have seen that reflection on the skills that we learn in the workplace is even more important than mastery of the skills themselves. In this chapter, our task is to focus on *learning* itself. What kind of learning takes place in technical training? What kind of learning takes place as we acquire the skills required by any particular vocation?

To answer such questions, we shall first explore the nature of learning in general. In particular, we shall examine how the way we acquire knowledge always takes place in networks of understanding. These networks link everything we already know to everything else in our minds. They also link our knowledge and learning to networks of tools, cultural artefacts and other people around us. We shall then move on to consider the idea of *tacit* knowledge. This is knowledge that we cannot put easily into words – when we have tacit knowledge about something, it is very difficult to describe this "knowing" to someone else. It is just somehow in our bodies and in our brains. Sometimes we hear people referring to this as "knowledge that is in our fingertips". Tacit learning, we shall suggest, is very important when one acquires one's craft as a motor mechanic, a computer technician, a hairdresser or whatever. But we shall also examine how we learn the *theoretical* knowledge that is important in VET.

Key questions

The chapter sets out to respond to three pivotal questions:

- What is the best way to understand networks of knowledge and skills in relation to technical and vocational work?
- What is distinctive about learning and teaching in VET?
- What insights can different theories of learning provide for us in relation to our work in Further Education and Training (FET) colleges?

We shall return to these key questions at the end of the chapter.

Outcomes

By the end of the chapter, you should:

- Understand how knowledge, and therefore learning, is always part of networks of meaning and activity.
- Understand what tacit knowledge is and how important it is as part of technical and vocational knowledge.
- Understand the role that theories of learning can play in improving practices in technical and vocational education.
- Be able to reflect on good and bad teaching practices in VET, and what this means for your professional development as a lecturer.

UNIT 1 Networks of knowledge

How do we know?

Ask yourself the question, "What do I know?" The short answer to this question is, *lots*! In fact, each of us knows so much about all kinds of things that listing or reporting this knowledge would be impossible. So, let's refine the question and ask a more focused question about your knowledge in relation to something in particular: "What do you know about the game of soccer?"

Activity 19: Soccer

Give yourself three minutes to do this activity. Write down everything you know about the game of soccer.

Our comment

Reflect on what you have written. How did you manage this activity? Perhaps you responded by listing famous players, such as Pele, Ronaldo, Doctor Khumalo, Lucas Radebe, Benni McCarthy or David Beckham. Perhaps you named the winning teams of the important soccer competitions in recent years, such as Kaizer Chiefs – PSL Champions 2004 (after 12 years in the wilderness!); Manchester United – Premiership, FA Cup and the European Cup (The Treble!) 1999; Brazil – World Cup 2002. Perhaps you

started to describe the way in which the off-side rule is applied or under what conditions a corner is awarded. Regardless of what approach you took, or where you started, you probably found that one idea led to the next one. So in the end you wrote down many more things than you initially thought you would. The way one idea sparks another is important in learning and we will think about that more carefully later. For now it is enough to notice that it happened.

However, if you are not a soccer fan, these ideas may be entirely new to you. You may only have been able to answer the question with a simple statement like, "It's a game played by two teams who kick a ball towards the goals at either end of a field." In fact, you may have responded, "I know nothing at all about soccer." But this would not have been true, as all of us know, at least, that soccer is a ball game. And when you think a little further, you would be able to produce a lot of other information about such a game that you play the game on a field, that you kick the ball, and that you win by scoring goals. Of course, the knowledge of those who know "nothing" about soccer may be correct and useful, and may indeed also be shared by soccer fans. It just seems to be so obvious to them that they would not even bother to mention it as "knowledge".

Activity 19 illustrates that it is difficult to say what we know, because we tend to "forget" that we know things that we have known for a long time. We also ignore things we know if they seem unimportant or irrelevant in a particular context. Did you, for example, write down that soccer is a sport? Probably not, because you take it for granted and assume that everybody else does too.

The difficulty that confronts us as lecturers or trainers is that things that we take for granted because we know them so well may or may not be shared by the students whom we teach. For example, we know that Lucas Radebe is a defender, but we may not realise that people who do not know the game will not know the difference between strikers, midfielders and defenders. To them all soccer players are the same.

So Activity 19 also gives us an insight into the fact that *shared knowledge* is important. In any context in which we learn, there are always things that every one of us – lecturers, trainers, students – shares, and these aspects of *shared knowledge* can provide an important starting point for learning. If this is not recognised by any one of us, then students may feel that they are ignorant and incapable of learning and lecturers may feel helpless and frustrated, unable to get through to students.

There are two things that should be clear here:

- When we know something, we know it as part of a web of ideas, concepts and skills that we have within us. Everything is connected to everything else in our own minds and our own actions.
- When we know something, we know it as part of a community of people of which we are a part. Part of knowing something is always to be connected to other people around us. We learn from and teach them about the activities we are engaged in together.

Thinking, learning and doing – in short, our *activity* – is always both individual and social.

Distributed thinking and learning

Present-day learning theorists use the concept of *distributed* understanding or *distributed* learning to make sense of these individual and social aspects of knowing. The idea is that knowledge is spread or distributed across the networks of the human mind and the networks of tools, machines and culture in which we live.

Sometimes it is difficult to think about the knowledge that a person has, as being more than just what is carried "inside the head".

ACTIVITY

Activity 20: A blind man with a stick

Time needed 30 minutes

Consider the knowledge that a blind person needs to be able to walk in the street. Read the description below from Gregory Bateson and make brief notes in response to the following three questions.

> Suppose I am a blind man, and I use a stick. I go tap, tap, tap. Where do I start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? Does it start halfway up the stick? Does it start at the tip of the stick? … If what you are trying to explain is a given piece of behaviour, such as the locomotion of the blind man, then, for this purpose, you will need the street, the stick, the man; the street, the stick, and so on, round and round.[2]

1. Answer Bateson's question: where does the the blind man with the walking stick end? Do you agree that the walking stick can be considered to be part of the blind man?
2. Do you agree that the **knowledge** that is being considered here is not contained only in the man, but is also in the stick and in the pavement?
3. Now consider each of the following:
   - A skilled carpenter knocking a nail into a piece of wood;
   - A religious leader reading from the scriptures; and
   - A young child singing the song, "Happy Birthday to you", at a party.

   Where does each one of these people end?

Our comment

Bateson asked, where does a blind person who uses a walking stick end? In other words, where does the blind person's self begin? At the tip of the stick? At the handle of the stick? Or at some point halfway up the stick? His idea was that when a person learns or has knowledge, then it is not very helpful to think about them as being contained within the boundary of the skin.

We might be inclined to say that the tool that this person uses (such as a walking stick, a hammer or a book) is not part of them. But, suggested Bateson, from a distributed learning perspective, this is nonsense. When we consider how a person thinks or gains new knowledge, then we must consider the whole of the process that is involved. We must consider the whole network within which the flow of information takes place. In the case of the blind man, the walking stick is part of the man, because it is intrinsic to the information he receives from his environment.

Even if we do not entirely agree with Bateson's position, it does seem that he has given us an important insight. The knowledge that we have as human beings and the way we learn new things are obviously located both inside and outside of our bodies. Tools, like the blind man's stick, are as much a part of the human knowledge system as is our brain:

- When we consider a carpenter who knocks a nail into a piece of wood, it seems clear that his skill comes into being when he holds a hammer. The hammer, as we often say, becomes part of him. But it is also fair to say that he becomes one with the hammer, in the sense that the hammer contains centuries of carpentry knowledge and tool design within it. Here a *physical tool* is part of the knowledge that the carpenter has acquired and learnt in his previous training, apprenticeships, or whatever.

- When we consider religious leaders, such as ministers, priests or imams reading from, say, the Qur'an, the Bhaghavad Gita or the Bible, then it is clear that the words that they use are not only their own individual knowledge. The texts also carry within them significant cultural, historical and religious traditions. The knowledge and learning of religious leaders can be said to be *distributed* across their own understanding and that contained in the scriptures – together these make up the shared practices of the religious community in question. In this case, the text is a knowledge tool.
- When a young child sings "Happy Birthday" at a party, then it is obvious that he knows the words of the song. He can carry them with him to any party that he goes to. But the knowledge only comes *into being* when the child is participating with other children in the party. It is difficult to think of him enjoying the song, of experiencing the obvious happiness and *meaning* of singing happy birthday, without his being part of the activity of other children around him. The full knowledge of the event is in the group rather than in the individual child. And here, the shared language that is used in the song is the knowledge tool.

Notice how we are using the concept of a *tool* here. The psychologist Richard Gregory helps us to understand how tools in effect extend and add dimensions to our intelligence in any situation. In themselves, they "contain ready-made answers to practical problems"[3]. Obviously, a hammer is a tool in this sense, as is a panga, a fork, a paintbrush, a nail clipper or a paper clip. But we can also use the concept to include tools that can capture or convey formal knowledge, such as writing or text. In this regard, we can think of books, pencils, television broadcasts or computers as tools. In particular, it is important that we understand that words are tools that are both shared and held by each one of us individually. Words are in fact special kinds of tools – they allow us not only to change the world we live in, but also to change ourselves, to change our own thinking and knowledge.

So what can we conclude from this? When we know something, it seems it is always part of a network of ideas and skills that are both inside of us (we carry them with us in our minds and our brains) and outside of us (they are carried in the tools that we use to change our environment, in the language that we use to communicate with other people, and in the books and notes that we use to study).

Different kinds of knowledge in different domains

When we think about knowledge and learning in the way that we have in Activity 20 then the similarities between the way we learn in technical education and in academic education are clear. We are always part of a practice shared by other people. We are always part of a process in which we learn to use the cultural tools made available to us by other, more skilled people to become better and better at what we do. We use physical tools, language and writing to gain mastery over a particular area of the world. As we learn more about the practice, we move from the status of novice to one of expert in the practice. The practice is made up of networks of ideas and skills, and the more we learn about these networks, the more they become part of our own individual ideas and skills.

However, there are also important differences between different domains of practice. It is important that we understand how the learning that takes place when we are acquiring new technical skills is different to that, that takes place when we study a particular subject in school. How is technical learning different to academic learning?

Later we will see that both kinds of learning are important in FET colleges. For now, we need to understand in what ways they are different.

ACTIVITY

Time needed 60 minutes

Activity 21: Different kinds of knowledge

Make brief notes in response to each of the following questions:

1. Advise a novice on how to classify any kind of animal they come across into one of the following categories: mammals, reptiles, birds, fish, insects, other creatures.

2. Advise a novice on how to hit a nail into a piece of wood.
3. Advise a novice on how to ride a bicycle.
4. Once you have written all the advice you can in response to each of the above three questions, think about the following: which of the questions was the easiest to respond to, and why?

Our comment

You will probably find that the first question was relatively easy to answer. You no doubt defined each one of the animal categories – birds have beaks and feathers and can usually fly, mammals give birth to live young, insects have six legs, etc. You would then have given some examples illustrating how a decision could be made about classifying an animal – where one would put a lizard, a fly or a warthog. You might have focused on some difficult cases in order to show how the classification rules you describe work – like a bird that cannot fly (ostrich), a mammal that behaves like a fish (dolphin) or the mammal that has a beak and lays eggs (platypus). As you thought about it more, you would have laid out a clear system and rules of classification that you could apply to any particular creature that happened to come along.

The point you need to note here is that this kind of knowledge required you to use more and more complex language to convey it to the novice. You had to talk about ideas (categories) and their relationship to each other. This is what we mean when we say that knowledge is systematised or formal – it is clearly spelt out in the words that we use to describe it. As you did this task, you probably found that you had to use *precise language* to be able to give the advice that you did.

In contrast, you would have found it very difficult to make notes in answer to the last question. The reason is that knowing how to ride a bicycle is quite different to knowing how to classify things. It is somehow in our bodies, in our brains, in our senses of balance and sight and touch. But we find it very hard to describe it in spoken language, let alone in a written form. All that we can really say when we are asked to advise or help someone to learn to ride a bicycle is, "get on the bike and try, and if you persevere you will probably find that you stop falling off and can do it". Think back to when you learnt to ride a bicycle for the first time – you got on the thing, you wobbled around and fell over and got scared, you were encouraged to get back on and try again, and fell again, and got back on again and suddenly you found that you were riding, and then it was somehow in your body and you knew how to ride a bicycle and you have never "forgotten" it since. Yet you cannot describe what this knowledge is – it is *not contained in language*.

The word that theorists often use to describe the kind of knowledge that we cannot grasp in language is *tacit*. Knowledge of how to ride a bicycle is tacit knowledge.

Now look at the way you answered the question about hammering a nail into a piece of wood. You probably wrote down a lot of things. These would have included the tools and materials – the hammer, nail and wood. You would also have included statements of the *rules* that govern the procedure – hold the nail straight; make sure you do not hit your finger; if there is no room to hold the nail with your hand, hold it with a bit of cardboard; start by tapping the nail into the wood; once it is in the wood, hit it harder; make sure you keep the hammer straight at the point of impact; hit the nail with the centre of the hammerhead; swing the hammer smoothly and evenly, etc.

In other words, there is a great deal of *language-based* knowledge of hitting a nail into a piece of wood that you could have written down. But look carefully at your answers – you will probably find that you have said nothing about *how* you swing the hammer, *how* you make sure you hit the nail on its head, *how* you judge the distance to be swung each time. In stating the rules of the procedure, you have said very little about the *procedure* itself. This is because this kind of knowledge is the same kind as knowing how to ride a bicycle – it is *tacit* knowledge, it is in your body and it is difficult to put into words.

The point is that, in the example of hammering a nail into wood, there is both tacit and language-based knowledge at work. They combine with each other to produce the specialist expertise that is the outcome of technical or vocational learning. The word that we normally use to describe this kind of expertise is "craft" – the craft of a telecommunications technician, of a chef or of a make-up artist, to name some examples.

Key points

- Knowledge always exists in networks of ideas and skills.
- Individually, our own knowledge is a network that we are constantly expanding as we learn.
- Socially, knowledge lies in networks of people engaged in activities together and the tools that they use, including physical tools, books and other texts, and spoken language.
- Systematised knowledge is best captured in language. We speak about it theoretically and write about it in academic texts.
- Technical knowledge is not best captured in language. It is tacit, and we represent it in other ways, for instance by showing or doing.
- Craft knowledge, which is the kind of knowledge that is taught in a FET college, combines both technical and systematised knowledge.

UNIT 2 Tacit knowledge and theoretical knowledge

How does theory enhance technique?

When South Africa won the African Cup of Nations in 1996, Doctor Khumalo showed why he was famous as the provider of the goals that won matches. During his time with Bafana Bafana he did not score many goals, but he was recognised not so much for his goal-scoring prowess as for his vision and passing. He played an integral role in that famous victory in the final against Tunisia. Time and again, he curved pinpoint passes past the opposition defenders to give his teammates all the opportunities they needed to score. In the final against Tunisia, the "Doc" was in control. He would repeatedly steal the ball from an opposition player in midfield and then lay on a pass for his teammates to go for a goal. The following extracts from a report on the game by Arthur Goldstuck tell the story of this famous South African player.

South Africa v Tunisia, Final of the African Cup of Nations
3 February 1996, Soccer City, Johannesburg

South Africa are the champions of Africa. The world said it couldn't be done, but Bafana Bafana did it. After shattering Ghana 3-0 in the semi-finals, they overcame Tunisia 2-0 in a hard-fought, tactical battle to lift the African Cup of Nations at their first attempt.

As the first half went on, South Africa slowly tilted the balance, forcing a series of corners, which Doctor Khumalo took with clinical precision, finding the gaps in the goalmouth where South African strikers (and defenders) suddenly appeared: Mark Fish, Shoes Moshoeu and Eric Tinkler all took turns to test the defensive barrier, but it held out.

Doc dropped another of his dangerous balls into the goal mouth, Fish got above the tall Tunisian defenders to head for the far post where Tinkler waited to slam it in, but goalie Chokri El Ouaer miraculously got to the ball, deflecting it out to Shoes, who lifted it back into the goalmouth. And there was Mark Williams, high in the air, with a head full of dreams and the ball in the back of the net.

Two minutes later Doc again set an attack in motion when he robbed a defender of the ball and passed it through the normally solid back line, with Williams, once again, following through and deftly angling the ball across the goalmouth and past El Ouaer's desperate arms. It was 2-0 and Tunisia were finished.[4]

ACTIVITY

Time needed
15 minutes

Activity 22:
The skills of Doctor Khumalo

Imagine that you are the coach of Doctor Khumalo. Think about what he needs to know in order to provide this exceptional midfield service to his strikers.

Write down your answers to the following questions:

1. Not all players are capable of kicking a soccer ball like Doctor Khumalo does. What tacit skills do you think he has that allow him to provide such accurate passes?
2. As a coach, you would teach Doctor Khumalo about various techniques that would allow him to fine-tune his kicking skills. What have you taught him about taking free kicks within range of goal?

Our comment

Now reflect on what you have written. When you wrote about what Doctor Khumalo can do that other players cannot, you probably included:

- the co-ordination between his foot and his eye in relation to the soccer ball,
- his instinctive ability to judge distances and to produce a kick of just the right strength and speed to match his judgement of distance,
- his physical talents "on the ball", and
- his beautiful balance.

When you wrote about what you taught him as a coach, you probably included:

- teaching him to keep his head over the ball and perfectly still as his foot connected with the ball, to ensure maximum power and sweet timing,
- teaching him to hit the ball with a vertical instep to keep it low,
- teaching him to put a curve on the ball by not kicking it dead centre and causing it to rotate, and
- teaching him to aim at the far post so that the curve will bring the ball across the goalmouth in front of his strikers and yet away from the goalkeeper.

The first kind of "knowing" – physical co-ordination, judgement of distance, on-field vision, and other knowledge that allows soccer players to be good at what they do – is not something that can be put into words. But it is the foundation on which the particular skills that are necessary to do well on the soccer field are built. It is the "tacit dimension" of soccer.

The second kind of "knowing", in contrast, starts in words: it is the theory that allows the soccer player to become better at what he does. The skills of the player are honed, sharpened and also augmented by using this theoretical knowledge to improve his or her technique on the soccer field. However, while the theoretical knowledge of how a soccer ball can be made to rotate, bend through the air and remain on a low trajectory can be put into words, it is still difficult for soccer players to use this knowledge to improve their game. They must practise their skills and as they do so, these skills become part of their "second nature". In this way, theoretical knowledge can enhance and improve tacit knowledge.

Even though theoretical knowledge plays a role in generating new forms of technical expertise, this does not mean that these new skills and knowledge are themselves theoretical knowledge. The situation is very much like learning to drive a motor car.

Activity 23: Learning to drive

Think about learning to drive a motor car. When you first got into one as a learner driver, you consciously had to think about a set of procedures and apply them as you were learning to drive. For example, you had to say to yourself, "I must push the clutch in as I change gears" or "I must push the clutch in as I brake so that the car's engine does not stall". You had to concentrate hard, and often got it wrong at the beginning. Think about how

you drive now. Do you still have to concentrate so hard on getting the procedures right? Do you have to think about everything consciously as you drive, or are they now automatic and part of your "second nature"?

Using the concepts of "tacit" and "theoretical" knowledge, explain this process of learning to drive a car and becoming a driver.

Our comment

The knowledge and skills that one has prior to learning to drive – for instance, being able to turn a steering wheel, being able to judge speed and distance, understanding what road signs mean – is not enough to get the job done. Certainly, they are the basis on which we can start to practise driving, but in order to learn new techniques and skills, we need at first to have clearly defined sense of what we are trying to do to change our behaviour. The theory of driving – for example, how to use a clutch, how to use gears, how to keep the engine revs up, how to line the car up with other vehicles when doing parallel parking – helps us to learn to transform the way we drive. Once we start to incorporate these new, explicit ways of doing things differently, then we can practise them and internalise them. We practise, practise, practise, and the new techniques become familiar and automatic.

How did you answer this activity? Did you realise that many of the original skills that learning to drive is built upon are *tacit*? And that the new skills which we learn and consolidate to become a competent driver, once we internalise them, are also *tacit*? By the end of the process, we have no need to speak about our knowledge of driving or to put it into words in any way. We simply drive. But somewhere in the middle of the process of learning to drive, as the development of new, technical knowledge builds on the already existing, tacit knowledge, there is a period of theoretical learning in which the learner driver focuses on new procedures, thinks about them consciously and explicitly, and transforms her practices in the light of these new procedures.

Coaching a new driver and coaching Doctor Khumalo have much in common. Furthermore, this kind of learning is very important in what we call "technical" or "vocational" education. Learning to drive a car is an exemplar or pattern of the kind of learning that happens in all FET colleges. The technical skills of the students, which for the most part are tacit, are crucial to the enterprises that they are engaged in – whether it be motor mechanics, engineering, computer programming, hospitality, hairdressing, cosmetology, or whatever. However, the theory of how the technology works, which is "book learning", gets added into the mix, and what emerges are new knowledge and skills that make the students even more proficient in a technical or vocational practice.

The tacit dimension of FET learning

In the cabinet making case study, Quinton Paulse tells us that what is really important in his craft is that "you feel good furniture when you make it". What is important here is his sense that good technical education relies not only on the principles that are spelt out in textbooks and in the stated outcomes of courses, but also on the wisdom that is built up over years of practice by a craftsperson. This tacit knowledge must be passed on to students in craft contexts.

Activity 24: Teaching tacit knowledge

Examine the case studies in Chapter 2 of Lindi in an FET cosmetology department, Reuben in a refrigeration course at an engineering college, and Quinton Paulse in a cabinet making course.

1. For each of these lecturers, make a list of some of the things they convey to their students that can be considered to be tacit knowledge.
2. What is it about each one of these things that makes it tacit: that is, makes it very difficult to capture using spoken or written language?
3. What specific teaching or training method does each lecturer use in order to get the tacit knowledge across?

Our comment

In answering this question in relation to the cosmetology class, you probably focused on the period of practical consolidation that followed the theory lecture that Lindi did up front. It is clear that it was in this subsequent period of the demonstration of the principles and then the *guided* and *supervised* practice of them that the students' most important learning took place. Lindi seemed to be very aware that the most important judgements that a cosmetologist makes come from visualisation of the whole, finished face: she can see it instinctively, although it is difficult to put into words. That is why, for example, she is able to understand the way in which Hlubi Mboya uses make-up correctly just by looking at a photograph of her. It is this sense of judgement that she must somehow convey to her students, and while the theory is important, the true skills of the cosmetologist cannot be taught as theory. Notice how Lindi relies on the use of live models and on drawings to help students visualise what they are doing. When a student makes a mistake, Lindi can point it out, and the student tries again until she gets it right. It is in this relationship, between the visualisation of the perfect face and the actual application of make-up, that the knowledge and skills of the cosmetologist are developed. The student learns in a way that does not rely primarily on using language, but on guided participation in a practice. The most important knowledge in cosmetology training is tacit knowledge.

A very similar analysis of what happens when one learns to be a cabinet maker holds. It is interesting that Quinton Paulse uses drawings and other kinds of visualisation in the same way as does Lindi. Sometimes we may think that furniture making and make-up are worlds apart, but there are remarkable similarities in the way we teach people to do them properly. Again, we see drawings of various kinds – rough drawings on tables, using hands to make imaginary drawings in space, working sketches on the chalkboard – being used all the time by Paulse and his students to think about what they should be doing to get the cupboards finished.

One can imagine what both Quinton and Lindi have in mind when they criticise a particular change that one of their students makes while working. For instance, when Quinton criticises the way that one of his students cuts a groove into the side panel of a drawer (as yet unassembled), then he no doubt has an image of the final, assembled drawer and the final, finished cabinet in mind. He is not just looking at the groove that the router is cutting. Likewise, when Lindi suggests to her student that the make-up being applied to the model's cheekbones might be too dark a shade, she does so with an image of the final face in mind. This sense of the whole, of the final product, cannot be captured easily in words, because it is unique to each subject (the cabinet or the person's face, as the case may be). Yet it is the core of what each of these lecturers offers to their students in the training process.

This is exactly what Reuben gets at too when he tells us that he can "improve on the methods used in the college's theory classes by opening up a real fridge and showing the students what goes where and what safety precautions need to be followed". This is another illustration of the FET college lecturers' sense of the importance of the tacit knowledge that they must mediate to their students.

Here is a very insightful description of a Los Angeles woodworking lecturer, Jerry Devries, which captures very well the nature of the tacit knowledge which he uses all the time with his students:

> The more time I spend in Jerry Devries' carpentry workshop, the more I notice the various ways his mix of attention and perception, knowledge of the field, and values plays out in the day-to-day routines of working with wood. Consider, for example, the sharpening of the senses that develops in the woodworking environment. "Use the eyes to test straightness, squareness, and symmetry," writes the author of an early-twentieth-century pedagogical tract, "before applying any other testing instruments." Jerry, like other expert carpenters I observed, is able to estimate length at a glance. He can eyeball a structure for misalignment, an angle that's off, gaps, bows, sags in an assembly. He troubleshoots the cause of problems through the look of things. He has an eye, and a touch, for texture. He scans for flaws, spotting a place high up on the interior wall of the display case where a screw has barely broken through the wood. This ability has been characterized by several cognitive researchers as disciplined perception – and we saw it in another kind of work with the hairstylists. It is disciplined because it emerges from one's training and depends on – and helps constitute – a body of knowledge. And what is perceived is connected to systematic action; here perception has meaning and consequence for assembly and repair. The woodworker's visual skill is so much a part of the work that it's easy to miss its special quality.[5]

How do you think about your tacit knowledge?

Notice how, in the description of Jerry Devries' carpentry shop on the left, it is not the actual tacit knowledge of carpentry that Jerry has that is described, but rather the way he uses it and what he does with it. Sometimes, it is easier to gain an insight into something by reading a poem or a novel related to it than it is by reading an academic article on it. We think that this is often true of the tacit knowledge that technical and vocational lecturers have about their craft. For example, the following little extract from the science fiction writer, Ursula le Guin, captures something that we find difficult to say in more explicit theoretical terms. In this scene, a novice, Ged, is in conversation with his teacher, the wizard Ogion:

> Though a very quiet man he was so mild and calm that Ged soon lost his awe of him, and in a day or two more he was bold enough to ask his master, "When will my apprenticeship begin, Sir?"
>
> "It has begun," said Ogion.
>
> There was a silence, as if Ged was keeping back something he had to say. Then he said it: "But I haven't learned anything yet!"
>
> "Because you haven't found out what I am teaching," replied Ogion.[6]

The question is: how easy is it to write and think about tacit knowledge in the way we are trying to do in this guide? In developing our ideas, we spoke to a number of different lecturers in FET colleges. Our sense was that the best lecturers amongst them have a very clear understanding of the importance of their own tacit knowledge in the work they do with their students. But it was difficult for them, as it is for us in this book, to spell out exactly what this tacit knowledge is, *precisely because it is tacit*.

Maybe this is why so little academic writing on technical and vocational learning exists. Academics will tell you that it is an area that is *undertheorised*, meaning that it is part of the educational and training environment that has not been thought about explicitly enough by academic theorists in the research work that they do.

But it is still important that we as FET lecturers think about the importance of the tacit knowledge that we have, in relation to our craft and in relation to the way we teach other people about this craft.

The theoretical dimension of FET learning

Earlier, we examined the way in which theories of technique can help us to improve our technical and vocational knowledge. Remember the analogies we drew with learning to kick a soccer ball and learning to drive. Theories of technique can help us to do things better, although ultimately the practical knowledge that we use in the world of work is tacit knowledge. It is important that we do not lose sight of the importance of "doing theory" in an FET college curriculum.

In any technical or vocational area of expertise, theory is always theory that can improve practice. For example, here is an illuminating account of why theoretical knowledge of plumbing is important to help a plumber improve his skills:

> The interconnection of the component parts of a plumbing structure is an obvious notion, but to grasp the meaning of the interconnection for your own action, and to realise that what you do can extend over various kinds of materials, and can be close by or at some distance – such an understanding can give rise to deliberation: a stop-and-think orientation. I recall an experienced plumber, facing a somewhat more complicated situation of this type, telling me, "It's as important to say 'no' [to a possible course of action] as to say 'yes'. You can get yourself in real trouble if you don't think it through." The comprehension of a house as a complex system of materials, processes, and forces is not an obvious way to think about a building. The good plumber has a diagnostic frame of mind. For example, the problem of a valve or tap that does not completely stop water flow can be explained by a number of possible causes. A plumber must consider and test each possibility in turn: a kind of plumber's differential diagnosis. Could it be a bad washer? How about foreign matter – rust, grit – caught in the valve? To think in this way you need to know how a thing is put together, how a device, or category of devices, works. You may not be familiar with a particular brand of a valve, but if you can determine whether it's a cartridge valve or a compression valve, then you'll know something generally about its components and how they function. Then you're able to go through these steps in your mind.[7]

Note how the theory works. For the plumber, it does the following:

- It allows him to understand the connections between different things, or the network of principles on which a plumbing system can function. This allows him to diagnose problems more easily, and to understand how things need to be fixed.
- It allows him to understand categories of mechanisms – valves, taps, washers, piping, etc. – and thus to make generalisations about a plumbing system that again help him fix things. He can draw on knowledge which is not necessarily directly in evidence in order to help solve a particular problem.

Let us examine some of the theories that are at work in our case studies of South African FET college education.

Activity 25: Teaching theory in VET

Re-read the case studies of Lindi and Reuben, this time concentrating on the way they use theoretical knowledge of their areas of specialisation to help them improve the craft knowledge of their students.

1. For each of these lecturers, describe aspects of the theory they convey to their students.

2. In each case, how does this theoretical knowledge help the student improve his or her practice?

   Now look again at the cabinet making case study. Theory and the way it is taught is not discussed here, but there is an implicit message about it in the attitude that Quinton Paulse has to the shortcomings of his student, Ian.

3. What do you think was wrong with the way Ian was taught theory?

Our comment

There is a strong theoretical grounding to the learning that goes on in Lindi's cosmetology classroom. The "perfect oval face" provides her and her students with a comprehensive frame through which to understand *all* human faces and the way that their appearance can be improved. Together with the various principles of make-up, this theory provides the cosmetologist with a *general* and *systematic* understanding of how to approach any particular person in order to improve his or her appearance. Throughout her demonstration and her guidance of her students as they work on their peers' faces, Lindi works with these principles. She draws attention to them in order to help her students focus on and improve their final products. For Lindi, these principles have become automatic – she can see the perfect face emerging in the course of the make-up being applied, but her strength as a lecturer lies in the understanding she has of how theory becomes automatised in the process of practical learning.

You would have noted, too, the amount of time and attention that Reuben gives to theory in his teaching. He assesses it regularly, partly to keep the pressure on his students to study and partly to give himself ongoing insights into what they understand. His concern that his students "need to know the *system* within which it [the fridge when it is switched on] operates" is important – he is clear that the theory will give them this insight if they take it seriously. "All those wires and condensers" are related to each other systematically, and Reuben uses this theoretical knowledge all the time in his demonstrations and other practical work. However, Reuben's methodology is also noteworthy for the way that it uses the theory to help the students improve their practice – it is not taught as "theory for theory's sake", but as a form of reflection on practice that ultimately will improve the practice of refrigerator maintenance and repair itself.

Quinton Paulse finds himself surprised that the theory that Ian has covered in his past training at other centres has not helped him to be able to make a cupboard properly. Clearly, he has passed various theory exams. The problem, however, seems to be that Ian has never had the opportunity to use theory in the course of doing woodwork – he has never had a skilled craftsperson like Paulse looking over his shoulder, making comments, correcting mistakes, and generally teaching him to visualise the final product as he completes all the bits and pieces of it along the way. The most crucial element of technical learning – the use of theory in practical training – has for some reason or another been denied to Ian. But it is clear that this is what Paulse has done with theory for his other students including Amber – for example, his comment about gluing the drawer carcass and leaving it to set overnight is a *deliberate* reference to theory at the appropriate point in the practical work that his students are carrying out.

In the discussion of the plumber above, the notion that theory allows *deliberation* in practical work was introduced. This is a useful idea: theory gives the craftsperson the possibility of *deliberately* attending to different parts of a task, and therefore to think about how to improve their performance on the task:

- Lindi teaches her students to attend to what make-up is needed on any particular face by thinking of what the conventional, perfect face is.
- Reuben teaches his students to identify the cause of fridge failure by thinking of the refrigeration system as a whole and deliberately testing all possible points of breakdown until the problem is found.
- Paulse introduces theory when a practical problem is encountered that requires the student to step back from what he is doing and attend to some detail with fresh eyes. His long experience tells him when such deliberate theory can help solve a problem.

Key points

- The technical skills and knowledge that we have are largely tacit.
- Nonetheless, theories can help us improve practice. They tell us how to do things in new ways, or give us ways of deliberating on our work that can help us do things better.
- Technical theories and craft theories allow us to understand the broader technologies, physical networks and systems within which our practices operate.
- FET technical and vocational education should have both a tacit and theoretical dimension.
- In an FET curriculum, theoretical knowledge is taught not for its own sake, but to provide ways of improving tacit knowledge practices.

UNIT 3 Theories of knowledge and learning

Three important theories of learning

Up to now in this chapter, we have examined the different ways that we can think about the *networks* of knowledge that we find in a technical and vocational education environment. We have seen that there are networks of tacit knowledge that skilled practitioners carry around with them, in their minds and bodies that allow them to make skilled judgments about their craft without necessarily being able to put this into words. We have also seen that there are important tacit dimensions of craft knowledge that are distributed across them, the tools they use, and the environments in which they operate. There are also networks of theoretical knowledge – expressed in language and written down in texts – that are both embodied and distributed, that help them to improve their practices.

We need to examine now how these different kinds of knowledge are learnt. To do this we shall look at three different theories of learning, each of which has been enormously influential and gives us a particular insight into what learning is and how it takes place. We shall use each one of the theories to make sense particularly of how technical and vocational know-how is acquired. The three theories in question are the following:

1. Jean Piaget's theory of equilibration.
2. Lev Vygotsky's theory of mediation.
3. Jean Lave and Etienne Wenger's theory of communities of practice.

We will not try to suggest that one or other of these learning theories is better than the others. Rather, we shall proceed from the assumption that each one of them gives us a particular insight into learning. In Wenger's words, "There are many different kinds of learning theory. Each emphasises different aspects of learning, and each is therefore useful for different purposes."[8]

Jean Piaget

We often recognise that human beings (perhaps children especially) are naturally curious about the world around them. They constantly engage with the world around them in order to find out more about it, ask questions, make up hypotheses, imagine new possibilities, etc. In other words, human beings *actively construct* their own knowledge. All of this seems to be motivated from within, and constitutes an important source of explanation of learning.

Perhaps the most important theorist of this kind of learning process was the Swiss scientist Piaget (1896–1980). He advanced a conception of learning known as the theory of *equilibration*. Piaget describes learning in this way:

> To know an object, to know an event, is not simply to look at it and make a mental copy or image, of it. To know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation, and as a consequence to understand the way the object is constructed. An operation is thus the essence of knowledge, it is an interiorised action which modifies the object of knowledge.[9]

What does Piaget mean by this? The core of his theory of learning is the recognition that we learn from our actions *(operations)* on the world. The very fact that we are alive means that we are always acting on the world. On the one hand, we act on the environment by interpreting it and co-ordinating its features so that they fit with our existing knowledge. This Piaget called *assimilation*. But, simultaneously, the objects in our environment (for example, an article to be manipulated, an image to be perceived, a tool to be used, a person to be understood, a task to be carried out, or a problem to be solved) demand more complex actions, and so we must also constantly change ourselves in order to be able to deal with the new knowledge inherent in the universe of objects. This Piaget called *accommodation*.

You can see here that, in any learning, there is a tension (a lack of balance, a *disequilibrium*) between what we already know how to do and what the world requires us to do. It is in action that a student responds, by regulating himself to produce a new *equilibrium* in the form of a more sophisticated understanding of the world. This impulse of self-regulation Piaget calls *equilibration* – it is made up of the simultaneous processes of assimilation and accommodation. Crucially, as a student engages in these actions, she becomes increasingly aware of them, or the new forms of co-ordination, integration and transformation of knowledge that they entail, and her understanding of them grows. Ultimately, she *internalises her own actions* as new forms of understanding and knowledge.

The theory of equilibration: "acting to know"

Jean Piaget developed a theory of knowledge and the cognitive processes whereby people come to know the world. It is one of the most important psychological theories of the 20th century. From Piaget's perspective, all knowledge is constructed through our action in the world. He argued that we can only know about things if we act on them. Very small babies get to know the world around them by touching and tasting things – all mothers get exasperated by their children constantly putting things in their mouths! As the child gets older, she literally gets to know her world by moving about in it, learning to crawl and then walk, moving about and bumping into things, learning what's hard and what's soft, grabbing things, and learning what's heavy and what's not. Furthermore, Piagetian theory shows that action continues to be very important for all thinking throughout our lives. Older children and adults, too, use action to know the world. Sometimes these actions may be physical like those of the small child, but more often than not, the action increasingly happens in the *mental* realm.

Piaget explains that the development of knowledge occurs through the process by which we seek a state of equilibrium or balance between our previous knowledge and new things we encounter in the world. We understand new things by seeking a balance between the known and the unknown. We all mentally adjust and readjust our thinking in response to new objects and events, actively weighing up and balancing our knowledge and moving forward. Piaget identified two mental processes that enable us to perform this balancing act: *assimilation* and *accommodation*. Read the following extract written by Piaget himself in which he summarises the process of coming to know things:

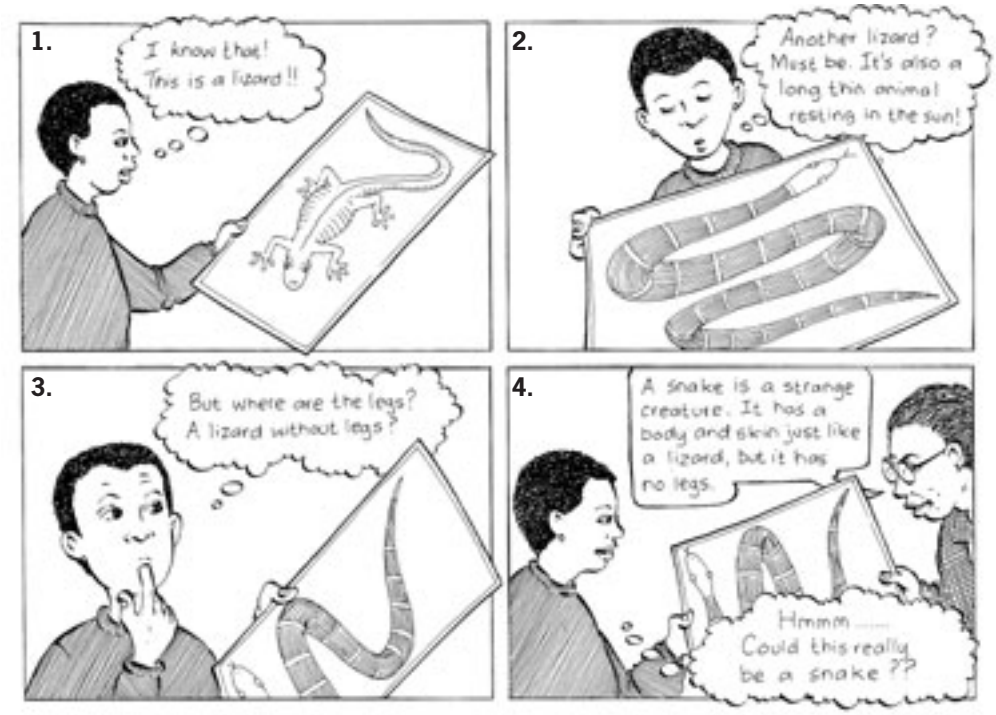
1. Knowledge of an object does not consist of having a static mental copy of the object but of effecting transformations on it and reaching some understanding of the mechanisms of these transformations. An intelligent act consists above all of co-ordinating operations, uniting, ordering (in the sense of introducing order), etc. These operations, which derive from the subject's internalisation of his own actions, are the instruments of the transformations that knowledge is concerned with.
2. Logical relationships are, first and above all, operational structures. Although their most advanced forms are certainly expressed by language, their origins are found in the co-ordination of the subject's own actions. Even at the sensorimotor, pre-verbal level, a child is involved in activities that include uniting, ordering, introducing correspondences, etc. and these activities are the source of operations and logico-mathematical structures.
3. Knowledge is not determined strictly by the knower, or by the objects known, but by the exchanges or interactions between the knower and the objects (between organism and the environment). The fundamental relation is not one of simple association but of assimilation and accommodation; the knower assimilates objects to the structures of his actions (or of his operations), and at the same time he accommodates these structures (by differentiating them) to the unforeseen aspects of the reality which he encounters.[10]

ACTIVITY

Time needed
45 minutes

Activity 26:
Equilibration at work

The following cartoon sequence portrays a young child learning for the first time about a snake. In this activity, you are asked to use the notions of equilibration, assimilation and accommodation to provide an account of this learning event.



1. Describe how the child *assimilates* her experience of the lizard into her existing understanding.
2. Describe the disequilibrium that occurs.
3. Describe the *accommodation* that takes place in order for the child to overcome the disequilibrium.
4. At what point has the child generated a new understanding? Use the concept of *equilibration* in this answer.

Our comment

The cartoon sequence on the previous page depicts a simple example of the whole equilibration process in learning. Piaget would probably offer the following kind of explanation of the process:

- The child makes a guess as to what the creature is, based on her previous experience. As she sees the snake, she focuses on what is familiar, and *assimilates* her perception of the snake into her schema of a lizard (pictures 1 and 2).
- But then she notices the differences between her idea of a lizard and the snake. She realises she has made a mistake. By noticing the differences, she begins to feel unsure and experiences a state of disequilibrium (picture 3).
- With the help of feedback from the environment she develops a new schema (a new idea about a snake). The sense of disequilibrium (her understanding that she is mistaken) has presented her with an impulse to learn, and so she acts to correct herself (picture 4).
- She *accommodates* the differences, so that in the end she has learnt something new.

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

How can we use these ideas to understand the process of technical or vocational learning?

Activity 27: Equilibration in the work process

We have seen that Piaget put forward a theory of the self-regulated construction of new understandings – the theory of equilibration. Look now at the discussion in the cabinet making case study (Chapter 2) on the use of power tools, and how Amber and her colleague learn to improve their use of these machines as they go along.

1. Identify the points at which new learning can be said to occur.
2. Explain how each one of these moments of new learning occurs using the concepts of assimilation, disequilibrium, accommodation and finally (in an overall summary) equilibration. Use the structure of the answer you developed in answer to Activity 26 to guide you.

Our comment

The important points about Piaget's understanding of learning, for purposes of this activity, are the following:

- A student acts on the objects in focus using her available knowledge, which in this case includes acting on (acting with) the machine tool to the extent that she knows how to do so and using the machine tool to change the shape or size of a piece of wood *(assimilation)*.
- As she does this, she discovers limitations in her knowledge of how to use the machine tool, she discovers that certain things she tries do not have the envisaged outcomes, she makes mistakes, and she discovers that she does not know how to do certain things to their full extent *(disequilibrium)*.
- Therefore, as she works with the tools, she makes certain adjustments, including in the way she stands, the way she holds the tools, the depth and extent of cuts that she makes into the wood, and the amount of force on or active guidance of the tool she must apply. She tries out various options, some of which seem to be suggested by the wood as she works, some of which she thinks about more clearly as she encounters problems. She is not always sure of what will happen, but the actions she is engaged in with the tools seem to suggest to her what to do *(accommodation)*.
- Once she tries something new with the tool and recognises that it is working, she practises it and consolidates it. It becomes part of what she now knows, somehow built into her very being through the experience she has had learning to use the tool (the overall culmination of the process of *equilibration*, which has been going on through all the various phases in her work).

In the case study, Quinton Paulse can be seen to recognise these important learning processes. He sees Amber "mastering sequence, procedure and physical skill", "adjusting heights and angles", "accounting for width", and "controlling through stance and movement". And once a student is actually operating the tool, further knowledge and finesse are necessary.

There may be something, however, that this Piagetian perspective on learning may be missing. Paulse often talks to his students to help them through all these phases of their learning. Perhaps another theory of learning can give us more insight into this.

Lev Vygotsky

The Russian psychologist Vygotsky (1896–1934) developed a theory of the social construction of knowledge and cognitive processes. He was particularly interested in the way that human beings learn in social relationships with other people. This led him to investigate the importance of learning in schools or other educational institutions for our overall development as human beings in contemporary society. Part of Vygotsky's contribution was his account of the mediator-learner (or teacher-student) relationship, the way it provides the conditions for new learning to occur, and, on the basis of this learning, for the student to develop new forms of understanding. We can all remember mentors or teachers who made a particularly important contribution to our own learning and development: Vygotsky's theory provides us with an understanding of exactly how and why such mentoring is so important for learning.

Vygotsky's most well-known concept is the *zone of proximal development*. By this he means the space within which all meaningful learning takes place – the space between what the student already knows and can do by himself, and what he cannot do on his own but can do under the guidance and with the support of someone else who is more skilled and knowledgeable. You can see why the idea of mediation is so important in his thinking – it is the activity that takes place between two people that makes learning possible and that explains learning. Here are two definitions of the zone of proximal development put forward by Vygotsky. The first allows us to understand how the prior knowledge of the student makes new learning possible:

> The zone of proximal development defines those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state. These functions could be termed the "buds" or "flowers" of development rather than the "fruits" of development.[11]

The second definition allows us to understand how the relationship with a mentor makes new learning possible:

> [The zone of proximal development is] the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.[12]

The theory of mediation

Lev Vygotsky introduced us to the notion of teaching as *mediation*. A teacher (here we can include a schoolteacher, a lecturer, a master craftsperson, an adult caregiver, a more experienced colleague, etc.) is seen to *mediate*, or to interpret and pass on to the student, the knowledge that a community has built up over time. Vygotsky put forward the notion of the *zone of proximal development* to model how it is that teachers mediate new understandings. For him, there are two levels of development that exist simultaneously in a developing child: the actual level of development, which is manifest in what the child can do without help, and the potential level of development, which is manifest in the child's abilities with optimal guidance from a teacher. The gap between these two levels of development is the *zone of proximal development*, and it is obviously an enormously useful contribution to our ideas about learning.

Read the following extract written by Vygotsky himself in which he summarises the importance of the teacher-student relationship in coming to know things.

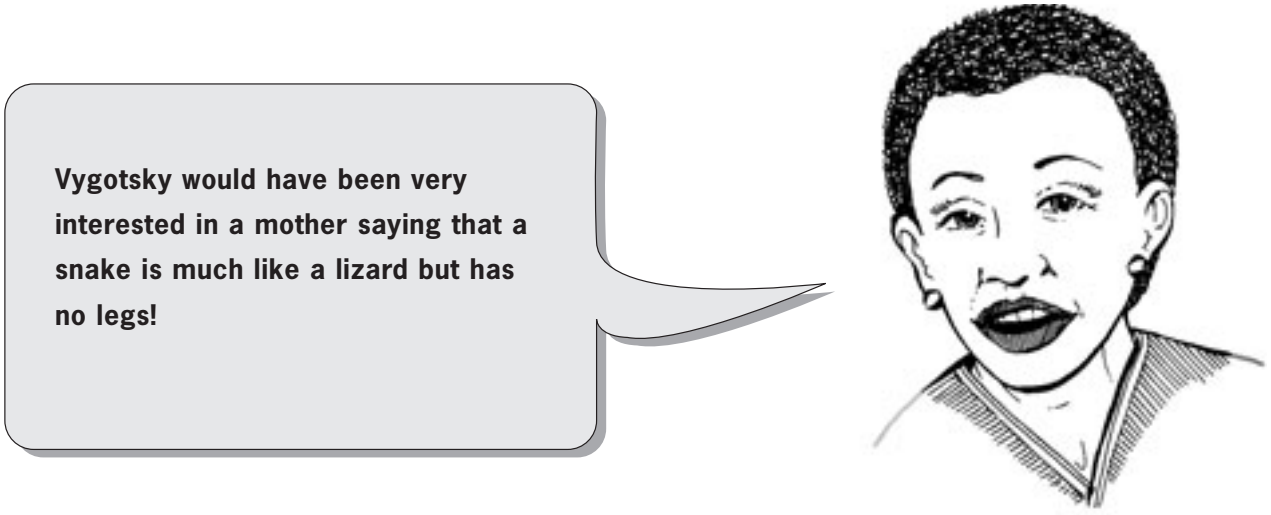
> The essential difference in the case of the child [when compared with the way an animal learns] is that he can imitate a number of actions which go beyond ("depass") the boundaries of his own potentiality, if not to a limitless extent. With the help of imitation in collective activity, under adult guidance, the child does much more than he can do with understanding, independently. The divergence between the level of performing tasks which are accessible under guidance with adult help, and the level of performing tasks which are accessible to independent activity, defines the zone of the child's proximal development.
>
> It is only necessary to recall [this] example … We have before us two children with a mental age of seven but one, with a little help, can do tests up to nine years, the other only those proper to seven and a half. Is the mental development of these two children equivalent? Their independent activity is equivalent but from the point of view of future potentiality for development the children differ radically. That which a child is in a position to do with adult help we call the zone of his proximal development. This means that, with the aid of this method, we can measure not only the process of development up to the present, the stage already accomplished, the processes of maturation that have taken place, but also those processes which are in the course of becoming established, which are now only maturing, developing.
>
> What the child can do today with adult help he will be able to do independently tomorrow. The zone of proximal development allows us, therefore, to determine the child's next steps, the dynamics of his development, to consider not only what development has been brought about but what will come about in the process of maturation.[13]

Have a look again at Activity 26 on page 102. In the cartoon sequence depicted there, what aspect do you think Vygotsky would be most interested in?

Our comment

Do you remember how we earlier characterised Piaget as showing us that a student must change cognitively to be able to gain new understandings from "the universe of objects" – articles, images, tools, problems, tasks, persons, etc.? Vygotsky would not necessarily disagree with this, but he would argue that Piaget is, by treating them as equivalent to the other categories, somehow missing the crucial point about learning from other people.

When a child learns something, a mother and a ball are just not the same kind of thing. This is because, in the case of the former, it is not only that the child acts on the mother, but also that the mother acts on the child in a reciprocal social relationship. Furthermore, the mother (and other significant people in the child's life) mediates the cultural aspects of various objects – like the ball, a hammer, a typology of snakes and lizards, tea, soccer, books – to the child in a way that these objects themselves cannot, no matter to what extent they "contain ready-made answers to practical problems".



ACTIVITY

Time needed
45 minutes

Activity 28: Mediation at work

Much of the research that has been done using Vygotsky's theory to understand learning has been done in schools, by analysing classroom language. The words that teachers use to mediate new knowledge and new forms of understanding to students give us important insights into the learning process that is constructed between the teacher and the student. This activity draws on such a methodology.

Read this transcript from a primary school classroom in which two eleven-year-old boys are engaged in an activity requiring them to classify seashells on the basis of their physical features. The purpose of the task (the teacher's intention) is to develop their understanding of how scientific classification schemes work. The boys are struggling to think of a way to distinguish some of the shells:

DAVID: I can't think of one to separate this whole bunch of shells out from each other. I've got to separate some of these.

TEACHER: What's an obvious difference between them and the others?

DAVID: They are cones.

LULAMA: They come from the same family of shells because they have the same shape.

TEACHER: Now go further.

DAVID: Could we say some cones are fatter than other cones?

TEACHER: All right. That gives you a starting point. So you would separate perhaps those two, but it wouldn't be a question that applies to those. Is there one difference between those two that is also a way you could group those? (Teacher indicates different shells on the table.)

DAVID: Well, that's pointed …

TEACHER: Um …

DAVID: … and that one isn't.

TEACHER: I think, perhaps, that you are limiting your thoughts to shape at the moment. Think about some other things… some other variables that you could look at.

LULAMA: Colour.

TEACHER: Try colour.

LULAMA: Is it that sort of colour. Is it dark? That is dark compared to the one next to it, but it is not really dark.

TEACHER: You are going to have problems. People would say, well, compare … If someone asked you which is the dark one of those two, you would immediately point to that one. Now, this is where the difficulties arise, isn't it, because there is no doubt which is the dark one there.

BOTH: Yeah.

TEACHER: And at the first glance at the whole group there is no doubt which is the dark one there. But if that was the only shell you had, and someone said to you, "Is that a dark shell?" What would be your answer?

LULAMA: It's quite light. Colour's not going to help.

TEACHER: Okay, so let's try some other way that we might classify them.[14]

Notice how the teacher *uses language* here to get the boys to focus on how they might classify the shells in different ways. Here, he is calling for a different kind of learning to the development of tacit knowledge – the explicit classification of things into different categories. In a moment, we shall consider how mediation on the part of a teacher or lecturer can help us to understand the mediation of tacit knowledge as well.

1. Identify key points in these exchanges in which the boys demonstrate new ways of understanding that they are then able to practise.
2. What does the teacher do in each case in order to mediate these new understandings?
3. Why is language so important in learning mediation?

Our comment

When examining a transcript like this one, one needs to identify the particular moments in which the language of the learners indicates that they have acquired a new understanding. Putting these different moments together across the whole, we can then get a sense of the learning process that takes place over a series of exchanges between a learner and a teacher. Our sense is that the following moves on the part of the teacher mediates particular learning to one or other, or both, of the boys (you may have identified others):

1. The first move the teacher makes is simply to draw the attention of the boys to the task - "What's an obvious difference?" The boys focus on shape in their response, and the teacher asks for a sharpening of that focus - "Go further". This is not a new understanding as such, but simply *deliberation* on their existing knowledge in relation to the tasks at hand.
2. Then the teacher makes a mediation move. He identifies and draws out weaknesses in the classification strategy used by the boys: "It wouldn't be a question that applies," and "Is there one difference between those two that is also a way you could group those?" David's response shows some learning, in that he starts to refine his focus on shape.
3. Next, the teacher provides the boys with a new conceptual tool to help them respond to the dilemma he has posed them: "Perhaps you are limiting your thoughts to shape.… Think about … other variables." Lulama, prodded by the teacher, starts to explore colour as a classification strategy. But it turns out not to take him very far.

4. When the boys still struggle, the teacher repeats the cycle of pointing out a weakness and providing a new tool: "You are going to have problems … If someone said to you which is the dark one of those two, you would immediately point to that one. Now, this is where the difficulties arise, isn't it…?" He deepens this intervention in the boy's thinking with his next utterance. Lulama then expresses what he (and presumably David) has learnt – "Colour's not going to help."

Vygotsky is often praised for his understanding of how language provides the tools on the basis of which learning takes place. He gives us insights into how spoken language allows teachers to mediate new forms of understanding to learners. In the transcript above, which actually covers a very short period of time, there are numerous examples of language being used to mediate something to the learners. Such "classroom talk" goes on all the time in any teaching-learning situation. Skilled teachers are able to use this kind of language in relation to any task that brings its solution firmly into the zone of proximal development of the learner.

As we move on to consider technical and vocational learning, it is important to realise that Vygotsky is not only interested in spoken language in his theory, although he regarded it as very important.– his best-known book was entitled *Thinking and Speech*. He is also interested in non-language-based tools of mediation, such as the use of gestures, images, pictures, maps and other signs that model tacit forms of knowledge.

ACTIVITY

Activity 29: Mediation in the work process

Time needed 20-30 minutes

Once again, read one or more of the case studies in Chapter 2 – Lindi in an FET cosmetology department, Reuben in a refrigeration course at an engineering college, or Quinton Paulse in a cabinet making course.

1. Identify episodes in the case study that contain evidence of the lecturer acting as a mediator in conveying tacit knowledge (e.g. knowledge of how to use a tool better or to carry out a particular technical procedure better).
2. In each episode, how does the mediation happen? Try to picture the role of the relevant lecturer as you answer this question, and try to extend your answer beyond what is stated in the case study.

OUR COMMENT

Our comment

The core of technical and vocational education processes always seems to present us with excellent examples of the mediation of tacit knowledge. When Lindi reaches the stage in her cosmetology session where her students practise their art on each other, she moves into the most significant period of her role as a mediator. Likewise, when Reuben "opens up a real fridge and shows students what goes where", he is creating a particular kind of zone of proximal development for their learning about refrigeration. In a similar

vein, Quinton Paulse makes small interventions over time, as his students work on a project – raising questions, making comments, pointing out mistakes – all things that come from his "eye for good furniture" and contribute in an incremental way to developing their "eyes for good furniture".

You might have imagined Lindi commenting on a student putting a curler into someone's hair, towards the front of the face, just above the forehead. The curler would have been slipping out all the time, because of the fine texture and length of the hair, and Lindi would have seen immediately that the problem was that the curler was too big. Not something that could be found in a textbook – in fact the curler was probably correct within the range of sizes suggested by the text. But this was a particular person, with particular hair, and Lindi's experience, her tacit understanding of what to do when, would have kicked in. She would have watched what the student was doing, identified the point at which a mistake was made, identified what needed to be done – all in a flash – and then simply said something like, "Why don't you try the pink curler? It's a bit smaller.". Later, Lindi might have discussed the issue of size of curlers in a theory lecture, *if there was a general point to be made*, and got the students to reflect on the learning that had taken place in the practical session. But the learning itself would have been the extension of their immediate tacit skills under Lindi's guidance, not the product of a lecture.

You might have imagined Reuben picking up a screw driver and using it to point to particular tubing inside the fridge. He might have picked up the diagram of "refrigerator mechanisms" that had been discussed the day before in the theory lecture, knowing full well that the biggest problem the students always faced was trying to find the actual, greasy, battered bits and pieces in a fridge that correspond to all the nicely drawn items on the page. He would have pointed out the connections, maybe getting a bit of grease on the book, but at the end of it the students would have known which bit was which bit. At another time, you might have pictured Reuben doing exactly the same thing with another fridge that had just arrived in the workshop – an unfamiliar one of Korean origin – with exactly the same certainty, not because he had seen the fridge before, but simply because *he knew fridges*. He knew what to look for. The younger students would have been bemused by the strange fridge, by its apparent lack of correspondence with the piping diagrams in their text. Over long sessions, in which Reuben imparts this kind of tacit insight to his students in demonstrations and exercises, they too will acquire an "eye for a fridge" that will allow them to understand and fix any fridge anywhere.

Your image of Quinton Paulse at work would not have been very different. There is a real sense in the case study of how attuned he is to the actual, individual learning processes of his students as they work on their cabinets – he can understand what they are doing at any point, what they understand, what mistakes they are making, what they need to know. All of this Paulse sees intuitively, with his finely tuned appreciation of the zone of proximal development that any technical student operates within. You would have imagined any number of interventions that he might have made to guide his students on the path to becoming better, more skilled carpenters and woodworkers. He would have spoken to them often, but the knowledge that he was imparting was not in the language as such, but in the things that the language would force the students to look at – to see problems, and to see ways of solving those problems.

Jean Lave and Etienne Wenger

Lave is an anthropologist and Wenger a social learning theorist who work in California, USA. Together, they have put forward and developed a theory of learning that describes it in terms of the *social relationships* that are necessary for new understandings to occur. It is a social theory of learning, in distinction to those of Piaget and Vygotsky, which are psychological theories.

Central to their theory is the idea of a *community of practice*. People engaged together in a particular activity form a community of practice. Examples of such a community are the following:

- a group of shop-floor technicians working on similar problems;
- a network of computer programmers and technicians in a large IT company who meet periodically and communicate regularly online in order to explore novel software solutions;
- a gathering of first-time learnership candidates in a factory helping each other cope;
- a group of learners who hang out together and support each other in the work they do at school; and
- a group of lecturers at an FET college who meet regularly over lunch and informally discuss their students, what they teach, and how they do assessment.

In short, a community of practice is a group of people who share a concern, even a passion, for something they do together and who interact regularly to learn how to do it better.

Collective learning is thus the focus of Lave and Wenger's theory. The members of a community of practice continually build relationships that enable them to learn from each other. They take part in cooperative activities and discussions, help each other, share information, and together develop new understandings of technical knowledge in their field. Together, they create a system of shared ideas, commitments and memories. They develop resources such as tools, texts, specialist terminology and routines that in some way contain the expertise of the community. However, a community of practice involves much more than the knowledge or skill associated with undertaking some task. Because members are involved in an ongoing set of relationships over time, the community of practice develops a strong sense of joint enterprise and identity.

The theory of communities of practice

The following extracts are taken from Etienne Wenger's book, entitled *Communities of Practice: Learning, Meaning and Identity*:

The primary focus of the theory of *communities of practice* is on learning as social participation. Participation here refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the *practices* of social communities and constructing *identities* in relation to these communities. Participating in a playground clique or in a work team, for instance, is both a kind of action and a form of belonging. Such participation shapes not only what we do, but also who we are and how we interpret what we do. A social theory of learning must therefore integrate the components necessary to characterise social participation as a process of learning and of knowing.

These components include the following:

1. *Meaning*: a way of talking about our (changing) ability – individually and collectively – to experience our life and the world as meaningful.
2. *Practice*: a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.
3. *Community*: a way of talking about the social configurations [for example, workplaces, institutions, professional societies] in which our enterprises are defined as worth pursuing and our participation is recognizable as competence.
4. *Identity*: a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.

The negotiation of meaning is a fundamentally temporal process [it takes time] … some communities of practice exist over centuries – for example, communities of artisans who pass their craft from generation to generation. Some are shorter-lived but intense enough to give rise to an indigenous practice and to transform the identities of those involved. For instance, such communities may form as people come together to handle a disaster. The development of practice takes time, but what defines a community of practice in its temporal dimension is not just a matter of a specific minimum amount of time. Rather, it is a matter of sustaining enough mutual engagement in pursuing an enterprise together to share some significant learning. *From this perspective, communities of practice can be thought of as shared histories of learning*.

If practices are histories of mutual engagement, negotiation of an enterprise, and development of a shared repertoire, then learning in practice includes the following processes for the communities involved:

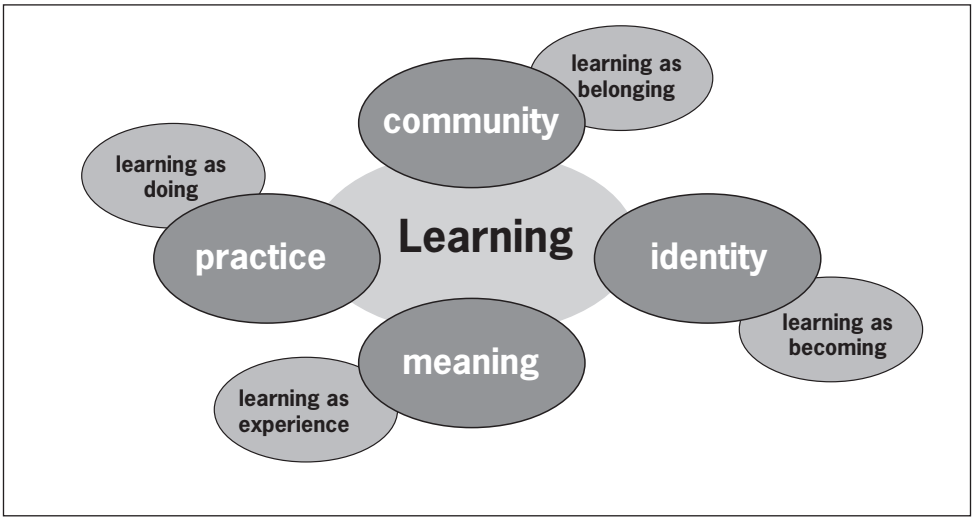
- *Evolving forms of mutual engagement*: discovering how to engage, what helps and what hinders; developing mutual relationships; defining identities, establishing who is who, who is good at what, who knows what, who is easy or hard to get along with.
- *Understanding and tuning their enterprise*: aligning their engagement with it, and learning to become and hold each other accountable to it; struggling to define the enterprise and reconciling conflicting interpretations of what the enterprise is about.
- *Developing their repertoire, styles, and discourses*: renegotiating the meaning of various elements; producing or adopting tools, artifacts, representations; recording and recalling events; inventing new terms and redefining or abandoning old ones; telling and retelling stories; creating and breaking routines.[15]

ACTIVITY

Activity 30:
A community of practice at work

Time needed
40 minutes

The following diagram is Etienne Wenger's representation of the different components of the social theory of learning that is entailed in the idea of a community of practice.[16]



Components of the social theory of learning

1. Give a name to the community of practice (or at least one of the communities of practice) that you are engaged in as a lecturer in an FET college.
2. Read the description of the theories of community of practice (p. 113). Then, using the diagram as a guideline, describe the main features of the community of practice that you have identified.
3. In this community of practice, list some of the shared learning events that you can recall between you and your fellow members in regard to:
   a. Learning the specialist skills related to your practice;
   b. Developing a way of talking and a specialist language to describe the meaning of the practice;
   c. An understanding of the community of practitioners of which you are a part; and
   d. Coming to understand who you are and what your contribution is to society.

OUR COMMENT

Our comment

In our cosmetology case study, Lindi would probably identify herself as part of the group of lecturers involved in the beauty industry that work together at her FET college. Between them, they cover cosmetology, hairdressing, nail technology, massage and skincare. They meet regularly in each others' offices, share lecture notes and planning files, share textbooks and magazine articles to photocopy for their students, discuss assessment problems, and work out ways of responding to the college administrators.

Often, they go out for lunch together, and talk about their students, what they teach, and what to do about coping with all the changes going on in their institution. They gossip about the boss, talk about beauty and how best to achieve it in their different areas, complain together about their conditions of work, and act together to improve their conditions of work. All of this is crucial to keeping their community of practice going.

If they thought about it for a moment, they would see all kinds of learning taking place during these activities and discussions:

- They teach each other new skills in caring for nails, skin or hair, either by showing each other, telling each other or pointing each other to articles to read.
- They use and reinforce the words and ideas of their profession, and introduce new terminology that they read about or hear about from colleagues (e.g. with regard to new ways of describing the extensions that are used in Afro-Caribbean hairdressing).
- They inform each other about new salons that are opening or old ones that are closing, about who is working where, about how much money their colleagues are making in their businesses, about who needs new recruits – in short about how the profession is going and what career guidance they should give to their students.
- They understand themselves and the importance of their work by relating to each other.

In answering these questions, you would no doubt have come up with very similar insights into the learning that goes on in your own community of practice.

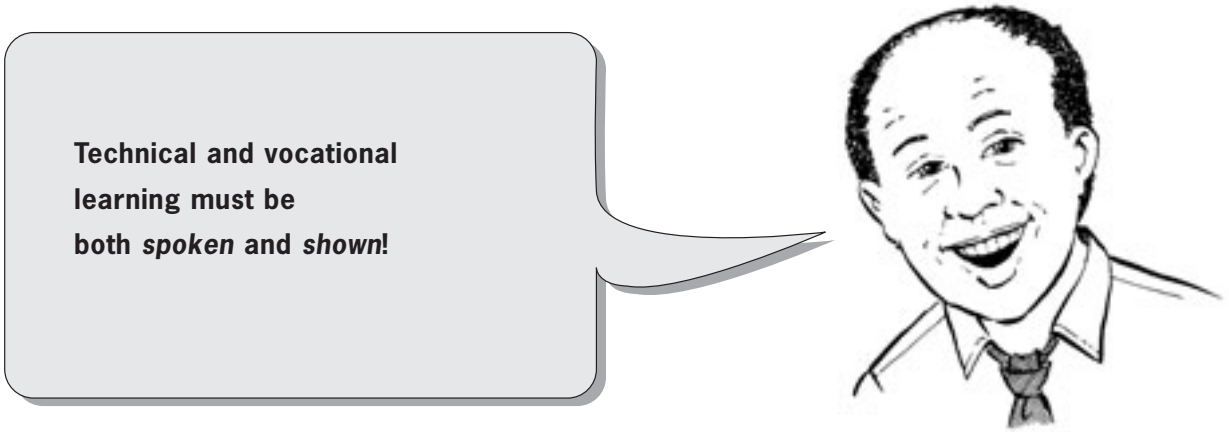
Key points

- Piagetian theory of learning focuses on how individuals construct new understandings when confronted by unfamiliar objects or tasks.
  - In FET college learning, it allows us to grasp how students acquire new skills and specialised techniques as they practice these. They learn from mistakes and from trying out new ways of doing things.
- Vygotskian theory of learning focuses on how individuals construct learning in a relationship with other people who are more knowledgeable and skilled than they are, and who mediate new understandings and practices to them.
  - In FET college learning, it emphasises how students become more skilled by being guided by a mentor. They learn from being shown how to make or fix things in innovative ways, from having mistakes pointed out to them, from being exposed to new ways of thinking about what they are doing, etc.
- Lave and Wenger's theory of learning focuses on the social processes that make learning possible, and in particular on the nature of the social relationships and institutions within which learning is constructed.
  - In FET college learning, it allows us to understand how learning is a process of gaining increasing access to the practices, specialist language and identity that characterise a group of practitioners. Students start as outsiders and novices, and eventually become members of a particular craft community.

UNIT 4 Teaching in a Further Education and Training College

Mediating both tacit and theoretical understandings

By now, you should have a sense of the fact that there is a distinctive kind of teaching that is called for in VET:



- It entails the mediation of theoretical learning of systems of knowledge, just as is the case in formal school subjects. In other words, it is a formalised process that depends on the use of language.
- It involves the mediation of specific practical skills and knowledge in real work contexts, that is to say, it is a relationship between a skilled craftsperson and a relative novice in which tacit understandings are passed on and acquired.
- Perhaps most importantly, it requires an engagement across both the theoretical and practical aspects of any craft, in such a way that the student can over time acquire an understanding of the totality of the associated vocation or trade, and not just bits of it in isolation (such as a narrow skill or a disembodied theory).

ACTIVITY

Activity 31: Judging VET teaching

Time needed 45 minutes

Go back to Chapter 2, and read each of the case studies from the point of view of discovering how the lecturers deal with both practical and theoretical teaching in their work.

1. For each lecturer, draw out a quotation from the relevant case study that shows how they go about:
   a. teaching the practical skills and knowledge of their craft;
   b. teaching the theoretical aspects of the associated discipline; and
   c. helping students to link theory and practice in the way they think about their work.

Use the following table to help arrange the quotations you have selected:

Lecturer	Quotation illustrating teaching of practical aspects	Quotation illustrating teaching of theoretical aspects	Quotation illustrating teacher linking theory and practice
Lindi		e.g. "Lindi is very careful in her lecture to make sure that the students understand the difference between the basic oval shape of the face and separate facial features … diagrams in the notes show the basic principle – to take something away … use dark make-up; to bring something out … use light make-up."	
Lizette			
Maria			
Quinton	e.g. "Paulse knows this is something he cannot teach his students directly – but he still watches them all very carefully, and moves about the room talking to them, sometimes encouraging them, but usually just intervening when he sees them making mistakes."		
Reuben			
Vusi			e.g. "But, you know, the N courses also try to introduce the real business world to the students. For example, I took a group to the Stock Exchange last week. But time is a problem, and the world changes so fast, so it is difficult to keep the syllabus and learning materials up to date."

2. Having completed question 1, make the following judgements:
   a. Imagine that you must award a "Best VET Teacher" prize to one of these candidates on the strength of the information available to you. Who gets the prize? Why?
   b. Which of the candidates seems to be in most obvious need of help in overcoming weaknesses or gaps in their teaching? Identify these gaps, and indicate what you think needs to be done to help the person in their professional development.

Our comment

We are not going to presume to tell you whom amongst these lecturers you felt was the best teacher. In addition, it is obvious that the case studies in Chapter 2 do not all have equivalent amounts of information about the same things, so that the prize we asked you to award was somewhat artificial.

Nonetheless, we are sure that the criteria you used to answer the questions (or that made you feel uncomfortable about answering the questions) had everything to do with what is required of a good teacher in a VET context. You would have looked for evidence of the mediation of both tacit knowledge and theoretical understanding on the part of the lecturers. You would have looked at the way each lecturer tries to bring them together in the way they teach, the learning programmes they draw up and the range of activities through which they guide their students. You would have looked for a well-rounded teacher of VET who understands the many ways in which students learn both on-the-job and in the classroom.

Professional development as reflective practice

What is the point of using theory to think about learning and teaching in an FET college? In this chapter, we have been reflecting theoretically throughout on these things. We started off by thinking about *networks of knowledge*, and then used the category of *tacit knowledge* to describe the kind of knowing that predominates in the technical and vocational environment. We went on to consider three of the most influential *theories of learning* and what the implications of these might be for the work that we do. We were using theory to reflect on (or to use the word that we employed earlier, deliberate on) what we do when we teach in an FET college.

This is the crucial point. Theory allows us to be *reflective practitioners*. Just as theory of plumbing helps the plumber to improve his understanding of the water and sanitation systems in a house, and thus to diagnose problems and fix things more effectively, or just as theories of the way particular hair styles enhance different facial shapes enable a hairdresser to improve his eye for the right cut, so a theory of learning and teaching can help FET lecturers improve their practices.

Donald Schön is a theorist who has written about the importance of this kind of thinking for teachers. In the following extracts, he reflects on how theory can allow us to bring the tacit knowledge of our practices to the surface. In making them conscious, we can think about them critically, change them for the better and generally ensure that the quality of the education and training we offer our students is maintained.

The reflective practitioner

A professional practitioner is a specialist who encounters certain types of situations again and again … He develops a repertoire of expectations, images and techniques. He learns what to look for and how to respond to what he finds. …his knowing-in-practice tends to become increasingly tacit, spontaneous, and automatic, thereby conferring upon him the benefits of specialisation ...

A practitioner's reflection can serve as a corrective to over-learning. Through reflection, he can surface and criticise the tacit understandings that have grown up around the repetitive experiences of a specialised practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to experience…

When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His enquiry is not limited to a deliberation about means which depends on a prior agreement about ends … Because his experimentation is a kind of action, implementation is built into his enquiry … thus reflection-in-action can proceed, even in situations of uncertainty or uniqueness.[17]

However, in reading Schön, it is important to keep in mind his affirmation that teaching finds most of its life in the highly skilled, unconscious, unarticulated activities of the practitioner. No matter what the educational environment – school, college, early childhood development centre, university – the work of the teacher is characterised primarily by all kinds of *tacit* physical, epistemic, interpersonal, communicative and social skills, particularly when it is done well.

We should not underestimate the intuitive processes that accompany practice, or *reflection-in-action*. In this guide we have used this idea to describe the skills of yourself as a teacher in an FET college, of a master carpenter, of a refrigeration engineer, and a beautician. In the following extract, a further one from the writings of Schön, he describes the skills of a tightrope walker in exactly these terms. In the art of teaching, the cyclic process of learning continues even as we teach or engage in our everyday work.

Reflection-in-action

Once we put aside the model of Technical Rationality, which leads us to think of intelligent practice as an application of knowledge to instrumental decisions, there is nothing strange about the idea that a kind of knowing is inherent in intelligent action … (for example, that a tight-roper's know-how is revealed in the way he takes his trip across the wire).

When we go about the spontaneous, intuitive performance of the actions of everyday life, we show ourselves to be knowledgeable in a special way. Often we cannot say what it is that we know. When we try to describe it we find ourselves at a loss, or we produce descriptions that are obviously inappropriate. Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing. It seems right to say that our knowing is in our action.

Similarly, the workaday life of the professional depends on tacit knowing-in-action. Every competent practitioner can recognise phenomena – families of symptoms associated with a particular disease, peculiarities of a certain kind of building site, irregularities of materials or structures – for which he cannot give a reasonably accurate or complete description. In his day-to-day practice he makes innumerable judgements of quality for which he cannot state adequate criteria, and he displays skills for which he cannot state the rules and procedures. Even when he makes conscious use of research-based theories and techniques, he is dependent on tacit recognitions, judgements, and skilful performances.

On the other hand, both ordinary people and professional practitioners often think about what they are doing, sometimes even while they are doing it. Stimulated by surprise, they turn thought back on action and on the knowing which is implicit in action. They may ask themselves, for example, "what features do I notice when I recognise this thing? What are the criteria by which I make this judgement? What procedures am I enacting when I perform this skill? How am I framing the problem that I am trying to solve?" … [If, for example] there are some puzzling, or troubling, or interesting phenomena with which the individual has to deal. As he tries to make sense of it, he also reflects on the understandings which he surfaces, criticises, restructures, and embodies in further action.

It is this entire process of reflection-in-action which is central to the "art" by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness, and value conflict.[18]

Reflection-in-action implies that we may need to give away those habits we hold dear and those things that we feel comfortable with, in order to achieve greater effectiveness in our work. It means identifying habits or materials (it may be a tried-and-tested workbook, a mode of teaching, or the form of staff meetings) that were, in the past, aimed at achieving ends which are no longer valid, for example, for the student-centred approach.

Key points

- VET entails the mediation of both theoretical knowledge and specific practical knowledge.
- Examining the work of an FET college lecturer, we are likely to find him or her teaching practices, teaching theory, and often linking the two to each other.
- VET lecturers can be understood as reflective practitioners, in that they constantly use theory to think about and improve their practices.

Conclusions

Often, you hear people making the claim that at school or university people learn *theory*, but that at an FET college they learn practice – a trade or a vocation. However, at the outset of this chapter, we suggested that this sharp distinction has become untenable, especially if we think about it as a suggestion that there is "intellectual labour" on the one hand and "manual labour" on the other. We hope we have shown in the chapter that teaching and learning in FET colleges, as much as any other educational environment, is characterised by both theory and practice, by both the "head" and the "hand".

At the outset of this chapter, we indicated the three pivotal questions that it would respond to. The answers we have suggested in this chapter are the following:

- That, like all other human knowledge, technical competence is best understood as integrated networks of ideas and skills.
- Learning and teaching in VET must therefore be concerned with both theory and practice.
- Different theories of learning give us different kinds of insight into learning – and therefore into teaching – that model the individual, interpersonal and social mechanisms that are at work in the classroom and the workplace.

CHAPTER FOUR

Understanding Curriculum

Introduction

Imagine two Further Education and Training (FET) colleges that offer a course in catering. Both follow the same curriculum, which states that students must learn to cook and bake in a variety of ways. They must be able to prepare meat, vegetable and cereal dishes, present breakfast, lunch and supper menus, and plan shopping lists. The aims and the learning content of the two courses look the same. But the colleges make different choices. One college teaches its course with a focus on a written examination, which asks students to describe how meat and vegetables should be prepared, to describe the dishes needed for a supper buffet and to write the shopping list for the 60 people expected. The other college teaches the course practically, requiring students to work in groups of four to plan, shop for, prepare and serve a lunch buffet for 10 people. It then assesses the course in an oral exam, which requires students to talk about how and why they prepared the meal in the way they did. Can you imagine how different the teaching activities would be during the course? And how one group of students would be focused on developing their written skills while the others focused on developing practical skills? Imagine how one form of assessment gives an advantage to students who can write well, while the other advantages students who can organise well.

This illustration of how the same plan can be implemented in such different ways tells the story of *curriculum*.

Key questions

The chapter responds to four central questions:

1. How can we best understand the complex nature of curriculum?
2. What major changes have taken place in the South African Vocational Education and Training (VET) curriculum in recent times?
3. What is the role of lecturers in curriculum development and change?
4. What are the necessary features of a sound curriculum document?

Outcomes

By the end of the chapter, you should be able to:

- Understand what we mean when we talk about "curriculum".
- Understand the complexity of curriculum, and in particular understand the tension between curriculum planning and practice.
- Recognise different approaches to curriculum design.
- Recognise how social and political changes influence curriculum.
- Debate about what kinds of knowledge should be included in a vocational curriculum.
- Explore the teacher's role in curriculum.
- Analyse and interpret curriculum documents and unit standards.

UNIT 1 Curriculum as plan and practice

What is a "curriculum"?

What do we mean when we talk about "curriculum"? The task of this chapter is to clarify what we mean when we use the word. Politicians, educators, lecturers, administrators all talk about it, but many use the word loosely and it is not clear exactly what they are referring to. Some people may have a precise understanding in their head, but it is different from the understanding of the people they are talking to. So we want to start this chapter with an extended discussion on the definition of "curriculum". In that way we can develop a common understanding of all the different aspects of education that are involved when we use the term.

ACTIVITY

Time needed 30 minutes

Activity 32: Clarifying "curriculum"

1. To clarify for yourself what you think about "curriculum", answer the following questions:
   a. What is the difference between a "syllabus" and a "curriculum"?
   b. Are unit standards the new "curriculum" for FET colleges?
2. Compare your answers with a colleague. In what ways do you agree or disagree?

Our comment

We hope that you and your colleague disagreed and argued about your understandings. Maybe one of you thought that a syllabus is concerned with content, while a curriculum deals with outcomes; or that a syllabus is always theoretical, but a curriculum says what students must be able to do? Maybe you gave the example that the National Technical Education (NATED) documents are a syllabus, while the unit standards are part of curriculum? Or did one of you disagree and say that curriculum is simply the modern word for syllabus? If you did, you, like many people involved in education in South Africa, may be confused in your understanding of the term. So, just for now, set aside your current understanding of "curriculum" and read the section that follows. We will be presenting you with two views of curriculum, one of curriculum as a plan and the other of curriculum as practice. We hope that by the time you get to the end of the section, your definition and understanding of "curriculum" has been extended and clarified.

Activity 33:
What counts as curriculum?

Tick which of these you would call a curriculum and give reasons for your choices:

1. The Curriculum Framework for General and Further Education and Training, 1995, Department of Education.
2. The National Curriculum Statements for FET, General Education Band, 2003, Department of Education.
3. A NATED curriculum for business studies.
4. A unit standard entitled "Prepare for and apply, day, evening, bridal and photographic make-up", South African Qualifications Authority (SAQA) website.
5. A textbook entitled "NSC [National Senior Certificate] Catering Practical Notes".
6. A series of lesson plans for a topic, planned by a VET lecturer.

Our comment

You would have ticked different documents, depending on what your definition of a curriculum is.

If you understand curriculum as policy documents that come from the Department of Education (DoE) and provide the general principles of what an education and training system should adhere to, you would have ticked only the first two documents. They are both examples of official curriculum policy documents – the first provides a framework of principles, outcomes, approaches and structures, while the second contains overall principles as well as more detailed assessment standards for each subject (learning area) at each grade level of FET. Both can be called a curriculum framework and are official and prescribed plans, although the first applies to all educational institutions in the country, while the second is only for the FET general schooling band.

If you understand curriculum as official documents from a recognised authority that prescribe what should be taught and achieved in the classroom, you would have ticked the second two documents. One has been published by the DoE, specifically for FET colleges, while the other is registered through SAQA and can be used by trainers in industry as well as lecturers in FET colleges. It is this level of curriculum that can also be called a syllabus – it provides an official plan (or blue-print) for particular subjects (or learning areas) at particular grades (or levels) and sets a standard for what should be taught and learned in all institutions who offer that subject.

You would have ticked all four documents if you understand curriculum as official government documents about education. Most people stop there – they think that curriculum is always official and prescribed.

But look at this widely accepted definition of curriculum, from Elliot Eisner:

> A curriculum is a series of planned events that are intended to have educational consequences for one or more students.[1]

By this definition, textbooks or lesson plans are also curriculum documents. They provide a detailed plan for learning – they contain the content and activities that students need to work through in order to gain the knowledge and skills that the official curriculum intends them to learn.

Curriculum as plan

In Eisner's definition, the key elements of curriculum are that it is a planned programme, it includes activities, and the students are supposed to learn something new. By this definition, textbooks are curriculum documents. Sometimes textbooks are prescribed by the DoE, but often they are freely chosen by the college or the lecturer. If prescription is not part of your definition of curriculum, and only the idea of a plan for learning is, then textbooks are as much of a curriculum as a policy document. But of course their context is different – they are not official, not prescribed, they relate only to one subject at one grade level, and they are used only by some colleges and students. Textbooks are curriculum plans at a much smaller level of influence.

In the same way, a series of lesson plans, or a learning programme designed by a lecturer can be seen as a curriculum – it provides a plan for what and how students should learn. Of course, lesson plans are an even lower level of curriculum plan than textbooks – they are used by only one lecturer (or a small group), reach only a small number of students, and get changed from year to year. But they often contain more detail, and their advantage is that they are tailored for a specific group of students in a particular context. The more high-level and official a curriculum plan is, the more generalised it needs to be. Curriculum plans in the form of textbooks and lesson plans make knowledge and skills available to students in the classroom.

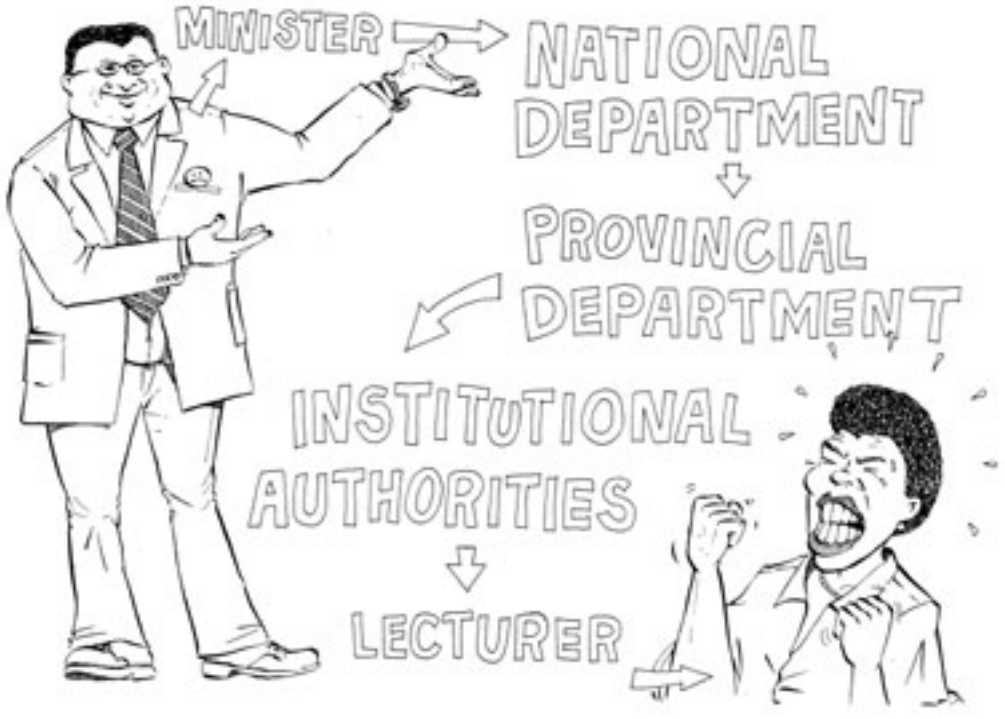
Another way of defining curriculum might support this view. Here is an extension of the Eisner definition which was given on p. 125. The extended definition sets out to list all the things that a curriculum plan needs to include:

> The curriculum is the inter-related totality of aims, learning content, evaluation procedures and teaching-learning activities, opportunities and experiences which guide and implement the didactic activities in a planned and justified manner.[2]

This definition also envisages curriculum as a plan for teaching at the level of the classroom. By indicating what should go into a curriculum, it provides criteria for what would make it a good curriculum – that the aims/outcomes, learning content, assessment, and teaching-learning activities need to relate to each other; that the curriculum cannot be chosen at random but must be well justified; that the order needs to be planned; and so on. As in Eisner's view, there is no notion that official prescription is part of what defines the curriculum.

We are thus left with an understanding of curriculum as a plan for learning. This plan for learning can be made at different levels – educational principles that apply to the entire country; knowledge and standards that apply to subjects or learning areas at different grades and levels; or classroom activities. Depending on where in the educational hierarchy a curriculum originates – the national department, provincial departments, institutional authorities or a lecturer – it will have a different status, giving it more or less power to be prescriptive and a larger or smaller range of influence.

To prevent confusion about the different levels, it is useful to be specific. We could use different adjectives to describe different ideas about curriculum:



1. The "official curriculum" could be the government policy.
2. The "prescribed curriculum" could be the standards set by a provincial educational authority.
3. The "formal curriculum" could be what the FET college has decided should be taught.
4. The "curriculum framework" can refer to national educational principles.
5. The "classroom curriculum" could mean textbooks, lesson plans, and so on.

The term "curriculum" can thus be used to describe a wide range of plans for learning, from the level of government policy right down to the level of the classroom, or from general principles right down to classroom activities.

1. **In what ways does this description of *curriculum* as a plan extend the understanding that you had before?**
2. **What would you say now to a colleague who maintains that a syllabus prescribes content while a curriculum prescribes outcomes?**

Curriculum as practice

There is a limitation to the above definition of curriculum as a plan for learning. Although the definition allows for curricula to be written at different levels of the educational hierarchy, with different emphases – for example, general principles, assessment standards, classroom activities – it is still a narrow definition. The definition is limited because it understands curriculum only as a written document that serves as a blue-print for what should happen, or as a plan that is awaiting implementation. In this section, we want to explore a broader understanding of what is involved in curriculum.

Activity 34: What else counts as curriculum?

Which of these things would you say are part of curriculum? Give reasons for your choices:

1. The lack of computers in some colleges.
2. The differences in energy, experience, subject knowledge or motivation between lecturers.
3. The insecurity among lecturers because of the curriculum and other policy changes in VET.
4. The difference in attitudes and skills between lecturers and students in hairdressing in relation to Afro hair.
5. The choice that young men make to sign up for engineering classes while young women sign up for hairdressing and cosmetology classes.

Our comment

Chances are that you said that none of these things are part of curriculum – certainly none of them are part of a plan for learning. But if we look more closely, all of them have an influence on the quality of learning that happens and all make a difference to how students experience the curriculum.

Many curriculum researchers argue that if we want to understand what is learnt from a curriculum, it is not good enough to look at the documented plan. We also need to look at what happens in reality, at how the curriculum plan is implemented by lecturers and experienced by students. We need to study the lived experience of curriculum if we want to fully understand what curriculum is about. That means looking at how the curriculum works in practice, and what happens in the process of it changing from a plan into a reality. Once we start looking at this process, we start noticing several factors that influence how the curriculum turns out in practice:

1. Resources available for teaching are a crucial factor. For example, if a curriculum plan says that students must gain typing or programming skills, but the college has no computers, then, no matter how creative a lecturer is, the students will have a very different experience of learning to type compared to students at a college with a computer lab. The same applies to engineering workshops, carpentry tools, office equipment or kitchen appliances. Resources are thus part of how the curriculum is experienced.

2. Lecturers are important in understanding the curriculum in practice (also called curriculum in use). Whether or not they have a thorough knowledge of their subject, have teaching and assessment skills, are motivated to learn more as they go along, care for their students, have self-confidence, or feel enthusiastic about their jobs all make a difference to the way in which they work with the curriculum plan and to the way in which students experience the curriculum.
3. The structures of the college, and of the wider education system, are another aspect of the curriculum in practice. By structures we mean all the unseen things that make the college function and continue, like the way that finances are organised, the decision-making processes, the amount of bureaucracy, the divisions into departments, the timetable for lessons and so on. All of these structures influence what lecturers can and cannot teach and what students can or cannot choose to study.

4. More subtle aspects of the curriculum in practice are the cultural and personal attitudes that lecturers and students bring into the classroom. For example, if a lecturer has experience of cutting and shaping only Caucasian hair, but many of the students have been cutting and shaping the Afro hair of friends and family for several years, then the assessment criteria of "shaping ladies' hair" might raise interesting cultural differences about what exactly a good shape looks like. Fifteen years ago the automatic assumption of the apartheid college curriculum would have been that the ladies' hair was straight, but today that is obviously no longer the case. Cultural attitudes to the hair styling curriculum have changed, but not without many a discussion and disagreement in classrooms and curriculum development committees or college councils.

However, in many cases the cultural and personal attitudes are not so explicit. They remain hidden and influence the curriculum in unseen ways. For example, most engineering lecturers are men, while the cosmetology lecturers are women. Nothing

prevents young women from joining engineering classes or young men from joining cosmetology classes, but few ever think of doing it. This comes from an unspoken societal assumption that technical jobs are appropriate for males and beauty related jobs are appropriate for females. Along with this goes the attitude that engineering is a high-status subject while cosmetology is low-status, as "everybody knows" that men need to earn more money than women. A girl joining an engineering class is likely to have to work twice as hard and show extraordinary skill before she gains acceptance by her lecturers and classmates. These attitudes towards her will profoundly affect her experience of the lived curriculum.

5. The term "hidden curriculum" is often used to describe the ways of thinking that are learned through the structures of the college or through the attitudes of the lecturers without anybody really noticing or being conscious of what is going on. Maybe certain groups of students or lecturers get silenced because of ethnic or gender differences, maybe subjects get dropped off the curriculum without consultation, and maybe certain knowledge is ignored because it is considered too controversial. Authority relations are often hidden – there are many unspoken rules about what is acceptable behaviour or not. Even the way teaching and assessment happens conveys unspoken messages about what is considered important. For example, if practical subjects count for a smaller percentage of the overall mark than theoretical subjects and students only get one combined average mark, then the hidden message is that being able to do something makes you less of an artisan than being able to write about it. So when we talk about the hidden curriculum, we refer to the effects of curriculum that are difficult to pinpoint and are seldom talked about, but that have a deep impact on the way that students feel and think about themselves and the world.

The totality of curriculum: thinking about it as both plan and practice

When we understand that curriculum is not only about the plan but also about the implementation and the practice, it helps us to think about an important curriculum question: Why is it that there is always a gap between the curriculum plan and how it turns out in practice? In other words, why is the lived curriculum never the same in different colleges, even when they are working from the same national plan?

ACTIVITY

Activity 35: Uneven implementation

Time needed 20 minutes

1. Based on your new understanding of seeing the curriculum as both plan and practice, try to formulate your own answer to the puzzle that curriculum researchers have tried to answer: Why is it that having a national curriculum plan does not guarantee that all students will receive the same quality of education?
2. Do you think anyone can be blamed for this? Can we, for example, blame the curriculum developers, the college administrators, or the lecturers? Why or why not?

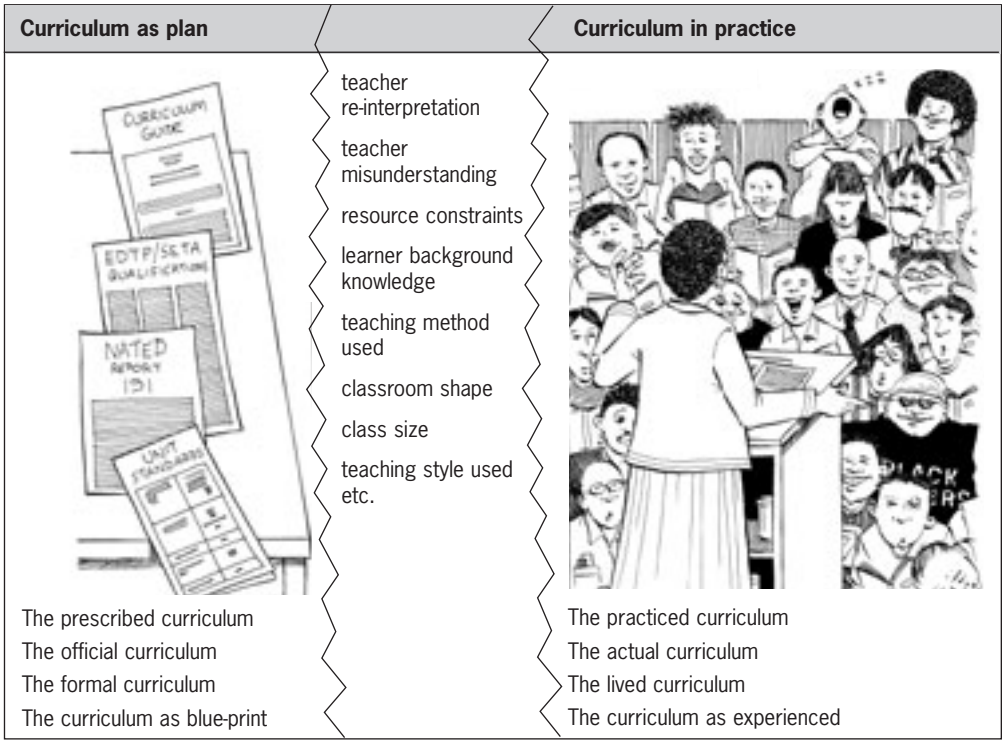
Our comment

We hope that answering these questions raised debate. We think these issues are particularly important in a time of curriculum change, such as we are experiencing now in South Africa. Once we know that curriculum is concerned with both plan and practice, we can start noticing the relationship between the two aspects, and how they influence each other. We can notice, for example, how contexts and resources shape the implementation of the plan, how various people interpret the plan very differently, or how the plan gets revised because it didn't fit the practice. And we can stop blaming curriculum developers for "not knowing the realities on the ground" or stop blaming lecturers for "not doing as they are told", because we know that by definition there is always a gap between curriculum plans and practices.

In the box below is a definition that tries to capture the broader view of curriculum, pulling together both aspects of plan and practice. It comes from the National Educational Policy Investigation (NEPI) which was instituted after Nelson Mandela's release (1990), and prepared for education in the new South Africa.

> Curriculum refers to the teaching and learning activities and experiences which are provided by schools and colleges. The definition includes:
> 1. The aims and objectives of the education system as well as the specific goals of the schools;
> 2. The selection of content to be taught, how it is arranged into subjects, programmes and syllabuses, and what skills and processes are included;
> 3. Ways of teaching and learning, and relationships between teachers and learners; and
> 4. The forms of assessment and evaluation which are used.
>
> In this definition, the curriculum is more than the stated aims and syllabus documentation. It involves:
> 1. Consideration of actual classroom practices and experiences – the *curriculum-in-use*. Having the same curriculum on paper does not mean that all schools/learning institutions experience the same curriculum-in-use. This is profoundly affected by resources (such as laboratories and libraries) and materials which support the learning process (e.g. access to text books). It is also affected by experiences of disruption or continuity, and by the quality and morale of educators;
> 2. Consideration of the curriculum from the perspective of *educator's work*, so that improving educators' knowledge and skills is also part of curriculum policy; and
> 3. Consideration of curriculum *implementation* as part of curriculum policy.[3]

In this chapter we use this broader definition of curriculum. This means that we keep in mind that curriculum happens both on paper and in the classroom, that we look back and forth between the plan and the practice, and that we look at how the two relate to and influence each other. It also means that we need to be specific in our language and indicate which aspect of curriculum we are talking about at any particular moment.



One of the consequences of this reality is that there are always tensions between different aspects of the curriculum in any college context. Depending on different circumstances, they can pull in different directions.

Activity 36: Different aspects of your curriculum

Discuss your answers to these questions with a colleague, so that you can stimulate each other's thinking:

1. What are all the different aspects of curriculum that you take into consideration when you plan your courses? List them, and then reflect on which ones you think are more important than others.
2. Can you think of any of these aspects that "pull in different directions".
3. Can you think of an example from your own practice where one change created results that you had not expected?

Our comment

Of course, we are not aware of exactly what kinds of curriculum priorities and tensions you might have highlighted in your own institutional context. But we are sure that this activity would have helped you to understand how different aspects of curriculum delivery are always interrelated, but not always in harmony.

1. Maybe there is conflict between the aims of a course and the teaching methodology that it employs. For example, if the aim is to develop communicative competence but the method is that the lecturer talks while the students listen.
2. Or perhaps there is a conflict between the teaching methodology and the forms of assessment that are used. For example, the lectures are based largely on practical tasks, but the exam is entirely a written paper.
3. Is there a tension between the prior knowledge of the students and the time allocated for the course? For instance, the students don't know anything at all about the subject, but the course is only four weeks long.

In working with the curriculum, lecturers need to negotiate these conflicts and find ways of resolving them. They have to make choices about where to direct their focus. These choices, in turn, affect the interrelationship of the different aspects of curriculum.

Remember the example at the outset of this chapter? We asked you to think about two colleges that implement the same catering curriculum plan in different ways. Different decisions on the part of the colleges about teaching methodologies and assessment strategies, in fact, produced vastly different learning experiences for the students registered in the two colleges. On paper, the curriculum was the same but in practice it was not.

You might be able to take this example further. Imagine, for example, that the department steps in and determines that assessment methods used must be practical. It also provides a clear reason and justification for that choice: because the aim of the course is for students to learn to cook and bake, the practical assessment gives a more accurate picture of their skill. This change in assessment now seems to make the curriculum plan a more tightly interrelated totality, does it not? Well, maybe! The problem is that the two colleges in question work in different contexts. The first is more affluent. The second college draws students from a poor community, who cannot afford the ingredients for a buffet lunch. Some students have no money at all, while others can buy only a few ingredients. Now both colleges implement the practical exam, as they have been instructed to do. As a result, most of the students in the first college pass, and most in the second college fail. In this case, the practical exam has become an assessment of the students' finances rather than of their cooking skills. This second college might argue that a written exam is fairer because it is cheaper and thus better meets the needs of their community. Only one aspect of the context (the amount of available resources) is different, but again it profoundly affects the curriculum in practice.

Key points

- Curriculum is both a plan for learning and teaching as well as the totality of the actual experience of teaching and learning.
- Many conflicts arise because all the different aspects of the plan and the practice are not always in alignment.

UNIT 2 Curriculum change in South Africa

In this section we want to look more specifically at some of the changes that have been made in the official South African national curriculum and think about the implications of these policy changes for VET lecturers.

Why has the South African curriculum changed?

Curriculum change does not happen out of the blue – it is always a response to changes in the teaching context or in the society as a whole. Particularly when a society changes dramatically, like South Africa has in the last 15 years, the official curriculum needs to change too.

The South African national curriculum plan and the lived experience of curriculum in schools and colleges needed to change because our society experienced, and is still experiencing, major political, economic, technological and social changes.[4]

Political changes

Most countries in the world have a national plan for how the education system in the country should work and what curriculum the learners in schools, colleges and universities should follow. Their official national curriculum plan, or national education policy, carries the vision of what the education system should achieve and contribute to the nation and its future.

When the political system in South Africa changed from apartheid to democracy in 1994, it was the victorious end of a long struggle for a new vision: a South Africa free of racial discrimination in which all people have a chance to make a good life for themselves. Access to education is a key factor in being able to make a good life, and so many people expected that educational change would follow on from the political change. They expected an education system and an official curriculum that would carry forward the principles of non-discrimination, social justice, equity and redress.

Economic changes

Economic change has always had a significant impact on the prescribed curriculum in South Africa (and elsewhere). Fifty years ago, when South Africa moved from being a mainly agricultural society to a society that was more dependent on an industrial/commercial economy, the curriculum changed to reflect the kinds of work opportunities available in the cities and in industry, for example, by introducing commercial subjects. This economic development also meant that more people were needed to work in factories and offices, which contributed to the introduction of Bantu education. As South Africa now moves into an information age – where jobs require different sorts of skills and different attitudes – the curriculum is changing again.

Technological changes

As the change in economic emphasis from industry to information technology suggests, economic change and technological change often go together. The prescribed curriculum may be revised to respond to significant technological changes. For example, when computers first became widespread in modern societies, many countries introduced computer literacy and computer science into their school curriculum. Another example is that of a new learning area introduced in Curriculum 2005 – Technology. This was also a response to the economic demands of globalisation, a shrinking labour market, and the need to prepare people for self-employment. You will remember that this was discussed in Chapter 1 Unit 3.

But change isn't confined to the content of the curriculum. Pedagogy has also begun to change: textbooks and audio-visual aids are no longer the only technologies used in teaching. Educators are changing their methods so that learners have a much more central role in classroom activity.

New social needs

Changes in the curriculum are often responses to major social challenges. When society is threatened by a particular problem, most people put pressure on governments or non-governmental agencies to change the curriculum. For example, the spread of HIV and AIDS has led many schools, colleges, and universities to include HIV and AIDS education and/or sex education in the curriculum. Similarly, the increasing recognition of racism as a major social problem has often led to the introduction of multicultural and anti-racist education in schools.

ACTIVITY

Activity 37: Curriculum change and social change

Time needed 45 minutes

What is your experience with regard to how changes in our society have generated changes in VET curriculum policy? Make a list of about four or five changes and then write a paragraph about each.

OUR COMMENT

Our comment

In the years from 1990 to 2004, representatives from the unions, big business, government departments and educational institutions worked hard to generate education policies that contain the new vision and plans for how South African education should change. They argued about what had been wrong with the apartheid curriculum, and they clarified the nature of the economic and technological changes in our society: in relation to this, they discussed which social needs were the most important. They argued about what knowledge and skills young people needed in order, on the one hand, to develop democratic attitudes and become useful citizens of the new democracy, while on the other, to be able to work efficiently and to work in new areas of the economy, for example, the information technology sector. After several years of research, discussion and planning they arrived at policy documents which set down new curriculum principles, new approaches to teaching, new institutional arrangements for offering curriculum, and many other aspects of education.

The historical process involved in the South African national curriculum change illustrates another important aspect of curriculum plans. *A curriculum is always a selection of all the possible knowledge and skills that could be taught, and the process of selecting which knowledge to put in and which knowledge to leave out always involves a discussion and struggle between the different stakeholders who have an interest in the curriculum*, be they government, unions, big business, education departments, school administrators, educators or parents. Using formal language, we can say that "curriculum is socially constructed and historically contingent". This means that curriculum policies are always created by

discussions between particular groups of people and can be changed by other groups of people (or by the same groups of people a few years later). Curriculum documents are also a response to a particular moment in history, trying to present a solution to the challenges posed by the political, economic and social pressures on the country or the institution. As we all know, these pressures change over time. Curriculum plans are thus never a permanent, all encompassing, faultless document. Instead, they are a work in progress with flaws, open-ended ideas and internal contradictions.

Nevertheless, some curriculum plans make it through all the discussion processes until they are declared official national policy. You probably know some of them – particularly those that relate to the FET colleges. Some of the important ones are:

- The White Paper on Education and Training, 1995;
- The SAQA Act (Act 58 of 1995);
- Curriculum Framework for General and Further Education and Training, 1996;
- Curriculum 2005: Lifelong Learning for the 21st Century, February 1997;
- The Skills Development Act (Act 97 of 1998);
- The Skills Development Levies Act (Act 9 of 1999);
- A South African Curriculum for the 21st Century: Report of the Review Committee on Curriculum 2005, May 2000;
- The Revised National Curriculum Statement for GET, 2001; and
- The National Curriculum Statement for FET, General Education Band, 2003.

It is interesting to note that there is no policy that deals directly with the curriculum of FET colleges. Some of the above policies are concerned with education in schools, while others regulate the training in industry. Nevertheless, they are influential with regard to how FET colleges understand their position in the education system and what the curriculum should achieve. For example, the SAQA ACT of 1995 set up the National Qualifications Framework (NQF) which promotes the integration of education and training into one system of qualifications. This policy is important for FET colleges because the NQF endorses precisely what they are set up to do – working across the education of schooling and the training offered by industry. The Skills Development Act set up the structures for the Sector Education and Training Authorities (SETAs) and Standards Generating Bodies (SGBs) that create the unit standards for training in industry, while the Skills Levy Act effectively created a system of taxation that provides the money for all of it through a levy and grant system. But the National Curriculum Standards for FET specifically excludes VET, which means that Curriculum Standards for VET still need to be negotiated and the debate about whether or not the colleges should use the unit standards generated by the SETAs will continue for a while.

ACTIVITY

Time needed 30 minutes

Activity 38: Changes in South African curriculum policy

1. Make notes on what you already know about the new South African curriculum. For example, what do you know about the main principles of the new curriculum, or the new structures and levels, or the new ways of teaching and assessing?
2. Here are some descriptions of the curriculum changes that we think are experienced by the various lecturers that appear in the case studies in Chapter 2:
   - Change from knowledge and skills needed for small-scale to large-scale provision, as required by industry;
   - Change from assessing the whole (the final product) to assessing only the smaller parts;
   - No change;
   - Change from theoretical learning to practical learning, but only for a select few;
   - Change away from rote learning to practical learning;
   - Change from using a textbook to using unit standards when planning lessons; and
   - Change from teaching a whole curriculum to teaching short projects based on unit standards.

There are others that you may want to add to this list. Add them now.

Re-read the case studies in Chapter 2 and as you do so, think about the curriculum changes experienced by these lecturers. Now reproduce the following table in your workbook, and match the list of changes to each of the lecturers. You may want to put more than one change against each lecturer.

Lecturer	Curriculum change
Maria in hospitality	
Quinton in cabinet making	
Reuben in engineering	e.g. Change from theoretical learning to practical learning, but only for a select few.
Lindi in cosmetology	
Lizette in business studies	
Vusi in business studies	

3. Do some research: go to the college library or your colleagues' offices and find the latest national or provincial education policy documents. You can also get them off the internet, at www.education.gov.za , under "documents". Can you find any policy documents that relate directly to curriculum at FET colleges? Now glance through the

headings of the documents you have found and read the sections that interest you. Which ideas are new to you and which do you agree or disagree with? Which ideas do you not fully understand? Which principles are completely different from education policy before 1994?

Our comment

If we wanted to describe all the changes made by the new South African curriculum plan, never mind the changes in the curriculum-in-practice, we would need to write a book, not just a section of a chapter. There are many changes in curriculum policy that we cannot deal with here, like the different levels of the NQF, the debate about whether to organise the curriculum into qualifications or unit standards, or the reorganisation of subjects and learning areas. Some aspects of curriculum change are dealt with in the other chapters, like the focus on learner-centred teaching in Chapter 3 and continuous assessment in Chapter 5. In this chapter we will describe and analyse only two core changes: the integration of education and training, and the focus on Outcomes Based Education (OBE). Both of these have wide ranging implications for teaching and curriculum planning in FET colleges.

The integration of education and training

The motivation for integrating or closing the gap between education and training arises from the desire for a more equitable and democratic society. As the Curriculum 2005 policy explains:

> An integrated approach to education and training implies a view of learning that rejects a rigid division between academic and applied knowledge, between theory and practice, between knowledge and skills, and between head and hand. Such divisions have characterised the organisation of curricula and the distribution of educational opportunities in many parts of the world, including South Africa. They have grown out of, and helped to reproduce, very old occupational and social class distinctions… An integrated approach … would be capable of making a significant contribution to the reconstruction and development of our society and economy.[5]

The argument is that when there is a "rigid division" between academic and applied knowledge or, as college lecturers tend to say, between theory and practical, then the theory gets more recognition and students who do well at more theoretical studies get more status and better jobs. But this is not a good attitude for a democratic country where all skills should be valued, nor for an economy which needs a wide range of technical and practical abilities. So education policy makers needed to create a structure and new institutions that would ensure that students can be taught and accredited in ways that are recognised by both education and training. This gave rise to the NQF.

Here is a 1999 description of the NQF, by Melissa King of the Independent Examination Board (IEB):

> The NQF is the system through which people's learning will be recognized. It sets up ways in which standards for education and training will be developed and registered, and ways in which qualifications can be put together. Standards are descriptions of learning achieved. They give value to both knowledge and skills, and thus bridge the gap between an academic learning situation and a narrow vocational route. Clear national standards exist in a framework that recognises learning achieved outside of formal institutions. On a structural level, the NQF aims to free up our systems of qualifications, and therefore the learning and career pathways open to learners.
>
> The NQF is, then, essentially a structure in which qualifications are housed, based on principles which aim at a more flexible and accessible system of certification.
>
> Recognition for the achievement of units and qualifications does not depend on where they were learned. Locations of learning are varied, and include school, college, workplace training and education, NGOs, private providers and a range of institutions.
>
> To help the standard setting and qualification design process move forward, the NQF groups learning into twelve organizing fields. Remember that there are many ways of describing and grouping knowledge and learning. These fields are simply a way of helping to give a system to the development of standards and qualifications.
>
> The South African Qualifications Authority (SAQA) was the organization set up by the SAQA Act (Act 58 of 1995). Its main functions are to make sure that the NQF is developed and implemented. As an organization, it represents key stakeholders in education and training. It is an overseeing rather than an implementing organization, but has the powers to set up various structures that can carry out functions linked to the NQF.[6]

Activity 39: Implications for FET colleges

1. Did the description of the NQF above tell you anything new that you did not know before? Make a list of your new insights.
2. In your experience, in what ways has the establishment of the NQF influenced the curriculum of the FET colleges?

Our comment

The NQF is an attempt to link education and training by setting up structures in which the various stakeholders – the Departments of Education and Labour, educators from public institutions, human resource managers from corporate companies and private training organisations – can meet and make agreements about what people in the

economy need to know and how it can be accredited. The colleges are caught in the middle of these negotiations. Like schools and universities, they teach knowledge systematically and want their students to have a deeper understanding of why something is true or important. Like training organisations, they want their students to be able to do practical things in the world of business and industry. So FET colleges are ideally placed to take forward the educational policy intention to integrate education and training.

But, as we learnt earlier in this chapter, there is often a mismatch between the principles or intentions of a curriculum plan and its implementation or lived experience. At present, the curricula at colleges are often caught between the demands of the Department of Education who provide the NATED courses and the demands of the Department of Labour or the SETAs who provide the unit standards. It is not easy for these departments to work together and agree on a curriculum or a system of accreditation for FET colleges.

Activity 40: Integrating education and training

Write a brief response to each of the following questions, giving reasons that have to do with your understanding of curriculum:

1. Do you agree that FET colleges are responsible for both the education and the training of their students?
2. How do you understand what it means to integrate education and training?
3. By reference to one or more of the case studies in Chapter 2, highlight what you think may be some curriculum tensions that might arise in the face of the national drive to integrate education and training in FET colleges.

Our comment

There is another aspect of the integration of education and training, which can pose a challenge for lecturers in the classroom. Curriculum 2005 policy states:

> One way of effecting integration is to combine two or more traditional subjects or areas of learning into one. Another is to combine various subject perspectives into a particular topic. Separate points of view and processes are then combined to effect the achievement of a particular goal.

This means that integration does not happen only at the level of institutions as described above, but it should also happen at the level of the classroom, where lecturers need to combine different forms or aspects of knowledge in order to achieve a particular goal. For VET lecturers, the main challenge is to structure the curriculum so that students can integrate the theoretical knowledge and the practical skills required for their particular subject or occupation.

You can see the tension, as well as some integration of "theory" and "practical" in all of the five case studies in Chapter 2:

1. Maria in hospitality is worried that her students spend too much time rote learning for the exam and not enough time working in the kitchen or designing new recipes.
2. Lizette and Vusi in business studies are running different courses to meet the conflicting demands of theoretical understanding and practical workplace competence, although both of them can see that their courses would be better if they could incorporate the strengths of the other.
3. Quinton Paulse wants his students to gain an understanding of the whole, not just acquire the skills of each part of cabinet making. But the unit standards do not seem to do that adequately.
4. Reuben in engineering runs some lessons in the workshop and others in the lecture hall, so that he can provide students with links between the theory of electricity and the actual wires inside the fridge.
5. Lindi in cosmetology uses the theoretical concept of a perfect oval face as the criterion against which to measure the make-up skills of her students. She seems to move easily between the theory and the practice.

By their nature, technical and vocational colleges need to "look both ways" – to the workplace and occupations who talk about practical skills on the one side and to educational institutions who talk about theoretical knowledge on the other. This creates a major, but very exciting, challenge for the curriculum of FET colleges – how to structure the timetabling, the selection of knowledge, the emphasis in the teaching and assessment activities in such a way that students become able to integrate "head" and "hand" knowledge.

Outcomes Based Education and Training

Now let's look at the other important shift in the new South African curriculum policy – the move away from prescribing the content to be learned and instead prescribing the outcomes to be achieved. This is commonly called Outcomes Based Education and Training (OBET), other times called Outcomes Based Education (OBE) for short.

Here is a 1999 account of OBE, again from Melissa King at the IEB:

> Simply setting up a new structure for standards and qualifications would not by itself radically transform our education and training system. A change in our approaches to teaching and learning, and in our approach to curriculum development, was also needed. It was recognized that our curricula and methodologies in both school and training systems have been overloaded with content, and have not paid enough attention to other kinds of skills. Also, it was felt that our system emphasized 'knowing facts' without giving learners the skills to understand the contexts of knowledge, or how to apply this knowledge in real life situations. We needed an approach that would give learners the skills to adapt and transfer their learning to different contexts (e.g. from school to workplace). It was felt that OBET approaches help to do this. In OBET the emphasis shifts to the learners, who show what they can do with the knowledge, skills and attitudes they have acquired through learning.

So the decision was made to define *standards* for the NQF in terms of *learning outcomes* in order to provide a more meaningful learning experience, and to prepare learners more effectively for continuing learning. But what are outcomes?

Quite simply, outcomes are the results of learning processes and comprise *knowledge, skills and attitudes*. Outcomes are shown through performance: that is, the focus is on what learners can do when they reach a certain stage in learning, and how they can apply new skills and knowledge in different contexts, rather than on the topics that must be covered in a learning stage.

Outcomes can be developed for any learning area. In order to support the transformative aims of the NQF, however, a set of outcomes that are essential to all good learning have been identified. These are called the 'critical cross-field outcomes' or 'critical outcomes'. They go across different learning areas, and include skills and values such as being able to work in a group, being able to solve problems, and being able to communicate effectively. The Critical (meaning: crucially important) Outcomes are at the heart of the new approach to curriculum. They are seen as promoting independent and critical thinking for lifelong learning.

There are many debates around the South African approach to outcomes and competence. A range of views on educational issues is a healthy sign in a developing system, and these arguments will probably be ongoing. Some of the main issues are noted below.

- *How broad should outcomes be?*
  The inclusion of 'knowledge, skills and attitudes' suggests that outcomes should not be seen as narrow, mechanical behaviours, but as broad, integrative capabilities that draw on an understanding of underlying principles and processes. An outcome of learning is not just a 'product' that can be measured, but includes 'process' and thinking skills.

- *Can all outcomes (knowledge, skills and attitudes) be observed and measured?*
  For example, can the thinking processes that underlie a lot of learning be built into outcomes? Some people argue that these processes are difficult to formally measure and assess, while others argue that they can be measured through complex and integrated assessment tasks. This issue is one reason why assessment plays such a central role in OBE approaches, and these arguments are likely to continue for some time.

- *Does an OBE approach mean less 'content' in learning?*
  Fears have been expressed that OBE will produce learners with no general knowledge. The counter argument to this is that every area of learning has its essential content areas which must be mastered. Content knowledge is brought into the outcomes, and is also the vehicle through which the outcomes are achieved and expressed.

- *Does an OBE approach demand a particular teaching methodology?*
  Some people have argued that outcomes are to do with outputs and should not be confused with inputs. In other words, how a learner achieves an outcome – the inputs, such as teaching and learning approaches, learning tasks and activities, materials and so on – is irrelevant, as long as the learner can demonstrate the achievement of the outcome. On the other hand, many outcomes are themselves designed in order to promote certain

values. This in turn has implications for teaching methodology. For example, outcomes that demand proactive, critical and independent learners will best be achieved though teaching methods that use approaches such as activity-based learning, group work, integrated tasks and so on.

- *What does this mean for teaching and assessment practices?*
  As we suggested above, the South African version of OBE does promote a learner-centred and activity-based approach to teaching and learning. These things are not of course new, or exclusive only to OBE. Good teaching draws on these ideas and practices along with many other strategies.

The 'new' in OBE in relation to much of our past teaching and training practice seems to lie mainly in two things: first, the way in which knowledge, skills and attitudes are explicitly identified in outcomes and assessment criteria; and second, the demand for evidence of achievement through different kinds of processes and performances. OBET creates a clear awareness of what exactly we are teaching and how we are assessing it.

Given that OBE principles relate to skills which can be applied and transferred, OBE demands learning and assessment opportunities that:

- involve applying skills rather than reproducing facts or ideas;
- lead to the performance of complex tasks;
- lead to real products or solutions;
- are set in a meaningful context that brings together various skills and ideas; and
- can be transferred to different contexts.[7]

ACTIVITY

Activity 41: Thinking about OBE

Time needed 30 minutes

Reproduce and complete this table in your workbook. As you do this, we suggest that you discuss your answers with a colleague.

Statement	True	False	Partly True	My Comment
There are outcomes for each skill that learners must be able to perform.				
OBE means that teachers must place more emphasis on what learners can do than on what they know.				
Following an OBE curriculum means that facts and theory must not get taught anymore.				
Following OBE means that lectures are forbidden.				
The critical outcomes contain a vision of what all South Africans should learn.				

Our comment

Did you find that you mostly ticked the "partly true" column, and that you and your colleague found it difficult to agree? That is fine, because these statements do not deal with factual information about outcomes, but with their implications, i.e. with what outcomes might mean when they are used in practice. And there is no one correct way to work with outcomes, instead, there are many ways that outcomes can work together with content knowledge or assessment criteria.

Implications for FET colleges

When VET lecturers talk about OBE, many say, "That's nothing new, it's how we've always been teaching". In many ways that is true. As we have discussed, VET lecturers are by the nature of their subjects required to teach both understanding and practical skills, and have thus always been concerned with what students are able to do with their knowledge. But an outcomes-based curriculum has some real differences from a content-based curriculum and it is necessary to be clear about what those differences are.

A crucial difference lies in what is prescribed by the curriculum. A content-based curriculum prescribes the knowledge that students must gain – but does not mention what students should do with that knowledge. An outcomes-based curriculum prescribes the outcomes that students must be able to do – but says nothing or very little about the knowledge needed for that skill or the level of complexity that is involved. This difference becomes very important when you are trying to interpret the meaning of, or plan a course in response to, an official curriculum plan. We will come back to it later in this chapter.

Another difference lies in the approach to assessment. Because it is the outcome that is being assessed rather than the knowledge, the forms of assessment as well as the timing need to change. But you will read more about that in Chapter 5.

Having decided that using an OBE curriculum system was the best way to respond to the political, economic, technological and social changes in our society, the policy makers had to decide on which outcomes to use. They needed to answer some of the questions described above, about how general or specific outcomes should be or how outcomes and content fitted together. After some trial and error and several revisions, the debates of how to answer these questions are still not settled. But there is agreement on two kinds of official curriculum documents that can give guidance to teachers, lecturers and trainers who want to plan their courses – the National Curriculum Statements (NCS) and the unit standards.

For the general school system, there are two National Curriculum Statements that have been available for some time now – one for General Education and Training (GET) and one for Further Education and Training (FET). They prescribe the outcomes for all the learning areas at all the grade levels, couched in the form of assessment standards. These assessment standards prescribe both knowledge and skill levels that must be reached, but they do not prescribe the contents in detail. Despite the importance of VET with regard to the core principles of the new national curriculum, the Department of Education has been focussed on getting the general schooling system in order, and has only recently been able to pay attention to VET. By early 2005, there had been discussions and drafts, but no final curriculum document yet. So in most programme areas, colleges were still working with the NATED curricula that were developed many years ago. However, in August 2005, at the time of going to press, a draft *Policy for the Further Education and Training Certificate (FETC) (Vocational)* was circulated for comment by the Department of Education. It contains, amongst other things, proposed content, structure and design for the new curriculum to replace existing NATED N1-N3 programmes in FET colleges.[8]

For training in industry and business, there are unit standards that are related to specific occupations that are registered on the NQF through SAQA. Unit standards may be described as follows:

> A unit standard is an organising document that describes a coherent competence achieved as a result of learning, for credit purposes. The competence is usually made up of smaller outcomes. A unit standard also gives guidance on the level and range of the competence, and what evidence can be used for assessment.
>
> Unit standards have a number of functions. They are the building blocks for qualifications. They are also used as an assessor document, a learner's guide, and an educator's guide for the preparation of learning material.
>
> Unit standards can be grouped together to form a qualification that reflects applied competence in a particular area. SAQA has set up rules of combination for qualifications. … What must be noted, however, is that unit standards … are portable across qualifications, and can play different roles in different qualifications.[9]

The unit standards are very useful as a curriculum guide for colleges because they are written by SGBs that come from the same occupations and industries for whom the colleges are preparing their students. So the unit standards appear to solve the problem of the college curriculum being seen as not relevant to the needs of industry.

VET lecturers in several colleges have started to change from the NATED curriculum to unit standards – for example, look at what Lizette, Quinton and Maria (talking about another college) have to say about this in the Chapter 2 case studies. This works out well in some instances, but is challenging in others. Remember that the NATED curriculum offers information about the content/knowledge/theory to be learned, while the unit standards specify the outcomes/skills to be achieved.

But as you have learnt in various ways in this book up to now, VET lecturers need to give their students both knowledge and skills. We argue that some knowledge is essential to and embedded in every skill, no matter how basic the skill is. Take, for example, the critical outcome: "Identify and solve problems and make decisions using critical and creative thinking". Identifying a problem with a broken fridge requires completely different knowledge from solving a problem with tasteless food or making a decision about whether to use light or dark make-up. Without prior knowledge of the subject area, the outcome of solving a problem can never be achieved. So although outcomes are often formulated in terms of a skill, a lot of knowledge is required before that skill can be performed competently.

VET lecturers thus need to understand how the knowledge and skills of their subject work together. For their subject, they need to be able to answer questions like: What knowledge is essential before students can fully understand what they are doing in the practical component or what knowledge is essential for problem solving? What knowledge do students need so that they can understand the consequences of their actions and make appropriate decisions before things go wrong? What knowledge do students need in order to change their attitudes or re-think their values?

Key points

- South African national curriculum policy has undergone a number of significant changes over the past 15 years, including moves towards:
  - the integration of education and training;
  - an OBE system, built around the NQF;
  - learner-centred teaching methods; and
  - continuous assessment.
- Both integration and OBE directly affect the work of VET lecturers.

UNIT 3 The role of the VET lecturer in curriculum

In this section, we consider the role that lecturers play in the implementation of an official curriculum be it the NATED or the unit standards.

Beyond implementation

The changes in the official curriculum in South Africa have generated hot debate and created a lot of confusion. Many educators are not sure about what exactly they are supposed to change or whether they have sufficient understanding or skill to make the changes they think are required, leaving them with a feeling of insecurity. But as the years pass, people in the education system are getting used to the new ideas of OBE and trying out new ways of teaching. Gradually the curriculum changes are moving the education system into a new direction, like a big ship that is slowly changing course.

When we as educators look at the changes taking place in the official curriculum, we sometimes have a tendency to look mainly at the problems the changes are bringing us. We complain about the sections of the policy that are contradictory or we emphasise the guidelines that are unclear or difficult to implement. But actually, we have a choice. We have a choice to keep on complaining, or to dip our toes into the water and try out new things. We have a choice to ignore the changes or to participate in them and even influence the direction they take.

As you learned in the first unit of this chapter, when we talked about the meaning of the term "curriculum", there is always a gap between the official curriculum plan and the curriculum-in-practice. One of the most influential factors standing in that gap is the educator. In the case of the FET colleges, it is the lecturer who stands between the official curriculum documents (be they the NATED syllabi, the unit standards or a subject textbook) and the lived curriculum as experienced by the students.

In this unit we will look at the relationship between lecturers and the curriculum. We will investigate the different roles that a lecturer can play – as an implementer, an interpreter or a planner of curriculum.

ACTIVITY

Activity 42: Implementers, interpreters or planners?

Time needed 10 minutes

Discuss your response to this question with a colleague and then write down your ideas:

- What is your opinion about the role of a lecturer in relation to curriculum? Do you think lecturers are implementers, interpreters or planners? What are the reasons for your opinion?

Our comment

Maria in hospitality says, "There is a feeling of total insecurity because of the national policies that are outside of our control. And while everybody is waiting for decisions on the policies, we lecturers are nervous to make the necessary changes so our curriculum can be more up-to-date" (see Chapter 2). She is giving expression to a view that is common among South African educators at all levels of the education system: namely, that the power lies with the education departments and the experts who make curriculum policy and that the role of the educators is simply to implement the plan they are given. This view is reinforced by the bureaucratic manner in which many education departments treat their employees – all the assessment forms and lesson plans and personnel records that need to be filled in, the critical rather than developmental feedback given by department subject advisors, and the constant unspoken assumption that educators must do what the department requires. In addition, very few lecturers are consulted or sit on the committees that decide on the official curriculum revisions or unit standards, and the final documents simply arrive on their desks as an accomplished fact. The feeling created is that lecturers are just implementers of the decisions and plans made elsewhere.

But does this feeling of powerlessness, of simply being an implementer, actually correspond with reality?

Educational research the world over seems to indicate that it is only half the truth. The other half of the truth is that no written curriculum plan is ever implemented in exactly the way it was intended, and that it is never implemented in exactly the same way in any two classrooms. Lecturers and teachers are much more the interpreters and planners of curriculum than even they would sometimes admit.

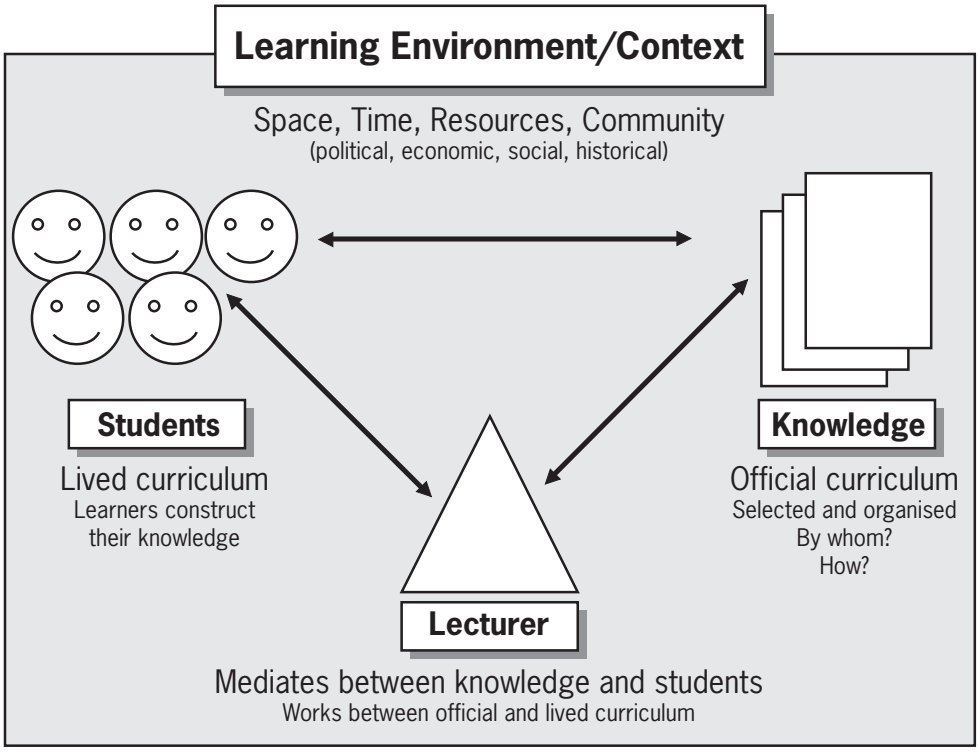
The myth that lecturers are mere implementers of the curriculum

When researchers observe what happens to a curriculum plan in the process of becoming the lived curriculum, they point to a variety of influential factors determining whether or not students develop their knowledge and skills. These factors include:

1. the context of the college, for example the management and administrative structures;
2. the quality of physical infrastructure such as workshops, kitchens or classrooms;
3. the attitudes and resources that college students bring from their community;
4. the general atmosphere and morale of the college; and
5. the teaching environment, for example the quality of the textbooks, the amount of time that is allocated to a section of the curriculum, whether the teaching time gets interrupted or not, and the number of students in a class.

But the factor that appears to be the most influential in determining whether or not the students are developing appears to be the lecturer.

In contrast to the official curriculum, which is a written document, the curriculum-in-practice consists of a web of relationships between people, documents/books and the context in which it is all happening. In this web of relationships, the lecturer plays a pivotal role. Look at the diagram below.



The web of relationships involved in the lived curriculum[10]

ACTIVITY

Time needed 30 minutes

Activity 43: The lived curriculum

Examine the diagram above, and answer the following questions:

1. Imagine you are describing the relationships involved in this learning environment to a colleague. What would you say?
2. What new insight into the relationships between lecturer, students, knowledge/official curriculum and the context have you gained from this diagram of the curriculum-in-practice?
3. Do you agree with the argument that lecturers are not merely implementers of the official curriculum but mediators of knowledge? Their position requires them to *select* and *interpret* - or do you think this perception is simply wishful thinking?

Our comment

We believe that teaching is a complex process. It involves the lecturer mediating knowledge of the official curriculum to students within a specific context. The way in which lecturers explain, interpret and design learning activities strongly influences how students understand new knowledge. Lecturers are agents that provide students with meaningful access to knowledge and skills in the curriculum, while at the same time having to work within boundaries set by the contexts they find themselves in and by the selection of knowledge contained in the official curriculum.

This tension created between the power and the limitations of the lecturer's position is often voiced in staff room conversations. At times we complain about how we can't achieve anything, because the educational authorities are messing us around and the curriculum is so restrictive, while at other times we are excited about how much our students are growing in their skills and understanding, and we feel proud of our ability to support them.

When we understand the position of the lecturer in the web of relationships that make up the curriculum-in-practice, it becomes clear that lecturers can never just be implementers of curriculum, no matter how helpless they might feel in the situation. The lecturer's position always requires action – it provides access to the knowledge. In order to mediate knowledge of the curriculum to their students, lecturers have to first understand it themselves, select what they want to emphasise or sideline, and then present it in ways that make it meaningful to their students. And because they are human, they are likely to do this using their own knowledge and experience. In other words, with or without intending to, lecturers inevitably *interpret* the official curriculum.

Lecturers as interpreters of the curriculum

The idea that lecturers are always interpreters of the curriculum plan can easily be experienced when you watch lecturers at work. If you were able to watch two of your colleagues teach the same section of the curriculum, you would find that they would each tackle it completely differently. Let's take cosmetology as an example:

1. The way Lindi (see Chapter 2) teaches her students how to do make-up is to focus on the shape of the face. She explains that the "perfect" face is oval and that light and dark shading is needed to transform ordinary faces into more oval ones.
2. Another cosmetologist might focus on the colour tone of the skin. She might explain that each skin has a particular undertone and that make-up shades must match the shade of the undertone.

So one lecturer teaches make-up with a focus on shape, while the other focuses on colour and tone. Their teaching styles might also differ:

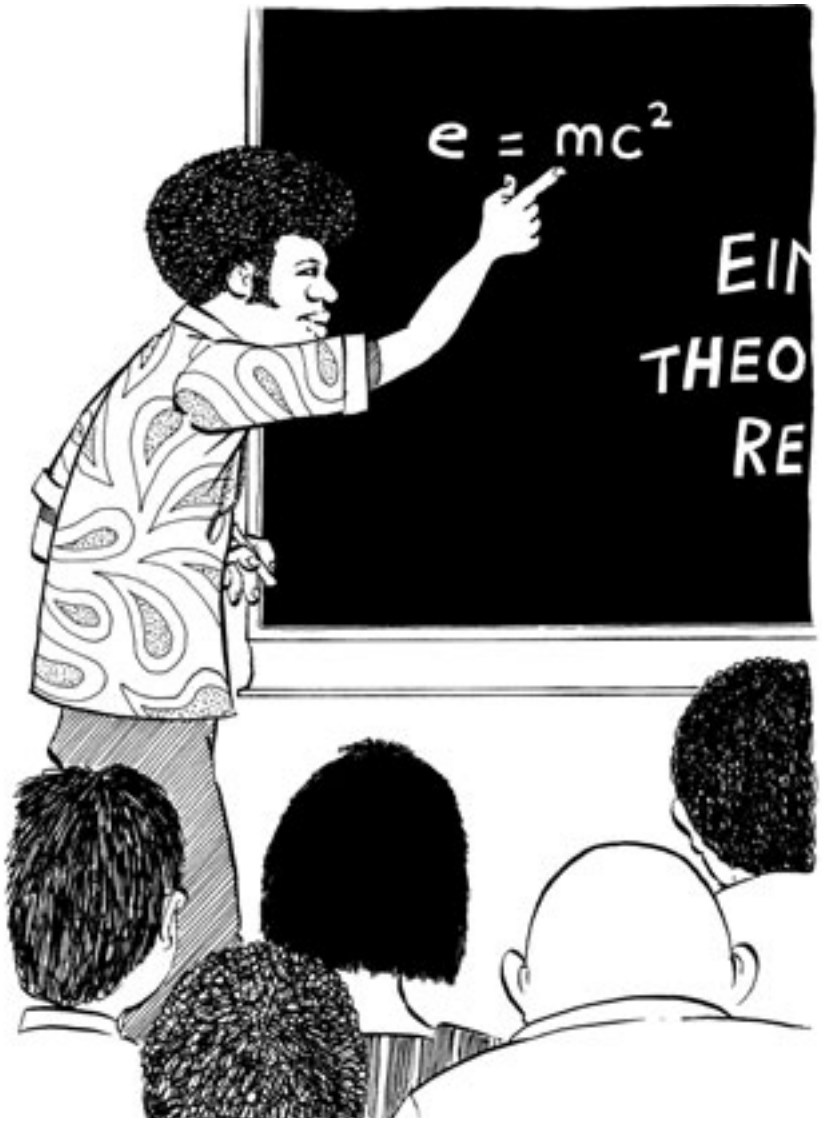
1. Lindi explains the ideas first, then gives students a chance to practice the skill.
2. Her colleague might start with a badly made-up face and ask students to puzzle out what is wrong.

The point is not that one lecturer is doing it better than another – both of them might be producing excellent cosmetologists. The point is that although they are working with the same curriculum, they are approaching it from different angles and interpreting it in different ways.

This difference in interpretation is inevitable, because lecturers, like all humans, can only do things on the basis of the knowledge and skills that they have already acquired. So when they read a curriculum document and think about how to present it in their classroom, they will understand it and prepare for teaching in ways that are shaped by their own knowledge, experiences, individual preferences, or particular talents. They will also take into account the resources that are available to them. Remember the lecturers that Vusi referred to, who teach their students about computers by asking them to memorise the keyboard and the processes of working different computer programmes? If their colleges had computers, those lecturers would teach in a completely different way. Lecturers will also adapt their teaching to the type of students they have – they may use different examples or provide more advanced explanations, depending on how the students respond.

And of course there will be times when lecturers don't agree with or resist what is stated in the official curriculum. Maybe they resist implementing a new curriculum because they feel demoralised by what they perceive to be a lack of the support from the college or the department. Maybe doing it in a new way would involve too much extra work, or the knowledge is out-of-date, or the lecturer thinks the students wouldn't understand. In such a case, the lecturer might make choices about what and how to teach, that are quite different from what the curriculum document originally intended.

Lecturers will interpret and make changes to the curriculum both *consciously* and *unconsciously*. They might, for example, consciously decide that the curriculum is not designed in an educationally sound way and so they will adapt it to make it better – like Lizette and her colleague who wrote new workbooks or Quinton Paulse who used his knowledge of the aesthetics of furniture to give meaning to the skills listed in the unit standards. But often, lecturers reinterpret and revise curricula unconsciously. They might feel uncomfortable with new approaches and so carry on using the old, familiar approaches even though they use the new terminology and think they have changed. Haven't you met lecturers who treat outcomes in just the same way as they used to treat objectives? Or who seat students in groups but then carry on lecturing as usual?



So we are arguing that lecturers always interpret the prescribed curriculum they are given, whether they do it consciously or unconsciously, whether their changes are an improvement or a misunderstanding. This happens because teaching is not a mechanical activity, it is a practice. Lecturers are constantly making decisions about how to do things. They use their knowledge and expertise to make judgements about what is best in any given situation.

The question then arises: What is it that lecturers need to know in order to be good interpreters of curriculum plans, i.e. in order to understand and consciously interpret the curriculum in ways that lead to improved learning for the students?

ACTIVITY

Activity 44: Interpreting curricula

Time needed 20 minutes

Draw up two lists, one in response to each of the following questions:

1. What is it that lecturers need to know in order to be good interpreters of curriculum plans?
2. Reflecting on your own knowledge, are there things you still want to know about before you could feel comfortable interpreting of curriculum plans?

OUR COMMENT

Our comment

An American educational researcher, Lee Shulman, has tried to answer the question about what lecturers need to know. In his answer, Shulman shows how teachers and lecturers need three different kinds of knowledge in order to do their job well:

1. They need to be experts in their field of knowledge.
2. They need to be experts in the skills of teaching.
3. They need to be able to select from their fields of knowledge those ideas, facts and skills which are important enough to be taught and also determine in which order they can best be understood.

Shulman calls these different kinds of knowledge:

1. Content knowledge
2. Pedagogical knowledge and
3. Pedagogical content knowledge.[11]

Content knowledge refers both to the amount of knowledge of the subject area and to the way the knowledge is organised. Firstly, lecturers must be capable of defining for students what the important information and accepted truths in the subject area are. For example, in our case studies in Chapter 2, Lindi's knowledge of internationally accepted standards of beauty, or Reuben's understanding of wiring in fridges. Secondly, lecturers must understand the ways of thinking in their subject area, i.e. the central concepts that are used to help people think about and organise the facts. They must be able to explain why a particular way of doing something will work or not (like Reuben does with fridge repair), why an argument is acceptable or not, why something is worth knowing or how it relates to other aspects of the subject matter. This means that lecturers must be experts in their subjects.

Pedagogical knowledge refers to the ability to teach. Lecturers need to know how to prepare lessons, how to use teaching strategies like questioning or group work, how to assess what students know, how to understand their students, etc. They also need to know why particular pedagogical methods might work better in some situations than in others, or why some methods are good for particular kinds of learning. The previous chapter about learning and teaching has given you a lot of pedagogical knowledge.

Usually, these two kinds of knowledge are considered to be enough for teachers and lecturers. That is what they learn about in colleges and universities. It is left up to them to decide how to fit together their knowledge about the subject and their knowledge about teaching into ways that make it easy for their students to learn.

Activity 45: Pedagogical content knowledge

Together with a colleague who teaches the same subject, reflect on what you have learned about your subject and what you have learned about ways of teaching.

1. Did you ever learn about both of them together?
2. Are you able to describe which ways of teaching work best for your subject and why?
3. Do you know which concepts to teach first in your subject and which concepts are more complex and should be taught later?

Our comment

Shulman argues that lecturers need to develop what he calls *pedagogical content knowledge*. This refers to those aspects of the content knowledge that are particularly important for teaching. Lecturers should know which concepts are crucial to understanding the field. For example, in cabinet making, what is more important: the ability to practice and experiment, or the ability to produce turned timber components? Lecturers need to know how important concepts can be most easily explained or which examples are the best to use in explanations. Lecturers also need to know which knowledge should be taught first so it serves as a building block for later knowledge or which skills are difficult to learn and need extra attention.

> Lecturers need to know the subject area in a way that is different from the way that experts know it. Maybe they don't know all the details or the latest innovations in the way that experts in the industry do, but instead they know what are the most important concepts and skills, and in what order they can best be explained.
>
> *L. Shulman*

By now you might be wondering why we are explaining pedagogical content knowledge. The reason is that this is the knowledge that enables lecturers to analyse the official curriculum and then adapt it consciously in ways that are most productive for their students' learning. When lecturers have pedagogical content knowledge they can become effective interpreters of curriculum. Look at how Quinton uses his pedagogical content knowledge to give his students both freedom to experiment and advice about what to do next at just the right moment, or how Lindi uses it to clarify her students' misunderstandings. As Shulman says, *"Those who can, do. Those who understand, teach"*.

ACTIVITY

Activity 46:
Your pedagogical content knowledge

1. Reflect on your own interpretation of the curriculum documents you are currently using. Where do you adapt them to suit your style and the needs of the students? Which aspects do you ignore and why? Which ideas do you add?
2. Think of the knowledge that you use in your teaching. Find two examples each of:
   a) Content knowledge
   b) Pedagogical knowledge and
   c) Pedagogical content knowledge.

OUR COMMENT

Our comment

The best way for you to assess yourself on this task would be to discuss your responses with colleagues with whom you work closely on a day-to-day basis. It is as a team that you have probably made the most innovative adaptations of the formal curriculum to suit the needs of your specific students and your college environment.

One thing that will become clear to you as you reflect on this activity is that you and your colleagues are important planners of the way the curriculum is delivered in your institution.

Lecturers as curriculum planners

There are two ways of thinking about lecturers as curriculum planners. One is that planning only happens at certain levels of curriculum and therefore most lecturers are excluded. The other is that all lecturers are planners at the level of their lessons. For a lecturer to see themselves as a planner is to adopt a particular attitude of mind.

Thinking that curriculum planning happens only at the higher levels is the result of understanding "curriculum" only in terms of it being a plan. Only a select group of lecturers can be part of the committees that plan curriculum at national level, because these committees need to be small in order to get the work done. The job is also a temporary one – once a national curriculum framework has been agreed on, it usually stays policy for several years before the need for a revision arises. College lecturers are occasionally invited to join the SGBs that draw up the unit standards and they find it a challenging and informative experience – but that too is temporary. Once unit standards are registered, they stay valid for at least three years and even after that they don't necessarily get revised. Generally, the higher the level of curriculum planning, the less people are involved, the more abstract and general the plan becomes and the less often it is revised. So chances to be involved are limited and the feeling of being somebody who just has to implement what the system requires, can easily take hold.

The alternative view, namely that all lecturers have a valuable role to play in planning their lessons, or in planning the learning programmes in their section of the college, arises out of the broader view of "curriculum" as being lived and worked out in practice. Look again at the diagram illustrating the curriculum in practice. In this web of relationships, the lecturer is responsible for interpreting the official curriculum and then using his/her pedagogical content knowledge to plan how best to mediate this knowledge to the students. This is also the view that sees the lecturer as a professional who is capable of, and in fact responsible for, making judgements and decisions.

Activity 47: Lecturing as planning?

Do you agree with the argument that lecturers are also curriculum planners? Provide reasons for your opinion.

Our comment

It is important to acknowledge that educators are also curriculum planners. This was shown by the researcher Mildred MacLaughlin. She conducted research in schools that were implementing changes in the curriculum, and found that curriculum change projects are not successful when they are based on a "curriculum as plan" view – i.e. when a team of curriculum developers at district or provincial levels give the completed curriculum plans to teachers to implement. Such projects tend not to lead to any improvement in students' learning or in their assessment results. Some of the more important reasons for failure are the following:

1. Very often, the process of implementation just collapses halfway because teachers were not interested.
2. Teachers simply ignore the suggested changes – MacLaughlin calls this non-implementation.
3. Teachers appear consciously to accept the changes, but unconsciously they avoid them. They use the language of the new curriculum or they change the way they record things, but they do not change their habits in the classroom – MacLaughlin calls this co-optation.

MacLaughlin concludes that the only strategy for successful curriculum change, i.e. for a change in the curriculum practice of the teachers that leads to better learning, comes from projects that follow a path of *mutual adaptation*.[12]

Mutual adaptation means that there are two kinds of changes happening at the same time:

1. On the one hand, teachers change their ways of working in the classroom in response to the ideas and methods introduced by the new curriculum; and
2. On the other hand, the curriculum plan changes in response to the queries and needs of the teachers.

Curriculum change happens successfully only when teachers and curriculum developers work together to plan the most effective ways of generating the change. It takes months of regular meetings and workshops to gradually and jointly create the changes.

The lesson for us is that college lecturers need to see themselves, and be treated by the education authorities, as full participants in curriculum planning at the level of the classroom.

ACTIVITY

Time needed 20 minutes

Activity 48: Your response to curriculum change

Together with a colleague, reflect on curriculum change in your college and subject area.

1. Would you say that you are adopting a strategy of non-implementation, co-optation, and one-sided adaptation on your part, or has there been some attempt at a process of mutual adaptation?
2. Do you think a process of mutual adaptation is possible? If so, what might be involved in organising such a process at your college?

Our comment

One of the things that the government has recognised recently is that not enough attention has been given to facilitating and managing a transformation process in the FET colleges, so that they can start to respond to identified national needs for good quality VET education.

It is likely that your answers to the above questions said that the process of mutual adaptation has not really been possible in the college sector, because insufficient opportunities have been created for lecturers to work together with curriculum planners over time, in order to start to implement changes.

Perhaps this situation is now starting to change in South Africa?

Key points

- Lecturers are not merely implementers of curriculum. They inevitably interpret official curriculum documents when they prepare themselves for teaching.
- This process of interpretation enhances the learning experience of the students when the quality of a lecturer's pedagogical content knowledge is sound.
- Mutual adaptation of curriculum plan and practice are required for successful implementation.
- It is important for lecturers to see themselves, and be seen by the authorities, as curriculum planners able to take control of the knowledge and teaching and learning activities in their classrooms.

UNIT 4 Interpreting curriculum documents

In this unit, we will work with the empowered understanding of the lecturer's role as interpreter by providing some practice in analysing curriculum plans. We will first look at some guidelines for what curriculum documents should contain and then analyse some examples of real curriculum documents at the level of a syllabus.

Remember that earlier in the chapter (Unit 2) we argued that a curriculum is a selection of knowledge and skills, arrived at through discussion and contestation between stakeholders in a particular historical and economic context. Curriculum plans or policies are thus not absolute rules, but guidelines that can change over time and within different contexts. Curriculum documents should not be seen as a prescription to be strictly followed. Rather, they should be viewed as a set of suggestions or guidelines for lecturers to take up and use as a starting point for their explorations of theoretical and practical knowledge with their students.

The elements of curriculum

In this unit, we are thus not concerned with the "correct" understanding of curriculum documents. Instead, we are giving you some pointers towards analysing curriculum documents. Analysing a curriculum document means scrutinising it in the light of what you already know from experience and comparing it to what you have read in other sources. We want you to start noticing what curriculum documents say and what they don't say, what we can take from them and what we need to add, what is important in relation to our context and what we can ignore. We will be asking you to use your pedagogical content knowledge to make sense of curriculum documents.

1. **In the context of your college, what is the general attitude to curriculum documents?**
2. **Do people generally understand curriculum documents as prescriptions or as suggestions?**
3. **What is the official college position on such matters?**
4. **Where do you see yourself in relation to curriculum documents?**

Before we look at some actual VET curriculum documents, however, it is important to consider in more detail what we should expect from a good curriculum document. Not all curriculum documents will cover all elements in the same level of detail. Remember we said that curriculum framework documents focus more on the overall aims or vision, and the guiding principles that should direct more detailed planning (e.g. the 1996 Curriculum Framework for GET and FET which outlined the new OBE approach), while other documents provide more detail about what knowledge and skills should be achieved within subjects at particular grades (e.g. the 2003 National Curriculum Statement for FET). Still others provide outlines of what outcomes should be achieved in particular courses or parts of courses (e.g. the unit standards). And then there are textbooks, which put flesh on the outlines by presenting in detail the knowledge and activities that can lead students to attain the outcomes.

Nonetheless, curriculum documents, regardless of the level of detail, must tell us about certain things. There are six key elements about which a curriculum plan should provide information. These are:

a. the overall aims, values, vision, purpose or the central challenge that needs to be met by the educational venture;
b. the objectives or outcomes that need to be met;
c. the knowledge and skills that need to be mastered;
d. the progression/sequencing/priorities/pacing, given that time is always limited;
e. the pedagogy, i.e. the principles and ways of teaching; and
f. the forms of assessment.

We will go on to look at each of these elements in more detail. We do this by means of an extended section in which you will engage with a document that you use in your own work situation.

ACTIVITY

Time needed 3 hours

Activity 49: Analysis of an actual curriculum document

Spend approximately 30 minutes working through each of the six curriculum elements. (Total: 6 x 30 minutes = 180 minutes)

The outcome for this section is for you to get practice in analysing an actual curriculum document that you use in your teaching.

Select a curriculum document that is useful to you in your teaching. Keep the document right next to you so that you can move back and forth between this chapter and the document during your analysis. Each time you come to the end of one of the elements below, use the questions to interrogate the curriculum document you have chosen. This method gives your reading a more immediate purpose and you are less likely to become distracted and to lose focus on the curriculum document that you are analysing.

At the end of each section below (numbered a–f, and corresponding to the six essential curriculum elements listed above) there is a boxed series of questions which you should answer in relation to your chosen curriculum document.

a. Overall aim and vision

Thinking about the overall aims or purpose for why the learning should happen is both the beginning and the end of curriculum plans. If there is no vision of why the learning is important and valuable, then there is no point in embarking on the often strenuous journey of doing it.

In the last 15 years, educators in South Africa have been fortunate enough to witness a major change in the values and central purpose of our education system. Whereas during the apartheid era, the central concern of the education system was to maintain separation between different racial groups and propagate the value of obedience to authority, the central concern of the new government is to have an education system that promotes equity and equal opportunity for all young people in the nation and that promotes the critical and creative thinking required for active participation in a democracy. The central challenges that need to be met are the sometimes conflicting demands of a highly technological, globally competitive market economy and the requirement to redress the injustices of the past. Given this dramatic change of values, aims and central challenge, it became necessary to change the quality of learning that was happening in schools and colleges.

Whatever is decided on as the overall vision has a profound influence on all the planning that follows. The selection of knowledge and skills, the pedagogy, the assessment, the organisational and institutional structures, all need to be aligned and changed in ways that help to attain the vision.

The process of establishing the vision is often a torturous one. People debate vigorously about which values are more important than others or what exactly the central challenges are, and they struggle to find compromises that satisfy the different views and interests. As a result, curriculum framework documents sometimes contain different aspects of a vision that are not easily compatible. For example, Curriculum 2005 contains both the principle that curriculum should be relevant to the local interests of the learners and the principle that curriculum should be of a standard that makes it internationally credible. Which principle do you think is more important for rural village schools? Such contradictions may then become starting points for debates at the level of the syllabus about which knowledge to select and which priorities to set.

Questions on a.

For the purpose of analysing a curriculum plan, there are three main questions to be asked with regard to the overall aim and vision:

i. What are the aims, values, vision, and main purposes presented by this curriculum document? Do I agree with them?

ii. Are there any contradictions or tensions between the different aspects of the vision?

iii. In which ways do the following factors – the outcomes, the knowledge and skills, the pedagogy and assessment, and the institutional structures – contribute to and support the vision, or contradict it in some way?

b. Objectives/outcomes

The second element you need to look for in a curriculum document is the objectives for, or the outcomes of the expected learning. Much has been said in the last few years about the differences between objectives and outcomes, to the extent that they are seen as mutually exclusive. But actually, they operate at the same level: both are an attempt to describe what an educational programme should achieve. The difference lies in emphasis: objectives are formulated in a way that tells lecturers what they must deliver to students, while outcomes are formulated in a way that tells students what they are expected to achieve. Both emphasise what students must be able to do at the end of a course, although the language of objectives uses verbs such as "understand", "explain", "describe" or "discuss" (which indicate a more theoretical orientation) more often than the current language of outcomes does.

The important questions in relation to outcomes are: firstly, how broadly or narrowly do they describe the skill that is expected; and secondly, how much recognition is given to the knowledge that students need as a prerequisite to performing the skill?

Take, for example, the critical outcome, "Identify and solve problems and make decisions using critical and creative thinking". This is a very broad outcome, one that can be developed at a variety of levels in all areas of learning. In fact, it is the first of the critical, cross-field outcomes that underlie all education in South Africa, so it is almost at the generalised level of a vision. But it is deliberately phrased as an outcome because policy makers wanted to ensure that these thinking skills are assessed, and thus not forgotten in the teaching process. At the other extreme, look at one of the outcomes for Building Construction: "Use carpentry tools as necessary in preparation for floor covering installation"[13]. This is an extremely narrow outcome, relating to the selection of particular tools for a particular job and describes a low level of skill. It is clear that the broad outcome is more likely to promote deep understanding than the narrow one.

Yet this does not mean that broad outcomes are always better than narrow ones. The broader an outcome is, the more open it is to different interpretations, the less clear it is what knowledge is required, and the more difficult it is to assess.

Let's go back to the critical outcome, "Identify and solve problems and make decisions using critical and creative thinking". As a general outcome that can be built into and assessed in specific contexts, this is a very useful guideline when developing curriculum. Yet the outcome gives no recognition to the knowledge that is essential for problem-solving to occur. As mentioned earlier, identifying a problem with a broken fridge requires completely different knowledge from solving a problem regarding tasteless food or the shade of make-up to be used. It is also difficult to assess what the differences are in the levels of creative problem solving when students first begin studying a new subject compared with when students have studied that subject for several years.

A common way to respond to these difficulties with outcomes is for curriculum and subject experts to write long lists of increasingly specific outcomes and assessment criteria. But these lists are often not meaningful to anyone outside of the group that wrote them. There is a strange paradox with outcomes: it is exciting to be involved in the process of creating outcomes for a curriculum because it challenges one to think deeply about all aspects of teaching and learning, but being given a list of outcomes to follow can be quite confusing and hard to engage with.

Questions on b.

For the purpose of analysing a curriculum plan, there are two main questions to be asked with regard to the outcomes:

i. What do the outcomes mean? (Are they describing general or specific skills? Do they indicate what knowledge is required to meet the outcomes? Do they describe the necessary level of ability? Are there different yet equally valid ways to interpret the outcomes?)

ii. Are the outcomes appropriate in relation to the overall aims and the context of the curriculum? (Are any important ones missing; are some superfluous or repetitive?)

c. Knowledge and skill

In the previous chapter, we examined how theoretical knowledge and skill must come together to produce the practical knowledge that students need to acquire in the world of technical and vocational education. This helps you to understand why outcomes need to describe both skills and knowledge and can only be achieved when the teaching is concerned with knowledge.

Activity 50: Practical knowledge

Time needed
30 minutes

1. Read the sections on the *tacit* dimension of FET learning and the *theoretical* dimension of FET learning in Chapter 3 Unit 2.
2. Summarise in your own words what you consider to be the most important points. For practical knowledge, why are both dimensions (practical and theoretical) necessary?

Our comment

The connection between knowledge and skill sometimes gets forgotten in the emphasis on outcomes in OBE. There is a general attitude that content-based curriculum is "bad" because it involves students in rote-learning meaningless facts in a language they barely understand. Unfortunately that has often happened in South African classrooms in the past. But this only means that meaningless rote-learning must stop. It does not mean that knowledge should get thrown out of the window. Instead, educators should work out how to mediate knowledge to learners in a meaningful way. In a global economy

increasingly based on the flow of information, a person's ability to access, fully understand, analyse and manipulate knowledge is crucially important.

Any curriculum document thus needs to provide information about what knowledge or content is needed to achieve the specific outcomes. Let's look at two examples: the first is an extract from the National Curriculum Statement (NCS) for FET for the subject electrical technology, while the second is an extract from a unit standard in the learning sub-field electrical infrastructure construction. Read, analyse and compare these two curriculum extracts in Activity 51 and 52.

ACTIVITY

Time needed 20 minutes

Activity 51: Outcomes for electrical technology

Analyse this extract from the NCS document:

1. How does this curriculum describe knowledge and how does it describe skills?
2. How does the specific outcome relate to the assessment standards?

LEARNING OUTCOMES AND ASSESSMENT STANDARDS FOR ELECTRICAL TECHNOLOGY[14]

Learning Outcome 3: Electrical Principles and Practice

The learner is able to demonstrate an understanding of the concepts, principles and practice, related to Electrical Technology, by organising and managing own activities responsibly and effectively considering the inter-relatedness of systems as a context for problem solving.

Assessment standards for Grade 11

We know this when the learner:

1. understands the function of power supplies
   - describes and compares the construction, operation, and coupling methods related to single-phase transformers
   - calculates the voltage-ratio, turns-ratio and current-ratio of single-phase transformers
   - compares the different construction methods of single-phase transformers
   - explains the construction and operation of rectifiers with specific reference to filter circuits
   - explains and applies the principles of voltage regulation
   - explains and applies the principles of a voltage doubler circuit
2. identifies and explains the operation of a transistor
3. identifies and explains the operation of amplifiers
4. explains the operating principles of AM/FM radio transmission/reception, and propagation

Our comment

The specific outcome provides the general orientation by giving the topic that students should be able to understand and some indication of how the learning should be organised. It is easy for any lecturer to understand because the focus is on the skill of understanding new knowledge and it refers to two of the critical cross-field outcomes. The assessment standards provide the detail of the knowledge that needs to be understood – and suddenly it gets difficult for lecturers who are not experts in electronics and thus don't know what single–phase transformers, rectifiers or doubler circuits are or how they work. The assessment standards contain the knowledge to be learned and the long list (this extract has been shortened) makes clear that Grade 11 students who want to meet specific outcome 3 require a lot of specialist knowledge about electronics, which only experts in the field are able to teach.

It is interesting to compare the above example with a shortened version of a registered unit standard dealing with the same field of knowledge –Activity 52. It is one of 181 unit standards registered in the electrical infrastructure construction sub-field, most of which are concerned with applying rules, assembling components, fault finding, constructing, inspecting, installing or wiring particular equipment, usually by following set procedures. Only four unit standards are concerned with understanding basic electrical and electronic principles. This weighting indicates where the emphasis is placed in terms of the balance between knowledge and skill. But even in the skills-driven system of unit standards there is some recognition that knowledge is necessary as an underpinning for the various applications.

Activity 52:
Unit standard for basic electronic theory

1. Analyse the extract from a unit standard:
   a) How does it describe knowledge using the language of skills?
   b) How do the specific outcomes relate to the assessment criteria?
2. Compare the two curriculum documents:
   a) Did you notice that the unit standard gives credits at NQF level 3? Grade 11 is also at NQF level 3, so the two curriculum documents are pegged at the same level. What other similarities and differences can you find?
   b) What do you notice when you compare the learning outcome in the NCS extract with the title and with the specific outcomes in the unit standard?
   c) What do you notice when you compare the assessment standards in the NCS curriculum extract with the assessment criteria in the unit standard?
3. Which approach to describing curriculum do you prefer and why?

SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:[15]
Understand basic electronic theory and components

SAQA US ID	**UNIT STANDARD TITLE**		
114406	Understand basic electronic theory and components		
SGB NAME	**NSB**	**PROVIDER NAME**	
SGB Electrical Engineering & Construction	NSB 12-Physical Planning and Construction		
FIELD	**SUBFIELD**		
Physical Planning and Construction	Electrical Infrastructure Construction		
ABET BAND	**UNIT STANDARD TYPE**	**NQF LEVEL**	**CREDITS**
Undefined	Regular	Level 3	4
REGISTRATION STATUS	**REGISTRATION START DATE END DATE**	**REGISTRATION**	**SAQA DECISION NUMBER**
Registered	2004-02-11	2007-02-11	SAQA 2552/04

PURPOSE OF THE UNIT STANDARD

This unit standard is for persons in the Electrical Engineering; Generation; Distribution; Transmission; Construction and Renewable Energy Sectors.

A person credited with this unit standard will be able to:

- Demonstrate an understanding of basic electronic theory and electronic components.

  This unit standard will contribute to the full development of the learner within the electrical engineering and construction environment by providing recognition, further mobility and transportability within the field of Physical Planning and Construction. The skills, knowledge and understanding demonstrated within this unit standard are essential for social and economic transformation and upliftment within the electrical engineering and construction environment.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

The following knowledge, skills attitude and / or equivalent:

- An understanding of the metric numbering system.
- A basic knowledge of unit conversion.
- A knowledge of fundamental electrical theory.

UNIT STANDARD RANGE

This unit standard includes but is not limited to:

Fundamental electrical and electronic engineering quantities and applications thereof.

- Atomic and semiconductor theory.
- Electronic components and understanding of circuit operation.
- Diodes, power supplies, transistors and opto-electronics.

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 4
Understand the operation and function of power supplies.

ASSESSMENT CRITERION 1
1. The operation of various rectifier techniques is explained with the aid of graphics.

ASSESSMENT CRITERION 2
2. The operation of half wave and full wave rectifiers are explained with the aid of graphics.

ASSESSMENT CRITERION 3
3. A basic DC power supply consisting of a transformer and rectifier is explained with the aid of graphics.

ASSESSMENT CRITERION RANGE
Half wave, full wave, centre tapped transformer.

ASSESSMENT CRITERION 4
4. Basic calculations of the voltages and currents around rectifier circuits are done in relation with full wave and half wave rectification.

SPECIFIC OUTCOME 5
Understand the operation and application of a transistor.

ASSESSMENT CRITERION 1
1. The operation of a correctly biased PNP and NPN transistor is explained.

ASSESSMENT CRITERION 2
2. The output and input characteristic curves for each of the two basic transistor circuit connections are drawn and explained in relation with transistor theory.

ASSESSMENT CRITERION 3
3. The Quiescent point is defined correctly in relation with transistor theory.

ASSESSMENT CRITERION 4
4. Basic load line calculations are carried out in relation with transistor theory.

ASSESSMENT CRITERION 5
5. The two basic circuits used for transistors are designed and analysed in relation with transistor theory.

ASSESSMENT CRITERION 6
6. The operation of a transistor as a switch is explained with the aid of a circuit diagram.

ASSESSMENT CRITERION 7
7. The operation of a transistor as an amplifier is explained with the aid of a circuit diagram.

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE
Knowledge that will help me understand and that I will be able to explain:
1 A basic understanding of physics.
2 A basic understanding of electronic theory and application thereof.

Our comment

Actually, what we are comparing here are extracts of extracts. The whole curriculum, as presented on the SAQA website, is made up of the 181 unit standards covering NQF levels 2, 3, and 4 for electrical infrastructure construction. Similarly, the whole curriculum for electrical technology in the NCS consists of the teaching and assessment principles and the four learning outcomes that are presented at increasing levels of difficulty for Grades 10, 11, and 12. If we wanted to do a proper comparison of the two curricula, we would need to work with all the documentation. For now, we are just comparing some aspects of how the two documents describe knowledge and skills and the relationship between them.

When we compare the two documents, we find that the title of the unit standard provides the topic, just like the learning outcome does in the NCS curriculum:

1. Unit standard title: electronic theory and components; and
2. NCS learning outcome: electrical principles and practice.

What the unit standard calls specific outcomes and assessment criteria are contained in the assessment standards of the NCS, separated by using main and sub-bullets. Both deal with the function of power supplies and the operation of transistors. Both documents describe knowledge in the language of skills by using action words such as "explain" or "calculate" rather than "understand". The NCS document provides more detail on what to teach regarding the function of power supplies, while the unit standard gives more detail on the operation of transistors.

What these similarities indicate is that you should not get confused by the jargon used for the different aspects of curriculum, because different groups of people use different words for much the same thing at different times. Instead, what you need to look for is the underlying reality: when are the curriculum documents describing knowledge and when are they describing skills? And then analyse: when do the skills require underpinning knowledge that is not being stated explicitly in the document?

In many unit standards, the knowledge that underpins the skills listed in the assessment criteria can be found under headings such as: essential embedded knowledge, unit standard range, outcome/assessment criterion range or outcome/assessment criterion notes. Sometimes it is embedded inside the assessment criteria, as in "The Quiescent point is defined correctly in relation with transistor theory". And sometimes it is absent, requiring the lecturer to be an expert in the field who is able to provide students with the knowledge that is implied by the skills.

For example, there is a hospitality unit standard entitled "Develop and implement new recipes and menus"[16]. Someone who cannot cook very well, in order to develop new recipes, would need to know a lot about how different kinds of food and spices work together, especially since the outcome notes of the unit standard indicate that such recipes and menus should be developed for different cultures and dietary requirements, a range of portions and different kinds of eating establishments. But this unit standard requires

no prior knowledge of cooking and does not once mention the need to know what makes food delicious. Instead, the outcomes and notes focus on costing, adjusting to target market and communicating with staff. The essential knowledge required for the skill of developing new recipes is taken for granted and completely silenced.

This example illustrates how curriculum documents cannot be treated as plans that must be blindly followed. They are useful guidelines only. But it remains the responsibility of the lecturers to use their own knowledge to fill in the gaps and to make sure that students learn the knowledge which makes the skills meaningful.

There is one more issue you need to look out for when analysing the knowledge and skills that a curriculum presents. The more complex the knowledge and skills become, the more difficult it is to describe them in a step-by-step way with assessment criteria. For example, unit standards that describe simple skills, like putting pre-prepared convenience food into the oven[17] or using different kinds of knives when cutting food[18] may have the same number of outcomes and assessment criteria as a unit standard that describes a really complex task such as supervising postgraduate research in higher education[19]. The format of unit standards with its lists of outcomes and criteria may be the same, but the knowledge required to do the job well is completely different and takes much longer to learn. So whenever you read a list of outcomes and assessment criteria, ask yourself: "What is the knowledge that students need to learn in order to attempt these skills?"

Questions on c.

For the purpose of analysing a curriculum plan, there are two main questions to be asked with regard to the relationship between knowledge and skill:

i. What knowledge and which skills does the curriculum suggest that students should acquire?

ii. What knowledge and sub-skills are required to achieve the overall outcome but are not mentioned, i.e. what gaps need to be filled?

d. Progression, sequencing and pacing

Remember we said earlier that any curriculum is a selection of the knowledge and skills that are important in a field. It is not possible to teach and learn everything. Curriculum design thus involves deciding what to select and what to leave out.

Once the selection has been decided, the next step is to plan the sequence and progression of the knowledge and skills practice. Good teaching involves ordering the ideas in a way that makes sense to students and helps them to learn more easily. Getting the progression right is an important aspect of a lecturer's pedagogical content knowledge. The general principles are to sequence a course so that it progresses from known to unknown, from simple to complex, from immediately relevant to more abstract, from overview to detail and back to overview. These principles are not absolute though – sometimes a course can start with a complex problem, just to grab the students' attention. A course can also be structured in many different ways – the progression of ideas can be presented in a linear way, or grouped together into interchangeable modules, or be repeated at ever higher levels of complexity, as in a spiral. Progression can therefore be:

1. Linear progression
2. Modular progression or
3. Spiral progression.

There are a number of ways that a course may be sequenced in order to ensure an effective learning pathway for students. Decisions about this are made taking into account the subject area, the context, the time available and the depth of pedagogical content knowledge of the educators. What is important when analysing a curriculum document with the intention of implementing it in the classroom, is to ask: how is the knowledge sequenced, or is it sequenced at all?

We can ask the same question in another way: who is the person responsible for sequencing this curriculum – the expert who designed the curriculum or the lecturer who implements it?

Traditional curriculum plans, or what we used to call a syllabus, tend to start with the overall aims, and then list all the topics that need to be covered. Generally, the curriculum developers think hard about what they consider to be the best sequence for the knowledge in terms of the general principles mentioned above, and then they expect the teachers, lecturers or textbook writers to follow that sequence, with little leeway for re-ordering.

The use of outcomes however changes that design logic. Outcomes and assessment criteria describe what the students should be able to achieve at the end. They do not describe the learning path towards the outcomes. So the developers of outcomes-based unit standards do not set out to provide a sequence for learning. They leave it open for lecturers to group the sub-skills and knowledge in whatever sequence is considered best for the students to learn and achieve the outcomes (i.e. a set of outcomes is not a lesson plan).

A problem arises when people treat the assessment criteria as if they were a list of topics to be followed, moving from one assessment criteria to the next does not provide students with the developmental path they need for learning something new – a learning path has to be structured.

Another aspect of the progression is the amount of time available for the whole curriculum and for each section within it, which is sometimes referred to as pacing. It is pacing that shows where the priorities are – if something is given more time, the curriculum developers consider it to be more important. The old school syllabi used to indicate which topics had to be covered each week (and which topics got two weeks), while the NQF system achieves the same purpose by assigning a credit value to each unit standard. Within a unit standard, the pacing is left up to the discretion of the lecturer.

Questions on d.

For the purpose of analysing a curriculum plan, there are three main questions to be asked with regard to progression, sequencing and pacing:

i. Does this curriculum document prescribe the progression of knowledge and skills or not?

ii. If yes, or partly yes, what is the set sequence?

iii. In the light of my pedagogical content knowledge, do I agree with the sequence or can I improve on it?

e. Teaching and pedagogy

This is the topic of Chapter 3, so we won't elaborate here. All that we need to say is that you need to check what a curriculum says about ways of teaching and learning. For example, the NCS for FET has a whole chapter on principles of teaching. It would be an interesting activity to compare what you have learned from the previous chapter with the NCS chapter on teaching, looking to analyse which theory of learning the NCS is primarily drawing on. On the other hand, the unit standards ignore pedagogy altogether, considering it to be the responsibility of the educator.

The *Resource Reader* (Melissa King), provides a useful description of which elements of a curriculum are catered for in a unit standard:

(i) Who are my learners? [*Purpose*]
(ii) What is the scope and aim of this course? [*Title and purpose*]
(iii) What do my learners already know? [*Learning assumed to be in place, recognition of prior learning*]
(iv) What will they need to know at the end of the course? [*Title and purpose, and specific outcomes*]
(v) What are the underlying abilities I want to promote? [*Critical cross-field outcomes*]
(vi) What order are they going to learn different things in?
(vii) What kinds of methods am I going to use?
(viii) What kinds of materials am I going to use?
(ix) What kind of evidence will I use for assessment? [*Assessment criteria and range statements*]
(x) When and how am I going to assess them?
(xi) What are my time frames? [*Credit value*]

So unit standards generally do not provide information about progression, ways of teaching or learning materials to be used.

Questions on e.

For the purpose of analysing a curriculum plan, there are two main questions to be asked with regard to teaching and pedagogy:

i. Does this curriculum document prescribe the methods, styles and forms of teaching to be followed in the curriculum, and what are these? If not, why not?

ii. In the light of my own understanding of appropriate teaching and learning strategies in VET, does this formulation in the curriculum help me in any way?

f. The forms of assessment

You will learn about assessment in the next chapter, so we will not elaborate in detail on the topic here. The same thing applies as with pedagogy – read what the curriculum document says about the principles and forms of assessment. Then, if you want to analyse it, you can compare it to what you are learning from this guide.

Questions on f.

For the purpose of analysing a curriculum plan, there are two main questions to be asked with regard to assessment:

i. Does this curriculum document prescribe assessment procedures?

ii. Does it take proper account of ongoing, formative assessment and end-of-course, summative assessment?

Key points

- When we think about curriculum, we need to consider a number of different elements:
  - overall aims, values and purposes;
  - objectives and outcomes;
  - knowledge and skills;
  - progression and sequencing;
  - pedagogy; and
  - assessment.
- The interpretation of curriculum by lecturers in their work is complex, because it always involves practice of all these different elements.

UNIT 5 Professional development

We have argued in this chapter that FET college lecturers need to be understood as professionals who always interpret the prescribed curriculum they are given. As we saw in Chapter 1, the idea of professionalism is very important in the VET context. In fact, it is probably in relation to the *overall delivery of the curriculum* that the full sense of what it means to say that a lecturer is a professional becomes clear. Perhaps the most well-rounded sense in which VET lecturers can be said to be *reflective practitioners* is in relation to the curriculum as a whole.

One important part of the professionalism we are referring to here is the sense that a curriculum is a community of people involved in the delivery of education and training programmes over time. Perhaps the central message that has come through in this chapter is that curriculum is a complex, multifaceted totality of practices that drives the life of an FET institution. It is characterised by agreements and conflicts, harmonious relationships and tensions, and by continual negotiation of the different elements of a curriculum against each other.

In Chapter 3, we introduced the notion of a *community of practice* as a theory of learning. It helps us to understand how learning is enabled by participation in a community of people engaged together in a common enterprise. In this chapter, the notion of a community of practice helps us to understand what is needed for ongoing professional development in relation to curriculum. One cannot learn about curriculum optimally on one's own, precisely because it involves everybody, all the time. The best way to learn about curriculum planning and other issues is to collaborate with colleagues. This collaboration can be with one other person who is teaching similar courses, or with several colleagues in your department.

In relation to curriculum, we can see that such participation applies to lecturers as much as it does to students. Lecturers learn by working with colleagues on issues of mutual concern. This teamwork in a college (or any other institution of learning) is often referred to as *collegiality* and it is a crucial element of a successful community of practice. In any well functioning institution, the teaching staff builds up and shares a body of tacit knowledge in a supportive environment. When colleagues share stories and discuss pedagogical and curriculum problems (and, from time to time, complain about working conditions), they develop a collective knowledge about appropriate ways of doing things, about what is important or not important, about what to justify and what is taken for granted.

Organisationally, the key to success is to develop joint projects – not so that committees have something about which to make decisions, but so that working groups of lecturers have a space where they can develop something new or develop a joint way of working. Joint projects could involve practical concerns such as jointly planning new lessons or courses, teaching together or observing each other teach when experimenting with new methods, developing worksheets or materials together, moderating each other's assessment tasks or having a marking workshop to establish a common understanding of the assessment criteria before going off individually to mark scripts. This kind of activity is what enables lecturers to improve their pedagogic content knowledge by clarifying their thoughts, developing a deeper understanding of curriculum practice or trying out new ways of teaching.

The same principle of learning through collaboration can be extended to working groups that cut across institutions. For example, participation in a college council that calls together a range of stakeholders, curriculum practitioners and subject experts to develop new unit standards, extends the professional development possibilities of lecturers. Such working committees are places of rigorous debate and provide an invaluable means for clarifying and deepening your ideas about curriculum.

Key points

- The full sense of what it means to say that FET college lecturers are professionals becomes clear when we consider the totality of the roles they play as interpreters of the curriculum.
- The idea of a *community of practice* helps us to understand how a lecturer is part of the overall delivery of curriculum in a college.

Conclusions

This chapter has been an introduction to curriculum, and we hope that you have gained some ways of analysing curriculum documents and practice, as well as more confidence in your role as a lecturer and curriculum planner. We also hope that you have developed enough interest in curriculum for you to want to learn more about it in an ongoing way.

Our discussion has entailed an extensive exploration of the nature of curriculum in South Africa, and in VET more specifically. Looking back at the questions we posed at the beginning of the chapter, we have shown just how complex the nature of curriculum and its transformation is in this country at present. The chapter argued that tensions between *curriculum as plan* and *curriculum as practice* provide a useful lens through which to understand this complexity. It went on to examine recent historical changes in South African curriculum policy and practice as indicators of these kinds of tensions. In the end, it suggested, it is lecturers themselves who play the most important role in curriculum implementation and transformation. In particular, the *pedagogic content knowledge* of lecturers can be shown to be crucial in relation to the degree of change or innovation that is possible in the delivery of education programmes.

The most important point to understand is that a lecturer is always an interpreter of the curriculum. Early on, the chapter drew your attention to the myth that a lecturer is merely an implementer of the curriculum. We have seen that curriculum documents of various kinds set out the parameters within which a lecturer is expected to operate, but it is always in practice that these ideas are realised. To make a curriculum work, a lecturer adapts it, changes it, chooses to emphasis certain parts of it and not others, and negotiates it with students and other lecturers. It is worth bearing in mind the point that we developed earlier in the chapter: *the factor that appears to be the most influential in determining whether or not students are developing appears to be the lecturer*.

The final part of the chapter sets out a detailed account of the features that one expects a sound curriculum document to contain. These features relate to vision and purpose, outcomes, knowledge and skills, progression, pedagogy, and assessment. We trust that it has left you with a methodology that will help you to better understand and analyse any particular curriculum document. It should also provide you with some new tools for understanding how you yourself, as a VET lecturer, can play a role as a practicing curriculum planner and interpreter in your own college context.

CHAPTER FIVE

Assessment

Introduction

Assessment has a leading role in the context of the National Qualifications Framework (NQF) and Outcomes Based Education and Training (OBE). Good assessment practices are now explicitly seen as tools for achieving some of the aims of the NQF; equally, we recognise ways in which negative assessment practices can limit effective teaching and learning.

Yet lecturers have always assessed – be it modelling external assessments, (such as a final examination, trade test or on-the-job assessment), carrying out regular practical assessments, or using assessment for a number of different purposes and in a number of different ways. So what is new?

While assessment has always been on the agenda, it can be said that in the past there was a division between theory and practice. Lecturers "did" assessment, often without clearly acknowledging their assumptions and methods, while educational theorists "talked" assessment in rarified and specialised ways. But OBE tends to foreground assessment, emphasising demonstrated results of learning, and thereby asking for clarity about what will count as evidence and how it will be judged. Practitioners therefore have to deal with things like explicit assessment criteria, progress assessments, applied knowledge in a context, and the nature of evidence and how to gather it. Accountability for assessment falls squarely into the lecturer's lap.

And so the questions of what to assess, how to assess, when to assess and for what purposes to assess are highlighted. Reflecting on, reporting on and recording assessments are central to the actual job requirements of lecturers in Further Education and Training (FET) colleges. It is the lecturer who decides whether students are competent for the workplace, and whether they can respond to different situations through an understanding of their role and their area of work, especially because we anticipate that the workplace will change.

Assessment in vocational and technical education, while following commonly accepted principles of good practice, also has to address a range of purposes special to the sector. In vocational education, one has to assess both practical skills and theory, in the workplace or in the colleges. Assessment itself is tied up with the special combination of doing and thinking that is part of the Vocational Education and Training (VET) environment.

In the previous two chapters, on learning and teaching, and on curriculum respectively, we have explored the special character of the network of knowledge and skills in VET. The education that we are concerned with here is a constant movement backwards and forwards between ideas about things and doing those things, between theory and practice. It is important that, throughout this chapter, we keep in mind that, in this sector, assessment has these different facets:

- assessment of practical skills, and
- assessment of foundational and theoretical knowledge.

We also need to think about how assessment helps to prepare students to respond to changes in business and industry, and for their own needs and interests.

The chapter assumes that many of you will have done or will be doing assessor training in order to achieve the general assessor standard, "Plan and conduct assessment". In your sector you may already be working in the context of unit standards, learnerships and industry qualifications, or you may be working in the context of the National Technical Education (NATED) curriculum. Whatever the case, and however the future curriculum options for FET colleges come to be shaped, assessment according to OBE principles is likely to play a key role. The aim of this chapter, therefore, is to help you explore some of the issues and challenges in assessment, and to relate these to your own contexts and practices.

Key questions

The chapter reflects on the following questions about assessment:

1. How can assessment help our students become competent for the workplace?
2. How does one decide that someone is competent?
3. How can assessment help to develop active learning and teaching?
4. What are some of the complexities around professional judgment and using criteria in assessment?

Outcomes

By the end of the chapter, you should be able to:

- Take account of the various purposes of assessment, and how they support teaching and learning.
- Consider ways to integrate assessment with teaching and learning so as to focus on learning goals.
- Understand the complexity of assessment and the role of judgment and interpretation in assessing.
- Identify ways to develop yourself as an assessor in vocational education through reflection on practice.
- Apply your knowledge of the different elements of assessment in practice.

UNIT 1 The purposes of assessment

Seeing what students know, at any stage of the learning process, is of course the overall purpose of assessment. Another way of putting it is to say that assessment is gathering information which can be used in various ways.

The next three activities give you different ways of reflecting on assessment. Do the activities, then we will look at how this relates to purpose.

ACTIVITY

Time needed
15 minutes

Activity 53: Identifying purposes of assessment

We spoke to a number of VET lecturers about assessment. The following are some of their answers to to the question, "What is assessment?"[1]

1. What are the purposes of assessment that are put forward in each of these statements?
2. Do you agree that each of these is an important purpose of assessment in an FET college?

Our comment

These lecturers identify different purposes of assessment. There is a strong statement of the *summative* purpose of assessment in point (e). This lecturer focuses on judging the final outcome of a learning process for the year, and making a decision as to how a student should proceed. Although we might say that she is a bit confused about the difference between judging someone a failure and as "not yet competent", her focus is still on judging a final outcome. In contrast, point (c) is about assessment as a formative process. Here, the lecturer is concerned with identifying what she needs to concentrate on in her teaching to help fill the student's knowledge gaps. The purpose of assessment in each of these two cases is radically different. But both concerns are relevant – in any course, there must be both summative and formative assessment. Certainly, in an FET college, it is necessary to find a balance between the two.

The other three statements (a, b and d) all show an understanding of this balance in describing the purposes of assessment.

Let us assume that these are also some of your purposes. How do your practices match up?

Activity 54:
Your purposes as an assessor

Under a heading, "Current practices and problems in assessing"; write a short paragraph about yourself as an assessor. Describe:

1. your most common form of assessment;
2. what pleases you about the way you assess students;
3. what your biggest worries are about assessment; and
4. how you see your role in assessment.

To get started on this activity, think first about the assessment methods that you use, like examinations, tests, observations, etc. Then think about what your main purpose is in each of these.

Our comment

This activity should help you to reflect on your experiences and identify some themes relating to your work as an assessor. On the positive side, some lecturers enjoy the way tests motivate their students to learn and concentrate on the important issues in the course. Others enjoy the opportunity that assignments provide to give constructive feedback to their students. On the negative side, some lecturers have trouble with all the paper work required of them, and others are worried that working towards examinations stops them thinking more creatively about assessment. Whatever your

concerns, it is worthwhile to continually go back to thinking about purposes, and whether your practices and purposes are in line with each other.

Now try the next activity.

Activity 55:
Main purposes of assessment

1. Make a list of what you consider to be some of the *main purposes of assessment*.
2. Read the following scenario and carry out the task that follows.

   A colleague of yours is angry with students for misconduct and tells them that they will have an unscheduled test in the next lecture period. The students panic, and argue that it is not fair. But the lecturer goes ahead anyway and the majority of the students fail the test.

3. Check back to the purposes of assessment that you have listed in response to question 1. For each point that you have identified, say whether the assessment practice in this scenario meets that stated purpose.

Our comment

Your response to question 1 may have included some of the following purposes for assessment:

- improving teaching and learning;
- feedback to the student on progress;
- feedback to the lecturer on teaching;
- feedback to the broader education system on how well an educational organisation is doing;
- checking that good teaching and learning is taking place;
- motivating students to learn; and
- checking competence.

These are sometimes classified into broader ideas about purposes of assessment:

- baseline – to pitch the learning at the correct level for the student;
- placement – to determine which level of programme a particular student is ready for;
- formative – to aid learning and to give feedback;
- summative – to check achievement of competence at an end point in learning, and to award credits and certification in relation to unit standards and/or qualifications;
- recognition of prior learning – either for exemption from parts of a course, or for credits against unit standards;
- diagnostic – to identify current performance and gaps in learning; and
- evaluative – to see how well lecturers or colleges are performing.

All assessment methods must provide us with data (or evidence) on the basis of which we can make our judgments. Assessment gathers information which may be used for the different purposes listed above.

Remember that the method of assessment is not the same as the purpose of the assessment. For example, a written test can be used for diagnostic purposes, or it can be used for certification purposes. An observation assessment may be used as a feedback opportunity, or it could be used to see if a student can progress to the next level of complexity in the programme. The scenario given in the activity used a test to control classroom behaviour. Behaviour control is one use for assessment, but is it a valid one?

Summary comment on the last three activities (53, 54 and 55)

The three activities mobilised some different approaches to assessment. The first exercise asked you to interpret statements made by others, the next to write an informal narrative, and the last to list and classify your ideas.

What were the different aims of these activities? The first activity presented the idea that different lecturers in an FET college will have different views of assessment, and asked you to respond to these. It also set out to illustrate the statement that assessment can have different purposes. So the purpose of the activity was formative in the context of our current reflection on assessment. The second activity in the sequence had a rather different purpose: it gave you an opportunity for self-assessment. Both of these activities led to the more formal, analytic requirements of the third activity: to classify assessment into different categories according to purpose, and to check your ideas against the categories that are generally used in this field of inquiry.

One of the main distinctions that has come from this series of activities is that, that exists between *formative* and *summative* assessment. Formative assessment is often described as *assessment **for** learning* and summative assessment as *assessment **of** learning*.

In the South African Qualifications Authority (SAQA) guidelines, formative assessment "refers to assessment that takes place during the process of learning and teaching", while summative assessment "is assessment for making a judgement about achievement"[2]. Formative assessment supports learning and teaching, provides feedback to learners and is developmental in nature, while the main purpose of summative assessment is to determine whether a learner is competent or not yet competent. SAQA does point out that summative assessment does not only have to take place at the end of the course: it might, for example, be used in a modular-based programme. Equally, evidence from formative assessments can also be used for summative purposes – for example, this evidence could form part of a portfolio of evidence submitted for the award of credits.

ACTIVITY

Activity 56: Messages about assessment

Time needed 10 minutes

Have a look at the following scene from the Independent Examination Board (IEB) Assessor Manual[3].

Is the message from this assessment practice the best one to send out if one is interested in the improvement of learning? Give the reasons for your answer.

OUR COMMENT

Our comment

This is a typical example of what happens in a system that places emphasis on marks and on passing and failing, rather than on what has to be learned. These students are not thinking about where they could improve their learning. They are only concerned with passing, and their position when compared to others. As a lecturer, is that what you want the students to focus on, or do you want them to focus on what they have learned and how well they have learnt it? Looking at beliefs and messages can help us to align our assessment practices with our purposes.

KEY POINTS

Key points

- Assessment is conducted for a range of purposes.
- There needs to be a balance between formative and summative assessment.
- Assessment should help learners think about their strengths and weaknesses.

UNIT 2 Assessment methods and evidence

Assessment decisions are made on the basis of evidence. Evidence is what you see as a result of learning: it is anything produced by the student to show competence in a field of learning. Evidence can be written, oral, observed performance or other documented behaviours. But students have to be guided as to how to produce appropriate evidence, and this is where assessment methods come in.

Activity 57: Why this method of assessment?

1. List the assessment tasks that you currently give your students. These may include tests, examinations, observations, interviews, and simulations.
2. From the list, try to identify three things that each task or activity might test. For example, examinations might test content knowledge or theory (essential embedded knowledge) in a specialised craft area.

You may want to use this table to help you to organise your thoughts prior to answering these questions:

Type of assessment	What does it test?	Strengths	Difficulties

Our comment

Your list probably shows that there are a range of methods that you use to carry out assessment. For example, if the purposes of assessment are formative, you might want to use self assessment and peer assessment. Some methods may allow you to make "on your feet" decisions about whether or not students understand your input at any point in time, and about how to adjust your teaching to help them overcome any misunderstandings. Summative methods may be more formal, in that you have to make the final, end-of-course judgements called for by the curriculum. The point is that you, like any other lecturer, use a number of different assessment strategies at different points in time with different purposes in mind.

The following are methods that college lecturers we have spoken to say they use:

Methods of assessment that college lecturers report they use:

- Appointments
- Assignments
- Attendance
- Descriptions
- Examinations
- Exercises
- Interviews
- Observations
- Ongoing questioning
- Orals
- Practicals
- Projects
- Research
- Role play
- Tests
- Questionnaires

These methods, they say, can be either formal or informal; focused on either the individual or on a group; they can be at the end of the course or throughout the course; at home, in the class, in the workplace or in formal examination rooms. The key issue, though, is that the method should gather appropriate evidence for what is being assessed. Look at these examples[4]:

Example 1:	Competence as a *project manager* may include skills such as chairing and managing meetings. It would be inappropriate if the student only produced a written list of skills needed as evidence; appropriate evidence might include real life reporting on the application of such skills, or scenarios and simulations of performance.
Example 2:	Competence in the area of *emergency services* would certainly demand technical application which would need to be demonstrated on the appropriate equipment.
Example 3:	Competence in the area of *financial expertise* may depend on factual knowledge of certain rules and formulae. These could appropriately be assessed in a written assignment or exam.

These examples show that *what* (evidence) we assess and *how* (method) we assess it is of key importance: in Example 2, assessing a firefighter for specific skills through a written test would primarily assess his writing and memory skills, not his fire-fighting expertise. This kind of assessment would be invalid because it would not assess what it claims to assess. We will return to this point later.

ACTIVITY

Time needed 45 minutes

Activity 58: Using a range of methods for summative assessment

Go back to Chapter 2, and examine the cosmetology case study again.

You have read about the three different methods of assessment used by Lindi. Now choose and describe three different methods that could be useful for summative assessment in one of the courses you teach.

OUR COMMENT

Our comment

Summative assessment processes comprise an important component of the assessment methods that need to be developed at any FET college. Lindi notes that new assessment policies in the FET environment require a range of different methods of assessment to be employed. One reason is to ensure that students with different strengths in relation to different types of tasks have an opportunity to show what they can do. Another is to ensure that different aspects of competence are assessed appropriately: as we saw above, the assessment method must elicit the kind of evidence you are trying to collect. Consider the range of assessment decisions that are made by the lecturer, Lindi. Firstly the student has to see the client's face and understand her features in terms of knowledge learned about face shapes. Then the student has to plan what she will do to change the face to the "perfect oval". When she executes the plan, it is the "process" that becomes important. She has to be gentle, provide a pleasant experience for the client and so on. And of course, she has to change the face using make-up in the way she has been taught. She would have to be assessed on the analysis, the plan, the process, and the product. Lindi has to use different methods of assessment for the different stages.

It seems obvious that in VET a range of assessment methodologies is called for. Between them, they must cover the range of knowledge and skills in both the theoretical and practical dimensions of the craft or vocation that is under scrutiny. There is no doubt that written examinations alone cannot provide for the full range of summative judgements that need to be made in FET colleges.

In both summative and formative assessment, a range of methods are called for in relation to a range of different purposes.

ACTIVITY

Time needed 30 minutes

Activity 59: Assessing against unit standards

If you are working in the context of unit standards, try the following activity:

1. Choose any unit standard with which you are familiar, or source one in your learning field from the SAQA website www.saqa.org.za.
2. Look at the purpose statement, outcomes, range statements, embedded knowledge and reference to the critical cross-field outcomes. Now answer the following questions:
   a. Does your unit standard lend itself naturally to a task that covers all the outcomes in the standard, or would you have to devise more than one task to cover the outcomes?
   b. How would you assess the critical outcomes? Could you assess one or more of them in the context of the specific outcomes in the unit standard?

OUR COMMENT

Our comment

Different sectors and fields produce such different unit standards that we can only make the broadest general comment here. The key point is that unit standards need to be interpreted: the outcomes are not in themselves a recipe for assessment and, the assessment criteria do not in themselves tell you how to assess. You need to work out what activities will produce the evidence needed to illustrate those outcomes. Some standards easily lend themselves to clustering of outcomes, in which one task can cover the whole or most of the standard; others may not, and may require a number of tasks. You can think about linked tasks: for example, during a practical demonstration a student may be asked carefully formulated questions, such as "Why …?" (drawing out specific knowledge required by an outcome), or "What would happen if …?" (addressing critical outcomes such as problem solving).

There are other ways of addressing critical outcomes in an assessment. For example, in a business studies unit standard, one of the specific outcomes is "Identify the purpose and functions of different departments in a business or organisation". The critical outcome "work effectively with others as a member of a team, group etc." could be explored in the context of this outcome. For example, the student has to show the interconnections and workflows in a specific organisation; or a scenario could be devised in which one member or an entire section of a department does not carry out their responsibilities. Students will have to review the impact of this, and propose solutions, possibly as a role play.

If you want to find out more about assessment specifically in the context of qualifications based on unit standards, go to the SAQA website at www.saqa.org.za, look under *Documents*, and look at the following publications:

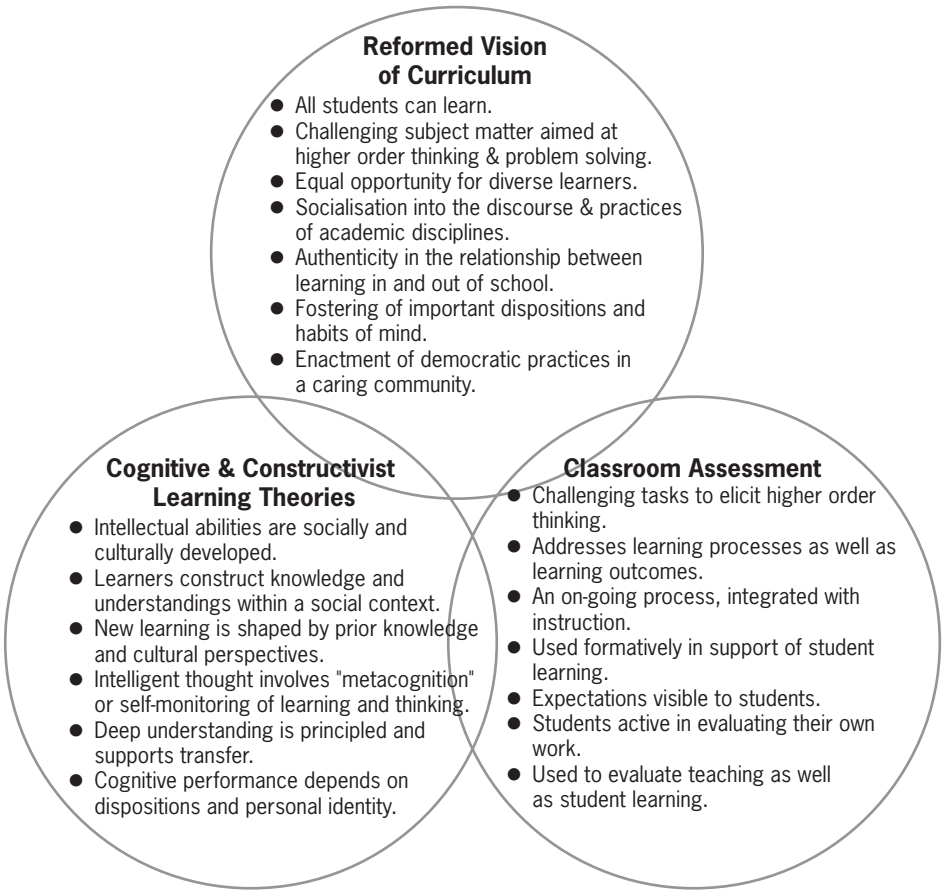
- Guidelines for Integrated Assessment (February 2005);
- Criteria and Guidelines for the Assessment of NQF Registered Unit Standards and Qualifications (October 2001); and
- If you are especially interested in issues around Recognition of Prior Learning (RPL) – Criteria and Guidelines for the Implementation of RPL (June 2004).

Key points

- A range of assessment methods should be used.
- The assessment method should be appropriate for the kind of evidence needed.

UNIT 3 Assessment and the learning process

The view that assessment is simply something that happens "after learning" has long been discredited. Assessment is now seen as something that happens during learning, and that promotes learning – assessment "for" learning rather than just "of" learning. The following diagram is an attempt to represent the integration of teaching, curriculum and assessment.



Shared principles of curriculum theories and assessment theory.[5]

The view of learning represented in this diagram is one in which feedback from many sources helps learners to learn through social processes. In other words, ongoing assessment and feedback are considered to be part of the way learners learn. The idea of learning as an active process of sense-making has implications for assessment. Assessing is not just about the accumulation of facts that the learner already knows; much more importantly, it must help the learner to reflect on the learning process.

What might this mean for assessment in a VET context?

Activity 60: Linking curriculum, teaching and assessment

In Chapter 2, read the reflections of Quinton Paulse, lecturer in cabinet making.

1. Do you think that Paulse is optimistic enough about Ian? Why?
2. Assuming that teaching, learning and assessment are related, suggest how Paulse could help Ian prepare adequately for his final assessment.

Our comment

Quinton Paulse should consider what experiences Ian needs to enable him to develop an overall appreciation of a good piece of furniture. Can he help Ian to build up a holistic sense of the envisaged final product in such a way that this vision can give focus to every single one of the technical procedures that he follows in the workshop?

It may be that this overall appreciation of good furniture can only develop over time, in a sound relationship between the master craftsperson and the student. In this case, there is not much that Paulse can do to improve Ian's chances at this stage.

But perhaps Paulse is too pessimistic. He could certainly be more proactive in telling and showing Ian where his weaknesses lie, and how these will affect his performance in the final assessment. Paulse could use some of the drawings of the envisaged final piece of furniture, which he knows are so important in the design and conceptualisation of quality furniture, to help Ian understand what it is that he is missing at any point in the construction process. Paulse could get Ian to make some of the drawings himself, to help develop the skill of envisaging the final outcome. In these ways, surely Paulse would be improving Ian's chances in the final assessment, even at this late stage? What Paulse would be doing in this case is using his assessment judgments to try to focus the teaching that Ian desperately needs at this point in time.

If we take a strong view that assessment should be conducted in the service of learning, then we will try to use assessment as much as possible in a formative way. Theorists often refer to this kind of commitment as dynamic assessment [6] – assessment that helps the process of learning by teaching through assessment.

> Dynamic assessment – finding out what a learner is able to do independently as well as what can be done with adult guidance – is integral to Vygotsky's idea of a zone of proximal development (see Chapter 3, p. 105–106). This type of interactive assessment, which allows teachers to provide assistance as part of assessment, does more than help teachers gain valuable insights about how understanding might be extended. It also creates perfectly targeted occasions to teach and provides the means to scaffold next steps.[7]

If assessment is to support teaching and learning, then we have to look at it from a number of angles. Let's now look at assessment from the students' point of view.

Activity 61: What students need from assessment

1. Make a list of some of the needs students seem to have in relation to their assessment at an FET college.
2. What kind of assessment is called for in each case, and what is its purpose?

Our comment

Often, students do not see assessment as being generally supportive of their learning and progress, but rather tend to think of tasks, marks and grades as being fixed measurements of their ability and potential – an unfortunate consequence of using assessment only for summative purposes. Here are some suggestions about what students really seem to need from assessment feedback in their studies:

- Students need to know what is expected of them in any task or assignment. Generally, this is done through clear task instructions, and through setting out what is expected in the final output (that is, the evidence requirements and the assessment criteria, which we will discuss later). Getting students to design assessment tasks or exam papers together with the lecturer may help them to know what is important, and how to prepare for assessment.
- Students need to know whether they are making progress or not. Lecturers should keep in mind what competences must be developed in vocational education, and communicate this clearly to students. Feedback is very important. It might be written, spoken, individual or group and it can be through demonstration, checklists or reports.
- Students need to know what to do to improve their work. Assessments can help students know how they are doing and where they might need help or correction.
- Students have a right to know the procedures and processes of assessment. This could include details such as time requirements, resources and equipment, and safety measures. In addition, it includes systems issues, such as an appeals policy if they think that the processes of assessment are not fair. Students also need to know their own responsibilities. These processes and principles are best put into a formal assessment policy.
- Students need to be given information about the credits or qualification that they are working towards, and the opportunities for work or study these offer. While this is primarily a student support issue, they do need to know about the relationship between their assessment requirements and the achievement of credits for certification.

You can see that these needs relate to both formative and summative assessments. The overall point of assessment, thought about in these terms, is that it must function in support of learning, in that students must be given insight into what makes up the competences they are working towards, and what kinds of evidence illustrate these competences. If we can provide criteria that are as explicit as we can make them, then students can start to assess themselves against these in order to strengthen their work.

We must consider how assessment affects learners, and act with the utmost professional responsibility in this regard.

There are other ways in which assessment affects students. The higher the stakes in assessment, the more emotion it may engender. For many students, unprofessional assessment practices can do untold damage to their self-esteem, and their interest in learning. A lecturer who continually puts students down, or tells them they can't do something, is putting their ability to achieve learning goals at risk. This is not professional.

Student motivation and commitment to work is one of the keys to successful learning. Some students may be motivated by an examination because it gives them a deadline to work to, forces them to consolidate their work and integrate all the ideas covered by the course. Or, if they are to be examined on a skill, a looming demonstration might help them to polish that skill by working on it really hard as the observation date approaches. Maybe without the assessment, they would not have the motivation to perfect the skill. On the other hand, some students compare themselves to their classmates after an examination, and realise that they did not do as well as their peers. This comparison could make them feel useless and want to give up the course – this would be regarded as a negative effect of assessment which has a de-motivating effect.

Let us consider some of the effects that assessment might have on students, both good and bad.

ACTIVITY

Time needed 30 minutes

Activity 62: Some effects of assessment

1. In terms of the purposes of assessment, brainstorm (perhaps with colleagues) what you think are the most positive effects of assessment on students (for example, getting them to engage with the course learning).
2. Outline the most negative effects of assessment on students (for example, making them so anxious that they cannot engage with course learning).
3. Then discuss how you can minimise the negative, and maximise the positive.

Our comment

Obviously, there are a range of issues you might have looked at. Here are some ideas about the positive and negative consequences of assessment.

The way feedback is given is important. One prominent writer on assessment, for example, has claimed that feedback on assessment given in the form of marks is not the best way to proceed. It affects the way people see themselves, rather than providing them with what they need to do to improve their learning.[8] While marks can certainly be an element of feedback, the process should also be a two-way interaction between lecturer and student: you should discuss where they have improved, where their weaknesses lie, check whether there are any conceptual misunderstandings, and set realisable targets.

Sensitivity to diversity is another consideration. Some careful thinking around the following questions might well help with language problems:

- Are questions clear?
- Are there perhaps two ways to read and interpret the question?
- Am I using ideas that may be uncommon to the different student groupings in my courses?

Issues such as timing and giving students opportunities to show what they know are also important:

- Have I given enough time for reading the question or performing the task?
- Are my assessments set out in a way that helps the student show what they know or can do?

Sometimes one might choose not to correct all the errors in a student's work, and focus on only one skill if that might keep the student more motivated. To know when and where to correct students is a balancing act, and this competence depends on your knowledge of the students and the development of knowledge or skills. We would not criticise a student for not being able to wire a whole house if he can't wire a two-phase circuit.

Key points

- Assessment encourages active teaching and learning.
- Assessment feedback helps students know what is expected of them, and can help motivate them towards their learning goals.
- Assessment can help lecturers plan for more effective teaching.

UNIT 4 Making judgements

Making a judgement on the evidence is of course the main role of someone who assesses. This is one of the more complex aspects of assessment: for example, how much does good judgement rely on explicit and transparent criteria, and how much on internalised professional evaluations based on years of experience? This next section will outline some of the more complex aspects of assessment for you to consider.

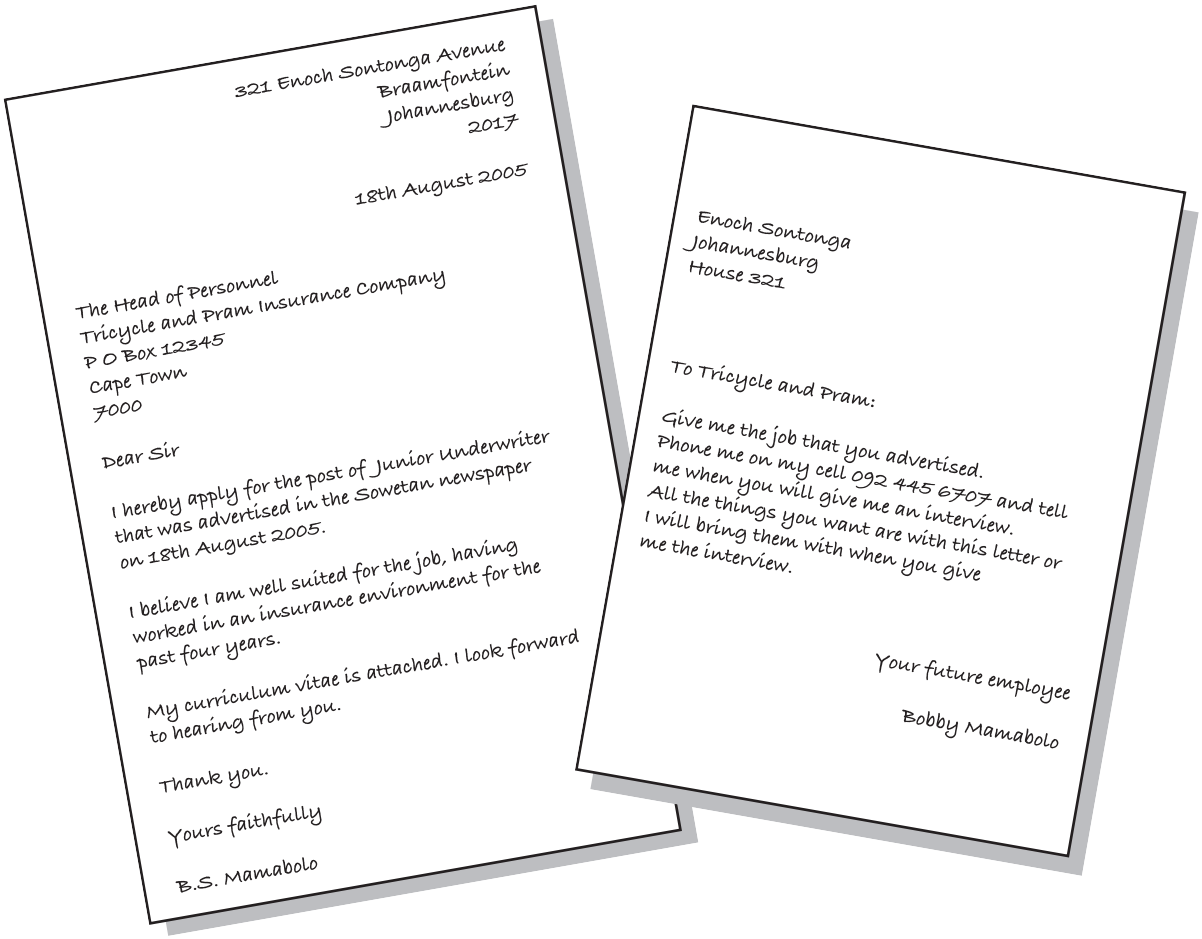
First, let us think about some of the different areas of work and related assessment practices in the colleges. The question that drives assessment in all areas should be: "*Have the students learned enough of the right kind of things, well enough*?"

- A mathematics lecturer teaches engineering students five hours a week for ten weeks and expects them to study between lectures. In these notional hours of work, the students should have learned a considerable amount. To assess this learning, a two hour examination is set, the students write, someone marks, someone moderates, someone reports, and the students are given a "mark".

- A hairdressing lecturer has taught students how to wash hair, and later how to cut a bob on certain types of hair. To assess, the lecturer watches the students work, and grades their competence using a grid with explicit outcomes and criteria, such as "uses a reasonable amount of shampoo", and "cuts in the shape of a bob".

- A lecturer in an electrical workshop assesses a student's ability to work with two-phase current by giving him a circuit to wire – if it works, he is deemed competent for that task.

- A business studies lecturer working with learners on a learnership has to assess their ability to write a business letter to someone in the organisation in which they work. The lecturer can say whether the address is correctly placed and whether the format is correct, but can also comment on whether the letter communicates what is needed, and how well.



These are just some examples of the kinds of assessment practices found in colleges. They are obviously different, yet they all share the requirement that an expert, skilled assessor makes judgments about whether or not a student has learnt enough of the right kinds of knowledge and skills to meet the minimum requirements for success in a defined field of knowledge or work. In some ways a metaphor for an assessor could be that of an "assessor as a judge" because judging is one of the realities of assessing. But we would not be judging to see whether a student is innocent or guilty – as we have seen, we could have a number of different purposes in mind.

Think about the different layers of judging that we might find in assessment:

- An examiner in a national examination has to judge what to ask.
- A marker has to judge how well a student has responded (unless there are yes/no questions or very straightforward answers).
- An examiner in a practical exam has to decide whether a candidate has achieved minimum requirements in relation to specified outcomes.
- A moderator has to judge whether a marker has marked accurately enough.
- A verifier has to judge that the required moderation process was in place and working.

- A quality assurance body or accreditation board has to judge whether these marks accurately reflect the students' competences in relation to other students in similar institutions.
- At all levels of an assessment system, someone with particular kinds of knowledge and skills is making judgements about the competence of other people.

We term these judgements "*professional judgements*", to distance ourselves from any negative connotations that the idea of "judging" might have.

As assessors we make professional judgments all the time. Some of these we don't even notice as judgments any more. What are some of the professional judgments made by lecturers as assessors in the college system?

For example, a hair-care lecturer uses the rubric that we show here.

Assessment activity	Criteria	Competent	Not yet Competent
Shampoo hair	uses an appropriate amount of shampoo		
Apply conditioning treatment			
Rinse hair			
Towel dry			
Comb out			
Administer a bob haircut to customer with Caucasian hair			

One criterion for shampooing is "uses an appropriate amount of shampoo". The lecturer has to tick the student on the criterion, to judge the competence. It seems specific. Nevertheless, the hair-care lecturer has to judge what counts as an appropriate amount of shampoo. She may have had to teach the students how to judge that in the first place, sharing her sense of the practice with them, and her judgment of what is appropriate will depend on her own professional sense of this. She will also have to judge the quality of the bob cut – how well the student cut the hair in the shape of the bob and so on. In the context of this particular task, the specified characteristics of the

customer given in the rubric have to be taken into account in decisions on the kind of shampoo and conditioner used, and the way in which the cut is done. This calls for professional judgement on the part of the both the student and the assessor.

There are other examples of the need for this kind of professional judgment:

- In addition to the technical aspects of a business letter, the business studies lecturer has to judge the quality of the communication in the letter in terms of its purpose. Does it communicate what was needed? How well does it do that? For example, does the student use an appropriate tone? Is the style acceptable?
- The electricity lecturer has to see if the light comes on – but what if it doesn't? Does the lecturer try to judge what knowledge the student does have, in order to help him get it right? If the goal is the student's learning, then certainly what he knows and still needs to know is important.
- Those being taught to service lifts will have to know how to work under pressure as people's lives may be at stake, and, in the words of a lecturer, "you have to get it right". Here the assessor would be required to judge whether the student knows enough to get it right under real conditions of pressure, although he cannot assess the student under "real" conditions with "real" people in a stuck lift.
- Lindi, in the cosmetology case study in Chapter 2, had to use her judgment to decide that the face in the picture was diamond shaped according to her typography of faces, and that the students needed to see things the way she did because she saw herself as the expert, based on years of cosmetology tradition.

The following activity aims to help you to identify professional judgments in your own practice.

Activity 63: Professional judgment in assessment

Think about the types of judgment you make when you assess in your area of specialisation:

1. List five judgments that you have made in recent assessments. For example "I judged whether the student from the prison could make a good fitter and turner" or "I judged whether the student selected the appropriate tool from the array of tools on the wall".
2. Choose one judgment and decide whether the judgment was a "good" judgment.
3. How can you tell? Here you have to make a judgment about what a "good" judgment is!
4. Now think about what kinds of knowledge or competence you yourself needed to have to make that judgment. Working with the kinds of judgments you make in your assessment practice, brainstorm (with others if possible) what qualities and competences you bring to bear in assessing in your sector. Use the table below to organise your thinking:

Knowledge	Your competences in this area of knowledge
Knowledge of students	
Knowledge of practical skills	
Knowledge of theory or content	
Knowledge of assessment approaches and methods	
Knowledge of industry	
Knowledge of college and system	
Knowledge of purposes of the assessment	
Knowledge of effects of assessment	
Knowledge of legislation	

Our comment

Much thought and expertise needs to go into assessing students, especially in a complex sector of education. When you filled in the table, you would have been reminded of how much competence you need to draw on when you assess. Good assessment practice demands many competences of lecturers, especially if assessment is used to develop the students.

We might make the same point about how much is involved in good assessment:

> …being able to ask the right questions at the right time, anticipate conceptual pitfalls, and have at the ready a repertoire of tasks that will help learners take the next steps requires deep knowledge of subject matter. Teachers will also need help in learning to use assessment in new ways. They will need a theory of motivation and a sense of how to develop a classroom culture with learning at the centre. Given that new ideas about the role of assessment are likely to be at odds with prevailing beliefs, teachers will need assistance to reflect on their own beliefs as well as those of learners, colleagues, parents, and school administrators.[9]

This quotation talks about knowing the effects of assessment, knowing methods, knowing the subject, and about knowing the right kinds of questions to ask. But it also acknowledges that educators may change their beliefs about assessment. As lecturers you need to reflect on both your own assumptions about assessment, and the assumptions underlying policy documents and official statements. You are part of the community of practice that informs ongoing policy and educational debates.

Activity 64: Are assessors always right?

Some assessors give out marks correct to two decimal places: for example, 85.25%. A mark like that certainly looks as if we have assessment "buttoned up". It looks as though we can be really accurate – but about what? And how?

Make brief notes about the way your students see your authority as a marker.

1. Do you ever think you may be wrong? Would you let a student question your judgment?
2. Did you ever question an examiner's ability to judge your work? If not, why not? If so, what allowed you to question it?
3. Most assessment policies have appeal procedures. Do you think that this should be the case, and if so, why?

Our comment

It is widely accepted in assessment circles that the judgments that assessors make are fallible. They must therefore be subjected to various kinds of scrutiny and quality control. Obviously, the bottom-line requirement is that the assessor of a candidate's performance on any particular task must be a recognised expert in the cognate field of knowledge, craft area and/or vocation.

There are also internal forms of control that should be built into any assessment system. The literature speaks about *reliability* and *validity* in assessment. If you have done your assessor training you will probably have discussed these terms at length. Reliability is linked to consistency of judgment over time, and validity is linked to whether the assessment method does what it is meant to do (see the definitions below). Some see *validity* and *reliability* as being in tension with each other. If you make an assessment more *reliable* (for example, by reducing it to yes/no answers or checklists, so that there is no room for differences between assessor interpretations), you also make it less *valid* in that it might not really test what you want it to test (for example, the student's ability to explain and justify). Others see reliability as one of the criteria for validity. Again, one can only go back to ensuring, as far as you can, that your assessment is fit for purpose.

> ***Validity*** **in assessment refers to an assessment measuring what it says it is measuring, be it knowledge, understanding, subject content, skills, information, behaviours, etc.**
>
> ***Reliability*** **in assessment is about consistency. Consistency means that comparable judgments are made in the same (or similar) contexts each time a particular assessment for specified intentions is administered. Assessment judgements should also be comparable between different assessors.[10]**

Another area of concern about assessment, especially from the students' point of view, is fairness. Your responses in this activity might have included some thinking about subjective judgments in assessment. One way to deal with the issue of fairness is to diversify the assessment methods that one uses. Remember the reflection by the lecturer in the cosmetology case study in Chapter 2?:

> Lindi feels much more confident of giving her students a chance to pass, now that she uses three different assessment modes: observation, illustrative planning sketches and the examination ... in the past, she used the sketches and the practical work as part of her course, but it was never part of assessment. Only the exam counted, and Lindi can see now that this was unfair to many of her students.

Another way would seem to be the specification of assessment criteria, so that both students and assessors can have a joint understanding of what is required. But, as we shall see in the next unit, this is not a straightforward matter.

Key points

- Professional judgement is made up of internal knowledge and experience as well as explicit statements of desired features of performance.
- Reliability and validity need to be built into assessment design.

UNIT 5 Competence and assessment criteria

What counts as competence?

We have looked at some of the issues around professional judgements on evidence of competence. But what counts as competence?

The setting of outcomes and assessment criteria, either through unit standards or outcomes-based curricula, is a way to try to express what is required for competence.

There have been many debates about the balance between practical skills and theoretical understanding, especially in VET. NQF and OBE principles stress the integration of theory and practice. Unit standards, as they have developed in South Africa, require demonstration of practical, foundational, and reflexive competence:

1 *Practical competence* is the ability in an authentic context to consider a range of possibilities for action, make decisions, and perform the action.
2 *Foundational competence* is where the learner demonstrates an understanding of the knowledge and thinking which underpins the actions.
3 *Reflexive competence* is the ability to integrate decisions made with the ability to adapt to changing circumstances and to give reasons for new approaches.

Competence as a whole is understood to have a number of different levels, and demonstration of that competence in assessment tasks requires a range of different kinds of criteria to be met. Performance assessment or assessment of practical skills is more than just a list of distinctive tasks. For example, how do different contexts affect ideas of competence? In many unit standards one aspect of competence is in fact the ability to "contexutalise" skills for a specific application, and both learners and assessors would need to pick up on what is required in changing conditions. One of our purposes in the FET colleges, as we saw in Chapter 1, is to ensure that the student can be a flexible enough thinker in response to changing worlds of work.

ACTIVITY

Activity 65: Thinking about competence

Time needed 30 minutes

Choose one of the courses you teach. Think about the person you regard as the most competent student in that course at the moment, and try to describe what makes this student competent. Have a picture of someone really excellent in mind.

1. Write down in about 10 sentences what you think are the competences of this student.

Ask a colleague who teaches the same group of students to do this exercise too, but don't tell your colleague which student you have selected. Once you have both done this exercise, check to see which student you each chose, and try to say why. Then compare what you think are really important competences for your course.

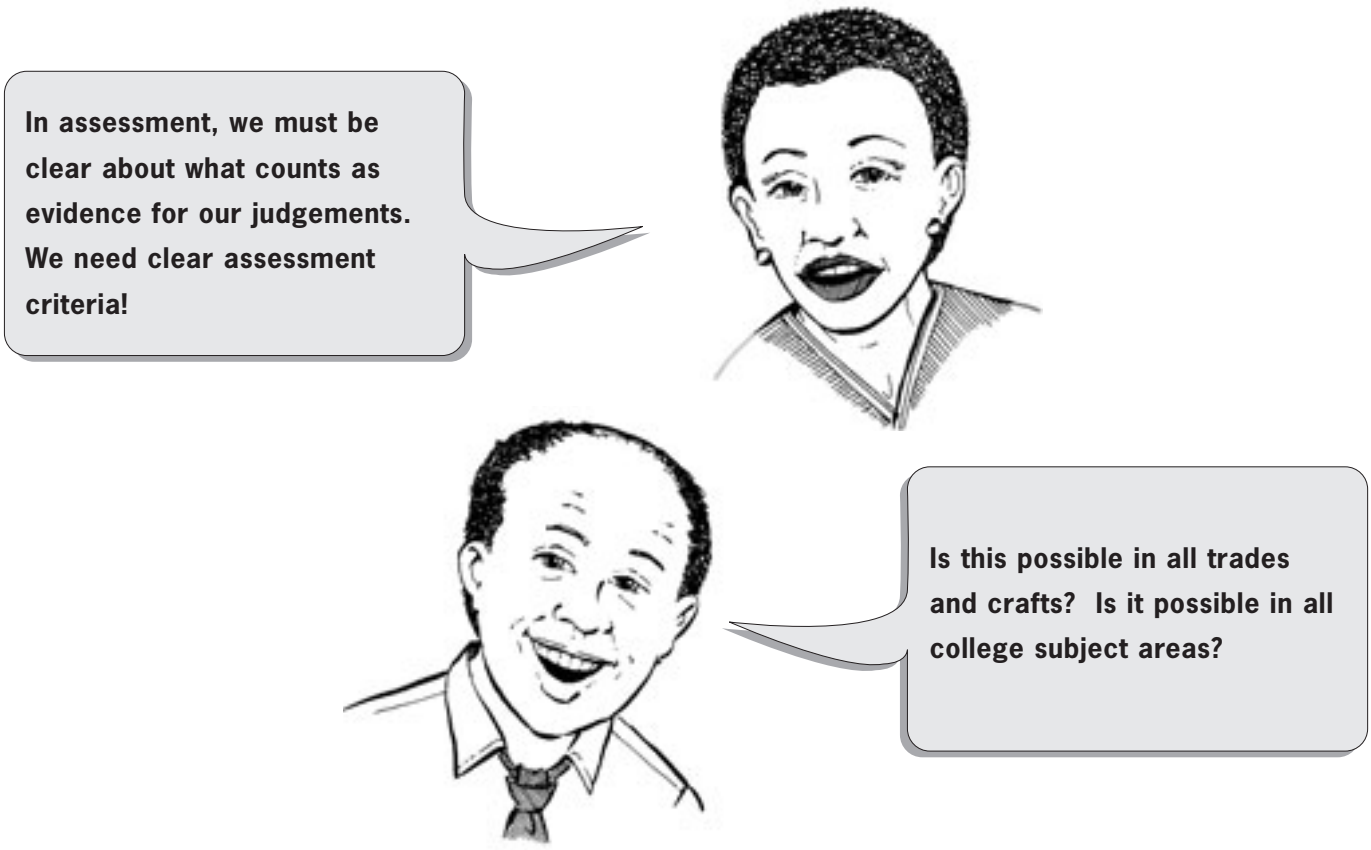
2. Are your views the same? If so, why might this be so?
3. If not, in what ways do they differ? Can you explain why they differ?

OUR COMMENT

Our comment

Your description might have included what the student can do, as well as how he or she understands what is done. It might have included the context in which the student learns or comes from. It probably included something about how well the student has met the specified outcomes in your area or specialisation. Whatever came into the description, you will find that it is guided by certain criteria that you have as a lecturer – as an expert or a master craftsperson – about what counts as good practice and as adequate performance in your field. As a lecturer, you need to have a strong sense of "what counts" as a basis for making judgments.

There are many debates about competence and how to assess competence. Some claim that it is possible to assess isolated skills, and others that it is essential to assess the integrated whole. The criteria that we use for assessment are not necessarily straightforward, in any given area of expertise.



In some fields, assessment appears to be more difficult than in others. We have all heard the claim that marking an arithmetic test is easy and "objective" because there are right answers, whereas marking a literature essay is difficult and "subjective" because it is all a matter of opinion. In fact, the story is not so simple. Arithmetic is part of a bigger system of mathematics: the deeper we go into the system, the more difficult tasks become and the *assessment criteria* required become more complex. Likewise, the study of literature is not open ended. There are criteria that critics use to judge good and bad work: the teaching of literature requires that one gains an understanding of how these criteria work, and develop related criteria to assess a student's understanding of how to read and interpret literature.

The more we can reduce assessment to component parts, the more we are likely to get the same results as other assessors, but we might also miss the overall picture. Look for example at the cabinet making case study in Chapter 2. Quinton Paulse, as the assessor, recognises on the one hand that one of his students, Ian, can produce work that is technically very accurate, but at the same time what he produces is not good furniture. We might take this further: perhaps there is a student who produces a strong, structurally sound, well put together cabinet, which is nonetheless uninteresting and unappealing as a piece of furniture. Only an experienced master craftsperson is able to look at a piece of furniture in its totality and make a judgment about whether or not it is up to scratch. In making such a judgment, the assessor takes into account style, design, appearance, choice of materials and each technical feature. More than anything else the judgment is based on all kinds of tacit knowledge that the assessor has built up over years of experience working in the field. The assessment criteria at work in any situation are usually enormously complex.

How best do we manage the complexity? Even though we cannot be certain of judgments, we have to make them in learning, and we need criteria to do this. We cannot get rid of assessment. It is essential. The following quotation makes this point strongly:

> If human beings want to learn anything, from learning to tie their shoe laces to learning to solve problems in nuclear physics, then it is inevitable that they will want to know how well they have been doing at what they have been learning. Often, too, their teachers will be keen to find out or evaluate how successful their instruction has been… Assessment is not therefore an optional extra in learning but is rather a necessary, integral feature of every human effort to acquire mastery of a skill or body of knowledge …There seems to me to be merit in seeking to be more specific and precise about the learning …This will involve defining what has to be learned as comprehensively as possible, specifying criteria of achievement at the learning in question and devising appropriate instruments to assess this achievement.[11]

Using assessment criteria

Whenever we assess thoughtfully, we make a judgment against some criterion, whether this criterion is explicit or not. Some people may not be aware that they are making judgments against criteria, as those criteria are part of their tacit knowledge, or common sense, and they have never really thought about them deliberately. Some may resist making criteria explicit, for reasons that include the following:

1. They prefer to assess the totality of a task (i.e. to make one overall judgment about a piece of work).
2. They believe that to specify criteria exactly may stop learners from responding to a task with their own original ideas.

Some also say that one cannot always make criteria explicit, that one has unspoken knowledge about quality. These assessment practices may be fine in certain situations, provided there is a strong sense of shared practice amongst the lecturer/assessors, and developing amongst the learners on the course. But this is often not the case. Explicit assessment criteria are in fact needed, both to ensure fairness and consistency in assessment between different assessors, and so that learners know what they are working towards. Only then can a shared sense of practice begin to be built up.

Sometimes judgments differ because assessors value different aspects of the learners' work or because they have different purposes for assessment. These purposes and criteria form the basis for the judgment. But if we can explain what we have done in assessment, then we help those using the feedback from assessment. This can help our learners to understand "what was looked for" a bit better. So there is a general need to make our criteria for judgments as explicit as possible, not only for consistency, but to help learners orient themselves to what is required and provide them with something against which to assess themselves.

This is a very complex issue in assessment. Even assessors who have worked together for a long period make different judgments, and find it difficult to explain the criteria they use in making their decisions to each other.

Let's look at criteria and judgment from a different perspective.

Assessment texts often use "the Olympic Games analogy" to explain professional judgement and assessment criteria. In the Olympic Games, competitive stakes are very high and small margins of difference will make you the winner. So at these competitions, accuracy and consistency of judgment are important for the goals of discriminating difference between competitors in order to rank the first three in the competition. As assessors, these judges must make fine, or "close-call" assessments in order to do their jobs properly.

It takes time to develop as an Olympic judge. First, each one of them has years of proven experience at lower levels of competition. Then, they undergo specific training for different levels of judging. For example, in gymnastics, the training involves discussing judgment of different gymnasts' performance. Gymnasts are brought in especially for the training. The judges have to work towards uniform decisions. The *community of practice* idea can help us here once again: in order to be a good assessor. An Olympic judge must become a member of a particular, world-wide community of practice. Entry into the community requires years of experience and rigorous training over time.

However, apart from the selection and training of experienced judges, the criteria that are used are for the most part clear. Here are some examples for judging in gymnastics:

- Certain mistakes are allocated points that are subtracted from the opening score. For example, if a woman gymnast falls off the beam in a sequence, she loses 0.5 from the perfect 10. This is easy to judge – you either fall off or you don't.
- Wobbling detracts from a perfect performance. But this is more difficult to judge and the points deducted are more difficult to decide upon.
- The level of difficulty is addressed by criteria that are related to the "starting scores" of a competitor. They are worked out from what moves the gymnast chooses to include in her sequence and more points are allocated for more difficult moves.

To come to a final tally, a judgment across the scores is made. There is an assumption that there will be differences of judgment, but nonetheless a level of confidence that there will be *consistency* across the different judges, so that some kind of typical judgment can be arrived at. At certain levels, judges sometimes have to get together to discuss scores and extreme scores could be disregarded.

Nonetheless, despite all of these "objective" criteria, it is recognised that some aspects of the performance are very difficult to judge, such as in the "artistic" category. Here, the expertise that underlies professional judgments is very important.

In the end, the selection of top judges for the Olympics is an overall recognition of their experience in the field. They are selected because of the *consistency* of their judgments. As we have seen, using assessment terminology, consistency across judges and judgments is called *reliability*.

ACTIVITY

Time needed
25 minutes

Activity 66:
College versus sports arena

Think about the differences between the Olympic Games and your FET college environment. Reflect on what you have learnt about assessment in your subject and the way that this assessment can help you in your teaching.

1. Does an FET college require the same kind of assessment criteria as does an Olympics sports competition? Why?
2. What should assessment criteria do in each context?
3. What is the overall purpose of assessment in each context?
4. Do you think the Olympic Games analogy is a useful one? What might be some of its limitations?

OUR COMMENT

Our comment

The Olympic Games is of course a high-stakes competition, and athletes (such as the gymnasts) may have spent many hours a week training for the Olympics since early childhood! For them, every fraction of a mark counts. However, not many people would say that it is a college's task to rank their students by small margins of difference.

The crucial point is that while the judges look at what the gymnast does (the evidence), they measure it against what he or she is supposed to do (the outcomes and criteria). In this way, competitors, judges, and informed audiences all know that competitors are being assessed and judged to the same standards. In the same way, outcomes and assessment criteria are aimed at ensuring that stakeholders in education and training can have faith that standards for one group of students, across different lecturers, or even across different institutions in any given sector are similar.

The question now is what kind of assessment is necessary in an education context like an FET college?

However, there are many instances where a field of learning or a specific activity does not lend itself to such clear-cut criteria. There may, for example, be too many different ways in which something can be interpreted or demonstrated, all of which are equally valid; or sometimes "breaking the rules" results in a different kind of creativity. While criteria are useful, they must not become a straitjacket which stifles innovation in the way students produce evidence of their skills and knowledge. So what then can assessment do? Rather than establishing a one-to-one match with what learners know and can do, we can to some extent get a picture of what they can do that meets the purposes of the particular assessment we are engaged in. Williams suggests the idea of a "reasonable indication" of competence:

> There may be a difference between an individual's knowledge of any subject and the same individual's performance as assessed even on a whole range of different measures of this knowledge. … Yet, while perhaps not representing an exact specification of a person's understanding, examination performance normally gives some reasonable indication of it.[12]

ACTIVITY

Time needed
60 minutes

Activity 67:
Reasonable indications of what students know and can do

Go back to Chapter 2, and read each of the case studies from the point of view of discovering how each lecturer deals with the assessment of both practical and theoretical knowledge.

1. For each lecturer, find a quotation from the relevant case study that shows how they go about or think about assessing students.
2. In each case, what does the lecturer seem to think counts as a reasonable indication of the student's understanding or competence in relation to the relevant task?

Our comment

There is a range of issues to select in answer to these questions. Here are some moments in the case studies that could illustrate the idea of a reasonable indication of competence:

- Both Vusi and Lizette, discussing business studies, seem to think that a reasonable indication of competence arises in a process of negotiation with students. When students understand why assessment feedback says what it says, real learning can take place as a result. In Vusi's words, "Constant feedback and praise recognises success and spurs students on. We can use it all the time to help develop the person."
- Lindi, the cosmetology lecturer, sees a reasonable indication of competence emerging from the use of multiple assessment methods that can compensate for each other given different learning styles. In the past, Lindi though, "only the exam counted." Now she "feels much more confident of giving her students a chance to pass, now that she uses three different assessment modes."
- Maria thinks that a reasonable indication of competence in hospitality comes from assessing whether or not students can actually prepare a meal or cater properly for an event: "I worry less about what students are writing and I look more at whether a student can or cannot do the skills."
- Reuben thinks strongly that a formal examination does not provide the reasonable indication of competence that assessment in refrigeration engineering must do in order to meet the needs of its students. Instead, on-the-job assessment lends itself to flexible time frames. The emphasis is on whether the students can do the job or not, so the students only apply for assessment when they feel they have achieved the necessary expertise.
- Quinton Paulse thinks that a reasonable indication of overall competence cannot come from success in relation to each of the unit standards that make up its component parts. His problem student, in his mind, cannot make a fine cabinet because, in previous assessments, "each outcome had been assessed in isolation from each other."

You may or may not agree with the judgements that each of these lecturers/assessors are making. The point, however, is that each is operating with assessment as a means to arrive at an understanding of what their courses are achieving, what they can do to improve their teaching, and what they can do to help students improve their work. Some are also concerned with the fairness of summative judgements, and whether or not the final decisions made about students are reasonable judgments.

Key points

- Competence has a number of different features.
- There will always be a need to make our criteria for judgments as explicit as possible, for the sake of consistency and fairness.
- Criteria can help learners orient themselves to what is required and to assess themselves.

UNIT 6 Taking a systems view

In this chapter, we have explored assessment from what we might call an insider perspective – that of the college lecturer grappling with the issues of how assessment can help the teaching and learning process in VET education. However, we should not lose sight of the broader social issues that we considered in Chapter 1 – the outsider perspective, if you like. These imperatives – for colleges to provide sufficient numbers of skilled artisans and craftspeople for the needs of the economy – have important implications for the way assessment must be conducted in FET colleges. So let's change gear, and consider how those in charge of education and training in FET colleges might view assessment.

ACTIVITY

Time needed 15 minutes

Activity 68: Oversight of FET colleges

Try to imagine how the Minister of Education would view the FET college system. For example, one of her concerns may be around the quality of the whole FET college system.

1. Taking this systems view, try to position your college as part of the overall system of FET provisioning in your province, and in the country as a whole. What distinctive contributions should it be making?
2. How do you think that the Minister might see your college from an overarching point of view? What distinctive contributions does it make?
3. What kinds of things do you think the Minister might look at to try to get a picture of what is happening in the college sector as a whole?

OUR COMMENT

Our comment

The Minister, probably sees your college as one of many colleges operating together in a system that must meet the overall needs of the VET system envisaged for the whole country. For example, she might question whether your college provides the right numbers of skilled engineering, business studies, or hospitality students as are demanded by the corresponding industries? Does it take in a sufficiently large proportion of school leavers, as the overall statistics from schools indicate that it should? How successful are these candidates? These are important questions, which anybody considering the FET college system, and VET in general, would have to seek answers to.

There is no doubt that a ministerial gaze at your college would be concerned with the results and practices of assessment. This concern would have very specific objectives related to the role of assessment in qualifications and quality assurance. The Minister would be interested in whether sufficient students are being successful in your FET college, and whether the results of assessment indicate that its standards are high enough. She might need to compare assessment results of colleges with different characteristics in order to understand overall delivery. The purpose of this might be to determine where government or Sector Education and Training Authorities (SETAs) would need to intervene in order to improve quality and reach of education and training programmes offered in VET. Consideration of assessment from a systemic point of view – related to, amongst other things, economic questions such as throughput from education and training to employment – leads to a strong concern with the comparison of results of any assessment procedures. It is something that the Minister, industry, and indeed the public at large, are likely to call for often, because for them, assessment is something that provides needed information at an important systemic level.

Industry and the trade unions also have an interest in colleges and their assessment results. Colleges must produce students with skills for the workplace, who can solve problems with understanding. The learnership model, with its combination of workplace and college delivery, will be looked at with particular interest in terms of its success in skills development.

External verification of the standards and practices of FET college education and training delivery is demanded by both government and industry.

The terms "standards" and "standardisation" probably came up in your answers to the previous activity. These notions are related, and often crop up in discussions about whether or not educational institutions are being responsive to the needs of the economy and to the needs of their learners.

In assessment terms, there are two ideas at work here:

1. The idea that the performance of students can be judged against certain minimum standards. This is often linked to industry standards, and competence-based training, and has taken form in the NQF as *criterion referenced* assessment, illustrated in unit standards.
2. The idea that the performance of students can be judged against, or standardised, against the performance of all other students of the same kind. This kind of assessment is known as *norm referenced* assessment. The most prominent example of this kind of system in South Africa is the Senior Certificate examination. It is also likely that the majority of the external examinations that you are familiar with in the context of your college are norm referenced assessment procedures.

Note that these two forms of referencing in assessment are not necessarily in competition with each other. Elements of both might be at work in any particular examination or outcomes-based assessment system. It is also important to remember that the results against which norm-referencing is applied have been based on standards or syllabus requirements.

> ***Criterion-referenced assessment*** **refers to measuring performance against a defined standard: a student's score on a criterion-referenced measure provides explicit information as to what the individual can or cannot do.**
>
> ***Norm-referenced assessment*** **refers to measuring performance in relative terms, comparing the capabilities of a group of students. Norm referencing relies on statistical applications in order to ensure a good spread of mark distribution across a specified group.**

From a systemic point of view we need to think about the role that large scale external testing, usually in the form of national examinations, play in the overall assessment landscape. The Minister of Education needs information on how FET colleges are doing. This is one reason why national examinations were set up historically, and why they continue to be advocated by governments all over the world. They provide the opportunity to compare performance across candidates and institutions, on a system-wide basis. Everyone takes the same examination, and can thus be judged against the same criteria.

Are there any virtues in examinations in relation to other assessment needs and purposes? We know that there are many aspects of national, standardised examinations that may not be ideal. Do you remember, for example, the reservations expressed in Chapter 2 by Maria in the hospitality case study and Reuben in the engineering case study?

> [Maria believes] it is impossible to learn everything because the syllabus is so long. And the way the examination questions are asked, requires students to know the information in the textbook off by heart, like a parrot. … it's frustrating because we are limited by the fact that we don't assess our students. The assessment is done externally. We cannot deviate from the textbooks, even though they are outdated, because the exams are based on them.

> Reuben likes practical assessment because one of the advantages is that it lends itself to flexible time frames. He thinks back to his own time as a student, realising that some of his buddies who failed the national exams at that time could have passed if they had been given a little more time. These days, in the refrigeration department, the emphasis is on "can you do the job", so students only apply for assessment when they feel they have achieved the necessary expertise and are ready to be assessed.

National examinations can, however, serve a useful purpose in protecting students from bad practice – only if they are used and interpreted with care. You may have encountered practices in which a college inflates the grades derived from the internal assessment procedures that it carries out, making their students look better than they actually are in comparison to others. This might advantage them in looking for jobs, and students from other colleges would have the right to object. Actually, such undemanding "in-house" assessments tend to disadvantage these students in the long run, because they know less than their peers in more rigorous colleges. So, the Minister, might favour a combination of results that come from national examinations and other sources of assessment, in order to inform her decisions about VET roll-out in South Africa.

Key points

- Assessment also plays a systemic role for macro decisions on FET college delivery.
- Large scale external assessment provides useful information in this regard.

UNIT 7 Reflecting on our practices

To end this chapter, let's go back to the notion of a *reflective practitioner* that we examined in Chapter 3. How can reflection on assessment practices in one's own college provide an opportunity for improving oneself both as a lecturer and an assessor?

ACTIVITY

Time needed
60 minutes

Activity 69: Problem solving and reflection

This activity asks you to answer six questions. You should do the first four on your own. Then, according to instructions below, form a group with some of your colleagues and answer question 5 as a group. Question 6 will ask you to reflect on the activity.

Often we only stop to really think about things when there is some disruption to our practices. Instead of trying to avoid problems, crises or disruptions, the suggestion in this activity is to try to work with them to benefit from what one can learn.

1. Think of a student who is a "problem case" with regards to assessment; or alternatively think of some crisis you have had around assessment.
2. Write down everything that you think could have produced the problem or led to the crisis.

Now try to get a new look at the problem. Read one new article or chapter on assessment that you find in a library, a bookshop, on the Internet, or that you obtain from a colleague.

3. Summarise the perspective on assessment and five main ideas found in the article.
4. Using these ideas from the article, say how you would attempt to solve the problem or crisis.

Now, form a small group with some colleagues and read what you have written in your answers to the group. Ask them to help you improve the way you might have responded to the problem or crisis.

5. Write down the group's solution to the problem. Is this shared solution to the problem better than the one you set out in response to Question 4? Why?
6. Now reflect on what you have learnt over the course of this activity. In what ways did you draw on a *community of practice*, and did this allow you to strengthen your ideas?
   (You may want to look back at Chapter 3, pp. 112–115, to refresh your ideas on the characteristics of a community of practice.)

Our comment

How did drawing on the expertise of communities of practice help you in this activity?

- Firstly, and perhaps most obviously, your colleagues are part of your own immediate community of practice, and no doubt added to the ideas you had about solving the particular problem you identified. Question 5 was probably a richer answer than Question 4, thanks to the *shared reflection and discussion of ideas* you were able to draw upon.
- Secondly, in reading a specialist article to gain ideas as to how to tackle an assessment issue, you tapped into a broad, perhaps world-wide, community of theoretical practice on some issue of assessment. You entered that community through your reading of the text, and can begin to use its ideas to help you in you own practice.
- Thirdly, even in answering Questions 1 and 2, you drew on your own past knowledge, ideas and even prejudices about assessment. What you saw as a problem and a possible solution probably came from shared practices that you and your colleagues, both current and past, work with in your institutional context.

The point is that you belong to and draw upon communities of practice all the time, in dealing with assessment matters and all other aspects of your work as a lecturer.

Activity 70:
Views on what makes an assessor

Have a look at one of the documents that has been produced by the broader assessment community of practice in South African education. The following box contains an extract from the document on norms and standards for educators that is part of the contemporary national policy framework for education in South Africa. The assessor is one of the roles of an educator. Here is what the *Norms and Standards for Educators* expect of us as assessors[13].

- The educator will understand that assessment is an essential feature of the learning process and know how to integrate it into this process.
- The educator will have an understanding of the purposes, methods and effects of assessment and be able to provide helpful feedback to learners.
- The educator will design and manage both formative and summative assessment in ways that are appropriate to the level and purpose of the learning and meet the requirements of accrediting bodies.
- The educator will keep detailed and diagnostic records of assessment.
- The educator will understand how to interpret and use assessment results to feed into processes for the improvement of learning programmes.

1. Do you feel that you are part of the same community of practice as the people who produced this document? How does this compare with any other documents on the assessor role that you may have encountered, such as the Plan and Conduct Assessment unit standard?
2. Are there any changes or additions you would like to make to the list of assessment concerns in the *Norms and Standards for Educators*?

Our comment

Assessors across sectors will of course share the same general goals, in terms of carrying out good practice assessment. But specific contexts or constraints will determine some of the more detailed elements of our practices. It does seem to be true, though, that where a community of lecturers is dealing with problems together, and working out strategies for the improvement of their courses together, optimism about assessment is more apparent. Part of reflecting on practice is to challenge our thinking, to get a clearer sense of why we are doing what we do, and how well we do this. The idea of shared *reflective practice* captures that of having conversations with others about visions, purposes, practices, and so on. On an institutional level, the development of an assessment policy helps clarify processes, procedures and goals to work towards. In addition, it consolidates views, and serves as a foundation for ongoing reflection on assessment and its roles.

Does your college have an assessment policy? If not, maybe this is where a group of you can contribute to the college. Devising a policy may take time. You would have to get buy-in from your colleagues – a good way to keep conversations about assessment going!

Key point

- Self reflection and participation in communities of practice gives you new perspectives on your role as an educator and assessor.

Conclusions

In this chapter, we have looked at what good assessment practice would look like in the VET sector. It has been suggested that assessment is a multifaceted set of practices, which are concerned with the overall question of whether or not students have learnt "enough of the right kinds of things, well enough". Looking back at the main questions that the chapter set out to discuss, the following now seems to be apparent:

- Assessment in any situation is complex, perhaps especially in VET where the theory-practice relation is so important. The success of assessment depends on sound professional judgements on the part of assessors. It is by no means an entirely objective process, even though this might appear to be the case in some assessment systems. It takes on various forms, depending on the purposes for which it is intended.
- The use of sound criteria or outcomes is crucial in helping assessors make judgments of competence. In VET, these criteria are usually built up from the deep tacit understandings of master craftspeople, and are difficult to formulate. Nonetheless, the assessment process is strengthened and made more transparent by formulating criteria.
- Learning, teaching and assessment are inextricably linked to each other. The best assessment is that which guides good teaching. When students understand why they are assessed in the way they are, and what the results of assessment tell them about their work, they are more likely to become active students.
- The use of established standards for a set of skills, linked to both criterion-and norm-referenced assessment systems, support the achievement of competence in the FET college sector.

NOTES AND REFERENCES

Chapter 1

1. Pandor, N. 2005. Statement by Minister of Education at the GCIS Parliamentary Media Briefings, 14 February, 2005. www.info.gov.za/speeches/2005/05021412451001.htm

2. Young, M.F.D. 2005. "Vocational education and the problem of knowledge: some lessons from the English experience." Paper presented at the 2005 Shanghai Educational Forum on Vocational Education, 22–24 June, pp. 4–5.

3. Ibid. p. 2.

4. Christie, P. 1985. *The Right to Learn*. Johannesburg: Ravan, Sached. p. 37.

5. Ibid. p. 42.

6. African National Congress. 1943. "Africans' claims in South Africa" including "The Atlantic Charter from the Standpoint of Africans within the Union of South Africa". Adopted by the ANC Annual Conference, 16 December, 1943.

7. *Reader's Digest Illustrated History of South Africa*. 1988. Cape Town: Reader's Digest. p. 379.

8. Tutu, D. 1984. Nobel Peace Prize Lecture, Oslo, December 11, 1984.

9. Mdladlana, M. 2004. Speech by the Minister of Labour at the Qualifications Africa Conference hosted by SAQA, 16 September, 2004.

10. Adapted from Gamble, J. 2004. "Tacit Knowledge in Craft Pedagogy: A Sociological Analysis." Thesis presented for the Degree of Doctor of Philosophy in the School of Education, University of Cape Town. pp. 22–29.

11. Aldrich, R. 1999. "The apprentice in history." In Ainley, P. and Rainbird, H. (eds). *Apprenticeship: Towards a New Paradigm of Learning*. London: Kogan Page. p. 15.

12. From Cape Gateway, www.capegateway.gov.za/eng/pubs/guides

13. Wordnet is an online dictionary, www.answers.com/professional

14. Department of Education. 2000. "Norms and Standards for Educators." National Education Policy Act (Act No. 27 of 1996). Pretoria: Government Printers.

15. Bereiter, C. 2002. *Education and Mind in the Knowledge Age*. Mahwah, NJ: Lawrence Erlbaum. pp. 411–412.

Chapter 3

1. White paper on Education and Training, Government Notice 196 of 1995, Parliament of the Republic of South Africa, Cape Town, 15 March 1995. Chapter 2.4.

2. Bateson, G. 1972. *Steps to an Ecology of Mind*. New York: Chandler. pp. 458–459.

3. Gregory, R. 1994. "Seeing intelligence." In Khalfa, J. (ed.). *What is Intelligence?* Cambridge: CUP. p.174.

4. Extracts from Arthur Goldstuck, www.legends.org.za/arthur/cafsa.htm.

5. Rose, Mike. 2004. *The Mind at Work: Valuing the Intelligence of the American Worker*. London: Penguin. pp. 72–73.

6. le Guin, U. 1991. *A Wizard of Earthsea*. London: ROC. p. 28.
Thanks to Lynne Slonimsky and Jeanne Gamble, years apart, for drawing this quotation to our attention.

7. Adapted from Rose, Mike. 2004. *The Mind at Work: Valuing the Intelligence of the American Worker*. London: Penguin. p. 59.

8. Wenger, E. 1998. *Communities of Practice*. Cambridge: CUP. p. 4.

9. Piaget, J. 1964. "Development and learning." In Ripple, R. & Rockcastle, V. (eds). *Piaget Rediscovered*. Ithaca: Cornell University. p. 15.

10. Piaget,J. 1968. "A theory of development." In *International Encyclopaedia of the Social Sciences*. New York: McMillan. pp. 140–141.

11. Vygotsky, L. 1978. *Mind in Society*. Cambridge, MA: Harvard University Press. p. 87.

12. Ibid. p. 86.

13. Vygotsky, L. 1955. "Learning and mental development at school age." In Leontiev, A.N. & Luria, A.R. (eds). *Selected Psychological Works*. Moscow: Progress. pp. 446–447.

14. Adapted from Maybin, J., Mercer, N. & Stierer, B. 1992. " 'Scaffolding' learning in the classroom." In Norman, K. (ed.). *Thinking Voices: The Work of the National Oracy Project*. London: Hodder & Stoughton. pp.189–190.

15. Extracts from Wenger, E. 1998. *Communities of Practice*. Cambridge: CUP. pp. 4–5, 86 & 95.

16. Diagram taken from Wenger, E. 1998. *Communities of Practice*. Cambridge: CUP. p. 5.

17. Schön, D. 1983. *The Reflective Practitioner*. New York: Basic Books. pp. 68–69.

18. Ibid. pp. 50–51.

Chapter 4

1. Eisner, Elliot. 1985. *The Educational Imagination*: *On the Design and Evaluation of School Programs*. New York: Macmillan.

2. Fraser, W. 1993. In Lubisi, C. et al. 1998. *Understanding Outcomes-based Education*. Cape Town: SAIDE, OUP. p. 72

3. National Education Policy Investigation (NEPI). 1992. *Curriculum*. Cape Town: NECC, OUP. pp. 1–2.

4. This section is adapted from Hoadley, U. & Jansen, J. 2002. *Curriculum: From Plans to Practices*. Cape Town: SAIDE, OUP. p. 190. By permission SAIDE.

5. Department of Education. 1996. *A Curriculum Framework for General and Further Education and Training*. Pretoria: Government Printers.

6. King, M. 1999. *The National Qualifications Framework: A Resource Reader*. Johannesburg: Cross-Sectoral Capacity Building Project. (IEB)

7. Ibid.

8. Department of Education. August 2005. *Draft Policy for the Further Education and Training Certificate (FETC) (Vocational)*. Circulated for comment. Pretoria: Government Printers.

9. Adapted from King, M. Op cit.

10. Thanks to Karin Brodie for suggesting the basic idea in this model.

11. Shulman, L. 1985. Presidential Address at the annual meeting of the American Educational Research Association, Chicago.

12. MacLaughlin, Mildred. 1997. "Implementation as mutual adaptation: Change in classroom organization" In Flinders, D. and Thornton, S. (eds). [*Curriculum Studies Reader*]

13. Specific outcome 3 of Unit Standard 14899: Apply elements of floor covering installation which are common to all carpentry functions.

14. Unit Standard 114406: Understanding basic electronic theory and components. Registered with SAQA (South African Qualifications Authority) in Electrical Infrastructure Construction sub-field.
(SAQA US ID 114406) SAQA website: www.saqa.org.za

15. This is selected from http://education.pwv.gov.za/DoE_Sites/FET_Folder

16. (SAQA US ID 7850) SAQA website: www.saqa.org.za

17. (SAQA US ID 7697) SAQA website: www.saqa.org.za

18. (SAQA US ID 7705) SAQA website: www.saqa.org.za

19. (SAQA US ID 14296) SAQA website: www.saqa.org.za

Chapter 5

1 Drawings on pp. 180 adapted from the Independent Examinations Board (IEB). 2004. *Assessor Course Manual*. Johannesburg: IEB.

2 South African Qualifications Authority (SAQA). 2001. *Criteria and Guidelines for Assessment of NQF Registered Unit Standards and Qualifications*. Pretoria: Government Printers.

3 Drawings on pp. 184 adapted from the Independent Examinations Board (IEB). 2004. *Assessor Course Manual*. Johannesburg: IEB.

4 Adapted from Local Government, Water and Related Services Sector Education and Training Authority (LGWSETA). 2003. *Guidelines for the Management of Assessment for LGWSETA Providers.* Bedfordview: LGWSETA.

5 After Shepard, L. 2000. The role of assessment in a learning culture. *Educational Researcher*. 29: pp. 4–14.

6 The idea of "dynamic assessment" comes originally from Reuven Feuerstein, who developed it out of the work of Piaget and Vygotsky.
See Feuerstein, R., Rand, Y., & Hoffman, M. 1979. *The Dynamic Assessment of Retarded Performers: The Learning Potential Assessment Device* (LPAD). Baltimore, MD: University Park Press.

7 Shepard, L. Op cit., p. 10.

8 Black, P., Harrison, C., Lee, C., Marshall, B. & William, D. 2003. *Assessment for Learning: Putting It into Practice*. Milton Keynes: Open University Press.

9 Shepard, L. Op cit., p. 12.

10 Adapted from SAQA. 2001. Op cit.

11 Williams, K. 1998. "Assessment and the challenge of scepticism." In Carr, D. (ed.). *Education, Knowledge and Truth*. London: Routledge. pp. 222–223.

12 Ibid., p. 229.

13 Adapted from Department of Education. 2000. Op cit.