**Advanced Diploma**

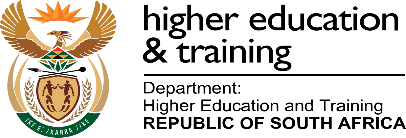
**Technical and Vocational Teaching**

**From Interpreting Curriculum**

**to**

**Lesson Planning**

Department of Higher Education and Training



**Department of Higher Education and Training**

Advanced Diploma: Technical and Vocational Teaching

Module: From interpreting curriculum to lesson planning

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# Acronyms and Abbreviations

|  |  |
| --- | --- |
| Adv Dip TVT | Advanced Diploma: Technical and Vocational Teaching |
| CAPS | Curriculum and Assessment Policy Statement |
| CPD | Continuous professional development |
| DHET | Department of Higher Education and Training |
| HEI | Higher Education Institution |
| LSS | Lecturer Support System |
| LTSMs | Learning/teaching support materials |
| NATED | National Accredited Technical Diploma |
| NCV | National Curriculum (Vocational) |
| NQF | National Qualifications Framework |
| PRF | Pedagogic recontextualising field |
| PSET | Post-school education and training |
| OBET | Outcomes-based education and training |
| OER | Open educational resources |
| ORF | Official recontextualising field |
| QCTO | Quality Council for Trades and Occupations |
| SAQA | South African Qualifications Authority |
| SETA | Sector Education and Training Authority |
| SIP | Strategic Integrated Project |
| TVET | Technical and Vocation Education and Training |
|  |  |

# Programme introduction

The Advanced Diploma in Technical and Vocational Teaching (Adv. Dip TVT) programme seeks to provide a structured professional learning pathway for current and aspirant technical and vocational lecturers/teachers. The Diploma will equip them with the knowledge and competences to implement and manage teaching and learning in their TVET colleges effectively and in alignment with national goals.

This module is one of a set of modules that contribute to the Advanced Diploma programme. The overall purpose of the Advanced Diploma is to engage lecturers working in the TVET sector in conversations about what it means to be a quality teacher in a TVET college. Each Module in the programme explores this from a different angle, but for every module foundational concept is about the type of teacher you want to be. We all know that the relationship the between teaching and learning is interrelated. So in order to understand the type of teacher you want to be you will need to engage with what learning means in a TVET context.

We often think about vocational and technical or craft knowledge as different from theoretical knowledge. However, there is increasing recognition of the power of vocational and theoretical knowledge coming together to develop the skilled craftsperson whether it is in plumbing, baking, even mathematics and physics. This integration of theory and vocational knowledge is equally important in teaching as well. Teachers are constantly needing to make informed decisions and judgements as they make a selection of what to teach and how best to teach the specific content, concept or skill. This leads to a question about how different forms of knowledge and skill are brought together and balanced in the curriculum and in teaching and learning.

Approach to learning

To answer the question above in this diploma programme, a framework has been developed which is referred to as *know how*, *know it* and *know that*, or the HIT framework. This framework is introduced, referred to and deepened in different ways all the way through the programme.



**“Know How”** is *procedural knowledge*, “in our bodies” or *embodied knowledge*.

For example, following a bread recipe.

“**Know It**” is *recognition*, the knowledge of what counts as good; wisdom; technical and theoretical judgments.

For example, is this sourdough good quality bread?

**“Know That”** is *propositional knowledge* or

*theoretical knowledge*, the knowledge of how and why, *cognitive knowledge*.

For example, the science of bread baking.

**Figure 1: The HIT framework**

Think about your own craft of teaching. The kind of teacher you want to be, is one who knows how (the techniques of teaching), knows that (the science and theory behind teaching AND learning) and knows it (knowing and reflecting on what makes a quality teacher). Such a teacher enables students to actively engage with their learning and to develop their full potential.

If you are interested, click on the link provided to watch a short [video](https://youtu.be/9GD-DgNLaxw) in which Wayne Hugo discusses the “HIT model” of TVET knowledge and learning.

Relating theory to practice

In this module new concepts are often introduced by developing them from a practical situation 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. You are encouraged to relate the ideas you learn from the Adv. Dip programme to your own context and to try to think theoretically about your practice. In other words, to think about the rationale for your practice.

Reflective practice and the use of a learning journal

One of the Adv. Dip TVT modules is called Reflective Practice, and covers the concept of reflection in the life of a TVET lecturer. Of particular importance is unit 2, which describes various models which facilitate reflection. The simplest reflective model that is discussed in this unit, is that of Terry Borton (1970). It consists of three steps as follows:

**Figure 2: Reflective model**Redrawn: Borton, 1970

The three questions to prompt reflection leading to action:

1. What?

**What** happened? In this step you remember or describe the situation or event you have experienced.

1. So what?

**So,** if that happened**, what** does this show you or teach me?In this step you explore what new insights or knowledge the situation gives you.

1. Now what?

**Now** that I have learnt something new by reflecting on the situation, **what** should I do about it? In this step you think about what to do with the new awareness you have gained – i.e. how to make use of it to act more effectively in future situations.

Throughout the Adv. Dip TVT programme, you are encouraged to use a model to reflect on your practices at work in the college so that you can improve how teaching and learning takes place. We have embedded reflective practice throughout the programme, and at the end of most units in the modules you will find a reflective activity to complete. The reflective activity will enable you to make the most of what you have learnt throughout the unit, as well as assisting you to apply your learning in your workplace. Throughout the Advanced Diploma modules, we encourage you to use a learning journal. Keep a file (paper- based or electronic). You will use it to write notes and reflections and complete activities. Start your learning journal at the beginning of the programme, and keep it regularly updated throughout.

Active learning

Most learning theorists tell us that new understandings and learning depend on, and arise out of action. All the modules in the Adv. Dip TVT programme include activities. Your learning will be more fruitful 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 programme learning pathway.

Thinking activities

At various points in the module you are asked 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 module. One of the habits many of us develop through a rote kind of learning is to rush through things. Work though each module 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 questions or problems raised in the module. Jot down your ideas in your learning journal so that you can be reminded of them at a later stage.

Linkages across modules

As you work through this and other modules, you will notice that topics or issues raised in one module may cross refer to the same issue or topic in another module, possibly in more detail. So for example, while there is an entire module dedicated to the investigation of *curriculum,* key issues related to curriculum will also be highlighted and discussed in the modules dealing with pedagogy, psychology in TVET as well as in the assessment module.

Access to readings

There are links to readings throughout the activities. We have tried as far as possible to provide links to Open Educational Resources (OER). In cases where this was not possible you will be directed in the activity to access these through your university library. The website link is shown in the reference list.

Assessment

The activities contained in this module and the Adv. Dip TVT programme as a whole, promote a continuous and formative assessment process. This approach is intended to support your ability to relate ideas to practice and to contribute to your development as you work through the various modules of the programme.

You will also notice that each module includes a summative assessment task with the assessment criteria set out in an accompanying rubric. This summative assessment task is a model only, intended to illustrate the kind of assessment tasks that may be set by the university providing this programme.

# Module overview

## Purpose

Welcome to the Advanced Diploma Technical and Vocational Teaching (Adv. Dip TVT) module *From Interpreting Curriculum to Lesson Planning.* Its focus is on: how you, the Technical and Vocational Education and Training (TVET) lecturer, engage with the official curriculum and mediate that curriculum in the process of designing actual lesson plans for your students. This module has been designed to complement the Adv. Dip TVT module *Vocational Pedagogy*. There are also one or two cross-references to the module *Psychology of Education for TVET*.

If you are not enrolled for this module as a novice lecturer, and have been lecturing for some years, you may be wondering why such a course is necessary. The official TVET curriculum documents, for example, the National Curriculum Vocational (NCV) and the National Technical Education Diploma (NATED) Report 191 programmes, provide only minimum teaching requirements and in some cases brief didactic guidelines for lecturers, though assessment matters are usually better covered. However, further guidance and support are readily available in various forms, from textbooks to continuous professional development (CPD) short courses and the Lecturer Support System (LSS) of the Department of Higher Education and Training (DHET). In addition, you may well view the development of actual written lesson plans as either an unnecessary burden in an already-heavy workload, or as a minimal compliance requirement – a “box” that may have to be “ticked” and that may (or may not) help you to be more organised or systematic in your day-to-day teaching.

What then is the reason for studying this module?

To help you answer this question for yourself, imagine two TVET colleges that both offer the N-diploma course in Hospitality and Catering Services and therefore follow the same national curriculum. The curriculum states that the students must learn to prepare food, cook and bake in a variety of ways. They must be able to prepare various dishes, design breakfast, lunch and supper menus bearing in mind the health and nutrition of patrons, and plan shopping lists accordingly. The aims, learning outcomes and content of the two courses are the same on paper.

However, the two colleges encourage their lecturers to approach the curriculum in different ways, to make different *curriculum* choices. So in one college the lecturer focuses on teaching the 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 compile the shopping list for such a meal for 50 people.

The other college encourages lecturers to teach with a strong emphasis on developing practical skills, so the lecturer requires the students to work in groups of four to plan, shop for, prepare and serve an actual buffet lunch for 6 people. Part of the students’ assessment is conducted by means of an oral exam in which they are required to discuss how and why they prepared the meal in the way they did, and part of their work is judged by the lecturer and an invited colleague who observe the process together and discuss what they observe, including the shopping lists and menus.

Now imagine how different the teaching and the learning activities will be, leading up to the exams in each of these two colleges. Imagine how students in the first college will be focused on memorising the details and principles involved, and on their writing skills, while the students in the other college will be focused on developing and exercising their practical skills, including their interpersonal skills in working with peers. Finally, consider how the first form of assessment would benefit students with good writing skills, while the second would advantage students who can organise well and collaborate with others.

This comparison illustrates how the same curriculum plan can be put into practice in very different ways and with very different results. This distinction between curriculum plan and curriculum practice is at the heart of this module, and signals its purpose – to equip you as a TVET lecturer to analyse official curriculum policy critically, and to translate the official curriculum, in creative and empowering ways, into engaging, challenging, contextually relevant and ultimately effective teaching and learning.

## Outcomes

By the end of this module, you should be able to:

1. Analyse official TVET curriculum policy, regulations and guidelines with critical insight.
2. *Mediate* the official curriculum in creative and empowering ways, rather than merely “implementing” the curriculum in a bureaucratic way, or uncritically following the prescribed textbook.
3. Demonstrate a sense of agency or the capacity to *act individually* as a professional TVET lecturer, making appropriate, justifiable curriculum decisions in selecting content, and in developing lesson plans that are *learning*-centred, contextually relevant, engaging and aligned to the particular needs of your students.

## Structure

Unit 1 has a general focus on the curriculum, explores some important curriculum concepts and takes a very brief initial look at the official TVET curricula in South Africa. Unit 2 is focused on the curriculum process, and in particular on the lecturer’s role in the context of curriculum. Unit 3 spells out guidelines and considerations for translating the curriculum into quality learning programmes and lessons. Figure 1, below, provide more detail on the module structure.

**From interpreting curriculum to lesson planning**

**Understanding curriculum**

1. Curriculum and syllabus
2. Curriculum as a *plan* for learning: the official curriculum
3. The curriculum as *practised*, including the *implicit* curriculum
4. Curriculum *alignment*
5. The *enacted* or *actualised* curriculum, including performance and competence models

**Unit 1**

**Mediating the curriculum**

1. The curriculum process: *recontextualising* knowledge & the selection of knowledge
2. *Mediating* the curriculum
3. *Interpreting* the official TVET curricula analytically and critically
4. Curriculum *overload* and the issue of *pace*
5. What kinds of knowledge do teachers need? Content knowledge, general pedagogic knowledge, and pedagogic content knowledge
6. Analysing and interpreting TVET curriculum documents

**Unit 2**

**Planning your lessons**

1. The vital importance of being well-prepared
2. Designing a work scheme or *series* of lessons
3. Planning individual lessons
4. The backbone of lesson plans: Five lesson phases
5. Designing a lesson plan
6. Aims, learning outcomes and competence
7. Theory and practice revisited: Occupational competence and deep learning
8. Differentiation: Catering to students’ diverse needs
9. Assessment for learning and feedback
10. Looking back and looking forward: Student feedback and reflection

**Unit 3**

**Figure 1: Module structure**

Credits and learning time

This module carries 6 credits. This is equivalent to 60 notional learning hours. It is anticipated that you will take approximately 60 hours to complete the module successfully. The 60 hours will include contact time with your Higher Education Institution (HEI), reading time, research time and time required to write assignments. It is also expected that at least half of your learning time will be spent completing practice-based activities in your TVET College. This will involve your individual work on the activity, and may also require you to discuss these college-focused activities with your colleagues. Each activity in this module indicates the suggested time for completion. Further information and assessment requirements may be provided by your HEI.

# Unit 1: Understanding the curriculum

## Outcomes

This unit should enable you to analyse official TVET curriculum policy, regulations and guidelines with critical insight.

This outcome encompasses the following more specific outcomes on which learning will be assessed. By the end of this unit you should be able to:

1. Explain the difference between a curriculum and a syllabus, and where these terms may overlap
2. Distinguish between the curriculum as a plan for learning, and the curriculum as practised/enacted
3. Demonstrate an awareness of the importance of *aligning* curriculum elements in your lesson plans
4. Identify instances of the implicit curriculum, and analyse the messages conveyed in these, and
5. Distinguish between competence- and performance-type curricula, and apply this knowledge to your teaching.

## Introduction

What do we mean when we talk about “curriculum”? Teachers, lecturers, those who train teachers and lecturers, government officials, politicians and even ordinary members of the public all talk about it, but many use the word quite loosely and it is not clear to everyone exactly what they are referring to.

Thus a good deal of this first unit is devoted to clarifying different meanings that are attached to the term “curriculum”. This will help us to develop a common understanding of the term which takes into account these different ways of conceiving the curriculum, and which therefore promises to be richer and a lot more productive than most, narrow definitions. In addition, this process of clarifying different curriculum terms and concepts will assist you to analyse whatever form of TVET curriculum you are faced with.

## Curriculum or syllabus?

Read the following scenario, then answer the questions that follow in Activity 1.

**Scenario: A staff room discussion**

Three lecturers are sitting in the college staff room, chatting while they wait for their first subject department meeting of the year to start. *Norman Buthelezi* is an experienced lecturer who started teaching at a TVET college in 1997. *Phumzile Hadebe* came from industry, and has taught in the TVET sector for the past four years. *Kenneth Baloi* is a novice lecturer whose only teaching experience has been a little teaching practice.

Before long the conversation turns towards the topic of the curriculum:

**Kenneth:** So, what *is* the curriculum?

**Phumzile:** Phew, I don’t know. “Report 191” … “NCV” … “Curriculum Guidelines” … “Assessment Guidelines” … “ICASS” … “ISAT” … there are a lot of official documents telling us some-thing about the curriculum.

**Kenneth**: Yes, but doesn’t it all just mean the same as “syllabus”?

**Phumzile:** No, the Report 191 *curriculum document* lists all the different NATED instructional programmes that are available and their pass requirements and so on, but each particular instructional programme, or subject, has its own *syllabus*.

**Kenneth:** So a curriculum lists the requirements for a qualification – like N6 or NCV – and a syllabus does the same for an individual subject?

**Phumzile:** Well, yes, each syllabus goes into more detail about the aims, the different modules that make up the subject, and the exam requirements for that subject. So as a lecturer it’s really the syllabus you need to pay attention to, not the curriculum.

**Norman:** It’s more or less the same for the NCV, but instead of being called a syllabus, the more detailed directions for teaching a subject are called “Subject Guidelines”. That’s what you actually base the week-by-week learning plan for your subject on. But that’s just how it is in South Africa. In other countries the same kinds of documents could have different names – a syllabus could be called a “curriculum”.

**Phumzile:** Even in South Africa, the National Occupational Certificates “syllabi” for particular disciplines, like electrician or bicycle mechanic, are referred to as “curriculum documents”.

**Norman:** So the terms“syllabus” and “curriculum” *do* seem to be a bit interchangeable. But there’s also another way you can use the word “curriculum” that doesn’t really refer to any documents.

**Kenneth:** Oh, no…

**Norman:** Don’t worry, it’s not really complicated. When we say things like “Some aspects of the curriculum are out of date” or “The curriculum in my subject is too theoretical”, we may not have a particular official curriculum *document* or syllabus in mind. We may instead be referring in a general way to the *overall nature* of the content that is taught in a programme.

### Activity 1: What is curriculum?

**Suggested time: 30 minutes**

After you have read the conversation between the three colleagues, reflect on the following questions and jot down your responses in your Learning Journal:

1. To what extent do you agree with Phumzile’s and Norman’s distinction between a curriculum and a syllabus? Explain the points on which you agree or disagree.
2. Write down in your own words a definition, or at least a description, of what you think a curriculum is.

**Note:** Don’t just provide examples of specific curriculum or syllabus documents, but *do* give consideration to the more abstract, general use of the term “curriculum” that Norman talks about at the end of the conversation above.

If at all possible, compare your responses with those of a colleague. In what ways do you agree or disagree with each other’s answers?

Discussion of the activity

There are likely to be many differing answers to the questions: what is a curriculum, and how does it differ (if at all) from a syllabus? Tracing words like “curriculum” and “syllabus” back to their origins in Latin helps to some extent. “Curriculum” in Latin originally meant a course or race to be run (it was in turn derived from the verb *currere* meaning "to run/to proceed"). Over centuries the term came to take on the meaning: “a course of study at a university or school”. The meaning of the Latin word “syllabus” is a little more difficult to tie down, but it seems at various times to have been used to refer to a table of contents in a book or manuscript, or simply a list.

Today, scholars like Diamond (2008) and Terblanche (2017) argue that a curriculum can briefly be defined as a “plan of action” that organises learning activities. Barnett and Coate (2003) describe curriculum as an “organised set of educational experiences” (and pedagogy as the practice of teaching brought about by a curriculum). Others, like Stark and Lattuca (1997) remind us that a curriculum doesn’t just exist in a vacuum, but reflects the society that produces it; they view curriculum as a plan for students’ academic development that is situated in a historical, social and political context. These views of the curriculum suggest that the term refers to a planned programme of activities designed so that students will achieve, as far as possible, certain educational goals. Curriculum development or design, on the other hand, is about the *arrangement of the elements* of a curriculum, such as aims, goals, outcomes, subject content, learning activities and assessment (Terblanche, 2017).

With the Latin origins of the word in mind, a syllabus may be expected to contain a list of the contents of a specific subject. Such a document is usually more detailed than official curriculum documents, and usually contains a series of headings with some additional notes which set out the areas that may be assessed in an examination. A syllabus will not generally indicate the relative importance of its topics or attempt to justify their inclusion in a course or programme, and may even not specify the order or sequence in which they are to be studied. Education planners who compile a syllabus tend to follow a logically sequenced approach to the subject, or even the traditional approach found in textbooks of an “order of contents” (Gravett, De Beer and Du Plessis, 2014).

As a general rule syllabi are *based* on curriculum policies. The latter provide the ultimate terms of reference for lesson planning, usually authorised by a government department or other state regulatory body. Thus in addition to minimum requirements in terms of competencies or content (topics) and assessment, they tend to outline broad principles, rationale, goals, and possibly the historical mandate in pre-existing policy and legislation that has given rise to the particular curriculum. According to this convention, an official curriculum often takes the form of a national policy, while a syllabus, or detailed plan for teaching and learning, is closer to what are referred to in government circles as regulations or guidelines. In South African TVET, however, especially in the National Certificate (Vocational) or NCV, the tendency has been to include more of the contextual “background” to the list of contents in the official *syllabus* documents than in the official curriculum documents.

Even the fairly straightforward naming convention described above does not apply across the board in the complex world of South African TVET. The detailed learning programmes which guide lecturers offering National Technical Education Diploma (NATED) Report 191 courses *are* in practice called “syllabi”, while the detailed guidance for teaching and learning in NCV programmes is provided in “Subject Guidelines” and “Assessment Guidelines”, which are together referred to as “curriculum documents”. Towards the end of Unit 2 the significance of these documents being named in this way (as “guidelines”) will be discussed further.

In the field of occupationally-directed programmes on the other hand, where training has for some years been designed in conjunction with Sector Education and Training Authorities (SETAs), the learning outcomes of the older, occupationally-directed courses are guided by unit standards or combinations of unit standards. Occupational certificates, like unit standards, are published by the Quality Council for Trades and Occupations (QCTO) and registered with the South African Qualifications Authority (SAQA). These unit standards and occupational certificates are the official curriculum documents spelling out the detail of what is taught in the Skills Development sector. The word “syllabus” appears in neither unit standards nor in the new national occupational qualifications developed by the QCTO, and “curriculum” is used only in passing in the latter, not in the naming of the certificates.

Most South African national syllabi and curriculum statements are relatively prescriptive, regulative and leave little room for interpretation or variation, either in emphasis or in how things are taught or when they are taught. The national Curriculum and Assessment Policy Statements (CAPS) introduced in schools in 2012 is such a curriculum, though it was arrived at after the short-lived adoption in 1998 of an outcomes-based curriculum that authorised teachers to exercise almost complete freedom in choosing how learners would be enabled to achieve learning outcomes. In the TVET sector, the NCV is regarded (despite the curriculum documents being named as Subject and Assessment “Guidelines”) as “tightly structured and relatively crowded”, leaving little room for curriculum adjustments to be made (Papier et al, 2016, p. 90). Nevertheless, Wedekind, in a 2017 DHET-commissioned *Manual for managing curriculum responsiveness in TVET colleges*, argues that even within the most restrictive conditions, lecturers can liaise with the workplace and use internet-sourced resources to enrich the curriculum and make it relevant to local conditions:

*a curriculum is always a minimum set of standards or topics that need to be covered, and does not preclude lecturers making strategic decisions about what might be added, or what is perhaps not as critical and needs coverage only for assessment purposes* (Wedekind, 2017, p. 10).

Wedekind does however point out that lecturers will need to be supported through professional development activities and perhaps an e-portal to enhance this capability, and that the DHET needs to signal to lecturers that these teaching practices are encouraged and indeed expected, and that innovation of this sort will be recognised through promotion processes and other mechanisms.

Now that you have at least some clarity about the concept “curriculum”, this is the right point to expand your understanding of curriculum as a plan, before introducing a view that *contrasts* with that understanding – a view that instead understands curriculum as a *practice*. Thinking of the curriculum as practice will, in turn, open up further ways of viewing the curriculum and refining your grasp of the concept. By the time you reach the end of Unit 1, you should have developed a deeper and richer understanding of this key concept which is so central to all education and training.

### Activity 2: What counts as curriculum?

**Suggested time: 20 minutes**

Tick which of these you would call a curriculum, and briefly jot down reasons for your choices in your Learning Journal:

|  |  |
| --- | --- |
|  | **✓** |
| National Education Policy: Formal Technical College Instructional Programmes in the RSA Report 191 (2001/08) |  |
| Policy for the National Certificate (Vocational): A qualification at levels 2-4 on the National Qualifications Framework (NQF) (2006) |  |
| National Certificate (Vocational) – NCV Subject Guidelines: Mechatronic Systems, NQF Level 2, 2008 |  |
| Quality Council for Trades and Occupations (QCTO) Curriculum Document: Occupational Certificate: Electrician 671101000 |  |
| A textbook entitled *NCV: Systems Analysis and Design for NQF Level 4* |  |
| A TVET lecturer’s series of lessons plans on Marketing Management |  |

Discussion of the activity

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

If you understand curriculum as national policy documents that 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 official curriculum policy documents – the first provides a framework of NATED programmes as well as admission, programme and promotion requirements for each programme. The second contains the purpose of the NCV policy and prescribes fields, sub-fields and subjects, and programme requirements, etc.

If you understand curriculum as official documents from a recognised authority that prescribe what aspects of a subject should be taught in the classroom, you would have ticked documents 3 and 4. Document 3 was published by the former Department of Education, specifically for the NCV offered at the then-FET colleges (now TVET colleges), while document 4 is a National Occupational Certificate accredited by QCTO, which can be used by trainers in industry as well as lecturers in TVET 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 of the first four documents above if you understand curriculum as official government documents which set out planned courses of study in education or training. Many people would not include documents 5 and 6 (the textbook, and one lecturer’s set of lesson plans), since curriculum is widely thought of as official and prescribed.

But look at the following widely-quoted 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*. (Eisner, 1985, p. 125)

This definition allows for textbooks and lesson plans to be considered as curriculum documents in addition to prescriptive official syllabi and curriculum statements. Textbooks and lesson plans 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. One could say that from the students’ point of view, if these do not shape the curriculum, what does?

## Curriculum as plan

In Eisner’s definition, the key elements of curriculum are that it is a *planned programme* of learning activities from which the students are supposed to learn something new. Textbooks are often freely chosen by the college or the lecturer rather than prescribed. They are not official documents issued by the government, and are used only by some colleges and students since different colleges may choose different textbooks put out by different publishers. However, they do in practice represent curriculum plans, though at a lower level of influence. Textbooks provide vital support for lecturers, particularly if the lecturers are inadequately trained or prepared, or if the curriculum is a new one (Ball and Cohen 1996). In fact, textbook availability is frequently a key predictor of student learning success in developing countries with relatively low levels of lecturer qualification.

Similarly, a series of lesson plans designed by a lecturer, can also be seen as a curriculum – it provides a plan for what and how students should learn. Of course, lesson plans are at an even lower level of curriculum influence than textbooks – they are used by only one lecturer (or a limited group of lecturers), reach only a small number of students, and may be changed from year to year. But they often contain more detail, and 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 actual classroom.

Eisner goes on to set out many of the elements 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*.(Eisner, 1985, p. 126)

This extended and more inclusive definition also encompasses curriculum as a plan for teaching and learning at the level of a class of students. By indicating what should go into a curriculum, it provides criteria for what would make a *good* curriculum plan – 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. It would appear from Eisner’s definition that neither official prescription nor applicability to a whole province or country are essential parts of what defines the curriculum.

Here a brief digression is necessary: the concept “definition” (the term is derived from the Latin word “finis”, meaning a boundary, or limit), is most usefully thought of as drawing a “boundary” or limit around whatever is being defined – a “boundary” which *includes* everything that is an essential or integral part of the thing or concept being defined, and which *excludes* everything that is not absolutely essential to it. Eisner’s definition *excludes* both the notion of official prescription and the extent or scope of a curriculum’s influence (an entire nation or just a class), on the grounds that they are not essential aspects of curriculum. What *is* essential according to Eisner is the notion of a *plan* for the various elements of teaching and learning.

What emerges is thus an understanding of curriculum as essentially *a plan for teaching and learning*. This plan 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 learning activities limited to an individual classroom. Depending on where in the educational hierarchy a curriculum originates – the national department, 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.

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 workshop, or from general principles right down to actual learning activities.

Stop and think

In what ways does this discussion of curriculum as a plan extend the understanding that you had before?

Write your reflections in your Learning Journal.

This perspective is probably the one that is most prevalent in South Africa. Du Preez and Simmonds (2014, p. 4) quote from a fourth-edition South African textbook:

*curriculum development is ‘a collection of plans about teaching’ and … involves ‘... consulting curriculum statements issued by the government, defining objectives, finding information about topics, deciding on suitable teaching methods and choosing ways in which the learning would be assessed* (Jacobs *et al*. (2011:33).

Du Preez and Simmonds’s 2014 meta-*study of over 500 South African curriculum-related research theses revealed (p.12) that,*

*for the most part curriculum is approached from a narrow perspective (i.e. as a plan to be followed) and curriculum development from a technical approach.*

That is an approach which assumes that curriculum development is simply a technical process of unquestioning rule-following like the one propounded above by Jacobs *et al*, above.

However, this is not the only way of understanding the curriculum, or curriculum development.

## Curriculum as practice (Part 1)

Despite inclusive definitions like Eisner’s allowing for curricula to be written at different levels (from those who plan the curriculum in the DHET to college lecturers), and with different emphases (for example, general principles, assessment standards, or teaching approach), it still has limitations as a definition.

It is limited because it understands curriculum only as a written document that serves as a “blueprint” for what is supposed to be done, or as a plan awaiting implementation. In this section, a broader understanding of what is involved in curriculum will be explored.

### Activity 3: What *else* may count as curriculum?

**Suggested time: 15 minutes**

Which of these factors would you say shape, or even *form* part of curriculum? Jot down the reasons for your choices in your journal:

1. The ready availability, or otherwise, of reliable internet connectivity in all the campuses of a TVET college.
2. English as the sole language of teaching in a college where the majority of students have a different mother tongue.
3. Significant differences between lecturers in energy, experience, subject knowledge, creativity, up-to-date awareness or motivation.
4. Lecturer morale; insecurity among lecturers because of curriculum or other policy changes in TVET.
5. A difference in attitudes and skills between lecturers in Hairdressing and their students in relation to African hair and hairstyles.
6. A Civil Engineering and Building Construction learning guide in which 90% of the illustrations and examples depict engineers as men.
7. A college workshop devoted to practical training in Electrical Infrastructure Construction that is ill-equipped and in which much of the equipment is no longer in use in the actual workplace.

Discussion of the activity

The chances are that you responded that none of these circumstances is part of curriculum – certainly none of them is part of a plan for learning. But if you think more deeply, every one of them would have a significant influence, not only on the *quality* of learning in a college but also on *what* *is actually learnt* by the students. Certainly all of them would make a difference to how students experience the curriculum.

Stop and think

In what ways might some of the factors listed in Activity 3, or depicted in Fig. 2 below, influence *what is actually learnt* by the students?

Write your reflections in your Learning Journal.

The lecturers, their morale, teaching & attitudes

Other

students

& their attitudes

What the student actually learns

The quality of the learning environment & resources

The college’s structure & culture

The official curriculum as a plan for learning

**Figure 2: Interaction of elements in the learning environment**

Many curriculum researchers argue that if we want to understand what is learnt by students following a particular curriculum, it is not enough just to look at the documented plan, at the official or *intended* curriculum. It’s also necessary to look at what happens in reality, at how the curriculum plan is enacted by lecturers and experienced by students, within a particular environment. It is easy to fall into the trap of assuming that because an official curriculum document sets up certain expectations of what will be learnt, this is in fact what the students will take away from the course.

Stop and think

|  |
| --- |
| Why do you think that the planned curriculum is not necessarily what actually happens?  Reflect on why there may be a disjuncture between the planned curriculum and the lived experience of the curriculum. Try and think of a few reasons that may contribute to this disconnect and write your thoughts down in your Learning Journal. |

If one wants to avoid this trap, one needs to study the students’ lived *experience* of the curriculum. That means examining how the curriculum works in practice, and what happens in the process of translating it from a plan into a reality. Once you scrutinise this process, you will start to realise that there are several factors in the learning environment which may have a significant impact on how the prescribed, official 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 few functioning computers, then, no matter how creative a lecturer is, the students will have a very different experience of learning to type compared with students at a college equipped with a well-maintained computer lab. The same applies to internet connectivity, the equipment in engineering workshops, carpentry tools, office equipment or kitchen appliances. Resources are thus very much a part of how the curriculum is experienced.
2. **Lecturers** play a central role in the *curriculum as practised* (and experienced). A thorough knowledge of one’s subject, good teaching and assessment skills, well-prepared lessons, keeping up to date with developments in the world of work and maintaining good relationships with the relevant employers, committed enthusiasm for one’s work and caring for one’s students – these qualities make all the difference to the way in which a curriculum plan is translated into actual lessons, and to the way in which students will experience the curriculum.
3. **The structures of the college**, and of the wider education system, are another aspect of the curriculum in practice. Here the word “structures” means all the unseen things that make a college function and continue functioning: the way finances are organised, the decision-making processes, the amount of bureaucracy, division into departments, the language of instruction, or the way the timetable is organised. 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** encountered in 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. 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 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 relatively few in South Africa 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 it is widely assumed that men need to earn more money than women. A girl joining an engineering class is likely to have to work twice as hard as her male peers, and show extraordinary skill before she gains acceptance and respect from her lecturers and classmates. These attitudes towards her will profoundly affect her experience of the lived curriculum.

1. The term “**hidden curriculum**” is often used to describe ways of thinking that are *learned* through experiencing the structures, common practices, or resources of the college, or the attitudes of lecturers, even though they may not be intentionally *taught*, and without anybody really being aware of how their learning is subject to this or that influence or bias. Such *implicit* learning may be all the more powerful for being unspoken or taken for granted – for being seen as just “the way things are”. The “hidden curriculum” is thus an umbrella term for all the learnings acquired by learners and students simply as a result of being exposed for long periods to the particular shaping environment of the school, college or classroom – without these attitudes, values and assumptions ever being consciously taught.

For example, certain subjects may come to be regarded as having less status than others. Certain forms of knowledge or ideas are simply ignored because they do not reflect the “western (European-American) paradigm”, or would be considered too controversial if anyone voiced them. There may be unspoken rules about what attitudes or behaviour are acceptable, and what are not. Each of these practices or attitudes, when they are repeated daily in the students’ experience though perhaps never expressed “in so many words”, carry and reinforce “messages” about the way the world is supposedly constituted.

Even the *way* teaching and assessment are conducted may convey 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.

Stop and think

|  |
| --- |
| Another common practice related to assessment and teaching is to cope with a content-heavy curriculum and a too-short academic year by ignoring parts of the curriculum and spending the time preparing students to pass the examinations.  What hidden curriculum “message” do you think may be conveyed by a taught curriculum that is just focused on, and dominated by, the examination? |

Another important instance is the many college lecturers who perpetuate the message and attitude of *dependency* that begins to be learnt in grade 1 and continues right through to high school: the teacher makes nearly all the important decisions and evaluations in the classroom, bestowing rights and taking them away, giving the learners ticks or crosses, smiles or frowns, rewards or punishments, “pass” or “fail”. By constantly judging, assessing and evaluating my students and their efforts *without first inviting them to judge their own work*, I risk teaching them that self-respect depends on expert opinion. Self-evaluation is not all that often encouraged. Students are *told*, not *asked*, what their work is worth.

Eventually learners may stop trying to make their own decisions in the process of learning, internalise the message that “teacher knows best”, and come to depend on the teacher, the lecturer, and “authority” in general, failing to develop self-confidence and self-esteem. Where would we be if that message had been taken to heart by Galileo, Copernicus, Faraday, Einstein and generations of leading-edge scientists and thinkers? Awards like the Nobel Prize precisely reward those in many fields who do *not* buy into the myth that the prevailing authority of their teachers is unassailable.

Such messages or learnings are often at odds with the professed constructivist pedagogy of the lecturer. Some of the most respected figures in the field of learning theory such as Dewey, Piaget, Vygotsky, Bruner, Freire and most recently Engeström all fervently believed that learning has more to do with the *learner constructing* meaning and knowledge (with the teacher as guide) than it has to do with teachers imposing their authority.

So when one talks about the hidden curriculum, one is referring to the effects of the curriculum as practised that are difficult to pinpoint and are seldom talked about, but that have a deep impact on the way students come to feel and think about themselves and the world.

In order to avoid initiating undesirable learnings such as dependency, lecturers need as often as possible to switch their role from being the students’ main source of knowledge to that of coach, guide and challenger. This means regularly starting your lesson planning, not from the point of view “what do I need to teach the students?” but rather with the question “what task, challenge or problem should I set the students, and what resources will they need, that will lead them to engage with what they have to learn at the same time as they are figuring out how to meet the challenge or solve the problem I set them, and learning the value of doing so themselves?”

This demonstrates the usefulness and value of the hidden curriculum concept as a tool of analysis. The concept is essentially a critical one – a way of thinking critically about what *actually* gets learnt in classrooms and educational institutions. Understanding that there is almost always a hidden learning that accompanies (and sometimes contradicts) what is consciously taught, helps to expose or make explicit the possibly “unwanted learnings” that the students pick up just by being in college for a significant period of time. In other words, a college is not just a “neutral” channel or medium through which knowledge, skills and attitudes flow into learners’ heads. The particular information channel that is a TVET college itself repeatedly conveys, over the months and years that students attend it, a set of “messages” about the world and about life – messages that become more and more convincing through being constantly repeated, messages or “lessons” that would not be learnt by the students if they were somewhere else during that time.

The hidden curriculum will be discussed further in Curriculum as Practice (Part 2) below and in Activity 5, below.

**Table 1: Curriculum as plan, curriculum in practice, and contextual influences on the curriculum in practice**

|  |  |  |
| --- | --- | --- |
| **Curriculum concepts that fall under the heading of**  **CURRICULUM AS PLAN** | **Examples of CONTEXTUAL factors impacting what is actually learnt \*\*** | **Curriculum concepts that fall under the heading of**  **CURRICULUM IN PRACTICE** |
| * The prescribed curriculum * The official curriculum * The formal curriculum * The curriculum as blue-print | * Lecturer re-interpretation of the official curriculum * Lecturer morale, confidence * Resource constraints * An overcrowded, rigidly-scheduled curriculum * Student background knowledge * Teaching approach and methods used * Class size, facilities and appearance, etc. * Internet connectivity and availability of computers * Language of teaching * Lack of tolerance of cultural and sub-cultural diversity * Lack of provision for people with disabilities * Implicit bias in teaching and learning materials | * The curriculum as practised * The curriculum as experienced * The enacted curriculum * The attained curriculum |

**\*\*Note:** Some of these contextual factors may convey implicit “messages” – part of the “HIDDEN CURRICULUM”

Once you think of the curriculum as a more complex *process* rather than simply as a plan for learning, it soon becomes apparent that there are always tensions between different aspects of the curriculum in any college context. These tensions are often referred to as *contradictions*, and you will now see how different aspects of the curriculum can pull in different directions.

### Activity 4: Different aspects of your curriculum

**Suggested time: 20 minutes**

Write down your answers to these questions in your Learning Journal, then if possible discuss them with a colleague:

1. What different influences on the curriculum, might you take into consideration when you review your work schemes or design lesson plans? Make a list of them, 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”, or contradict each other? (Perhaps you can think of an example from your own lecturing practice, or, if you have not yet had much experience of lecturing, your experience as a student?)

Discussion of the activity: Curriculum alignment

There are a number of curriculum priorities and tensions that you might have highlighted in your own institutional context. But it is hoped that this activity will have helped you to understand, not only how a curriculum plan (the intended or official curriculum) may differ from the curriculum as practised, but also how different aspects of curriculum practice are not always in harmony. For instance,

1. ***Aims or intended learning outcomes of a course and the pedagogy are not aligned*:** There may be a contradiction between the *stated aims* of a course and the *teaching methodology* that is commonly used to teach it. The aim that a lecturer reports in, say, a lesson plan – to encourage students to solve problems for themselves – will be contradicted if the lecturer always feels the need to explain every principle and procedure to the students first. Another example would be a lecturer trying to develop communicative competence in a second official language, while employing teaching methods that involve a great deal of lecturer talk while the *students* passively listen.

**2. *Pedagogy and assessment are not aligned*:** Perhaps there is a conflict between the teaching methodology adopted in lessons and the forms of assessment that are used, especially in exams. For example, a far-sighted and creative lecturer bases many of her lessons on practical tasks, but the national exam is entirely a written paper requiring the memorisation of content knowledge, with questions that are a copy-and-paste re-versioning of previous exam papers, thus “re-cycling mediocrity”. The importance of aligning elements in the curriculum-as-practised will be enlarged on when John Biggs’s notion of “constructive alignment” is introduced in Unit 3 as an idea to consider in turning the intended curriculum into effective lesson plans.

**3. *Misalignment between students’ prior knowledge and time allocated for mastery***: There could be a tension between students’ prior knowledge and the time allocated for a course. For instance, when the students are unlikely to know much at all about a particular newly-introduced technical topic, and lack any frame of reference that will enable them to make sense of the new information, but the unit in question is only allocated a week in the crowded timetable.

In designing their own lesson plans, the challenge for lecturers is to find ways of resolving these conflicts. They have to make curriculum choices about what to prioritise, what methodologies to employ, how fast or slowly to proceed and so on. At the outset of this module you were invited to imagine two colleges that approach the same Hospitality and Catering Services curriculum plan in different ways. Different choices on the part of the colleges about teaching methodologies and assessment strategies would have produced vastly different learning experiences for the students. On paper the curriculum was the same, but in practice, it was very different.

## Thinking of curriculum holistically as both plan *and* practice

It is clear that we need to understand that curriculum is not only about the *plan* for learning, but also about how that plan is put into *practice*, and about the *environment* or *context* in which the learning takes place. This more *holistic* perception of the curriculum helps us to understand:

* Why there is always a *gap* between every official curriculum plan and how it turns out in practice, and
* Why the curriculum-as-experienced is never the same in different colleges and campuses, even though they are working from the same national curriculum plan; in other words,
* Why it is that having a national curriculum plan does not guarantee that all students will receive the same quality of education.

The contextual factors discussed above, which impact on the student’s experience of curriculum, are part of what is referred to as the *curriculum as experienced*, or the *enacted curriculum*, which will be returned to later.

This means that lecturers should keep in mind that curriculum happens both on paper and in the classroom, that it makes sense to look back and forth routinely between the plan and the practice, and to consider how the two relate to each other and influence each other.

It also means that there is a need to be specific in our language and make clear which aspect of curriculum we are talking about or thinking about at any particular moment. The next section will introduce you to a wider vocabulary of terms to use for different kinds of curriculum.

## Curriculum as practice (Part 2): The implicit curriculum

Taking the lead from the last statement above, this is a good point at which to re-visit the topic of the hidden curriculum that was touched on above. If it’s necessary to distinguish clearly which aspect of curriculum is being referred to, this surely extends to what is known as the *implicit curriculum* – a concept that is open to a certain amount of conceptual confusion, even among authors, but is nevertheless of value to lecturers (and students) trying to make sense of the curriculum.

Some writers use the term “implicit curriculum” when they are alluding to what has generally come to be called the “hidden curriculum” – and indeed the latter *is* implicit, as you saw in Table 1. That is, it exerts an influence on students without it being listed in any syllabus as a topic to be taught.

However, it becomes confusing when you read educationists describing things as “hidden curriculum” that are taught quite deliberately by teachers, but not “in so many words” as the saying goes, and possibly without being mentioned in the official curriculum or textbook. An example of this would be a lecturer whose every lesson is infused with the love of their discipline and the desire for the students not only to qualify in a trade or occupation, but also to become true craftsmen or women, deeply committed to the quality of their own outputs. Such an aim and attitude would tend to “rub off” on many of the students, and perhaps stay with them for life, but it would not necessarily be mentioned on any page of the official syllabus, or even be referred to explicitly by the lecturer.

In much the same way, values such as always being economical with materials, or never letting other people get the better of you in a deal, or always providing the best service possible, are often imparted to students quite knowingly by TVET lecturers, but without indulging in any explicit “sermonising” and without being prescribed in any curriculum document. With such lecturers, their implicit “messages” are inferred by their students from their actions, decisions and attitudes. A useful term for this implicit-but-deliberate teaching is the “*covert curriculum*”.

While this term may have connotations of stealth, the use of the word here is not meant to convey anything sinister. It is perhaps most applicable to schools, where there are many examples of intentional covert curriculum practices promoting the “culture” of this or that school, from the principal’s explicit “pep-talk” during the school assembly to the particular qualities that are rewarded in the form of trophies or certificates at the school prize-giving. These “messages” may range from those that one may regard as morally justifiable to those one may view as indoctrination of the learners. However, as mentioned in the previous paragraph, colleges, and the classrooms and workshops in them, are not devoid of this type of cultural message system.

You have probably already detected that the *hidden curriculum*, while it is also implicit, is quite a different concept. Perhaps the most telling difference is that the hidden curriculum is at least as hidden from lecturers as it is from their students. In fact, in some cases students are quite conscious, and may even be critical, of the “hidden messages” conveyed by the structures and common practices of the college, while it is only the *lecturers* who tend to take these structures and practices for granted. In other words, the staff are simply unaware of how their own behaviour, the way the college is run, its protocols and assumed priorities, combine to present a version of the world that, although it appears to be quite “natural” to them, may be quite biased or “out of synch” with society in general.

In view of this possible confusion about what is meant by the implicit curriculum, which really consists of at least two quite distinct concepts, the diagram in Figure 3 may help to dispel much of this confusion.

**Null**

**Official**

**Covert**

**Hidden**

Explicit

Implicit

Not intended

Intended

**Enacted**

**Intended/**

**Overt**

Explicit

**Figure 3: Relationship between the concepts official, overt, covert, hidden, enacted and null curriculum**

(Source: Adapted from a diagram in Peter Buckland. (1982). ‘Curriculum and reality in South African Schools’, in *South African Journal of Education 2*, pp. 167-72)

The three-dimensional diagram is purely conceptual, and the “blocks” in it are meant to represent dimensions and curriculum categories rather than anything remotely block-like. To the left are the two dimensions *Explicit* and *Implicit* (one could talk of an explicit curriculum and an implicit curriculum). At the bottom of the diagram are the two dimensions, also separated by dotted lines, Intended and Not intended.

As the diagram indicates, the official curriculum is obviously both intended (it is sometimes referred to as the intended curriculum) and explicit (it can be read in printed documents). It is impossible to imagine an official curriculum that is not intended, so the upper right block is shaded and blank.

The two lower blocks together indicate the implicit; however, (and this is an important distinction to understand) the *intended* part of the implicit curriculum may be referred to as the *covert curriculum*, thus conveying the unofficial, unwritten nature of this curriculum that is nevertheless quite intentional. These are the learnings that may be deliberately encouraged but do not form an explicit part of the official curriculum, such as encouraging a craftsman-like attitude. By comparison, the official, intended curriculum is obviously *overt* (i.e. in open view and explicit).

The hidden curriculum, on the other hand, is both implicit and *unintended* – the lecturers themselves may be quite unaware that they are contributing to “teaching” it since they are imparting it unconsciously, conveying “cultural messages” that they simply take for granted themselves. It should now be possible to understand the distinction between the covert and the hidden curriculum, and to grasp that the hidden curriculum may be all the more powerful for being unspoken or taken for granted – for being seen as just “the way things are”.

The “*null curriculum”* represented in the cloud shape is usually implicit in the sense of not being mentioned or discussed either in the curriculum policies or by stakeholders. This term, coined by Elliott Eisner, is used by some educationists to refer to all the possible learnings and domains of knowledge that are *excluded* from the official curriculum. These are the subjects and disciplines that are *not* offered or taught in the school or college, or in some cases the intellectual abilities or skills that institutions *neglect* to develop. While no TVET college can ever offer every conceivable vocational or technical discipline, there are some subjects that are not offered by any of the TVET colleges across the country, or that are very slow in appearing on the prospectuses of any of the colleges, even though there may be a considerable demand for them in the workplace. In some cases, these are simply subjects for which there would be so few enrolments that it would be uneconomical to offer them, or perhaps because other institutions are better suited to offer them.

In other cases, however, such “absences” and exclusions convey a hidden message about the supposed “unsuitability” or “unimportance” of the learnings or disciplines in question. In fact, what is hidden in such cases is that they are considered to be unsuitable or unimportant by the government or possibly by influential sections of society. As Eisner (1985, p. 97) points out,

*Ignorance is not simply a neutral void; it has important effects on the kinds of options one is able to consider, the alternatives that one can examine, and the perspectives from which one (is able to) view a situation or problem.*

An interesting instance of the null curriculum as part of both the hidden curriculum and the covert curriculum is to be found in the recent controversies around coloniality in the post-school education and training (PSET) curriculum. Read the brief account in the box below, then tackle Activity 5.

### Stop and think

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| The concept of *coloniality* refers to the living legacy of European colonialism in contemporary societies. It can take different forms, but these usually include social perspectives (ways of thinking about society) and forms of social discrimination that outlived formal colonialism and became integrated in the social order that followed. The discriminatory social perspectives, and the practices they influence, tend to perpetuate inequality and injustice even though the formal structures of colonialism may have been dismantled.  If you would like to read more about the concept of coloniality, click [here](https://en.wikipedia.org/wiki/Coloniality_of_power) |

Read the brief account *Decolonising the curriculum* in the box below and then answer the questions in Activity 5.

### Decolonising the curriculum

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| Colonialism is generally understood as a form of oppression and exploitation founded on assumptions of the racial and cultural superiority of the colonising powers. It has in the past (and currently in new forms) led to the enslavement of peoples and the dispossession of their lands and livelihoods.  Today the term “coloniality” refers to an underlying way of seeing the world that still relegates indigenous groups (original peoples) and others of extra-European origin, as well as their respective ways of knowing the world, to a marginalised status and gives authority to all that is “western” or European (Zembylas, 2018). Thus the colonial social divisions, dominance and exploitation are expressed less in oppressive physical form now (though this does occur), and tend to be maintained by more cultural, ideological and intellectual forms.  Colonial expansion was not only geographical and economic in nature; it was also the expansion of Eurocentric forms of knowledge. Today Euro-American knowledge is still privileged over other traditions and bodies of knowledge and knowledge-making. In South Africa, institutions of post-school education and training, particularly universities, have, like universities elsewhere, largely excluded the knowledge of colonised people from curricula.  Many students have become concerned about the narrowness of their curricula, about the *selection* of knowledge that goes into the curriculum and the relegation of formerly colonised people’s forms of knowledge to an inferior status. The vast majority of books on most university reading lists are the products of white male authors. This presents a distorted picture, conveying restricted messages about intellectual authority and who deserves our attention, and ignoring excellent scholarship produced by scholars who are not European, American or of European descent (Muldoon, 2019). This “cognitive injustice” requires an overhaul and expansion of the widely-accepted Euro-American body of knowledge and writing – the so-called “western canon”.  Many of those calling for decolonisation do not want to do away with the traditional canon; they do however want to examine its assumptions critically, and to include a wider range of perspectives. Decolonising post-school institutions is about challenging biases and omissions in the curriculum that limit how we understand the world. Though it is obviously not possible to include *all* knowledge in any curriculum, the call for decolonising education is for the incorporation of all of humanity’s knowledge *systems*, past and present, including indigenous knowledge systems and ways of knowing (Fataar, 2018). In South Africa the call for decoloniality is also a call to address “the diverse problems and demands of the local, national, Southern African and African contexts” (Department of Education, *White Paper on Education*, 1997, 1.14) and to endeavour to find or develop locally appropriate solutions for such challenges, while still upholding rigorous standards of academic quality.  Students who are not European or of European descent need to see thought leaders from their own ethnic group or culture reflected in the curriculum as legitimate creators of knowledge (Muldoon, 2019). The move to decolonise the curriculum resists the domination of Euro-American thought as “the only game in town” (Fataar, 2018). It acknowledges the contributions of colonised populations across the globe, engaging with ideas that have up to now been marginalised and discredited as “underdeveloped”. It is thus critical of the marginalisation, silencing, and devaluing of “southern”, “Third World”, and indigenous knowledge systems.  While the movement to decolonise post-school education and training has focused much attention on overhauling the curriculum, less has been written about what de-colonisation might imply for *pedagogical practices* (ways of teaching) in post-school education and training. Thus there is also a need to interrogate the pedagogical practices that tend to accompany Euro-American knowledge approaches, and to develop teaching methodologies that will be more appropriate to decolonising education and training.  Is it possible that the teaching of a subject like *mathematics* could benefit from the incorporation of the currently null curriculum of indigenous knowledge systems? Surely mathematics itself is an objective, universal discipline, free from cultural or ideological bias – a “language” that is recognised and shared across all countries and nations in the modern world, without which today’s technological development would not be possible? And surely the standard methods of teaching mathematics would not be improved by insights from “pre-scientific” indigenous cultures?  Such thinking is widespread and often goes unquestioned. However, since the late 1970s, a significant number of mathematicians have been developing the discipline known as ethnomathematics which recognises the alternative forms of mathematical knowledge and procedure present in every culture, including the cultures of indigenous peoples in colonised countries. They have explored how diverse cultures have developed and used systems of mathematical knowledge and practice that, while producing proofs-in-practice which align with the conclusions and proofs of traditional mathematics, take forms that differ greatly from the latter. Research (Stern, 1992; Siegler, 2005; Robinson and Dube, 2009, 2012) has shown that even in societies where a Eurocentric culture is the norm, children and various occupational groups develop, in their games and their working activity, mathematical forms and methods that are distinct from the established patterns.  These mathematical forms vary from ways of adding, subtracting, multiplying and dividing in, for instance, the marketplace, which follow quite different logical pathways from those of the “standard algorithm” taught in schools, to principles used in weaving highly complex symmetrical patterns in baskets, sieves, bags, bowls and fish traps. Aside from such basic arithmetic calculations often being faster, more reliable and easier to perform “mentally” with confidence than the standard algorithm, the adoption of indigenous mathematical operations, especially as a starting point for doing and elaborating mathematics in the classroom, can reduce the alienation caused by an “academic/school mathematics” that has, after all, displaced the familiar non-standard mathematics and informal, “folk” mathematics of daily life in games, marketplace and craftwork. This is particularly important given how many students experience the subject mathematics as a stumbling block in the course of their studies. This may assume a particular form in countries with a history of colonisation, but it is well to remember that it is a global phenomenon:  *African countries face the problem of low levels of attainment in mathematics education.*  *Math anxiety is widespread. Many children (and teachers too?) experience mathematics as*  *a rather strange and useless subject, imported from outside Africa.*  (Source: Gerdes, 2014, p. 21) |

### Activity 5: The implicit curriculum

**Suggested time: 2 hours**

The “Rhodes must fall” campaigns at Oxford University in the United Kingdom and at the University of Cape Town and elsewhere during 2015-16 highlighted arguments around the legacy of colonialism in our education system. While these arguments have particular force and significance in universities, some of the criticisms directed at a too-narrowly western/Eurocentric curriculum are likely to spill over into technical and vocational colleges as well.

Reflect on the following questions, and if at all possible discuss them with a colleague, then write down your responses in your Learning Journal:

**Note:** Your responses to the first two questions below need not refer to issues of coloniality.

1. What instances have you observed, in the teaching or just in the way things are done in your college, of:
   * A hidden curriculum, and
   * A covert curriculum intentionally geared to influence students’ attitudes, values or view of the world, but not officially prescribed or explicitly set out in any documents?
2. In what way do the issues raised in the *Decolonising the curriculum* box above exemplify the null/excluded curriculum and the hidden (unconsciously taught) curriculum? Are there ever times when resolutely adhering to the traditional TVET curriculum amounts to a *covert* (intentional) reinforcement of the “western canon”? Give reasons for your answer.
3. Can you think of ways in which the intended curriculum in your subject/one of your subjects might be enriched or made more relevant by introducing ways of knowing other than the traditional western, Euro-American ones? For example, the inclusion of non-western, local design principles and modes of design in fields such as technology, fashion, marketing and advertising, building design, catering, or modes of agriculture such as farming with Nguni cattle?
4. Another example is to be found in the field of mathematics or applied mathematics. In Mozambique and other countries neighbouring South Africa, research on *ethnomathematics* has been carried out in considerable depth over a number of years, led by one of this field’s foremost scholars, Paulus Gerdes. Whether or not you have a professional interest in or knowledge of mathematics, you should find this reading absorbing.

Before you read the three extracts, first perform the following “mental” calculations without using pen and paper: 18 + 19; 62 – 5; and 13 x 6. Then write down the steps by which you calculated the answers.

5. Now read the three extracts and then answer the questions below (5.1 – 5.3) in your Learning Journal.

**Extract 1:** Gerdes, P. (2014). *Ethnomathematics and Education in Africa*, [incl. footnotes, pp. 31-33] which you can access [here](http://www.etnomatematica.org/BOOKS_Gerdes/ethnomathematics_and_education_in_africa__ebook_.pdf)

**Extract 2:** Gerdes, P. (1996). On Ethnomathematics and the transmission of mathematical knowledge in and outside schools in Africa south of the Sahara, Sciences and Development 5, pp. 230-232 which you can access [here](https://horizon.documentation.ird.fr/exl-doc/pleins_textes/pleins_textes_7/carton07/010008901.pdf)

**Extract 3:** Gerdes, P. (2014). *Ethnomathematics and Education in Africa*, [pp. 45 to 56] The entire e-book can be freely downloaded [here](http://www.etnomatematica.org/BOOKS_Gerdes/ethnomathematics_and_education_in_africa__ebook_.pdf)

**Questions**

1. What were your responses on reading about the variety of methods that the Nigerian peasants and the market women in Mozambique used to perform calculations mentally? How did these compare with the methods you were taught for performing such calculations in primary school? Elsewhere Gerdes writes (Gerdes, 2014, p. 59):

D’Ambrosio concludes that *“‘learned’ matheracy* (i.e. numeracy) eliminates the so-called *‘spontaneous’ matheracy”* (D’Ambrosio, 1984, p. 6), i.e. “An individual who manages perfectly well numbers, operations, geometric forms and notions, when facing a completely new and formal approach to the same facts and needs, creates a *psychological blockade* which grows as a barrier between the different modes of numerical and geometrical thought” (*ibid*. p. 6). What happens in the school, is that “the former, let us say, spontaneous, abilities (are) *downgraded, repressed* and *forgotten,* while the learned ones (are not) assimilated, either as a consequence of a learning blockage, or of an early dropout ...” (*ibid*. p. 8). For this reason, “the early stages of mathematics education (offer) a very efficient way of instilling the *sense of failure,* of *dependency* in the children” (*ibid*. p. 7).

How does this tie in with the ideas of the hidden curriculum and the null curriculum?

(**Note** – this is a key question.)

1. Why do you think the mathematics educators confronted with the mathematical challenges in the beginning of Chapter 4 (Extract 3) failed to answer them?
2. Carefully follow the steps outlined in Extract 3 (if possible, take time to perform them manually with different coloured strips of thin card). How does Gerdes reach the conclusion (on p. 55) that,

*The traditional forms … constitute an expression not only of biological and physical knowledge about the materials that are used, but also of mathematical knowledge.*

Discussion of the activity

Hopefully, and perhaps with the help of a colleague, you have been able to think of instances of hidden and covert curriculum in the TVET sphere. Much has been written about, and many examples have been identified, of both the hidden curriculum and the covert curriculum in schools and universities, but you may have found it challenging to think of examples of either of these in the TVET context. Especially if your discipline is in an engineering field or some other technological domain, you may be inclined to assume that because the forces, stresses and physical laws with which such disciplines are concerned rely heavily on mathematics, physical science and scientific experiment, they are both objectively verifiable and universal; therefore, there is no *need* for alternative “ways of knowing”.

However, such a view is based on faulty assumptions. Firstly, science and modern technology have not progressed along a single, smooth, linear trajectory or course. Rather, the history of science has been characterised by many false starts and blind alleys, as well as by “scientific revolutions” (Kuhn, 1976) which have resulted from the discovery of completely new ways of approaching problems that have at first seemed illogical and perverse to the scientists of the day. Secondly, even technological breakthroughs that have led to the development of the sophisticated machinery, equipment and other things that we use every day (thereby proving the validity of the science behind such inventions and manufacture), have often resulted from insights stemming from sources outside of mainstream science, including indigenous technologies. For example, there have been a number of these developments in modern medicine, including “traditional” forms of treatment and the use of traditional natural remedies.

As Alert Einstein famously said,

*The world as we have created it is a product of our thinking. It cannot be changed without changing our thinking*.

Although TVET lecturers cannot afford to teach their disciplines as if everything is relative and operational procedures are not to be taken seriously (if you connect a red wire to the wrong terminal, you can expect trouble), it would be foolish to knowingly teach as if there was nothing to be learnt from other traditions than our own.

A key concern of decolonisers is the absence of indigenous and other “non-western” ways of knowing and doing from the traditional curriculum. This is a classic example of null or excluded curriculum. This exclusion in itself conveys the ethnocentric message that European/American science and culture are indeed “the only game in town”. To the extent that this message is taken for granted and accepted as just the way things are, this null curriculum results in a learning that is “hidden”. When this message is conveyed consciously or with some frequency, for example when defensive, closed, tradition-bound attitudes prevail and teaching is quite deliberately biased towards a narrow “western” view, then the term “covert” is applicable.

The accounts of Nigerian peasants and women in the markets of Mozambique performing mental computations brought to mind a seminar on mathematics teaching attended by the author some years ago at which the speaker requested the participants to quickly and mentally subtract 396 from 553 (or some such numbers), then asked volunteers to explain how they had arrived at the correct answer. Within a few minutes, a total of 6 or 7 different methods had been identified, all of which worked, and only one of which was the standard, school-taught algorithm.

Another powerful account of dependency in learners who are actually able to perform highly impressive mental calculations using non-traditional methods is to be found in the narrative “The Dumb Class” by James Herndon. He recounts a chance meeting in a bowling alley with one of the “dumbest” of the students in the “dumb class” at the American inner-city high school where he taught. It turns out that the boy earned pocket money in the evenings by keeping score for groups of bowlers:

*He was keeping score. Two teams, four people on each. Eight bowling scores at once. Adding quickly, not making any mistakes (for no-one was going to put up with errors) following the rather complicated business of scoring in the game of bowling. Get a spare, score ten, plus whatever you get on the next ball, score a strike, then ten plus whatever you get on the next two balls; imagine the man gets three strikes in a row and two spares and you are the scorer, plus you are dealing with seven other guys all striking or sparing or neither one… The bowling league is not a welfare organisation nor part of Headstart or anything like that and wasn’t interested in giving some dumb kid a chance to prove himself by mucking up their bowling scores. No, they were giving this smart kid who had* *proved to be smart and accurate fifteen dollars because they could use a good scorer.*

Herndon tells how he chats to some of the kid’s classmates and discovers similar aptitude in using maths in everyday situations, so he starts setting them “bowling score problems and paper route change-making problems and shoe buying problems” and letting them choose the problems they wanted to solve. But the youngsters get their calculations completely wrong and ask “Is this right?” “I don’t know how to do it.” “This ain’t right, is it?” and “What’s my grade?” The brilliant league scorer couldn’t decide whether two strikes and a third frame of eight amounted to eighteen or twenty-eight or whether it was one hundred and eight and a half. Herndon concludes:

*The reason they can’t learn is because they are the dumb class. No other reason. Is adding difficult? No. It is the dumb class which is difficult. Are the teachers the dumb class? Well, we are supposed to teach kids to “read, write, cipher and sing”, according to an old phrase. Can we do it? Mostly not. Is it difficult? Not at all. We can’t do it because we are a dumb class, which by definition can’t do it, whatever “it” is.*

Stop and think

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| James Herndon seems to be raising a number of points here, but when he writes that the teachers are the dumb class, perhaps he is suggesting that it is the education system (of which the teachers are part) that is “dumb” because it is failing the so-called dumb learners. Why do you think the learners become so confused by the maths tasks even when the teacher tries to make the maths problems relevant to the context of their lives?  It is interesting to relate this to the challenges which Paulus Gerdes issues to the group of mathematics educators in Extract 3. They fail to “connect” with the maths embedded in the problems, not because they lack intelligence, but because it does not fit with their now-taken-for-granted frame of reference, a set of mathematics conventions they were taught back in school.  Try to discuss these questions with one or more fellow students. |

When Gerdes concludes that the computations performed by the often-illiterate peasants and market-going women in Africa constitute an expression of mathematical knowledge, he does so partly because, as he comments, their numerical reasoning *works* – their problem-solving methods and the solutions they arrive at are “almost never arbitrary” (random), and are usually the only possible, or at least the optimal, solutions of specific production-related problems.

In other words, their numerical solutions bear the same authoritative stamp as those reached by mainstream “western” mathematics: they work, and can be measured and validated to everyone’s satisfaction in practice. It is because these “ethnic-traditional” methods of calculation and practical uses of mathematics are ultimately commensurate with the Euro-American tradition, that ethnomathematics scholars like Gerdes and D’Ambrosio do not advocate replacing the latter with the former, but rather integrating the two and especially incorporating the ethnomathematical when initiating new areas of mathematical learning.

## The enacted curriculum: What actually happens in class

So far no attention has been given to the segment labelled “Enacted curriculum” at the far end of the diagrammatic block in Figure 3. As depicted in the diagram, it includes all the curriculum dimensions: both explicit and implicit, as well as intended and unintended. This is because the *enacted curriculum* is an umbrella concept which denotes what teaching and learning actually take place in a lesson, and includes at least the following:

* The stamp, or shaping influence of the official, intended curriculum that directs, or is at least supposed to guide, the lesson, reflecting the curricular intentions of the national curriculum policy-makers;
* The various factors that may influence what is taught and how it is taught (see pp. 14-16 above);
* The implicit curriculum, both covert (unwritten but consciously conveyed) and hidden (unconsciously conveyed);
* The *enactment* of the formal curriculum by the lecturer (in the role of an *agent* rather than merely complying with the terms of the official curriculum as plan) – consciously and intentionally translated into lesson plans; and
* The participation (or non-participation) and the prior knowledge, skills, values, cultural beliefs and attitudes of the students, who also act with varying degrees of agency rather than simply as compliant and passive “receivers” of the knowledge in the curriculum.

This “actualised” curriculum is clearly a complex and elusive construct, but it is useful for conveying the idea of the curriculum as a totality of what is learnt (“taken away” is the current expression) by students in a learning environment such as a classroom or college workshop. Terms like “enacted” and ”actualised” are valuable for conveying the notion of curriculum not only as a plan, not only as practised, but as a *process*. That is, a conscious and largely intentional set of actions involving various participants in different but basically patterned roles, not predetermined but open to the influence of a range of factors, and leading for that reason to somewhat indeterminate outcomes. Because of the relatively unpredetermined nature of the interaction, role relationships and other influencing factors, the curriculum process is “open” rather than “closed” and the outcomes, which by no means can be taken for granted, may therefore be experienced as positive or negative by the respective participants.

Very little is fixed, *so the enacted curriculum is much more dynamic and unpredictable than the official, planned curriculum*. The entire curriculum process can thus be understood as a dynamic progression from the “ideal” curriculum” manifested in the curriculum policy, and resulting in the lessons as they are experienced differently by the individual students, and the results of that learning. This process, with a particular focus on the enacted curriculum as central to this course, will be analysed further in Unit 2.

There is one further useful set of analytical tools to be introduced before concluding this unit on understanding the curriculum: the distinction between the performance model and the competence model of curriculum. Because these models span curriculum as both planned and practised, which you should now have a fairly clear picture of, this is a good point at which to introduce this pair of concepts.

## Competence curricula and performance curricula

A very influential voice in the field of curriculum theory over many years has been that of the British researcher, Basil Bernstein, who constantly developed his theories, contributing an impressive but often controversial range of conceptual tools for understanding the curriculum in practice and how it affects learners. In his later work, he described two distinct types of approach to curriculum, which he called the “competence” model and the “performance” model. This distinction is more richly detailed than many common distinctions such as learner-centred vs teacher-centred, constructivist vs transmission-mode teaching, or content-based vs outcomes-based education. In fact, the competence and performance models combine elements of all of these concepts. As you read the descriptions of the models below, look for these elements.

### Competence approaches

One of the central features of competence approaches is that they are essentially student-centered. The lecturer allows the students to take control of their own learning as often as possible, and the lecturer’s role tends to be covert, i.e. less direct – he or she acts as a guide and facilitator. Learning will be typically organised around themes, projects and their own experience, and will often be integrated across different discipline boundaries, drawing on relevant knowledge or skills learned in other subjects. Students will be given some measure of control over what they learn (selection of content), in what order they learn it (sequence), and how quickly they progress through the learning (pacing). Competence curricula are directed towards what the learner knows and especially what one *can do* at the end of the learning (for instance, at the end of a unit or course).

Another important feature of competence approaches is that all students are regarded as essentially able to achieve competence, and able to arrive at a certain learning outcome. How they arrive there, and how long it takes them will vary from student to student, and students may even demonstrate the learning outcome in a number of different ways.

Competence approaches recognise the importance of students’ own experience and “everyday knowledge” in the learning process. This recognition tends to affirm the students and build their confidence, whatever their background. It is also because starting from, and linking to, students’ own experience and “everyday knowledge” provides the lecturer and student with important “ways in” to the “formal, academic knowledge” that has to be learned, and later, with the grounds for applying that formal knowledge in their lives and work.

In competence approaches the focus in evaluation is on “presences” – on what the student knows or has achieved. The student might produce a diagram in an assignment, and the lecturer will say, “That looks like a great diagram. Tell us how you decided to depict the process in that particular way.” Education here is emancipatory, aiming to set learners free from constraints that hold them back. Thus the students are enabled to be active, creative, and freer to learn in their own way. In competence approaches the pedagogy tends to be personalised and process-oriented. Process-oriented pedagogy is not oriented exclusively towards the “destination” – the learning of subject *content* or the learning of skills or predetermined *outcomes*. Rather it is focused on the “journey” – the *process* of learning and being guided towards making sense of the things before one.

### Suggested reading

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| The classic outline of this typology: curriculum as content; curriculum as product; and curriculum as process is in Kelly, A.V. (2009). *The Curriculum: Theory and Practice* (6th Edition). Thousand Oaks, Cal.: SAGE, Chapters 3 and 4. |

Strong links are encouraged between college learning on one hand and real life/authentic experience on the other, and learning can take place anywhere, not only the college classroom.

### Performance approaches

In performance teaching, the focus is far more on learning pre-specified content and texts (i.e. depersonalised, “formal knowledge”), rather than on the *process* of learning. The lecturer does not set out often to draw extensively from, or connect with, real life in order to teach in the college. The role of the lecturer tends to be overt – lecturing and making direct interventions in order to lead students to the desired learning. Performance approaches are thus more content- and lecturer-centred than competence approaches.

Performance approaches base evaluation on deficits or ‘absences’, on what is missing. Here a student may produce a wiring diagram or recipe in an assignment, and the lecturer will say,

“*An interesting diagram/recipe. But where is the surge protection?/where is the serving suggestion?”*

Or perhaps,

*“You’ve outlined the production process, but now draw it following the arrows in the model I gave you”.*

In performance approaches students may still be active, but their activity is based on externally-set goals rather than driven from within.

The performance model emphasises the importance of maintaining the boundaries between separate subject disciplines in order to focus on each subject in depth, without distraction. Teaching takes place in specific learning sites only – especially the classroom, but also the laboratory or training workshop. Students generally have less control over the selection, sequence and pacing of their learning. In performance models of curriculum, there are explicit rules about how to learn, and definite criteria for judging right from wrong.

**Table 2: The competence model of the curriculum** **compared with the performance model**

|  |  |  |
| --- | --- | --- |
|  | **Competence** | **Performance** |
| **Knowledge** | * Aims to develop *competence* (skill, ability) rather than deep content knowledge of an issue or subject. * Subject-discipline “boundaries” may comfortably be crossed. | * Aims to develop a high level of academic *performance* through a good understanding of course content, especially in particular disciplines/subject areas. * Subject-discipline “boundaries” are in general carefully maintained. |
| **Learner** | More control over the selection, sequence and pace of learning. | Little control over the selection, sequence and pace of learning. |
| **Learning** | Lecturers recognize the importance of learners’ own experience and draw on “everyday knowledge” in the learning process.  More emphasis on *process* of learning and personalised learning – often organised around themes and projects. | Lecturers focus on *pre-specified learning content* and texts (i.e. on depersonalised, formal “college-type knowledge”). |
| **Lecturer** | More of a guide or facilitator of learning. The role of transmitter is ‘played down’ and covert. | The rules for learning and specific performance criteria are made explicit by the lecturer; there are clear rights and wrongs. |
| **Evaluation** | General competence criteria.  Focus on “presences” in a curriculum directed towards what the learner *knows* and *can do* at the end of learning.  The lecturer shares the task of evaluation with the learner. | Specific performance criteria.  Focus on deficits/ “absences”.  The lecturer performs the task of evaluation. |
| **Learning sites** | Anywhere: laboratory, workshop, industry, the environment. | Clearly marked learning sites, especially the classroom/lecture hall. |

What Bernstein provides here are ideal types. They have been simplified here to provide distinctions, particularly around different curriculum assumptions. Ideal types usually do not exist in the real world in a pure form. Generally, you will find that what happens in real life is a mixture of different ideal types. In the module *Vocational Pedagogy,* you will see how the use of some performance-type *elements* in a mainly competence-type lesson can produce very exciting and productive lessons.

Ideal types, however, allow us to see how things that are mixed or combined in real life can be *conceptually* grouped in different ways, and be more like one ‘model’ rather than another.

### Activity 6: Competence curricula and performance curricula

**Suggested time: 20 minutes**

Reflect on the questions below, then write down your responses in your Learning Journal. If you found the distinction between competence- and performance-type curricula confusing (or even Bernstein’s choice of names for these two models), you are encouraged to read this section a second time.

1. How would you locate your own current teaching against the two models? (You may find it helpful to use Table 1 as a guide.)
   * Be as objective as you can in this self-reflection – don’t write what you think you *should* be doing.
   * Do you teach *squarely* according to one model or the other, or are there some elements of both models in your teaching? If so, specify how that comes about, and justify your choices.
   * If you have not yet begun to lecture, consider either focusing this activity on a past lecturer whose work you respected, or put your imagination to work on how you think you will approach teaching in the months ahead.
2. Does your reading about the two models make you feel that you would like to experiment with, or strive to include, goals or other elements that do not presently form part of your practice or thinking? If not, reflect on why you would rather go on teaching as you do. If you feel you would like to try a different approach, explain why this is so, and how you might go about this.

Discussion of the activity

There are clearly no right or wrong answers to an activity like this. The descriptions of the two models are quite complex, so it would be worth the trouble to re-read the relevant text from p. 35 – p. 37, as mentioned above, and to compare it carefully with the summary in the table. If you were uncomfortable or challenged trying to match your practice to either or both of the models, it may be helpful to discuss the activity with a colleague.

The minimum you do need to “take away” from this section and activity is an expanded vocabulary of concepts to help you analyse and interpret official curriculum documents, understand curriculum as a process, and design effective lesson plans.

Unit 2 will focus on the process of developing curricula.

# Unit 2: The curriculum process

## Outcomes

This unit should equip you to mediate the official curriculum in creative and empowering ways, rather than bureaucratically “implementing” the curriculum, or uncritically following the prescribed textbook.

This broad learning intention encompasses the following more specific outcomes on which learning will be assessed. By the end of this unit you should be able to:

1. Analyse the curriculum process as a contextual framework for interpreting the official curriculum and understanding your role as a lecturer.

## Introduction

In this unit you will start by exploring more thoroughly the notion introduced towards the end of Unit 1 – of the curriculum as a process. A key focus in Unit 2 will be your professional role as a TVET lecturer in that process.

## The main stages of the curriculum process

Philip Jackson (the writer who coined the term “hidden curriculum”) once commented that curriculum is a “messy” field, so to bring some order to this field, Figure 4 sets out the essential main stages of the process, as well as identifying the particular *curriculum construct* associated with each of those stages. (An explanation of the term “constructs” is provided, below, in the text box after Figure 4). Later more detail will be added to this infographic, and finally the curriculum process will be explored in greater *depth*, at which point the lecturer’s role in this process will emerge more clearly.

At the same time, it will become clear that the curriculum itself, and the knowledge, skills and values that are the focus of the curriculum, are all liable to undergo a number of transformations from the time the curriculum is first conceptualised to the time it is experienced in the classroom by the students (Goodlad, Klein and Tye, 1979). This is an important point to grasp, one that is often overlooked, especially by curriculum planners and teaching staff. It is all too often assumed that because a body of knowledge or a set of skills or values has been installed in a curriculum, the next cohort of students who are taught according to that curriculum will acquire that *same* knowledge, skills or values.

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| **Curriculum Planning and Design** | **Curriculum Policy** | **Learning/Teaching Support Materials (LTSM)** | **Lessons** | **Learning** | **Results of Learning** |

**Figure 4: The Curriculum Process (1)**

Source: Curriculum constructs based on Figure 2 in Sanders and Makotsa, (2016) and the model is adapted Goodlad, J., Klein, M. and Tye, K. (1979).

Figure 4 sets out the basic dimensions of the curriculum process. The bottom row of labels (“Curriculum planning and design”, Curriculum Policy”, “LTSMs”, “Lessons”, etc.) represents the main *stages* of the process, from the initial design stage of the curriculum to its ultimate results or outcomes. It is important to understand that the end results will flow from the entire process, and are not determined by the official curriculum alone.

Above the name of each of the curriculum process stages is a graphic representation of the *curriculum construct* which corresponds to that stage (see discussion on Constructs below). The initial curriculum planning and design stage is where the “*ideal curriculum”* takes shape. This is usually a dynamic swirl of ideas about the purpose and rationale of the qualification concerned, and about what topics and outcomes will be necessary, appropriate or inappropriate for that qualification. The planning and design stage also encompasses debates and negotiations around the selected topics, outcomes, values and their appropriateness, around the sequence in which they should be taught, and so on.

Thus it is clear that the term “ideal curriculum” does not mean that this early version of the curriculum is “ideal” in the sense of representing “perfection”, or any sort of “ideal benchmark”. The curriculum at this stage is “ideal” in the sense that it is still only a cluster of *ideas*, but ideas that are debated, and are aimed at bringing about what each planner or contributor sees as the *ideal*.

**Constructs**

Constructs are the mental formulations that human beings develop in their efforts to order or make sense of their experiences, construing and interpreting their experience of the world in the only terms available to them, i.e. what they know from past learning and experience. Over time we each build up a system of such constructs in our minds. These constructs may be collectively shared (picked up from one’s culture), or personal (representing one’s individual experience and way of seeing the world). Or, more usually, they may be a blend of both (even our *shared* constructs are filtered through the personal construct “lenses” through which each of us views his or her environment).

Constructs provide a kind of conceptual “vocabulary” that enables us to process and categorise the information contained in new experiences, and to formulate responses to those experiences. They also tend to shape our actions, to the extent that we *act* according to the way we see the world. For instance, a lecturer who construes one of his key functions as “*implementing* the curriculum” (although he may see this as just another way of saying “putting the official curriculum into practice”) is likely to have a different attitude to his role, and to approach teaching and assessment in a very different way, from a colleague who construes her role as “curriculum planner and interpreter”.

Constructs are closely related to concepts, but the two terms are not identical in meaning. Both refer to abstract and general ideas or generalisations. But whereas the term “concept” is often used in a similar way to words like “notion” or “idea”, the term “construct” conveys a stronger sense of being an *interpretation* – something “constructed” in the mind – actively *construed*, inferred or arrived at as a logical conclusion (but which *could* be understood differently by other people).

Here the term “constructs” is used because it describes the successive “versions” of the curriculum more crisply than the term “concept”; in later sections there will be a focus on the importance of constructs in their own right as factors in lecturers’ interpretation of the curriculum.

### Activity 7: The curriculum process (1)

**Suggested time: 25 minutes**

Carefully examine Figure 4, then write down brief notes on your responses to the questions below in your Learning Journal. If at all possible, discuss your responses with a colleague:

1. The six main stages in the curriculum process set out in the bottom row of Figure 4 are more-or-less self-explanatory, but the corresponding names given to some of the **curriculum constructs** in the top row need some explanation. Why do you think these constructs have been given the names they have (by different curriculum theorists)? (The first construct, the ideal curriculum, has already been explained above, so focus on the remaining five.)
2. How does each construct connect to its respective stage? (You may find that your responses to this question become an extension of your responses to question 1.)

### Note

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| This discussion includes important new content, so don’t be tempted to skip it. |

Discussion of the activity

The **official curriculum**, often also referred to as the formal curriculum, is an easy enough construct to grasp, for it represents the final output of all the activity in the curriculum planning and design stage, including consultation, revision and ministerial approval. This may be published in the form of various official directives making their appearance at different times as curriculum policy. These may include a gazetted curriculum statement, syllabi for different subjects, and sometimes separate guideline documents or regulations governing assessment, as is the case with the NCV. Their publication in the Government Gazette, and distribution from the Department to all the TVET colleges, justifies the use of the term “formal curriculum”. These constitute that version of the curriculum which many people regard as “*the* curriculum” – essentially, the plan for teaching and learning that governs the way programmes, courses and lessons are conducted from the date of publication. However, as you read in Unit 1, this is a narrow and somewhat inadequate way of understanding the curriculum.

The **perceived curriculum** is so called because it represents what educators believe, or perceive they are offering to their students (the word “perceive” is used here because there can of course be differences between what stands in a textbook or even in a lecturer’s lesson plan and intention, and what actually unfolds during a lesson). For instance, points or examples may be inadvertently left out by the lecturer, or brought into the lesson on the spur of the moment, or the lecturer may decide in mid-lesson to modify the teaching and learning method they have planned to use, perhaps in response to an input from a student.) This perceived version of the curriculum actually has two aspects: on one hand textbooks and other materials produced to support lecturers and students, and on the other the “supports” which lecturers themselves design and prepare in order to organise their teaching, i.e. their own lesson plans.

In practice many lecturers rely heavily on one or more textbooks to structure their lessons, and over time they come to perceive the textbook, rather than the syllabus or curriculum statement, as reflecting “the curriculum” on a practical, day-to-day basis. As far as lesson plans are concerned, different lecturers perceive these in different ways. Some regard their lesson plans as being essential to good, professional teaching, and find that they are lost, and their teaching is scattered and ineffective, on those occasions when for some reason they skimp on their lesson planning. Others regard lesson plans as simply an added nuisance in a busy schedule – a mere compliance task or “box to be ticked” with a minimum of attention given to detail. Either way, textbooks and lesson plans both constitute the perceived curriculum – the last version of the curriculum to precede the actual taught lesson, and the version that many lecturers perceive as the one they actually teach to students.

The fourth curriculum construct, which corresponds to the actual lesson stage, is the **enacted** or **taught curriculum** (the construct may refer to lessons collectively or to a single lesson). Many people, including lecturers and students, for fairly obvious reasons, see *this* version of the curriculum as the most important. Certainly this is the most visible stage, in which the knowledge, skills and values prescribed in the official curriculum are at last brought into focus as the *taught* knowledge, skills and values.

“Teachers are among the most powerful influences in learning” (Hattie, 2009). A large body of research points to the educator as being the most crucial systemic factor contributing to successful education and training, and it is at this stage that the educator’s contribution is most visible. In a 2017 South African study, the students in the research sample agreed that,

*the lecturers played a pivotal role in their development … they recalled the positive impact the … lecturers had on them and that had influenced their decision to stay in the NCV programme and complete it* (Lawrence, 2016, p. 104).

Although the graphic depiction of this stage shows a lecturer standing in front of a chalkboard, this is not intended to indicate that this is the sole, or even the principal way of enacting the curriculum. Although the directive, lecturing mode of teaching is important and by no means to be discarded, it is only one of many forms that teaching can and should take in TVET. For example, as the next graphic (beneath the curriculum as experienced) suggests, the lecturer may partly delegate enactment to the students in order to facilitate *active learning* in the form of co-operative group work.

It can be argued that the **experienced curriculum** is the form that the curriculum assumes in the *learning stage*, when it is appropriated by the students in response to the curriculum as enacted by the lecturer. This is the relatively brief time when the educational intentions in the curriculum, the lecturer and the student, each having their own separate histories, at length come together. A good deal of the quality and amount of the learning that takes place depends on what the individual *student* brings to the learning. However, research has shown overwhelmingly that the next-most important factor that contributes to learning (far exceeding the effect of all other factors such as those related to home background or the school or college itself) is the *educator* (including the pedagogic tools that the educator knows how to use).

### Stop and think

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| **After the students themselves, it’s the educators who make the biggest difference**  John Hattie’s 2009 giant synthesis of over 800 meta-analyses by other researchers, in all covering studies of over 500,000 learners, found that students’ own qualities, characteristics and prior educational background accounted for approximately 50% of the variance in student learning, that **educators and their teaching** accounted for approximately 30%, and that all other factors such as home background and the institution itself accounted for only between 5 and 10 % each. |

The curriculum-as-experienced has sometimes been referred to as the “received curriculum”; however this term is used less often than in the past because of its connotation of *delivery*: it carries a sense of the curriculum being “received” by the students (i.e. having been “transmitted” or “delivered” by the college or lecturer). Today it is seen as the professional task of lecturers *not* merely to transmit or deliver knowledge to passive students. Instead they are also encouraged to allow the students to take a more active part in constructing meaning, for instance in puzzling out a procedure for themselves under the *guidance* of the lecturer, who may choose to make inputs only when necessary. Directive teaching (lecturing, demonstrating) has an important place among the TVET lecturer’s teaching tools; however, developing a basic factual knowledge (i.e. the result of lecturing) is among the lower levels of learning that can occur. *The aim should be to enable students to develop deep as well as surface learning* (Hattie, 2009, pp. 28, 260), *and to encourage students to become self-regulated and ultimately self-confident learners.* Lecturers should therefore also provide learning experiences which students can incorporate and connect into their prior experience and knowledge, pose questions and challenges that will extend the students’ thought processes, and allow students to learn from the mistakes they may make in responding to these challenges.

The final curriculum construct in the chain has been identified by some educationists as the **attained curriculum**, corresponding broadly to the results achieved as a consequence of the curriculum having been enacted and learning having taken place. Many curriculum scholars have paid little or no attention to this construct. Perhaps this is because, as the dotted border round this construct in Fig. 4 suggests, its content is somewhat hazy, it being relatively difficult to establish exactly what it is that students do in fact “take away” from lessons and formal learning:

*As teachers, we cannot guarantee that our plans for students’ learning (intended learning) will take place. In the same way, we cannot control what other learning (unintended learning) will occur. All we can do is be clear about the proposed learning and provide a quality teaching/learning opportunity supported by the appropriate resources* (Butcher *et al*, 2006, p. 20).

Academic results in the form of percentages, symbols or other grades afford an evaluation of only *part* of the learning that may have taken place, and are certainly not the kind of “results” that are referred to in identifying this curriculum stage as the “Results of Learning”. This final phase in the curriculum process encompasses *any and every* learning that takes place as a consequence of the students having experienced the lessons and related learning activity, hence its content is somewhat obscure.

### Stop and think

If the form of learning acquired by students (as the end result of a particular curriculum being taught in TVET colleges) is difficult to identify confidently and precisely, do you think this is a major problem? If so, *why* do you think it a problem that our knowledge of what learners actually learn is not absolutley clear? If not, why do you think it is an acceptable state of affairs?

Discuss this with a colleague if possible and write down your responses in your Learning Journal.

Several points are important to grasp here. One is that the results of learning – the attained curriculum – include a *range* of possible learnings, from the explicit and intended to those of which even the lecturer is unaware (i.e. the hidden curriculum). They may also include covert teachings (implicit, but intended curriculum discussed earlier) that convey less factual, more value-laden messages to be internalised by the students, but that are quite possibly excluded from examination questions and therefore not reflected in academic results. An example of such covert messages might be the importance of adopting the value of craftsmanship in one’s occupational identity.

Another significant point is that it would clearly be naïve to assume that the students have all learnt exactly the same thing, or that if they have, they have interpreted them in quite the same way. In fact, it can be safely assumed that at very least, their *interpretations* of what they have learnt *will* to some extent be different from one another, as each student’s understanding (of concepts, principles and procedures, or for that matter anything) is filtered through the “lens” of their personal experience.

It should be clear from what has been said above that academic results based on traditional tests and examinations will only enable lecturers (and for that matter employers) to gain a rough idea of students’ actual gains in ability or competence in the form of knowledge, skills, values or attitudes. This is especially the case if lessons have been geared largely to enabling those students to pass fairly predictable examinations, as unfortunately happens all too often. Forms of summative assessment that help to evaluate deep rather than surface learning (Hattie, 2003, p. 9), such as portfolios of achievement and in some cases trade tests, afford more complete, holistic glimpses into students’ abilities or competence. However, lecturers need to be aware of the limited scope of any *single* form of assessment in identifying and recognising the possible extent of the attained curriculum. In Figure 4, the wide range of possible learnings in the attained curriculum is reflected in the image of a student’s brain with different “lights going on” in a number of possible areas of learning activity.

The small image, next to the brain with lights on, represents three sectors: the state curriculum planners, employers and senior management in TVET colleges. The image suggests that for these sectors of society – academic results, for all their limitations, are seen as *statistically* significant in a number of ways. These include matching curriculum to labour market trends and needs, and judging or monitoring the student output and success rates of the various TVET colleges. Furthermore, in this final, statistical aspect of the attained curriculum lies the important possibility of establishing “feedback loops” (not indicated in the diagram) that may in due course assist curriculum planners to review and revise the official curriculum, thus creating a *cycle* of development, enactment, review, revision and possible improvement (or the eventual development of a new qualification and curriculum to replace the existing one).

## How the curriculum process actually takes shape

In Figure 5, which builds on Figure 4, some detail has been added which should flesh out the curriculum process provided above, helping you to locate each curriculum construct in the particulars of its own educational context.

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| **Curriculum Planning and Design** | **Curriculum Policy** | **Learning/Teaching Support Materials** | **Lessons** | | **Learning** | | **Results of Learning** | |
| * Old and new knowledge * Clustered ideas * Consultation * Debates * Selection * Revisions * Negotiation | * Government Gazette * Qualifications registered on SAQA * Syllabus * Guides * Advocacy and Communication, e.g. Brochures, Media Statements * Training workshops | * Textbooks * Teaching/learning aids, resources, e.g. charts, models, videos * Learning programmes drawn up by lecturer, community of practice * C:\Users\Adendorff.m\Documents\1. Open Learning\1 OL4T\PROGRAMME DEVELOPMENT\MATERIALS DEVELOPERS\Curriculum Course\Readings\Interpreting & Mediating the Curriculum Unit 2\Lecturer planning.JPGLesson plans | * Classroom lectures * Workshop demonstrations, practical activities * Work-integrated learning in industry * Equipment * Learning resources * Content Knowledge, Pedagogic Knowledge, Pedagogic Content Knowledge | | * Learning in depth as well as surface learning * Remembering * Understanding * Applying * Analysing * Evaluating * Creating/Synthesising | | * ICASS * Portfolios, Exams * Micro-credentials * Trade Tests * Qualifications * Employment/   self-employment   * Success Rates | |

**Figure 5: The Curriculum Process (2)**

The **ideal curriculum** was described earlier as a dynamic swirl of as-yet-unfixed ideas about the purpose and content of the qualification concerned. Such a situation may last for many months or even for two or more years while the planning, design and preparation stage unfolds. Workshops and meetings have to be convened, a task team or teams appointed, and various forms of internal consultation within the Department of Higher Education and Training (DHET) have to be conducted and recorded. In addition, both employers and technical experts in the workplace have to be consulted. During this process older knowledge (i.e. background or foundational knowledge in a subject or discipline) and newly-developed knowledge are weighed up together for consideration, pedagogical approaches are debated, and knowledge and skills are selected, arranged in categories and clustered. The process of *selecting* knowledge and skills is not only about which topics and skills to *include* in the curriculum – it also means that difficult decisions have to be negotiated about which ones to *leave out*. (Of course on the other hand, as you saw in the short article on decolonising the curriculum in Unit 1 certain facts, ideas or ways of perceiving the world may be omitted *too easily* because of cultural “blind spots” on the part of curriculum designers or educators, thus constituting the null and hidden curriculum.)

A final draft is gazetted for a period of public consultation, and the comments received then have to be processed and incorporated (or discarded) before the final **official curriculum** policy is ready for the Minister’s approval, and for publication once more in the Government Gazette. Finally, the qualification concerned has to be approved by the relevant quality council – Umalusi or the Quality Council for Trades and Occupations (QCTO), and registered by the South African Qualifications Authority (SAQA). Curriculum documents submitted to the quality councils and SAQA have to conform to detailed templates in order to enable rigorous quality checks to be made.

Whatever the strengths or shortcomings of a particular official curriculum may be, it cannot be said that curriculum policies are the product of a single person’s effort, or even of a small group of influential officials. *Every* official curriculum is imperfect to a greater or lesser degree, but they nevertheless reflect the output of numerous individuals, groups (including pressure groups), and quality assurance as well as deliberative processes that include external stakeholders as well as Department officials and appointees.

Before leaving the official curriculum domain, it is important to note the officially-approved documents and activities that are usually generated *in support of* a new curriculum policy. These may include the development or selection of teaching and learning materials, and prepared media statements, ministerial speeches and other forms of advocacy and communication such as brochures providing an overview of the policy. As a general rule they also include professional development training for lecturers, college senior management and regional managers.

An example of the above activities can be seen in the following extract from p. 13 of the DHET’s 2016 plan for the TVET Centres of Specialisation development programme, which refers to the development of the curriculum content for the new Occupational Certificates for Trades. See Table 3.

**Table 3: Extract from plan for the TVET Centres of Specialisation development programm (DHET: 2016)**

|  |  |  |
| --- | --- | --- |
| **Title of Workstream** | **Description of work** | **Key outputs** |
| **Workstream 2:**  **Learning and teaching** | This work stream aims to develop **Curriculum Content** for all thirteen priority trades. | 1. A qualification for (each of the 13 prioritised) trades is developed 2. Curriculum content for all 13 trades is developed 3. A lecturer development programme is developed and implemented 4. Teaching and learning material appropriate to the trades are available and selected 5. A guideline for project managers to use when developing the implementation plan is developed. |
| Secondly, it aims to produce guidelines and implementation strategies for the training of lecturers in the delivery of programmes in the dual system model as well as support in relation to learning and teaching materials. |

As was noted, the **perceived curriculum** has two aspects:

1. Textbooks and other learning and teaching support materials (LTSMs) produced mainly by private publishers and other companies, and
2. The learning programmes and lesson plans produced by lecturers. The former group is usually augmented over time by lecturer guides and other learning and teaching materials and resources produced by donor-funded non-government organisations (NGOs) – often these are commissioned by the national Department, and thus enjoy a semi-official status.

In addition, the increasing use of online learning, both in programmes and courses offered at a distance and blended learning programmes, has opened up access to a vast and growing source of learning/ teaching support materials (LTSMs) available on the internet. These include open educational resources (OER) which are readily available online from international and South African repositories, and are openly licensed, allowing lecturers and colleges to re-use them in their own teaching, and in many cases to adapt them to the needs of their own programmes and students. (Discussed in more detail in Unit 3). Lecturers who do not make use of these numerous sources of support, both online and in print, are undoubtedly doing themselves and their students a disservice. While some OER are of uneven quality, many excellent ones can be found and if need be, adapted.

The discussion of lecturers’ work schemes and lesson plans will be covered in Unit 3, where they will be focused on in some detail.

When the **curriculum** is **enacted**, it is not restricted to classroom lectures. It also includes demonstrations and practical activities carried out in college workshops and other practical facilities, as well as workplace-based learning as part of the work-integrated learning component which is now supposed to form part of every training programme. When the new Occupational Certificate programmes are fully functional, the integration of college-based theory, practical training and workplace experience while working for contracted employers will be paramount (QCTO, 2011, pp. 3, 6). Important elements contributing to the effective enactment of the curriculum, in addition to the learning resources and materials mentioned above, are training equipment and hopefully, in the not-too-distant future, digital simulations. These are increasingly recognised as crucial in enabling students to test their learning of theory, and to begin to hone their practical skills in an environment that to some extent duplicates the environment of the workplace while providing a measure of safety to make mistakes and learn from them.

More important than these, however, are the lecturers themselves, their knowledge, expertise and teaching role. A later section of this unit will focus on the content knowledge, pedagogic knowledge, and pedagogic content knowledge that lecturers require to make their critical contribution as professional as possible.

The **experienced curriculum** – the students’ experience of learning – may take place in the classroom, lecture room, workshop or workplace, in response to the curriculum as enacted by the lecturer. It would however be wrong to think of the curriculum-as-experienced coming into being *after* the curriculum is enacted, as the learning process associated with a particular lesson may well have begun *ahead* of the lesson. (This is most obviously the case where the students have been invited to engage with a reading or lesson notes *prior* to the actual class session, as happens in a “flipped” lesson - see Unit 3). The learning stage (the curriculum-as-experienced) also does not *end* with the conclusion of the actual lesson, as the learning process may extend beyond it in the form of a formative assessment activity, assembling a learning portfolio or studying towards an examination.

There are many ways of analysing the depth or quality of student learning, but among the most enduring, robust and useful of these is Bloom’s taxonomy of cognitive activity levels (and its later variants). This schema ranks different types of cognitive activity in a hierarchy, from the lowest and least-demanding level (recall/remembering), through understanding, applying, analysing and evaluating to synthesizing and creating as the highest level. Although the quality and amount of learning that takes place depends to a great extent on what individual students themselves bring to their learning (see p. 49), it is clear that whether the bulk of student learning is at the level of factual recall, or whether the students are challenged to develop the higher cognitive levels, is dependent first and foremost on what types of learning activity the *lecturer* sets in motion.

As pointed out above, the **attained curriculum** (what is *actually learnt* by students) is rather difficult to get a handle on, especially for empirical researchers – something of a “black box” (i.e. a complex system or object whose internal workings are hidden or not readily understood). Formal assessments such as tests and written examinations are often unreliable and/or one-dimensional in revealing exactly what it is that students really understand about a concept or process in the recesses of their minds. Given that such assessments can only ever assess student learning based on a fraction of the bulk of the prescribed curriculum, lecturers often rely on perceptions, intuition and experience to gauge the day-to-day learning that might take place in the classroom or workshop.

Nuthall (2005), who closely monitored the inter-student dialogue of every student in a large variety of classes over many years, found that students often already knew a good deal of what their teachers intended them to learn, that a third of what each student learned was not learned by any *other* student in the class, and that a key learning that did take place was how to project (for the lecturer’s benefit) the *appearance* of active engagement. Lecturers, on the other hand, tend to rely, on a day-to-day basis, on secondary indicators such as “the visible signs that students are motivated and interested… They monitor the look in their students’ eyes, their enthusiasm, their puzzlement, and the questions they ask” (Nuthall, 2005, p. 916). “They are sustained, however, by the commonly held belief that if students are engaged most of the time in appropriate *activities*, some kind of learning will be taking place … (they) depend on the responses of a small number of key students as indicators, and remain ignorant of what most of the class knows and understands” (Nuthall, 2005, pp. 919–920).

### Stop and think

Here the focus is on assessing the learning that has taken place *within* a particular lesson rather than on summative assessment at the end of an entire unit or course. Do you agree with Nutthal’s findings? What has been your experience of judging whether students are attending, comprehending, or just pretending?

Write down your reflections in your Learning Journal.

Practical assessments and portfolios of evidence, accompanied by soundly-designed rubrics, probably get a lot closer to evaluating what a student has actually learnt than, say, most multiple-choice or other short-answer tests. Fortunately, in practical terms such assessments are usually considered to be good enough to allow the TVET system to function, and to evaluate student learning against exit level outcomes on a national scale.

In TVET, the workshop or other simulated environments also afford many opportunities to test students’ actual learning by simply requiring them to try out or repeat a *practical* procedure that has been demonstrated or explained by the lecturer. In Unit 4, links to a number of in-class methods will be provided as resources which lecturers can use to obtain quick feedback from an entire class (rather than just from a few individually questioned students) on what students have or have not grasped or learnt from lectures or demonstrations. These can be analysed in a matter of minutes and used to correct misunderstandings and fill gaps in the next day’s lesson.

In the end though, it has to be accepted that we cannot really be precise or certain about the outcomes of education at any level or in any sector. Early childhood development, primary, secondary and university education, and vocational education and training, all make broad claims to plant the seeds of a desire for lifelong learning, to nurture skills for living and for “earning a living”. A far greater measure of precision is expected of the work-related criteria for successful qualification in TVET and in many, but not all, disciplines in universities; however, even in these cases, few people would say that the learning gained is limited *only* to what was necessary to pass exams and meet these occupational criteria.

## Deepening your understanding of the curriculum process: How knowledge is recontextualised

So far the account of the curriculum process in this unit has been analytical, breaking it down into its constituent stages and sub-processes, but essentially the analysis has been of a *descriptive* nature. In order to equip yourself as a *professional* educator, your understanding of the curriculum, and of your role in enacting the curriculum, also needs to be *critical.* In other words, your understanding needs to shift from being at a descriptive level to adding a “normative” or more ethical level, in which attention is also paid to *curriculum values*, to social concerns, and even to political-economic motives embedded in the official curriculum.

To make this shift, you will need a few conceptual tools that will enable you to make curriculum decisions in situations where, one choice is preferable to another. This is the meaning of the term “curriculum values” (sometimes referred to as “curriculum ideologies”): they are beliefs about which educational goals should drive the curriculum, and which are the best means of attaining them – some goals being deemed more important than others, and some methods being more acceptable, and effective, than others. The words “should” and “best” in the previous sentence signal that we are entering the domain of *normative*, not just neutrally *descriptive*, analysis: it is directed at identifying what can be argued *should* become the *norm, rule or standard* – in this case, in education and the curriculum.

### Stop and think

Do you agree that one of the marks of a *professional educator* (as distinct from a lecturer who simply goes through the motions and has no ambitions to excel in their vocation) is to weigh up, and understand the importance of weighing up, their pedagogic options? In other words, which approaches would be preferable, more effective, more beneficial to students in the long run, more ethically justifiable, and so on?

If possible discuss these questions with a fellow student or students, then write down your reflections in your Learning Journal.

Basil Bernstein, whose theory of performance and competence curricula was introduced in the final section of Unit 1, approaches the curriculum process from an angle that takes seriously the role of the lecturer as a curriculum actor or curriculum agent “reworking” the knowledge to be passed on to the students. In doing so he has provided us with a vocabulary of concepts that will help us to understand this process, and the roles of the other “curriculum actors” that participate in it. For our purposes here it will suffice to make use of only a few of his concepts and not concern ourselves with the more complex aspects of his theory.

Bernstein goes beyond describing what happens in the curriculum process by looking at how it measures up to the requirements set by official curriculum as a plan. He attempts to analyse the general principles that govern the process of how knowledge is institutionally transformed, through a number of stages, into the *pedagogic communication* which is used in classrooms and other learning environments. A key concept which Bernstein introduces is *recontextualisation*:

* New knowledge is produced in certain sites, for instance universities, research agencies such as the Council for Scientific and Industrial Research (CSIR) and sometimes industry, which he calls, collectively, the “*field of knowledge production*”.
* This knowledge from the field of knowledge production is re-located to other sites (for instance, departments of education, publishing companies, schools and colleges), referred to collectively as the “*recontextualising field*”.
* The field of recontextualisation consists of two sub-fields:
* the “*official recontextualising field*” (ORF) – developing, maintaining and monitoring the official curriculum, and
* the “*pedagogic recontextualising field*” (PRF) – producing textbooks and other LTSMs.

In the case of TVET, the ORF includes the DHET’s TVET Branch and its curriculum development, monitoring and examination structures, the Skills Development Division, the **Indlela Trade Test Centre, and** the two education and training quality councils, Umalusi and the QCTO. (Monitoring, examinations and quality assurance all have an influence on the curriculum over time, and all of these functions are carried out by divisions of the DHET, the quality councils or the Education and Training Quality Authorities (ETQAs) attached to the SETAs.)

It is most important to understand that in this first, official stage of recontextualisation (the ORF), the curriculum is arrived at through discussion and contestation between various stakeholders within a particular historical, political, cultural and economic context. The fact that it is debated and drafted chiefly within the walls of government institutions does not mean that it is isolated from wider social influences. Thus it is bound to reflect in various ways the concerns of the time and society in which it is produced. The process may even include a period during which public comment is invited. What this means in practice is that the official document that emerges from this process will inevitably be a *selection* of knowledge, skills and values that reflects current social forces and concerns.

The PRF is comprised mainly of university faculties of education, publishing houses and non-government organisations (NGOs) that undertake lecturer training and produce textbooks and other education-related media such as specialised academic journals, training materials for lecturers and learning/teaching materials and resources for students, and finally lecturers themselves insofar as they produce lesson plans and learning/teaching materials and resources.

* What emerges from these fields is then selectively transferred to other sites (for instance college classrooms or workshops) where the knowledge is reproduced in pedagogic form (teaching), in the “*field of reproduction*”.
* In each of these fields and sub-fields, the knowledge undergoes a certain amount of transmutation.

Bernstein thus provides a model for understanding the *processes* by which expert knowledge is converted into curricula and classroom talk (Singh, 2002:572). As you will see below, these processes are “not straightforward and cannot be taken for granted” (Moore, 2004).

He introduces this model with the simple example of how the craft knowledge of *carpentry* comes to be “pedagogised” (pronounced “ped-a-godg-ized”) as *woodwork* in the school curriculum.

However, such transmutations (carpentry into woodwork) do not just happen on their own, or “naturally”. Another example of how knowledge from the “field of production” changes into something different in the curriculum process, is physics:

*With physics as an example, we will distinguish between physics as activities in the field of production of a discourse, and physics as a pedagogic discourse. It is quite possible to look at the activities of physicists in the field in which physics (as a science) is produced, and sometimes it is difficult to believe that what everyone is doing is physics.*

*This is not the case with physics as a pedagogic discourse. A textbook says what physics is, and it is obvious that (the textbook) has an author. The interesting point, however, is that the authors of textbooks in physics are rarely physicists who are practising in the field of the production of physics; they are working in the field of recontextualisation.*

*As physics is appropriated by the recontextualising agents, the results cannot formally be derived from the logic of that (physics) discourse. Irrespective of the inherent logic which constitutes the specialised discourse and activities called physics, the recontextualising agents (e.g. curriculum planners, textbook writers, lecturers) will select from the totality of practices which is called physics in the field of production of physics*. *There is selection*. (Bernstein, 1996, p. 48, italics and bracketed words not in the original)

**Note:** The term “discourse” is explained in the textbox further below. For now, it is enough to understand it as a way of thinking, speaking and writing associated with a particular field of human activity.

Bernstein draws our attention to the distance between physicists like Einstein in the field of knowledge production displaying unembarrassed curiosity and at times playfully trying out new ways of relating seemingly unrelated phenomena (such as the mass of an object and the speed of light), and on the other hand the physics of textbooks, and of lecturers endeavouring to help students understand complex and often invisible principles and relationships in the universe.

Bernstein also highlights the importance of *selection* as part of the recontextualisation process, adding in a later passage that there is always *selection* in recontextualised *subject content*, for example what is included or left out about how physics is related to other subjects such as chemistry, mathematics, engineering and astronomy, and also in the *sequencing* and *pacing* of that content. And of course, where there is selection, except in the very unlikely situation of the selection being completely random, there is always a *normative* element to the *choice* of what to leave out. In other words, such choices must always bring *values* into the picture – what would be *more important* or *more valuable* to include, what would be *better* to leave out, what would be too *controversial*, and so on. This in turn means that *no curriculum (because every curriculum involves selection) is completely value-neutral or impartial.*

One of the points worth noting in this account of recontextualisation is that in the different stages, sites and “fields” through which the curriculum process unfolds, the recontextualising activity is not just carried out by “the system”, or even by institutions; it is carried out by *curriculum actors*. These people, whether as individuals or acting in committees or task teams, do not merely act out their respective predetermined roles (as curriculum planners, textbook writers, lecturers) in a system that is predetermined. Rather, *at each stage, field or site, a different set of curriculum actors interprets and mediates the official curriculum and the knowledge, skills, values and attitudes being imparted, understanding the curriculum, and modifying it and its “messages” in ways other than the explicit, predictable and officially intended ones.*

Stephen Ball, writing about “policy actors” (Ball *et al*, 2011), characterises them as taking on different kinds of role with regard to any given policy. Ball’s typology of policy actors (some of his names for the actor-types may strike you as a little strange) can be readily applied to *curriculum* policy actors. Different types of policy actor play distinctive roles, bringing their individual value positions to their readings of curriculum policy (Lambert and Penney, 2020). This happens not only in different stages, fields and sites of the curriculum process, but also within a single site, especially in a site like a college, where you might easily encounter all eight types at once.

Table 4 lists eight different kinds of policy actors and “policy work” which “are involved in making meaning of and constructing responses to policy *through the processes of policy interpretation and (policy) translation*” (Ball *et al*, 2011, p. 625).

**Table 4: Policy actors and “policy work”**

|  |  |  |
| --- | --- | --- |
| **Policy actors** | **Policy work** | **Nature of the role** |
| “Narrators” | Interpretation, selection and enforcement of meanings, mainly done by principals and the senior management team | Select priorities within the range of policy precepts; set the agenda for activity and action; exert leadership and attempt to create a unifying “narrative”, constructing “historical continuities or dramatic breaks with the past” and establishing the policy “vision” for the future. |
| “Entrepreneurs” | Policy advocacy, creativity and integration | “Persuasive personalities” and forceful agents of change who identify with policy ideas and  recruit others to support a policy (like “enthusiasts”). |
| “Outsiders” | Partnership, training and monitoring | For example, experts or trainers based in NGOs. Help to interpret policies, provide training related to the policy/curriculum, and initiate or support “translation” work. |
| “Transactors” | Accountability work: reporting and monitoring policy implementation | Mostly senior teachers and administrators appointed to generate data, work with data, and write reports. |
| “Enthusiasts” | Investment, creativity, satisfaction and career | Policy “models” or “influencers”, who embody policy in their practice and are examples to others. They enact policy through their practice, and possibly plan workshops and processes. |
| “Translators” | Translation of texts based on policy, and production of events | Plan and produce events such as workshops, and develop the processes, systems where necessary, and institutional texts needed in order to advocate and implement policy, and induct others into policy. |
| “Critics” | Union representatives and active unionists: monitoring of management, maintaining counter-discourses | Contribute at times to policy interpretation, especially when policies threaten the interests of members, monitoring and criticising policy implementation in relation to the conditions of service and well-being of educators. |
| “Receivers” | Mainly junior teachers and teaching assistants: coping, defending and dependency | Short-term survival is their main concern. Exhibit “policy dependency” and attempt high levels of compliance. Looking for guidance and direction rather than attempting to be creative. |

(Source: based on Ball, *et al*, 1996, p. 626 *ff*.)

Professional TVET lecturers can be seen, and should see themselves, as key “policy actors” interpreting and enacting official curriculum texts, and looking for the pedagogic possibilities in those rather “dry” texts. They may take on the roles of “entrepreneurs”, “enthusiasts”, “translators” or “critics”, actively advocating, questioning and unpacking the official curriculum in order to “translate” it’s somewhat *decontextualized* and *abstract* descriptions of content items, learning outcomes, etc. into the realities of the classroom and meaningful visions of future teaching and the world of work (Lambert and Penney, 2020).

Professional lecturers need to “acknowledge the distinctly *unfinished* nature of official curriculum texts”, and recognise that enacting them will involve recontextualising abstract curriculum policy ideas into contextualised practices, i.e. enacting “creative processes of interpretation and translation” (Lambert and Penney, 2020).

### Stop and think

Although some of the labels that Ball *et al* give to different kinds of policy actors may seem a bit strange, you probably didn’t have too much difficulty recognising at least some of the roles they describe. Spend a few minutes thinking about (i) the roles with regard to the official curriculum policy that various colleagues take in your college, and (ii) the roles with regard to curriculum policy that you yourself may have taken on at different times in the past or present. Keep in mind that Ball *et al* point out that policy actors may take on more than one role at a time, and that the roles may be fluid rather than fixed.

Reflect on how playing such a role or roles may have influenced your approach to lecturing or training in the classroom or workshop.

Discuss this with a colleague if possible and write down your thoughts in your Learning Journal.

With TVET lecturers as key policy actors in the interpretation and enactment of new official curriculum texts, it is clear that the curriculum process offers more scope for *agency* in the form of interpretation and mediation, and is a lot more dynamic and complex, than the curriculum process diagram has so far suggested.

This is not only because the various policy actors each perceive the curriculum, and their roles with respect to the curriculum, through the “lens” of their own individual background, experience, knowledge, personal vision and possibly career aspirations. (This “lens” is after all the one through which we all, as human beings, perceive almost everything.) It is also because at each stage of the curriculum process, the knowledge, skills and values that are the product or “output” of that stage takes on a *new identity of its own*, which is then interpreted by the *next* group of policy actors in the chain (Yanow, 1996:27) – those who compile the final draft of the official curriculum document or official guidelines, the textbook writers and editors, lecturers, students, examiners and moderators.

Thus it is not surprising to find that the end result of learning – the attained curriculum – is not fully and precisely predictable or assessable – it would be foolish to attempt to make fixed judgements about the “final” effects of a programme of learning in human beings that are likely, and are in fact encouraged, to *continue* learning and evolving as “lifelong learners” – an “ever-moving target”. The point of course is that students (and other policy actors) are *not* just passive “targets” to be “hit” by curriculum policy “missiles” (Yanow, 1996:26).

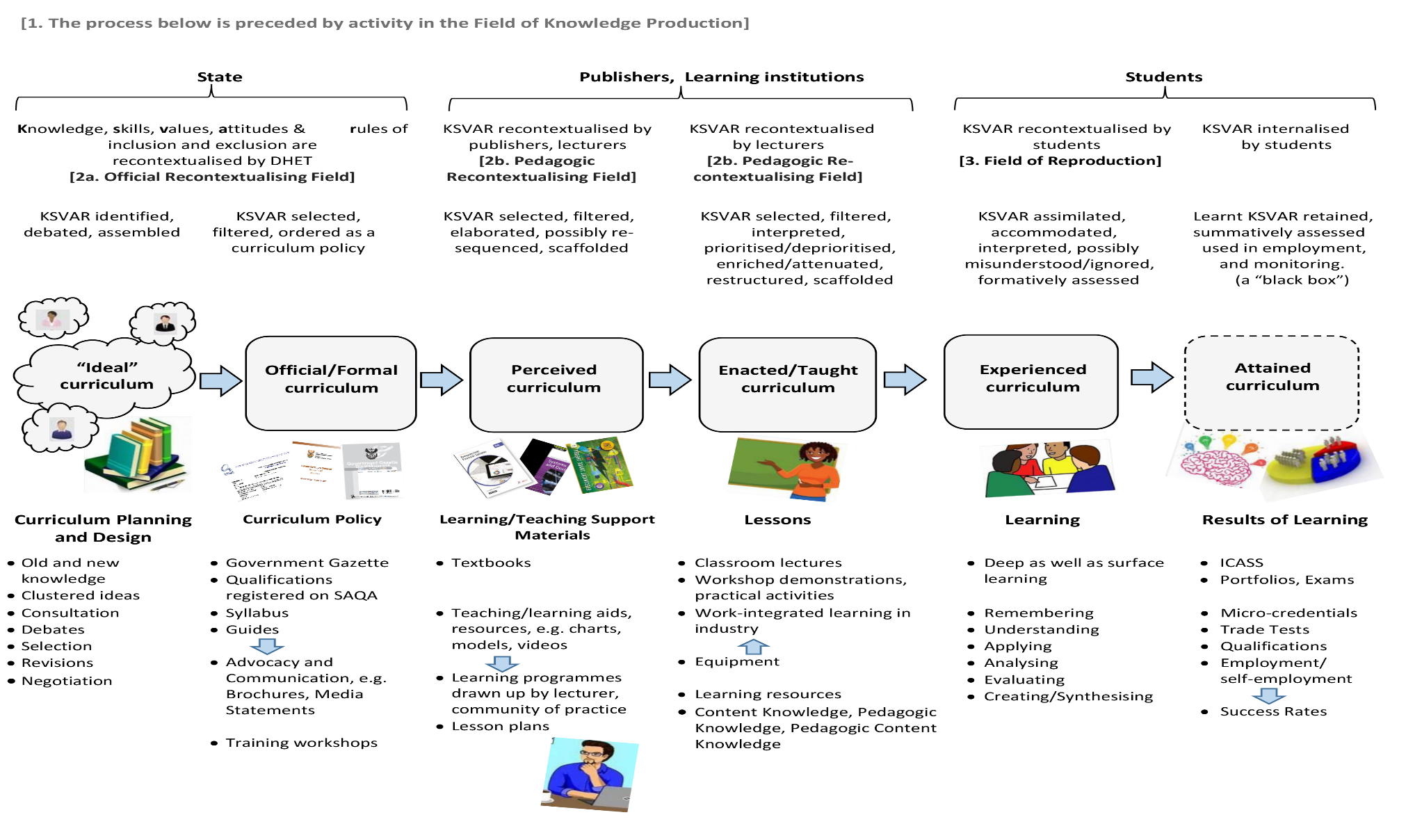
These analyses – of recontextualisation, policy actors and interpretation – shift attention away from the question of how faithfully the official curriculum is *implemented*, to analysing how both the content of the curriculum and the policy messages carried by the official curriculum are selected, re-interpreted, re-fashioned and recontextualised as they move through various curriculum stages (Bertram, 2012).

In a final adjustment to the curriculum process diagram then, this slightly more theoretical layer is inserted (see Figure 6). As you engage with this, and combine it with the more descriptive accounts you have already read above, you should come to see how the possibility exists for lecturers to take on a mediating, interpretive role rather than a passive, bureaucratic role within the curriculum process.

It should already be clear that the curriculum process is about much more than simply implementing or complying with the official curriculum as a plan. Now in additional point now emerges: the progression of the curriculum from official prescription to student learning and its consequences involves more than merely making knowledge *simpler* for students to understand.

The *next* thing that emerges from this expanded picture is that the curriculum process is not as straightforwardly linear, or determining (fixed, pre-ordained), as it appears to be in Figure 4 and Figure 5.

*While the overarching policy intentions may (be) clear, it is known from policy sociology that policy intentions and concrete implementation do not follow a linear path of formulation–adoption–implementation–reformulation* (Ball, 1990).



**Figure 6: The Curriculum Process (3)**

1. **The field of knowledge production:** For a start, Bernstein’s model reminds us that even the planning and design activity which is involved in the development of the ideal curriculum draws on, and is preceded by, the production of new knowledge in sites of very different kinds, mostly *outside* of the teaching domain. This new knowledge is produced by academic researchers in universities and scientific foundations such as the Council for Scientific and Industrial Research (CSIR) or the Human Sciences Research Council (HSRC), and by technical designers, inventors and other higher-level technicians in industry, etc.

This is obviously “knowledge creation” that is not structured with any thought of *teaching* in mind, and is not part of any curriculum process, but rather is developed in the process of solving problems in the “real world”, or exploring new ways of thinking or doing things. Here we are talking of all the areas of human knowledge and activity, for example shoemaking, interior design, catering, plumbing, electrical engineering, psychology or religion, and of the particular *discourses* which develop within each of these areas of knowledge and activity: the discourse of interior design, or engineering, psychological discourse, religious discourse and so on.

**Discourses**

Before proceeding further, it is necessary to enlarge on the concept of *discourses*, which will appear more than once throughout this module. This is because a term is needed that encompasses somewhat more than the term “knowledge” conveys.

The knowledge that is passed on to students in the curriculum process consists of a good deal more than a set of statements about facts, concepts and the relationships between them that are relevant to a subject or discipline (this might be called *declarative knowledge*, or “knowing *that*”). It also includes a knowledge of how to perform the operations – physical and mental – that form part of a subject or discipline (*functioning knowledge*, or “knowing *how*”).

*Declarative knowledge is knowledge about things, expressed in verbal or other symbolic*

*form (i.e. including mathematical form); functioning knowledge is knowledge that informs*

*action by the learner* (Biggs and Tang, 2011, p. 81)

There is also a third type of knowledge, considered by experts in the field to be indispensable to performing those operations well, sometimes referred to as *recognition* or “knowing *it*”. This form of knowledge, largely tacit or at least difficult to put into words, refers to the expert’s way of knowing when an idea, statement, product or action is a *good* one – or an *in*appropriate one”).

The term “discourse” is useful to encompass this entire range of ways of knowing in relation to a particular occupation or discipline. Thus, for instance, the *discourse* *of shoemaking* would include a knowledge *that* certain types of leather will be suitable for certain kinds of shoe, a knowledge of *how* to sew the seams in shoes so that they will last for many years, and a knowledge which enables an expert shoemaker to recognise quality in a fine pair of shoes, or to have in mind the finished shoe while correcting an apprentice who is still struggling to achieve quality. These three types of knowledge together constitute what is sometimes referred to as *craft knowledge*, which is the kind of knowledge associated with trades and occupations, and taught in TVET colleges. But the term “discourse”, when applied to a particular field of activity, can encompass all these forms of knowledge

The concept “discourse” also encompasses at least two other important ideas. One is the usually unspoken “*rules*” that govern what sort of things are acceptable as being appropriate to say, think and do within a particular discipline or area of knowledge, and on the other hand what sort of speech, thought and actions would be frowned upon as *un*acceptable. The other thing the concept discourse encompasses is the sometimes, but not always, unwritten “rules” governing the sort of qualities or qualifications required of people who can be trusted as being fit to *use* this knowledge, and without which they would not be so trusted.

*Discourses are … about what can be said, and thought, but also about who can speak, when, where*

*and with what authority … Thus discourses construct certain possibilities for thought. They order*

*and combine words in particular ways, and exclude … other combinations*. (Ball, 1990, p.17)

Thus a discourse – say, the discourse of carpentry, interior design, or psychology – in defining what can be said, thought and done, also provides the means for statements to be assessed as true, and authorises some people to speak while correspondingly silencing others. This is thus a process of *inclusion and exclusion* (Usher and Edwards, 1994, p. 90).

The term “discourse” originally related to the use of language, mainly in conversations, but it took on the wider meanings that are summarised above in the second half of the twentieth century. In the education domain, the concept of discourse has a related but additional meaning. Sociocultural learning theorists like Etienne Wenger see

•  *knowledge* as something that shows itself in “the flow of meaning produced between knowledgeable people when they communicate together”,

• *teaching* as enabling learners to participate in various *discourse communities*, and

• a primary target of *learning* as being *the ability to participate with increasing competence in what is said within a chosen discourse community*.

Any grouping that regularly communicates about a particular topic for particular purposes develops shared ways of talking about and understanding that topic. The members of such a group in effect become participants in a “*discourse community*”. They come to share a discourse (a way of speaking and thinking) that is increasingly specialised, and at the same time more obscure to outsiders. To be knowledgeable is to be capable of participating in the specialist discourse of such a discourse community. This specialisation occurs whether the focus of common concern is mechanical engineering, planning a menu, or financial planning. This use of the term “discourse” will be touched on again in Unit 3 (p 125).

Discourse is thus a complex but very useful concept, related to the specialised language and knowledge (including skills, values, attitudes, and rules of inclusion and exclusion) associated with a particular area of knowledge and activity, and used by a community of people knowledgeable in that area.

**2a.** **The official recontextualising field (ORF):** Here the knowledge that is passed on to students in the curriculum process (which as was said above includes skills, values, attitudes and the “rules” of what speech, thought and actions are considered acceptable or appropriate) is recontextualised, first into the *ideal curriculum* and then into the *official curriculum*. This two-stage process is the first to introduce a *pedagogic* element into the arrangement of this knowledge, combining it with older, foundational knowledge in the same discipline, and crafting these into a formal curriculum to regulate teaching and learning.

Both of these developments take place within the State, and are co-ordinated by structures of the government department concerned (in this case the DHET). First, in developing the *ideal curriculum* for a particular subject or discipline, the relevant **k**nowledge, **s**kills, **v**alues, **a**ttitudes and **r**ules of inclusion or exclusion (KSVAR) are identified, debated and assembled after consulting internally (with officials in the DHET) and externally (with other departments and organs of state, industry, and the public).

When these processes are completed, the relevant KSVAR, or elements of the relevant discourse, are selected, filtered and ordered according to a *pedagogical logic* as the *official curriculum policy*, which is then published in the Government Gazette, and registered with SAQA.

### Stop and think

Apply what you have learnt about discourses to both the **field of knowledge production** and the **official recontextualising field**. Write your answers to the questions below and justify them in your Learning Journal.

Firstly, you are probably familiar with the common abbreviation KSVA used by educationists, but may have been surprised to see an “R” added at the end – for “**r**ules of inclusion or exclusion”. You can award yourself a “gold star” if you worked out that the “R” stands for the *discourse* “rules” governing what sort of things are included or excluded as acceptable, or inappropriate, to say, think and do within a particular discipline or area of knowledge.

In what way might we be able to call the people involved in the initial production of new knowledge (through experiments, surveys or other forms of research) a “discourse community”?

2. Could we refer to the people involved in developing the **ideal curriculum** for a TVET programme such as the NCV, and producing the **official curriculum**, a “discourse community”?

A group of people collaborating in the development of new knowledge could certainly be referred to as a discourse community. Thus the language and knowledge associated with the area in which they are working, if it is broad enough (e.g. shoemaking, the design of digital software, assessment), could be referred to as a discourse (e.g. shoemaking discourse, computer software discourse, the discourse of assessment). We can also talk of the discourse of automotive design, but we would not talk of the “discourse of designing the wing mirrors for the latest Toyota bakkie”.

**2b. The pedagogic recontextualising field (PRF):** Here the knowledge that is passed on to students in the curriculum process undergoes two further, distinct forms of recontextualisation in two different sites. First it is *textbook writers* engaged by publishing houses or NGOs who interpret the curriculum document (and possibly designers of individual teaching/learning materials or resources such as instructional videos). In this field, the KSVAR are intentionally *pedagogised*: turned into understandable information, selected, filtered according to various pedagogic criteria, elaborated, illustrated, related to students’ everyday knowledge, possibly re-sequenced, and scaffolded by means of examples, challenges and formative assessment tasks (assessment *for* learning).

**Teacher educators and trainers** also play a limited part in this field, during initial teacher or lecturer education, in-service education, or continuous professional development (CPD) courses. Just as textbooks *interpret* the stipulations of the official curriculum, and are vehicles for recontextualising it in pedagogised forms that aim to support lecturers in their teaching, so too those who train lecturers in the arts of teaching may help to equip them with the means of interpreting knowledge and mediating it to students, as well as providing them with ongoing, internalised support.

The second sub-stage in this PRF occurs when *lecturers*interpret the content of both official curriculum documents and textbooks, and mediate them for students through the medium of learning programmes and lesson plans. In this phase of recontextualisation – the most important one for this course – the KSVAR may be further selected (or at least prioritised or de-prioritised), filtered, interpreted, enriched or simplified, restructured and perhaps scaffolded. As pedagogical tools, textbooks and lesson plans are usually supported and augmented by training equipment, simulations and other learning resources. It is also the first of the two stages in which the importance of the lecturer’s own content knowledge of the subject, pedagogic knowledge and pedagogic content knowledge is most tangible (see p. 71ff). The lecturer’s recontextualisation of the curriculum will be enlarged on in the next section.

**3. The field of reproduction:** This is the theatre where the curriculum is “enacted” or put into action by both lecturer and students: the former engaging in pedagogic and assessment practice; the latter engaging in the business of making meaning and learning (again, here we are talking about ideal types). The curriculum also undergoes recontextualisation by both lecturer and students, in different ways. The lecturer, having interpreted the official curriculum, recontextualises its content in order to make it relevant and accessible to the students, relating it to contexts that will have meaning for them. If we accept Piaget’s explanation (see *Psychology of Education for TVET* module: The Theory of Equilibration), the students in their turn interpret this recontextualised knowledge, *assimilating* (adapting) and incorporating it into their existing knowledge structures. In the process they also make adaptations to those same existing knowledge structures so that they in turn can *accommodate* the new knowledge. Of course, they may possibly misunderstand the curriculum content, or ignore it. And finally, they have their grasp of it formatively, or later summatively, assessed.

The field of reproduction is also where the potential for teaching and learning to take on a *performance* aspect or a *competence* aspect is most fully realised (see p. 31*ff*). Official curriculum documents and textbooks, although often suggestive of just one of these teaching modes or the other, may in fact allow scope for both performance and competence teaching modes, depending on the lecturer’s interpretation. But it is in the classroom or workshop that the curriculum actually takes on the aspect of performance and/or competence types of learning most visibly.

### Activity 8: Bringing some threads together

**Suggested time: 20 minutes**

Look back to the brief account in the Introduction to this module, of two colleges approaching the same official curriculum in different ways, the first with a focus on enabling the students to obtain excellent results in the examination, the second with a strong emphasis on developing practical skills.

Write your responses to questions 1 and 2 in your Learning Journal:

1. Which of the two models, *competence* and *performance*, does each of the colleges tend to reflect?

2. The imaginary narrative of the two colleges is set in the *field of reproduction*, i.e. near the end of the curriculum process. However, the crucial action in this little story originated in the r*econtextualising field*.

Which two *curriculum process stages,* and which two*curriculum constructs*, are the main focus of

this narrative? Refer back to Figure 6 to orientate yourself in this and check your

answers.

1. Extend the introductory narrative into the *attained curriculum*, imagining what might be the likely outcomes for the Hospitality and Catering students at each of the two colleges after graduation. (There is no single correct response to this task.)
2. How do you think the elements and sub-processes in the *first* and “*last*” stages of the curriculum process could also be prone to re-interpretation? (These are, respectively, the ideal curriculum/ planning and design stage, and the attained curriculum/learning results stage.)

Discussion of the activity

The two colleges correspond to the two models. The first, examination-focused college reflects the performance orientation, and the second college represents a competence approach. The main focus of the narrative’s “action” took place in the Lessons and Learning stages of the curriculum process, reflecting both the *Enacted Curriculum* and the *Experienced Curriculum*.

A realistic post-graduation scenario for the Hospitality and Catering students might have included employment in hotels, restaurants or fast-food chains, self-employment in small catering businesses, or, given the statistics, unemployment. One cannot be sure which, as luck also plays a part in such things, though the reputational value of diplomas from colleges which provide sound practical training is known to carry more weight with employers. Those who gained reasonable results in the competence-model class might have fared better, once employed, than those from the performance-model class who attained high grades – as a result of having gained some confidence through completing their practical projects. They would still be likely to learn a good deal “on the job”, but they would have had a good start, whereas even the students who had earned good results on the basis of a performance-model curriculum and written examination would have lacked this, and had to start from scratch in the restaurant or hotel.

Even at the two extremities of the curriculum process, interpretation and re-interpretation can, and do, take place. At different points in the *curriculum planning and design stage*, so many individual policy actors contribute their interpretations to the process as task team members, subject experts, senior management and policy compilers that experienced officials have been heard to advise newcomers to the curriculum design process not to allow themselves to become too personally invested in their own contributions because they are bound to undergo changes, or even disappear, in the final version.

Re-interpretation typically takes a different form in the *attained curriculum*, where the “mixed bag” of learnings acquired by the students are summatively assessed through the medium of examinations or by other means, all of which bear the stamp of the prevailing socio-economic priorities of the current government, and the prevailing pedagogic orthodoxy of the examining authorities and quality councils. There are also *selection* processes at work in both of these two stages: certain things that *could* be taught are selected *out* of the official curriculum during the planning and design stage, and likewise certain things that may indeed have been taught or learnt in the enactment/learning stages, are selected *out* of the final assessment by examiners (and these exclusions are generally endorsed by moderators).

Finally, the use to which the students’ learning is put (via assessment) varies greatly, and each form of use involves different ways of seeing (i.e. different interpretations of) the students’ learning and academic results. Students may or may not use their learning in obtaining employment, and perhaps in the course of employment; some may use the skills they have learnt in self-employment; and some may use their academic results to gain admission to further study opportunities. Employers, college management and government officials are also likely to see and use academic results in a range of different ways – for instance, as an index of partially-developed human resources, as material for marketing their college, and as aggregated statistical information to assist them in future planning.

Lecturers, hopefully, would also see assessment and academic results as sources of feedback that could help them to improve their teaching. Those who have ventured into the e-learning field would be able to employ a growing range of *learning analytics* which would, once programmed, automatically use algorithms to turn academic results and other generated data into sophisticated feedback such as a digitised learning profile for each individual student. These last-mentioned uses of statistical and other feedback for planning and improvement purposes all constitute “feedback loops” which turn the curriculum process into a set of repetitive *cycles* rather than a straightforward linear progression.

The message of the brief narrative in the module introduction was that the same official curriculum may be interpreted and enacted in very different ways, and with very different outcomes.

The message that has emerged clearly in delving ever deeper into the curriculum process in this unit is that it is the lecturer, as a “policy actor”, who has a key role in enacting the curriculum. This may steer the enacted curriculum more in a performance or in a competence direction, or following the constructs introduced in the *Vocational Pedagogy* module, it may follow more “open” or more “solid/closed” paths.

In Unit 3 you will turn your attention mainly to the professional role of the lecturer (as an agent) in mediating and interpreting the curriculum.

# Unit 3: Mediating the South African TVET Curriculum

## Outcomes

This unit should equip you to mediate the official curriculum in creative and empowering ways, rather than bureaucratically “implementing” the curriculum, or uncritically following the prescribed textbook.

This broad learning intention encompasses the following more specific outcomes on which learning will be assessed. By the end of this unit you should be able to:

1. Demonstrate a critical awareness of the lecturer’s role in mediating and interpreting the curriculum
2. Demonstrate an awareness of the part played by pedagogic content knowledge in mediating the curriculum
3. Analyse the phenomenon of curriculum overload and mitigate its effects through strategies at the level of lesson and work scheme planning
4. Critically analyse and interpret national TVET curricula, identifying and weighing up what is valuable as well as shortcomings.

## Introduction

Unit 3 should equip you to *mediate* the official curriculum in creative and empowering ways, rather than merely “implementing” the curriculum in a bureaucratic way, or following the prescribed textbook uncritically. Therefore, as you work through the unit, you will find that it lays a fair amount of emphasis on lecturers’ work in *interpreting* and *enacting* the curriculum.

You will gain a number of insights into how to interpret the formal curriculum, preparing the way for Unit 4 in which the emphasis will be on how to re-imagine the curriculum in terms of coherent learning programmes and authentically relevant lessons combining theory and practice. The unit will provide you with an understanding of the problem of curriculum overload and how to deal with it. It will also outline the types of knowledge lecturers require in their role as mediators of the curriculum.

Mediating, interpreting and enacting the TVET curriculum is a crucial part of the curriculum process. You will find that this role is not a passive one: a keynote of this unit will be the “agency” of the TVET lecturer, in other words his or her capacity to act – in this case, to act more independently in relation to how you manage the official curriculum.

## The lecturer’s role: Mediating the curriculum

The Unit 1, Figure 2, diagram showed a range of factors influencing what students actually learn, in other words, influencing the impact of the curriculum. But as Hattie demonstrated in his wide-ranging meta-study of research on factors that have an impact on student learning, and that determine whether the students develop or not, the systemic factor that turns out to be the most influential is the educator. (The students themselves and what they bring to the learning situation were found to have a greater impact, but they constitute a *non*-systemic factor, and are therefore outside the sphere of what can be changed within the TVET system, and outside the scope of what lecturers can contribute.)

Unlike the official curriculum as a plan or blueprint for education and training, the curriculum-in-practice comprises a *web of relationships* connecting lecturer, students, the knowledge encapsulated in curriculum documents, textbooks, and the learning environment. In this web of relationships, the lecturer plays a pivotal role (SAIDE, 2005, p.151). See Figure 7 below.

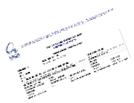
### Activity 9: The enacted curriculum and the experienced curriculum

**Suggested time: 45 minutes**

**Note:** Activities 9 and 10 are two of the most central activities in this module.

Study Figure 7 below for a few minutes, then answer the following questions in your Learning Journal. If your time is limited, try to discuss at least question 5 with a colleague or fellow student:

1. You will recognise many of the diagram’s elements, having seen them in the series of infographics in Figures 4 – 6. What additional points do you think this diagram attempts to convey?
2. Why do you think the field of knowledge production, the ideal curriculum, the official curriculum and textbooks have all been clustered to form a single element of the diagram (in the left-hand portion)?
3. Why do you think the planning and teaching stages, representing different curriculum constructs (part of the Perceived Curriculum, and the Enacted Curriculum) have been combined to form one element (see the bottom of the diagram).
4. How would you interpret the diagonal arrows between the lecturers and knowledge on one hand, and between the lecturers and the students on the other? Why do the arrows point in both directions? How would you interpret the horizontal arrow between the students and knowledge in the diagram, and why do you think does this arrow points in both directions?
5. Do you agree with the argument that lecturers are not merely implementers of the official curriculum, but rather mediators of knowledge, or do you think this perception is a myth?



Students

Knowledge

Experienced Curriculum

Students construct their knowledge

Learning Environment

Classroom, Workshop, Workplace

Space, Time, Resources, Morale, Relations

Independent, self-regulated learning

LECTURERS

Old Knowledge

New Knowledge

Ideal curriculum

Official Curriculum

Textbooks

****

Enacted/Taught Curriculum

Plan and Teach

Mediate between knowledge and students

**Figure 7: The mediating role of the lecturer in the curriculum-in-practice**

Discussion of the activity

**The learning environment:** To begin with, at the top of the diagram an element not touched on before is introduced: the curriculum-in-practice unfolds in a particular *learning environment*, be it classroom, workshop or in the workplace during work integrated learning. The actual *context* in which TVET lecturers teach has dimensions of space, time, resources, institutional morale and interpersonal relations which may (in varying degrees) or may not facilitate and promote effective teaching and learning. Lecturers are, as you have seen, *agents.* They are required to provide students with meaningful access to knowledge, skills, values and attitudes set out in the curriculum, while at the same time having to work within boundaries set by the selection of knowledge contained in the official curriculum, and by the contexts they find themselves in (SAIDE, 2005, p. 152).

These boundaries often give rise to mounting frustration among lecturers because the curriculum seems so restrictive, or because it seems to be so overloaded, requiring too much to be covered in the time available (see pp 80-87), or because necessary resources are in short supply or simply not there at all, or because the one thing that is neverin short supply in the TVET sector is new policies to be implemented. However, as agents, lecturers are also a resilient species, and staff room conversations also reflect enjoyment and even pride – brought about by small triumphs of learning and teaching in the classroom or workshop when, after repeated mistakes, students experience a breakthrough of understanding.

*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 the curriculum, no matter how helpless they might feel in the situation. The lecturer’s position always requires action, (as the lecturer) provides access to knowledge. In order to mediate the knowledge (in) 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* (SAIDE, 2005, p. 152).

**Implementing the curriculum?** The quotation above makes the bold claim that (TVET) lecturers can *never* just be implementers of the curriculum.It is worth asking the question: *Is* it in fact the *role* of lecturers to “implement” the curriculum? There was a time when the term “implemented” was used universally and unquestioningly to describe what teachers and lecturers *do* with regard to the curriculum (and of course it is still used this way in many quarters). The verb “implement” after all simply meant “to give effect to, to put into practice”.

Today however the term has fallen into some disrepute. Think about it: the word has connotations of the lecturer as compliant, uncritically and bureaucratically “applying” policy prescriptions with very little sense of the lecturer’s agency, autonomy or interpretation of the official curriculum plan. And agency can be defined as the quality of being able to *act* with at least some degree of autonomy; the opposite of passive compliance. An agent in this sense is one who feels empowered to exercise their right to choose, to act, even to act outside of the common norm.

On the other hand, it is worth noting that the *noun* form of the verb “implement” – “*an* implement” – means a *tool*, or instrument of labour! Surely this is an inappropriate description of a professional, and a meagre way of imagining a professional’s role and responsibility. Added to this, in Unit 1, the notion of the curriculum as *merely a plan to be followed* was shown too to be narrow and inadequate.

We now have strong grounds for abandoning the assumption that lecturers implement the official curriculum, and should rather replace this term with words such as “mediate”, “interpret”, or even “recontextualise” if we want to impress those we are talking to.

**Knowledge:** The point made in the last two sentences of the SAIDE quotation above will be picked up in the textbox below. Moving anti-clockwise around Figure 7, the field of knowledge production, the ideal curriculum, the official curriculum and textbooks have all been clustered to represent what is the common element in all of them – knowledge. It is in effect *knowledge* rather than the official curriculum (which is after all a selection and arrangement of knowledge for teaching purposes) that lecturers attempt to impart to students.

You may have noticed that old knowledge, new knowledge, the ideal curriculum, the official curriculum and textbooks are superimposed on a downward-pointing triangle in Figure 7. In the first stages of the curriculum process, older (background or foundational) knowledge is combined with newly-developed knowledge such as new discoveries, new approaches or inventions to form an “ideal” curriculum – or at least different stakeholders’ ideas of what the curriculum should be. The ideal curriculum is hammered into shape to produce the official curriculum policy, and that is what textbooks are based on. The inverted triangle in the diagram merely suggests that in this process the multitude of things that are known in a particular field of *knowledge production* are filtered and sorted and recontextualised into the official curriculum, and then into textbooks. This entire progression is a *processing* of knowledge, for the purpose of imparting it to students.

For the sake of explanation at this point, this element of Figure 7 foregrounds *knowledge* as the focus of the curriculum, of teaching and of learning. It is of course important to remember that this knowledge includes not only knowing *that*, but also knowing *how* (**s**kills knowledge), knowing what **v**alues and **a**ttitudes are most appropriate, and understanding the unwritten **r**ules of exclusion and inclusion (i.e. the KSVAR of the discipline).

**Mediator of knowledge:** In a similar manner (again moving anti-clockwise), the diagram combines lecturers’ crucial role in planning lessons and in teaching those planned lessons – thus foregrounding *the lecturer’s key role as one of mediating knowledge to the students*. This is the point of the two diagonal arrows between the lecturers and knowledge on one hand, and between the lecturers and the students on the other. The arrows are two-directional, indicating that the lecturers have to first appropriate the knowledge and process it in order to impart it to the students in a meaningful way.

But imparting knowledge to the students is also not a one-way flow, since the students are not merely passive recipients of the knowledge, or “empty vessels”. They too need to process the new knowledge, assimilating it into their existing knowledge structures and in turn adapting those structures to accommodate the new learning (see Piaget’s Equilibration Theory in the module Educational Psychology for TVET). Hence both arrows are bi-directional.

### Stop and think

Spend just a minute or two thinking about the foregoing paragraph. Make sure that you really understand the two-way flow of knowledge indicated by the two diagonal arrows before moving on.

However, the two-way “push” and “pull” of knowledge between lecturers and students is where teaching *starts* rather than where it ends. The mediation role of lecturers requires them not simply to transfer knowledge to the students or even to make themselves available as sources of knowledge when the students request it. They are also required to challenge students to think and enquire and solve problems for themselves; in other words, they are required to *foster in students* the capacity to engage in independent, self-regulated study, thus helping to build habits of self-reliance, curiosity and lifelong learning. The horizontal arrow between the students and knowledge in the diagram represents this additional, more indirect responsibility of professional lecturers.

If you have completed a module on Educational Psychology (or in particular the module *Psychology of Education for TVET*), you will probably be wondering if there is a connection between the mediating role discussed here and the theory of mediation associated with the psychologist Lev Vygotsky, which you will have encountered in the *Psychology of Education for TVET* module. Indeed, there is a connection, and the common use of the word “mediation” in both contexts is no coincidence. Mediation in the context of educational psychology refers to the “scaffolding” role played by teachers who employ Vygotsky’s “zone of proximal development” concept in assisting learners to move forward to accomplish learning tasks that would otherwise have been just outside their reach at the time. Mediating in this sense means starting where the individual learners are in their own process of learning, and providing the conditions for those learners to develop new forms of understanding, i.e. providing optimal guidance or coaching step by step in the form of challenges, probing questions or suggestions, but stopping short of simply spelling out what the learners seem not to know or be able to do on their own.

It is not difficult to spot the parallels between this constructivist approach in which the skilled teacher carefully mediates new forms of understanding to learners, and the broader concept of mediation (the focus of this unit) in which the lecturer consciously mediates the official curriculum, interpreting it and adapting it to the constraints of the particular learning environment, the vocational learning outcomes related to employability and the labour market, and to the specific needs of the TVET students. These two concepts of mediation are not identical, but they are certainly not in conflict. In both, the educator mediates knowledge to learners, more often than not employing indirect methods to bridge the gap between the two, making knowledge that is new to learners more accessible to them.

The main “message” conveyed by the Figure 7 diagram, which did not emerge quite as clearly in the linear depictions of Figures 4 – 6, is that *in the curriculum process it is lecturers who occupy the key position, and that the nature of this key position is that of the mediator – between curriculum / knowledge on one hand, and learners on the other.* The remaining pages of this unit will be devoted to unpacking the meaning of this “mediation”, and the implications of the foregoing important statement. For now, the focus will be on responding to the important last question (5) in the activity – do you agree with the argument that lecturers are not merely implementers of the official curriculum, but rather mediators of knowledge, or do you think this perception is a myth? The SAIDE quotation (Activity 9, Discussion) has already made the point that because lecturers are human, they *inevitably* interpret the official curriculum, whether intentionally or not. But this is a central question for this module, and thus it requires more substantial examination:

**Interpreting the curriculum**

Anyone with responsibility for monitoring lecturers in TVET colleges will at some time have observed two or more lecturers teaching the same section of the official curriculum. If asked about this experience, they would almost certainly say that each of the lecturers taught the lesson in different ways, even if their methods differed only slightly. If one thinks about it, this is exactly what one would expect. At the most obvious level, one lecturer might start by explaining a procedure, then give the students a chance to practise it themselves. Another might start with an example of a badly-performed procedure and ask the students to puzzle out what went wrong.

In other words, different lecturers will naturally *interpret* the same curriculum differently; in fact, even though they are working with the same curriculum, no two lecturers will conduct any lesson in exactly the same way. As Yanow (1996, p. 27) points out, there is no single, external, *objective* point from which to observe and analyse” curriculum policy. Thus lecturers will inevitably approach it from different angles because like all human beings, they bring different life histories of experience and acquired knowledge to any task or problem they tackle. That knowledge and those experiences constitute the “frame” or “lens” through which lecturers see and make sense of the world, and will inevitably also shape the way they do things. So when they read a curriculum document and think about how to present it in their classroom or workshop, they will understand it and prepare for teaching in ways that are shaped by their own prior knowledge, experience, training, individual preferences, or particular talents (Yanow, 1996, p. 7; SAIDE, 2005, p. 153).

Lecturers who are motivated by a sense of vocation or professionalism will in addition adapt their teaching to what they see as the needs of the particular students in their classes – they may for example provide more illustrations and allow more time for the students to handle equipment if those students are having difficulty mastering the unfamiliar discourse in a language other than their mother tongue. They are also likely to be responsive to aspects of the learning environment such as the available resources (or lack of resources), or difficulties arising from the academic timetable.

The fact is that lecturers will interpret and adapt the curriculum both *consciously* and *unconsciously*. For example, they might *consciously* decide to try out a variation on what is set out in the official curriculum document; to tackle topics in a different sequence in order to help students make new connections between seemingly unrelated principles; to lay more emphasis on one aspect than on another; or to introduce something that is not included in the curriculum plan, but that the students are likely to see as highly relevant. Conversely, lecturers may interpret or adapt curricula *unconsciously*. They may feel uncomfortable with a new approach prescribed by the DHET, and just carry on doing what they have always done – simply adopting some of the new *terminology* and fooling themselves and others into thinking that they have really “made the change” to the new approach. Or they may arrange the classroom so that the students can sit in groups, but carry on doing all the talking themselves as they have always done.

Clearly, lecturers *always* interpret the official curriculum, whether they do so consciously or unconsciously, and whether their interpretations lead to improvements in their teaching or not. This happens because teaching is not just a mechanical or a technical activity; it is a practice. Lecturers are constantly making decisions about how to do things. Even if they just carry on doing what they have always done, that is effectively a decision *not* to make a change. The point is that *lecturers who are professionals are professionals precisely because they make professional, conscious choices and decisions.* Granted, some of their choices and decisions may not work out so well in practice, but without being prepared to experiment, which *by definition* means that sometimes things will *not* work out, there will be no growth or improvement, innovation or excitement in their practice. This is a most important point to grasp.

**Interpreters of the curriculum?** If lecturers are mediators rather than implementers of the curriculum, does this give them the *right* to take on the role of *interpreters* of the curriculum? If you look up the terms “mediator” and “mediate” in the dictionary, they do not imply the act of interpreting. Yet phrases like “interpret the curriculum” have already been used several times in this learning guide, and the principle of lecturers interpreting the curriculum has now been strongly advanced in the box above. When you read “interpreting the curriculum”, do you accept the phrase without raising an eyebrow, or do you still feel some doubt?

After all, the official curricula (NCV, NATED or occupational certificates) have the status and force of legal regulations promulgated by central government. They are backed by a national system of assessment and accreditation, and as such are also supported by an official system of institutional monitoring and evaluation. Why then should lecturers see themselves as interpreters?

## Interpreting the curriculum: The question of the lecturer’s autonomy

As Kirst and Walker saw decades ago, and as you will certainly have realised, when an official curriculum policy is published, it is still a long way from being implemented.

*So long as (lecturers) consider themselves professional agents with some autonomy in curriculum questions by virtue of their professional expertise, policy implementation will be a matter of persuasion rather than direction* (Kirst and Walker, 1971).

Activity 10: The agency and autonomy of professional lecturers

**Suggested time: 30 minutes**

“*When an official curriculum policy is published, it is still a long way from being implemented*.” This statement is undeniably true, although this truth is not always recognised by some in government. The statement itself was written at a time when the notion of “*implementing”* the curriculum was not much questioned, if at all. However, the authors nevertheless correctly saw that lecturers and teachers can, and often do, play a key role in shaping the way the official curriculum is actually taught.

What is interesting about their statement is that they strongly link educators’ relative autonomy in the classroom to those same educators’ *professional agency* and *professional expertise*. In other words, if educators see themselves as professionals, and have enough experience and confidence in their expertise (i.e. they are not still “receivers” – see Ball’s typology, p. 58), they will tend to mould the curriculum as they see fit. In this case, they will probably be guided by their own experience at least as much as, if not more than they are guided by the formal curriculum documents, or by the officials charged with monitoring their “implementation” of the curriculum. Thus *persuasion* on the part of the ORF (trying to persuade the lecturers to teach in certain ways) *will* probably be a more realistic option than *direction and regulation* (telling them what they must do).

Write down your responses to the following questions in your Learning Journal. If possible, discuss at least question 4 with a colleague or fellow student:

1. Do you think professional experience *justifies* lecturers exercising a measure of autonomy in how they approach the official curriculum?
2. Kirst and Walker seem to argue that “persuasion” (on the part of the Department, principals, heads of departments, and those charged with monitoring lecturers’ practice) will be a more realistic option than strict *direction and regulation* of the lecturers. Let alone being more realistic, do you think such “persuasion” of the lecturers would be more professionally *appropriate* than strict *direction and regulation*? Why, or why not?
3. Do you agree with Kirst and Walker’s general argument? State your reasons for agreeing or disagreeing.
4. How much autonomy do you think lecturers *actually have* to prioritise or de-prioritise elements of the official curriculum or syllabus, and to present their lessons as they see fit? What do you think gives them this autonomy (or authority)?

Since you will gain significantly more from discussing these questions with at least one fellow student, it is strongly recommended that you make every effort to do so. But don’t neglect to write down your reflections in your Learning Journal.

### Discussion of the activity

While students may well feel considerable respect for a lecturer who has some depth of professional experience, that experience may not be enough to justify the lecturer’s exercise of autonomy in any significant way in the eyes of society. For one thing, experience that is not reflected on – for instance the same sort of teaching experience repeated over and over without any further development, growth, questioning, innovation or updating – hardly qualifies lecturers to exercise their own freedom of choice.

Secondly, the kind of respect which bestows the *authority* to make one’s own pedagogic and curriculum choices is not that easily won. Linda Darling Hammond, in a much-quoted article on the types of accountability relevant to professional practice (Hammond, 1989), argues that the principle of *professional accountability* obliges educators to act in the interests of the learners rather than their own interests (not just doing what is easier or most convenient), and to base their professional (e.g. curriculum) decisions about what is best for the learner “on available knowledge – not just that knowledge acquired from personal experience, but also that clinical and research knowledge acquired by the (teaching) occupation as a whole and represented in professional journals, certification standards, and specialty training. Finally, professionals are required to take into account the unique needs of individual clients in making their judgements about what strategies or treatments are appropriate.”

Read the extract from Hammond’s classic article which you can access [here](https://www.oerafrica.org/sites/default/files/Being%20a%20Teacher%20readings_Section%20Two_Reading%208.pdf)

Hammond is making several important points: professionalism is based on three principles:

1. *Professional knowledge is the basis for permission to practise* and to make professional decisions with regard for the unique needs of clients. This knowledge is acquired and shared collectively by the (teaching) profession as a whole, but society also expects it to have been acquired by the individual lecturer; thus the lecturer *needs to have earned the necessary recognised qualifications*.
2. The practitioner’s *first concern* (as pledged) must be the *welfare of the clients*, in this case, the students.
3. The *profession* assumes *collective responsibility* for defining, communicating, and enforcing professional standards of practice and ethics.

This, as Hammond points out, is

*in essence the bargain that all professions make with society: For occupations that require discretion and judgement in meeting the unique needs of clients, the profession guarantees the competence of members in exchange for the privilege of professional control over work structure and standards of practice.” As she concludes, the relative autonomy from external (i.e. bureaucratic) regulation, which is a collective autonomy bestowed on the profession as a whole, is achieved by accepting collective responsibility.*

Clearly, if professional experience does in any measure justify lecturers exercising some autonomy in how they approach the official curriculum, a good deal of emphasis must fall on the word “professional”, not just on the years of experience an individual lecturer has had. But, lecturers are human beings, and as such *cannot avoid* interpreting the world they experience. Thus lecturers who have accumulated some years of experience, *reflected* on it over time, developed confidence in their expertise, and acquired a professional qualification giving them access to the required and recognised professional knowledge, may have legitimately earned a right to make their own curriculum decisions (relative autonomy). And it would seem both practical and wise, both realistic and professionally appropriate, for education authorities to adopt a persuasive, or preferably a *negotiated* approach rather than a strictly regulatory approach, in attempting to ensure that lecturers put the official curriculum into practice in acceptable ways.

As to how much autonomy lecturers *actually have* to prioritise or de-prioritise elements of the official curriculum, and to present their lessons as they see fit (see question 4), this amount of freedom is surely both an established fact at one level, and fluid at another. Because lecturers, as human beings, *cannot avoid* interpreting the curriculum, and because a great deal of educational research indicates that no curriculum plan is ever implemented in exactly the way it was intended, or for that matter is ever implemented in exactly the same way in any two classrooms, a measure of autonomy in practice is to be expected – is indeed inescapable. But to the extent that as lecturers *gain* in professional knowledge and experience, and *grow* in stature as members of the profession, they also acquire *more* legitimacy and authority to exercise discretion in making curriculum and pedagogic decisions, as long as they are in the considered interests of their students. This is, after all, the essence of being a professional.

To sum up, lecturers’ interpretation of the curriculum is not only legitimate but inevitable. It is inevitable to the extent that is unavoidable for human actors. It is legitimate, in a deeper and more conscious sense, to the extent that the interpretation of the curriculum is done by a *professionally qualified and principled* lecturer, on the basis of professional experience and recognised professional knowledge, in the interests of the students.

The question then arises: What is it that lecturers need to know in order to be *good* interpreters of the official curriculum, in other words, in order to understand and *consciously* interpret curriculum documents in ways that lead to improved learning for the students?

### Stop and think

Reflecting on your own knowledge, what things do you think you still need to know about before you will feel *comfortable* interpreting the official curriculum? What do you think it is that lecturers need to know in order to be good professional interpreters of the curriculum?

Write your responses in your Learning Journal.

## What kinds of knowledge do teachers need?

An American researcher in the field of teacher education, Lee Shulman, argued in a famous and now-classic paper in 1986 that neither the development of general pedagogical skills nor an education that stressed only the acquisition of subject content knowledge was *sufficient* for preparing teachers to teach. Although he did not explicitly address the question of educators as interpreters of the curriculum, he did provide us with the keys to answering this question. For him, the key to developing an adequate knowledge base for teaching was located at the *intersection* of content knowledge and general pedagogy.

Shulman shows how teachers and lecturers need *three* different kinds of knowledge in order to do their job well:

1. They do need to be experts in their field of knowledge (content knowledge)

2. They do need to be experts in the general skills of teaching (pedagogical knowledge)

3. But they *also* need to be able to select from their fields of knowledge those ideas, facts and skills which are important enough to be taught, and to determine in which order they can best be understood, as well as the many other things that contribute to effective teaching of their particular discipline or subject (pedagogical content knowledge).

*Content knowledge* refers both to the 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. 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, 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 the discourse of their subjects.

*Pedagogical knowledge* refers to the general ability to teach. Lecturers need to know how to plan and prepare lessons, how to use teaching strategies like questioning or group work, how to assess what students know, and how to understand their students. 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.

Shulman undertook his research because he found that education in America had shifted from appointing most teachers almost exclusively on the basis of their content knowledge or qualifications in a particular subject, to focusing teacher education almost entirely on general pedagogics, at the cost of content knowledge. Prior to this new focus of the 1980s, which came about with the increased amount of research being conducted into pedagogy, it had been left to educators to figure out how to teach the content knowledge, i.e. how to fit together their knowledge of their subject and their day-to-day experience of teaching, forging rough-and-ready ways to make teaching possible. By contrast, the new focus on general pedagogic skills in both teacher education and teacher evaluation meant that content knowledge was to a large extent ignored.

Of course, in the TVET sector the reverse of this situation has prevailed. Many lecturers have been appointed solely on the strength of their experience and/or qualifications in a particular occupational field. Many others who *have* acquired professional pedagogical education have done so in the course of obtaining qualifications as *school teachers*, but their education in pedagogy would have been directed specifically towards teaching in the school context rather than in a vocational education and training context, which is significantly different in several respects. Many with such histories have become very fine and highly respected TVET lecturers, but this has been achieved chiefly as a consequence of their own talent or dedication.

### Stop and think

Reflect on what you have learned about y*our subject* and what you have learned about *ways of teaching*, and write your responses to the questions below in your Learning Journal.

Did you ever learn about both of them together? Are you able to describe some ways of teaching that work best for your particular subject/s, and why? Do you know which concepts to teach first in your subject and which concepts are more complex and should therefore be taught later (give an example)?

## Pedagogical content knowledge

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 in the subject or discipline are crucial to understanding the field. Lecturers need to know how to explain important concepts in the easiest manner, or which examples are the best to use in explanations. Lecturers also need to know which knowledge should be taught first so that it serves as a building block for later knowledge, or which skills are difficult to learn and need extra attention. In other words, lecturers need to know the subject area in a way that is different from the way that experts know it.

Pedagogical content knowledge is a combination of content and pedagogy uniquely constructed by teachers (sometimes referred to as *craft knowledge*, a form of accumulated wisdom), and is thus the particular form that an *educator’s professional knowledge* takes.

*Pedagogical content knowledge is deeply rooted in a teacher’s everyday work. However, it is not opposite to theoretical knowledge. It encompasses both theory learned during teacher preparation (and) experiences gained from ongoing (teaching) activities* (Solís, 2009).

You might be wondering why it is necessary to explain this concept here. The reason is that *it is pedagogical content 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 developed pedagogical content knowledge, they have a sound basis on which to interpret the curriculum effectively.

### Activity 11: Your pedagogical content knowledge

**Suggested time: 100 minutes**

Read the abridged version of Shulman’s article, click link to access [Reading 1](#Reading_1), “*Those who understand: Knowledge growth in teaching”*, then answer the questions below.

**Note:** Question numbers have been inserted in the reading itself to indicate the passage on which each question is based.

Bloom's cognitive taxonomy, Figure 8, is usually taught to educators in the context of enabling them to design learning and assessment tasks in such a way that *learners* will be challenged to use and thus develop their higher-order cognitive skills, not just lower-level abilities such as memorising, recall and basic understanding. But here Shulman is using the taxonomy as a frame of reference for the content knowledge that *educators themselves* have. Reflect on your own *subject content* knowledge. What areas of your subject only require you to know and/or understand them mostly at the levels of remembering and understanding? What areas of the content knowledge that you process require you to use higher-order cognitive activity, such as:

*applying* it in unfamiliar situations,

*analysing* (breaking down into aspects),

*evaluating* or critiquing, or

*creating* something new/combining aspects in new ways?



**Figure 8: Blooms cognitive taxonomy**

The “substantive structures” of a subject which Shulman mentions are straightforward enough – how concepts and principles are organised within the discipline. However, it requires a bit more effort to understand the *syntactic structure* of a discipline. This is the underlying “grammar” of a subject that provides the “rules” by which truth claims in the discipline can be verified or shown to be false, and which determine what can be said and what will be dismissed as “breaking the rules”.

What conceptual term have you already learned in this unit which has very much the same meaning?

Read the three paragraphs starting “The structures of a subject…”, “Teachers must…” and “We expect…”, and comment on the importance of this aspect of a TVET lecturer’s content knowledge for teaching students.

Shulman suggests that educators need to have a wide repertoire of different ways of representing the facts and concepts, principles and procedures of their subjects. He discusses this idea further four paragraphs lower down, in the paragraph starting “… We expect the mature physician…”

* Do you agree that this is true for TVET lecturers? If so, why? If not, why not?

1. Write down one technique you have used to reorganise students’ *wrong understanding* of some concept, process, principle or mechanism. (Try to put into words the *technique* you used to correct the misunderstood point, rather than just telling the story of what happened.)
2. In this paragraph Shulman seems to be saying that educators need to know their subjects in a different way from the way senior undergraduate students, for example, are expected to know *their* subjects:

* Different in what way? What would be the special challenge for educators?

1. Do you think Shulman’s argument here holds good for TVET lecturers, who teach *vocational* knowledge?
2. Shulman gives quite a lot of attention to using *cases* (what we might call “case studies”) as a mode of teaching. Write down an example of the use of a case or cases from your own teaching. Do you agree with Shulman’s proposition that an *un-theorised* case study is relatively worthless? What do you think he means by this?
3. Shulman sets out his argument about the importance of *strategic pedagogical knowledge* very clearly, and emphasises its importance by situating it right at the end of his article.

TVET lecturers often feel that their subjects, especially the more technologically-based ones, do not provide scope for different *options*: there is so often “only one correct way to do something or understand something, and that is the way which *works*”. But Shulman writes about using strategic knowledge when principles seem to collide or contradict each other as they are applied in specific cases, i.e. in reality or realistic situations. He also says that this is the hallmark of professional knowledge.

How can these two ways of thinking be reconciled?

Discussion of the activity

The first question is one you have to answer for yourself, but here are examples from Electrical Technology:

* *Remembering*: Drawing a two-phase circuit
* *Understanding*: Understanding how three-phase transformers operate
* *Applying knowledge*: Solving a problem involving inadequate power supply
* *Analysing*: Checking a new product to establish if it satisfies the design brief and suggesting improvements

*Evaluating*: Evaluating the wiring system in a renovated house for safety, efficiency and aesthetic appearance

*Creating/combining aspects in new ways*: Designing an improved electrical product to use power more efficiently.

The concept “discourse” (see Question 2), like the *syntactic structure of a discipline*, establishes the “rules” by which truth claims in the discipline can be verified or shown to be false, and determines what can be said and what will be dismissed as inappropriate); however, note that the concept “discourse” also includes a wider range of additional meanings (see the box article, pp. 61-62). The importance of the syntactic structure of the TVET lecturer’s discipline lies in the fact that the lecturer must not only understand that something is the case, but must also understand and be able to explain to students *why* it is the case, on what grounds it can be claimed to be the case, and what circumstances might cause them to disbelieve that it is the case. The lecturer also needs to be able to explain why one proposition is important whereas another is not particularly important.

Question 3 – Lecturers certainly do need to have a large stock of different ways of presenting facts, concepts, principles and procedures. Firstly, this will help to keep boredom at bay among the students (imagine sitting through the same lesson format, day after day, month in, month out). Secondly, different areas of a subject may lend themselves to different/teaching approaches. Thirdly, it is important to accommodate the different learning preferences, abilities or even disabilities of different students in their classes. Thus an armoury of teaching approaches including demonstration, co-operative groupwork, peer evaluation, problem solving, experiment, quizzes, role play and student presentation promotes inclusivity that engages students with a wide range of learning preferences, abilities and disabilities.

In responding to the fourth question, one or two techniques that you actually use in class for dealing with incorrect student assumptions and misunderstandings may have occurred to you immediately, or you may have had to think about this for a while. Either way, the most important thing to remember is to model the idea of treating mistakes as *meaningful learning opportunities*, both for the student and, if appropriate (without embarrassing the student) the whole class. Simply correcting the mistake or presenting the correct solution deprives the student of the opportunity to wrestle with the problem – and learn from it – at a much deeper level, thereby also gaining in competence and confidence.

*Never* treat a mistake in a punitive way, or in such a way as to boost your own status as an expert – and *never* be sarcastic! Students will make many mistakes, but it’s wise to remember that you almost certainly made similar mistakes when you were their age. A student’s mistake may be something you have dealt with many times as a lecturer, but remember that it’s probably the first time that particular student has made it, so be supportive and discrete. Students will respect you for being helpful, with responses like “Are you sure you want to do it that way? What about trying it this way? Try it and see how it works out.” Take a moment to consider whether one-to-one correction of the error would be best, or whether other students in the class may benefit from the correction.

Correcting a misunderstanding in front of the whole class is easier to do, and much less painful for the student concerned, if you have built *a climate of accepting mistakes* as something not to be scorned but to be learnt from. This needs to be established from the first lesson so that the students learn to trust you from the outset to handle their mistakes in the way you would like to have had your mistakes handled as a student. Part of the process of establishing such a climate is to motivate students not to give up, and to keep on working till they master a procedure or understand a difficult piece of work on their own, or with some support from you or their peers.

Mistakes take different forms in different disciplines, so the *detail* that will fill out the advice above will form part of your pedagogic content knowledge.

The answer to Question 5 is straightforward – what distinguishes the subject knowledge of educators from the subject knowledge of, say, senior students is that while both are assumed to have broad and deep content knowledge, the former must in addition be able to view that knowledge through the eyes of learners, and know how to teach the subject matter to students. Teaching students is not the same as discussing a problem with one’s fellow workers, colleagues or academic peers, or expounding on one’s subject in an academic essay. Educators, for instance, have to be able to understand the root causes of learners’ errors of understanding, and how best to help them to find their way back on to the correct path to understanding.

Question 6 – Many TVET lecturers probably share the idea that whatever else may be appropriate in school or university, technical and vocational education is entirely about preparing students for particular jobs and about the technicalities entailed in those occupations, hence the normative domain of values is at best peripheral and to be learnt “on the job”, and at worst an irrelevant distraction.

However, Shulman holds that values etc.

*occupy the very heart of what we mean by teacher knowledge … not because they are true in scientific terms, or because they work in practical terms, but because they are morally or ethically right.*

Without even going into current macro-issues like the economy (national and global), accelerating technological progress, radical changes in the labour market and unemployment, and the so-called “soft skills” increasingly sought by employers in nearly every sector – all of which have obvious normative/ethical dimensions, it is clear that the questions Shulman does raise are both moral in nature and very much a part of day-to-day pedagogic knowledge. Simple practices like giving equal opportunities to all students to answer questions, avoiding embarrassing a student in front of peers, and ensuring that “justice is done” to the curriculum within the allotted time all have strongly moral as well as professional elements. Very few questions in education – including technical and vocational education and training – are devoid of moral, political, economic and cultural value implications.

When Shulman advocates the use of cases in teaching (Question 7), he is careful to point out that they should not be mere reports of events or anecdotes. When he writes that they must be “profoundly and self-consciously theoretical”, he is arguing that it is the knowledge they represent that makes them cases. Thus they need to be both “richly described” and to be examples of a principle or theory at work in practice. Furthermore, these principles or theories need to be made explicit for them to be case studies.

The last question (8) relates to the concept of strategic pedagogical knowledge which is deployed when professional choices and decisions have to be made but the principles which guide such decisions seem to contradict each other in practice. Shulman points out that this is the hallmark of professional knowledge; in other words, being able to make sound decisions in situations of uncertainty, when there is not simply one correct way of doing things, is the mark of the professional.

On the other hand, the knowledge associated with a trade or skill (as will be catalogued in a unit standard, for example) is more often than not thought of as straightforward, and presented as a series of certainties. There are, for instance, two or three solutions a plumber may try out in solving a plumbing problem. If solution A does not produce the desired result, the plumber will expect procedure B or C to solve the problem. The different solutions will not contradict one another; they are simply complementary applications of the same set of plumbing principles.

Except that even in plumbing there are areas which may be referred to as normative, where it can be argued that one course is better, or less desirable, than another. Such questions arise when an historic building is being renovated, for instance, and decisions have to be made balancing the value of preserving the original architecture and the value of providing efficient plumbing for an increased flow of tourists. Or aesthetic choices regarding the position of plumbing in a housing complex balanced against future maintenance costs for the residents; or questions relating to better or worse customer service in drawing up quotations and invoices. In all of these, different principles or values may be in tension, just as they are in teaching with regard to issues of fairness in turn-taking, or the dilemma of allowing time for any of the students, not just the usual rapid-answerers, to respond to the lecturer’s questions vs slowing the pace of teaching too much and risking boredom among the quicker learners.

Hence in both the technical field and the field of teaching, in content knowledge and in pedagogic content knowledge, strategic choices between one principle (or value) and another have to be made. Thus strategic pedagogical knowledge is certainly not out of place in the world of technical and vocational education.

One thing that should have become clear as you worked through this lengthy but important activity on subject pedagogic knowledge is that as lecturers, you and your colleagues are important curriculum interpreters and planners of the way the curriculum is delivered in your institution, in other words, mediators of the curriculum.

## The lecturer as a co-planner of curriculum

There are two ways of thinking about lecturers as curriculum planners. One is that planning only happens at certain levels of the curriculum process (i.e. in the Official recontextualising field [ORF]), and therefore most lecturers are excluded from planning. The other is that *all* lecturers are planners at the level of their own lessons. For lecturers to see themselves as co-planners of the curriculum 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 a number of years before the need for a revision arises. College lecturers are occasionally invited to join the Standards Generating Bodies (SGBs) that draw up 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 speaking, the higher the level of curriculum planning, the fewer people are involved, the more abstract and general the plan becomes, and the less often it is revised. So chances to be involved in planning 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 curriculum role to play in planning their lessons, or in planning the work schemes in their section of the college, arises out of the broader view of curriculum as being worked out in practice. Look again at the diagram of the curriculum-in-practice (Figure 7). In the web of relationships depicted, lecturers are responsible for interpreting the official curriculum and then using their 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*, capable of, and in fact responsible for, making judgements and decisions.

The following three sections are included here because while they serve to shift your focus towards lesson planning (the subject of Unit 4), they also provide instances of interpreting the curriculum.

## Interpreters (and co-planners) of the curriculum: Implications for lesson planning (1): Professional choices

In making sense of and prioritising elements in the official curriculum and the textbook, educators use their own sets of personal constructs based on their past experience and existing knowledge. These constructs may or may not coincide with those used by colleagues or advocated by the educational establishment, but it is educators’ own constructs that determine their professional actions. Thus these personal interpretations form the basis of lecturers' lesson planning (Ben-Peretz *et al*, 1982, pp. 47-48).

### Activity 12: Constructs for use in lesson planning

**Suggested time: 20 minutes**

In their research study conducted in secondary schools, Ben-Peretz and her colleagues were able to identify a number of constructs used by teachers as criteria in making judgments or choices in their teaching. Table 6, below, is an expanded list of paired constructs based on their findings, which you could readily use in interpreting both official curriculum and textbook, and in making professional curriculum choices, in the TVET context: The list is not exhaustive, so feel free to add your own.

1. Read and reflect on the full list of paired constructs below. Do the pairs indicate desirable vs undesirable qualities?
2. How could you use the paired constructs to help you make specific curriculum decisions or choices in planning a lesson? You may find it helpful to keep the following *lesson planning elements* in mind:

* introduction/bridge-in
* learning outcome/s
* content
* teaching strategy/ies
* learner participation/activity
* level of difficulty or challenge
* cognitive demands
* general format of the lesson
* formative assessment
* summative assessment (if any is required)
* teaching/learning resources, equipment
* class management

If possible, discuss your responses with a colleague or fellow student, and write down your responses in your Learning Journal.

**Table 6: Professional choices**

|  |  |
| --- | --- |
| Abstract, theoretical thinking | Concrete, practical thinking and/or doing |
| Classroom | Workshop |
| Accessible concepts and principles | Academically difficult, inaccessible |
| Active learning | Students passive |
| Exposition, explanation | Inquiry, experiment, trying out |
| Self-managing learners | Lecturer-directed |
| Independent learning | Guided learning |
| Relevant, meaningful to students | Non-relevant, de-contextualised, “textbook-like” |
| Authentic | Contrived |
| Focused on acquiring knowledge | Focused on acquiring skills, values or attitudes |
| Motivating, engaging | Routine, boring |
| Elaborate | Simple |
| Lectures, demonstrations | Feedback based on students’ active learning |
| Creative | Uncreative, predictable, run-of-the-mill |
| Traditional | Innovative |
| Bell- (i.e. timetable-) bound | Extended projects |
| Focus on comprehension | Focus on recall (e.g. colour bands on electrical capacitors) |
| Group works on tasks | Individuals work on tasks |
| Real-life | Simulated equipment, operation |
| Open, flexible selection | Closed, “solid” selection, sequencing or pacing |
| Sequencing or pacing | See TVET Pedagogy module |
| Knowledge as certain, fixed | Questioning knowledge requiring interpretation, sometimes uncertain |
| Inductive thinking, reasoning from particular examples. | Deductive thinking, reasoning from a generalisation, principle or law-like statement. |

Discussion of the activity

In some of the pairs, one of the two criteria is negative or undesirable (motivating, engaging vs routine, boring), while in other pairs (abstract, theoretical thinking or concrete, practical thinking and/or doing), neither approach is right or wrong, and the desirability or otherwise of both criteria would be determined by the context or requirements of the lesson.

You may have noticed that although the pairs appear to be opposites, in some lessons your planned approach may either include elements of both “extremes”, or fall somewhere between the extremes on a continuum.

You may have found that different pairs of constructs could be used to make choices in relation to different lesson elements, and that some may be useful with regard to more than one element.

Lastly, did you think of any more pairs of constructs? Here are some more which you might add (they will be discussed in Unit 3):

|  |  |
| --- | --- |
| Concept-driven, logical | Narrative, approached as a story |
| Expected | Disruptive, unexpected, an element of surprise or seeming contradiction |

## Interpreters (and co-planners) of the curriculum: Implications for lesson planning (2): Curriculum overload?

One of the constraints under which TVET lecturers have to work and which they often complain about is curriculum overload. This is one of the learning environment/contextual issues referred to in Figure 7 and is introduced here rather than in Unit 4 because it is extraneous to lesson plans as such; however, when drawing up work schemes or lesson plans it most certainly needs to be taken into consideration in interpreting the requirements of the official curriculum.

The challenge of an overcrowded curriculum is a complex one in South African TVET, with several dimensions. While the majority of NCV students carry significantly heavier subject loads than NATED students (the NCV is also generally perceived to be of a more demanding standard), this particular aspect of the overload problem is compounded for the many NCV students who do not pass all their subjects, since at the next level they have to complete seven subjects *plus*, somehow or other,the ones they are repeating.

Furthermore, in an overcrowded curriculum, the development of *practical skills* often does not get the necessary attention:

*The students doing Office Data Processing – have a look at the pass rate for this subject. Very few students do the speed test as the syllabus is too long for them to do finger drills and learn to type for six weeks. (…) The students need to learn to switch on a computer, get into the programme, to type, save and print within the first week! Stress ……! The syllabus is long, and on top of that, the students don’t have the speed to complete the question paper as they haven’t done finger drills for long enough. Each mistake is minus 4 marks. Thus they will spend 20 minutes typing a paragraph in a foreign language, make five spelling mistakes, and get 0/20* (Lecturer in personal communication).

The problem is also compounded for lecturers by the fact that many of them are required to teach both NCV and NATED curricula concurrently, which presents its own demands. “For lecturers, running both the NCV and the NATED courses increased the complexity of figurations in their professional world, as oscillating between the two demanded two different pedagogical approaches” (Towani, 2010, cited in Buthelezi, 2018, p.11). In addition, the students attempting to study such a large number of courses are not easy to teach:

**Zime:** *A student who passes 3 out of 7 subjects is promoted to the next level. It means that the student will do four more subjects in the next level, giving a total of eleven subjects. It is both challenging and very distressing to teach such students. They don’t seem to be focusing well on any of the subjects. This is one of the reasons why failure and dropout rates are on the rise* (Lecturer quoted in Buthelezi, 2018).

Furthermore, the NCV was introduced on the incorrect assumption that the schooling system would have equipped young Grade 9s to exit the system and cope with the cognitive demands of the NCV curriculum (Gewer, 2016, p. 33). Yet another compounding issue has been the shortage of resources, particularly in the wake of the introduction of the NCV. A lack of training equipment and workshops renders curriculum development by lecturers ineffective, particularly in the practical component (Buthelezi, 2018; Wedekind, 2017). More practical experience would mean that students would not be so totally reliant on theory and lectures to build knowledge and skill.

**Sipho:** *I am constantly fearful that a grave injustice is being done to our learners. Every exam that they write entails a practical component, which makes up a major part of their final mark. However, this leads to the downfall of learners’ progress as they are not given sufficient practical exposure as a result of lack of resources. I think this leads to a high failure rate* (Lecturer quoted in Buthelezi, 2018).

If you have worked on the first unit of the *Vocational Pedagogy* module, you will have watched the video “*Official curriculum, enacted curriculum, assessed curriculum, and learned curriculum in two minutes”.* Based on the account of the “pothole curriculum” in that module, this video makes some very critical points about how curriculum stress plays out in practice:

A lot less work is covered in the enacted curriculum than is assumed in the official curriculum. The backlog accumulates week by week (starting in week 1), and the problem snowballs. However, the lecturer adapts to the situation by spending all the class time available coaching the students to answer the questions they’ll be likely to face in the examinations. So the assessed curriculum shows successful completion of the work despite the incomplete coverage of the curriculum, the teaching being exam-bound, uncreative and boring, and the students’ level of competence (in the “attained curriculum”) being extremely low!

Just one possible scenario it is true, and yes, the depiction is humorous if somewhat cynical; however, many TVET lecturers will immediately recognise the situation presented in this striking video.

Other teacher adaptations to the problem of completing the curriculum include:

* Ploughing on with the required sequence even if it means falling behind on time, and simply leaving out large amounts of content at the end of each term and each year;
* Merely covering what it is possible to complete each week, and simply starting the next week’s required work as if the preceding work had in fact been completed, resulting in numerous gaps in knowledge and in the sequence of the knowledge; and
* Following the official curriculum day by day as quickly as possible, rushing through the content, i.e. complying with the sequence and the pacing requirements of the curriculum, regardless of whether the learners are following or not.

The parallels between the pressures driving the “pothole curriculum” and the adaptive behaviours resulting from it in schools, and those encountered in the TVET sector, are not difficult to see. The teacher responses to curriculum pressure sketched above may all be described as *mal*adaptive behaviours, “box-ticking” exercises that short-change the learners in the long run. Of course there is another adaptation encountered in a small minority of schools – starting school earlier, ending later, and holding additional classes on weekends and during holidays. This approach is often successful; however, it demands great sacrifices from educators and learners alike, and it is questionable to what extent anything like this could be applied in the TVET college sector.

To date the most careful South African analysis of the “curriculum overload” problem is Eric Schollar’s contribution to the 2015-17 Jika iMfundo Campaign project in KwaZulu-Natal. Although this project and Schollar’s article are focused on the school sector, its key findings and conclusions are highly relevant, not only because the forces at work clearly parallel those operating in the TVET sector, but because some of the curriculum coverage problems experienced by TVET lecturers are directly linked to the low levels of academic competence in the students who enter the colleges straight from school.

Schollar cites a volume of research to indicate the magnitude and nature of the twin problems: incomplete curriculum coverage and the resulting alarmingly low levels of competence in learners on their way up through school. He quotes Charles Simkins’s conclusion that most learners in South Africa do not learn all of the required content specified by the intended curriculum each year: “Gaps accumulate, and progressively undermine performance” (Simkins, 2013, cited by Schollar, 2018, p. 108).

One of the most striking points to emerge from this research is that a content-heavy or excessively paced curriculum, or even possible inadequate *management* of the curriculum, are not the most significant contributors to *incomplete curriculum coverage*. Much more important are the progression requirements of the national assessment policy, whereby *students are advanced to the next school grade regardless of their actual competency levels*. These automatic promotion policies produce the unintended outcome that the majority of classes in South African schools are, in effect, *multi-grade*, in that they include students at very different levels of competency (Schollar, 2018, p. 116). Large variations in competency levels within the classroom (i.e. within what is supposed to be a single grade) make it almost impossible for teachers to teach and assess students in relation to the formal curriculum.

Many factors may contribute to a failure to cover the curriculum. However, Schollar argues that as long as the assessment policy continues to turn most classes into unofficial multi-grade classes where the teachers have to complete the curriculum for the designated grade while the majority of students are up to three years behind, initiatives to bring about improved student learning and performance are bound to fail.

Schollar argues that the *de facto* multi-grade composition of classes is the direct result of the unintended effects of another education policy. In other words, the policy context itself throws up contradictions where one policy (advancement regardless of competence level) cuts across another (the curriculum policy). However, it is beyond the scope of this module to pursue this point further.

Schollar elaborates on one other factor that affects curriculum coverage: time on task – the number of actually available weeks in the academic year within which to deliver the curriculum. He argues that one of the most visible and consistent differences between high-performing and low-performing schools is the significantly higher number of teaching weeks and days in the former (ibid., p. 115).

This is certainly a point which should resonate with the challenge that confronts TVET lecturers every year: how to manage satisfactory coverage of the curriculum when you in fact have only between 25-30 weeks in which to complete a lock-step curriculum based on the false assumption that the academic year is 40 weeks? It is not necessary to spell out the many reasons for this other than to point out that the co-existence of trimester, semester and one-year programme structures means that the academic year is commonly curtailed five times a year, usually for two to three weeks at a time, for the purpose of conducting and marking examinations.

### Activity 13: Curriculum overload

**Suggested time: 20 minutes**

Reflect on the abovementioned account of curriculum overload and incomplete curriculum coverage, then answer the questions below and write your responses in your Learning Journal. Discussing this issue with colleagues or fellow students will very likely enrich your thinking, but try to avoid letting the conversation just become a litany of grievances.

1. The first question is open-ended: What do you think are the biggest factors that contribute to the difficulties lecturers face in completing the official curriculum? How much of the problem lies in the curricula themselves? How much is due to factors *external* to the curriculum itself, such as the limited weeks actually available for teaching, a lack of resources, or the unpreparedness of new-entrant students?
2. Have you developed or learnt of any practical ways of doing justice to the curriculum within the time available, while making sure that the students in your class do not get left behind? If you have, describe it briefly. If not, devote 5 minutes to trying to come up with one meaningful suggestion of a strategy that might assist you and colleagues, even in a small way, to achieve this end.

Discussion of the activity

This discussion will focus only on what can be achieved through *strategic lesson planning* (an example of strategic pedagogic knowledge), with some reference to planning a series of lessons or the work scheme for the trimester, semester or year. The decision to do so is in the interests of brevity and because it is chiefly through planning and preparing for their own teaching, either individually or in communities of practice, that lecturers can address the challenges of doing justice to rather packed curricula within the time actually available.

Some principles for ensuring good curriculum coverage

**Principle 1: *Don’t* set out to “cover” curriculum content**. Rather “curate”, select and organise, the content – learn how to *use* it. Don’t fall into the trap of regarding the year or semester as a race to complete the curriculum, seen as an end in itself. That will force you into the role of a transmitter of information rather than a teacher; will leave you and the students feeling drained and uninspired; and will not even enable the students to recall the facts you’ve tried to cram into them, let alone achieve deep learning.

With a shift in focus from *covering* content to *using* content, curriculum design also becomes less a matter of determining “what” to teach and more a matter of “how” to facilitate real learning (Monahan, 2015). As a curator analyses all of the possible exhibits available before selecting the most powerful or significant artefacts to convey the key “messages” in an exhibition or collection, content curators thoughtfully prioritise and select the best elements of the curriculum to trigger or inspire the deep learning that will stay with students for years, or to help them develop the skills of their discipline. Examples of such curriculum elements could be four, five or six key concepts, principles, “laws”, theoretical models or formula that we make the focal points or cornerstones around which we organise the *enacted curriculum* for a particular course or subject, and around which the students can build their *learnt* (and remembered) *curriculum*.

If your approach to curriculum curation (selection and organisation) is *forward-thinking* (what do you want your students to be remembering or applying – not hundreds of facts – in five or ten years’ time) and *backward-planning* (what curriculum elements do you select for emphasis in order to help them get there), then you will be able to create the learning experiences that will help them to achieve that state of mastery. “If we continue to view content as that which needs to be covered rather than the fuel for meaningful learning, then we are destined to fight a losing battle” (ibid.)

**Principle 2: Planning individual lessons: Build time-consciousness into *all* your lesson plans** and, if possible, when planning any *series* of lessons. Completing the curriculum *is* important, and not easy to achieve in a meaningful way, i.e. without “flying” through the curriculum and leaving the students to follow as best they can. Therefore, it makes good sense to cultivate the habit of giving attention to this goal from the very outset *every* time you plan a lesson or lessons.

This will help you to avoid, for example, getting carried away and cramming too much into a lesson, or allowing too much time for an activity that the students may enjoy doing, but that could achieve its aim within 10 or 15 minutes rather than 20 or 25 minutes. Or it might lead you to employ a particular time-effective teaching strategy in the lesson you are designing.

**Principle 3: Plan each lesson as if you were designing an instructional video or a TED talk.** This is not to suggest that you should actually design a video or produce a public lecture, just that you import some of the same design principles and infectious enthusiasm in planning your lessons:

* You have probably heard many times that lessons, like school compositions, should have a beginning, a middle, and a clear-cut end; however, that does not mean that this old dictum is obsolete – in practice too many lessons end up being merely a continuation from where the previous day’s lesson stopped. This cannot happen in a video or a public lecture.
* Every TVET lesson needs to have an essential concept/principle/procedure/mechanism at its heart – a definable *topic*, not just a general area of “focus” – to be grasped and remembered at least until the next day by students, even if they remember nothing else from the lesson. A precise topic will force you the lecturer to see the lesson as a coherent, self-contained whole, and that is how it should communicate itself to the students as well.
* Students need to know that they have learnt something substantive and identifiable in each lesson, and to receive a definite signal of closure, as happens in most instructional videos and TED talks. Never give the impression that you didn’t get as far as you would have liked in a lecture, but will finish it off in the next lesson. If you haven’t come across or watched a TED talk, the following link will take you to a menu of useful playlists (of talks) arranged by the TED organisation itself: <https://www.ted.com/playlists> . The next link will call up an excellent example of how much can be effectively communicated in less than 15 minutes: <https://www.youtube.com/watch?v=arj7oStGLkU>. This video about what happens in the mind of a procrastinator is entertaining, and food for thought. And the point made towards the end is relevant too. If lecturers see their lectures as important yet ungoverned by any definite deadline for completion, they are unlikely to plan a crisp end-point, and the lesson will tend to be a shapeless narrative to be picked up in the next class session.

**Principle 4: Beware of fragmentation:** This is not in itself a technique for time management; rather it is a corrective for applying Principle 3 too enthusiastically. Nevertheless, the two techniques mentioned below will also assist you in dealing with a crowded curriculum in a professional way.

Making sure that each lesson is clear-cut is not the same as teaching in an “atomistic” fashion, where lots of self-contained lessons do not add up to single, clear “big picture”. The result of enacting the curriculum in this way is that the students may not be able to make the necessary connections between the topics of the various lessons in a series, and will not be able to see the “forest” for the individual trees.

A good way to prevent this is to provide a *concept map* (see Principle 5) at the beginning of a series of related lectures, and to “walk” the students through it. Better still, make it interactive – leave spaces blank on the map and get the students to suggest the missing concepts. Make sure that you choose to leave blank spaces where the students will be capable of contributing something sensible rather than just taking wild guesses. Take time every now and then to run over the “big picture” concept map or course structure diagram, fitting the lessons into this scheme.

Bricks or stones need mortar to form a wall. Self-contained lessons (with definite planned boundaries) will need bridging or binding material to cohere into a whole. Another strategy you could employ is the blended learning technique known “flipped lessons”. Set the students to read a well-chosen resource or to do other preparatory work such as completing a short interactive learning module or worksheet in their own time the day *before* the lesson. Typically, this preparatory work is then discussed, interacting with students as much as possible, in the first 5 – 15 minutes of the actual contact lesson the next day. During the lesson, students may be asked to practise applying key concepts they have identified, and receive feedback from the lecturer. As a follow-up after the lesson, they may be instructed to check their understanding and extend their learning to a more complex task. This approach can provide the students with a sense of continuity and coherence across lectures – valuable “mortar” that cements the stones together.

**Principle 5: *Model* (rather than taking time to teach separately) time-effective learning, study and simple research skills** when you explain, demonstrate or set out the instructions for assessment tasks. If you model the research and critical thinking skills necessary to evaluate various sources of information – what’s relevant, accurate, and reliable – the students will begin to develop the capacity to find additional information themselves and to cope with an overload of disembodied (and sometime unreliable) information – a major problem in today’s world.

What does this mean in practice? An example would be building a concept map (sometimes called a mind map) while you are explaining a principle or demonstrating a procedure. Or make the drawing of a concept map part of the instructions for a learning activity or assignment, once the students have seen you model how to do this, perhaps in a previous lesson. Concept maps don’t require any special drawing skills, but there are simple, free apps for constructing them that can be downloaded from the internet for use on mobile devices.

Another variant on this approach is to leave gaps in the concept map that you provide while teaching, or in one provided as part of an activity or assignment, and require the students to fill them in. (Remember to create gaps that will challenge without presenting a threat – see the lesson plan video in Unit 4.) Yet another example would be to introduce a challenging, critical research-type question into your demonstration or the students’ learning task, such as “How can we know for sure that this will produce the result that’s needed without risking an explosion?”, “How can we check whether this mechanism is working?” or “What would need to be in place for this process to work?”

How do such methods contribute to improved curriculum coverage? The answer is, by shifting the effort and responsibility for getting the students to understand from yourself to the students – or at least sharing it with the students. The alternative – taking sole responsibility for the students’ understanding of the content – results in the problem described in Principle 6.

**Principle 6: Avoid over-teaching:** One of the things that takes up unnecessary time in the classroom is *over-teaching the entire class*, perhaps repeating yourself several times to make sure that *all* the students grasp at least the basic or most important principles or concepts. Doing so, you run the risk of boring the students who are quick to grasp the content, and you may still fail to get through to the slowest learners. Rather establish the expectation in your students that you will explain or demonstrate *once* (or twice if the topic is difficult, complex or especially demanding), hence they need to pay close attention. For students who still need help, you can give them extra support while the others are busy working on the learning activity or task you have set them.

**Principle 7: Be time-conscious in all your *teaching*:** Rely on the clock rather than being ruled by the “bell”. If there is not a large clock mounted on the wall, buy a cheap, large kitchen clock and place it on the lecturer’s desk where you can see it easily and often. And/or keep your cell-phone in your pocket and set the alarm to vibrate quietly 15 minutes before the end of each of the teaching periods to “nudge” you and remind you that you still have to round off. And school yourself to obey its signal.

Avoid letting groupwork, or students’ questions or explanations, go on too long. Give tightly bounded time instructions for co-operative learning activities as often as possible (the “closed” pacing requirements mentioned in Unit 1 of the module *Vocational Pedagogy*) tends to create a sense of excitement, and is often more productive than “open-ended” (undefined pacing) groupwork. Have students share the responsibility for timekeeping (appoint timekeepers, or let groups appoint their own timekeepers).

In general, avoid succumbing to the temptation to let the central part of your lesson overrun its time allocation – act like a conscientious, time-conscious meeting chairperson (you know how everyone appreciates them). Cultivate the habit of always making sure you end off the lesson in an orderly and business-like way.

In addition to these seven principles, a number of the teaching and assessment techniques and traps to avoid in lesson planning that are introduced in Unit 3 will not only improve your lesson plans and teaching effectiveness; they will also contribute to the overall time-efficiency of your teaching week-by-week.

Finally, time-effectiveness is a *mindset* you need to cultivate – a time-conscious approach that *integrates* the above principles, and does so consistently. For instance, if your students come to *expect* that you will not normally explain something in a whole-class setting more than once, and to *expect* that each of your lessons will be self-contained, starting with a clear topic and expectations or learning outcomes, and ending in a snappy, well-managed way, they will tend to replicate the attitude of business-like time-consciousness in their own behaviour. This is surely a goal worth striving for, as completing the curriculum or syllabus will then become a shared effort with shared rewards.

## Interpreters (and co-planners) of the curriculum (3): Analysing curriculum documents

Before moving on to principles and tools for lesson planning in Unit 4, the topic of this final section of Unit 3 is the important one of analysing the documents that make up the official curriculum.

* Why does *interpreting* the official curriculum necessitate *analysing* it?

Two relevant points here are:

* That different interpretations can lead to very different teaching approaches (therefore interpretation *matters*), and
* As we learnt from Linda Darling Hamilton, the *right* to interpret the curriculum is based on lecturers’ use of their professional experience and recognised professional knowledge.

One aspect of adopting a professional approach to the curriculum involves not simply accepting the official document as a given, i.e. as a handed-down, prescribed plan that is beyond scrutiny. This is where critical analysis comes in.

In order to analyse curriculum documents critically it is necessary to understand something of their historical background. Official curricula do not simply arrive ready-made, and do not take shape in a vacuum. Early, in unit 2 a glimpse was provided of the process whereby curricula are constituted from a combination of “old” and “new” knowledge and turned into first a draft policy and then, after consultation at various levels, into the gazetted official curriculum. This process is not, of course, the whole story. Neither are TVET curricula which set out what will be taught in vocational institutions across the country value-neutral and free of agendas, simply and objectively reflecting the world of work and vocational know-how “as it is”.

Click link to access [Reading 2](#Reading_2), *Overview of curriculum development in the TVET educational subsector*. Once you have read this short piece, reflect on how *contextual* factors influence curriculum interpretation.

### Stop and think:

1. Reflect on your own views on how the overlapping histories of the NCV and NATED programmes have affected TVET.
2. What curriculum changes would you like to see unfolding over the coming years in the TVET college sector, and how do you think your hopes in this regard are likely to influence your interpretation of the curriculum or curricula that you will be working with in the year ahead?

Summarise your responses, each in a few sentences, in your Learning Journal.

The last part of this unit focuses on a sample analysis of two actual current curriculum documents. The assumption of the TVET lecturer’s role as interpreter of the official curriculum-as-plan underlies this section.

### The elements of curriculum

In this section, you will be provided with some pointers towards *analysing* curriculum documents in the process of interpreting them, i.e. mediating them for your students. Analysing a curriculum document means scrutinising it in the light of what you already know from experience, and comparing it with what you have read in other sources – 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. You will in fact need to use your *pedagogical content knowledge* to make sense of curriculum documents.

### Stop and think

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 guidelines?

3. What is the official college position on such matters?

4. Where do you see yourself in relation to curriculum documents?

First, it is important to consider, *what makes a good curriculum document?*

Whether you are preparing a work scheme for an entire course or a single lesson plan, you will probably expect, or at least hope to find some guidance or regulations regarding the key curriculum elements.

**Key curriculum elements**

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| 1. What are the purpose, scope, rationale and guiding principles of the course? 2. What can the students be expected to know already? (Admission criteria; learning assumed to be in place; recognition of prior learning) 3. What will the students need to know at the end of the course? [Learning outcomes] 4. What are the underlying, general abilities you should be promoting in addition to the particular discipline? (Critical and developmental outcomes) 5. In what order are the students going to learn different knowledge and skills? 6. What teaching or learning approaches or methods are you going to use? 7. How will the course be paced? 8. What are the time frames? (Credit value and weighting) 9. What kinds of materials or other teaching/learning resources can you expect to use? 10. When, and how are you required to assess the students? 11. What kind of evidence is expected to be used for assessment? (Assessment criteria/standards, range statements, requirements regarding checklists, rubrics, portfolios of evidence, etc.) |

In practice, you will find that currently no South African TVET curriculum document covers all of these elements. In some cases, this is because information is distributed across a number of different documents, for instance in the case of the NCV:

* The overarching SAQA-registered Qualification Certificates for NCV levels 2-4,
* Separate Subject Guidelines and Assessment Guidelines for each individual NCV subject.

You will not find any significant guidance on teaching or learning methods in most of the current national TVET curriculum documents; there are brief “didactic guidelines” in the revised NATED syllabi, but not in the NCV documents, unit standards or occupational certificates. This simply means that the authorities are not prescriptive on this point, and the field is open for lecturers to try different approaches.

What might be considered curriculum *framework* documents do not in all cases spell out the overall aims, vision or socio-economic rationale for the qualification, or the guiding principles that should direct more detailed planning, as might be expected. In some instances, they tend to gloss over one or more of these and go straight on to lists of topics or subjects, learning outcomes and assessment requirements for different grades or levels, or time allocations. Information like the principles of the relevant overarching qualification (such as portability and articulation with other qualifications), career opportunities or the international comparability of a qualification are dealt with quite thoroughly in some documents, and not at all in others.

Given this, it is not surprising then that most lecturers rely heavily on textbooks, which put some flesh on the rather abstract curriculum outlines, presenting in detail the knowledge and activities that can lead students to attain the outcomes.

Nonetheless, there are five key elements about which official curriculum documents *should* provide information:

* + 1. The overall aims, vision or the socio-economic rationale or central challenge that needs to be met by the educational venture, or perhaps the reason for studying the course
    2. The learning outcomes that need to be met
    3. The skills and knowledge that need to be mastered
    4. The progression/sequencing/priorities/pacing of knowledge units, given that time is always limited
    5. The forms and means of assessment, and regulations governing assessment.

This section requires you to attend to each of these elements in some detail as you engage with an actual TVET curriculum document. The output for the three activities that follow is some practice in analysing such documents.

### Activity 14: Analyse an actual curriculum document

**Spend about 15-30 minutes working through each of the five curriculum elements (a – e).**

**(Total: 75-150 minutes)**

Choose 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 text and the document during your analysis. Each time you come to the end of one of the elements below, use the questions in the box to interrogate the curriculum document you have chosen, and summarise your responses in your Learning Journal. This method will give your reading a more immediate purpose, and you will be less likely to lose focus on the curriculum document that you are analysing.

Discussion of the activity

1. **Overall aim, vision, rationale**

Thinking about the overall aims or purpose – *why* the learning should happen – is both the beginning and the end of curriculum plans (the “end” because it sets out what the curriculum, and the student, are aiming to achieve *ultimately*). If there is no vision or rationale of why the learning is important and valuable, and what it should achieve, then what is the point of undertaking it?

In South Africa all official national curriculum policies are founded on the values, principles, and rights entrenched in the Constitution. Often they also reflect the values and priorities of particular government policies like the National Development Plan or the 2014 White Paper on Post-school Education and Training. The central challenges that need to be met are the sometimes-conflicting demands of a highly technological, globally competitive market economy on one hand, and redressing our legacy of injustices, inequality and social exclusion on the other. Such values, aims and challenges are bound to have a significant influence on all national curricula, with the intention of steering the learning that takes place in schools and colleges. The selection of knowledge, skills and values, the pedagogy, the assessment, the organisational and institutional structures, all need to be aligned in ways that help to attain the vision.

In TVET, debates about the vision or purpose tend to revolve around the relationship between theory and practice, relations with employers, the relative weight attached to generalised/generic training for a discipline or more specialised training for sub-disciplines, the technological and economic challenges of the “fourth industrial revolution”, and so on. As a result of such debates, curriculum framework documents sometimes contain different elements that may be, or may only seem, incompatible. For example, a curriculum document may include no mention of learning outcomes, instead being organised according to “topics” and “knowledge modules” (indicative of *content-based* education), yet the *assessment* may be against assessment criteria, and as you probably know, criterion-referenced assessment is associated with *outcomes-based* rather than content-based education.

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| **Questions on 1: Overall aim, vision or rationale**  **For the purpose of analysing a curriculum plan, here are some important questions you can ask:** |
| * + 1. What are the aims, values, vision, or main purposes presented by this curriculum document? Do I agree with them?     2. Are there any contradictions or tensions between different aspects of the vision?     3. In which ways do the following factors – the outcomes, the knowledge and skills, the pedagogy you intend using, the assessment requirements and the institutional structures – contribute to and support the vision, or contradict it in some way? |

1. **Outcomes**

The second element you need to look for in a curriculum document is the outcomes of the learning. The important questions in relation to outcomes are: firstly, how broadly or narrowly do they describe the skill that is to be developed; and secondly, how much recognition is given to the *knowledg*e 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 one of the critical (cross-field) outcomes that underlie all education and training in South Africa, so it is at a highly generalised level of vision. At the other extreme, an outcome such as “Use carpentry tools as necessary in preparation for floor covering installation” is an extremely narrow outcome, relating to the selection of particular tools for a particular job and describing 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 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 to achieve the outcome, and the more difficult it is to assess.

Look again at 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 many different specific contexts, this is an important guideline when developing curriculum. Yet the outcome gives no recognition to the *knowledge*, or even the kind of knowledge, that is essential for problem-solving to occur. Identifying a problem with a broken fridge requires a completely different kind of knowledge from the sort required to solve a problem of tasteless food in a restaurant, or a snarl-up in freight logistics.

A common way to respond to these difficulties with outcomes is for curriculum and subject experts to write long lists of increasingly specific learning outcomes and assessment criteria/standards. But these lists are quite abstract and often not very meaningful to anyone outside of the group that wrote them. And important *principles* that underlie or unify whole disciplines or occupations may get lost amongst a fragmentary profusion of specific learning outcomes (the “I can’t see the wood for the trees” scenario).

A problem arises when lecturers treat the *assessment criteria* as if they were a list of topics to be followed in the order indicated. Just moving from one assessment criterion to the next (“…able to measure this, explain that, and calculate the next thing…”), no matter how crucial these abilities are, does not necessarily provide students with the developmental path they need for achieving what Lucas *et al* refer to as “working competence”:

*working competence is about the ability to make good decisions* in a real situation*, at a specific moment in time, and not about checking off a list of specific, task-based competencies* (Lucas *et al*, 2012, p. 38)

The authors go on to quote Hager (2004, p. 429): “*We want flexible, integrated, thoughtful skills, not atomised checklists of micro-competencies*.” A set of official learning outcomes (or micro-competencies) is not a lesson plan!

In addition, it is often the case that learning outcome statements give little idea of progression, remaining the same, or very similar, through successive grades or levels. In such cases one has to look to the assessment criteria or the subject topics in the official curriculum for any indication of how the knowledge or skills to be taught show progression over successive years, semesters or trimesters.

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| **Questions on 2: Outcomes**  **For the purpose of analysing a curriculum plan, here are key questions to be asked:** |
| 1. Are the outcomes describing general or specific skills? Do they describe the necessary level of ability required, or progression through levels? 2. Do they indicate what *knowledge* is required to meet the outcomes? Are there different yet equally valid ways to *interpret* the outcomes? 3. Are the outcomes appropriate in relation to the overall aims and the context of the curriculum as a whole? Are any important ones missing? Do some seem superfluous or repetitive? |

1. **Knowledge and skill**

The short input on *Discourses*, in Unit 2, that you read talked about three different types of knowledge that combine to form the *craft knowledge* that is associated with many trades and occupations, and that is taught in technical and vocational education and training: knowing *that*, knowing *how* and knowing *it*. Note that all three of these involve knowing, i.e. *knowledge*. The module on *Psychology of Education for TVET* discusses these types of knowledge at length (in Units 1, 3 and 4), and argues that all three need to be given attention and integrated in the learning that forms the core of TVET – learning aimed at acquiring both knowledge and skill.

Another way of looking at the “knowledge mix” that constitutes vocational and technical learning focuses on systematised knowledge and technical knowledge:

* ***Systematised knowledge***, which involves naming and categorising things into classes, and using logic to reason about them, is best captured in language – including the mathematical language of symbols, or sometimes diagrams and drawings. We use systematised knowledge to think and speak about theory, and we write about it in academic texts.
* ***Technical knowledge*** is *not* always best captured in language and texts. Theoretical knowledge, conveyed in systematic language, usually makes an essential, but limited, contribution to learning any trade or occupational discipline. The most important part – the core – of technical knowledge, however, cannot be conveyed in words, and is therefore known as ***tacit knowledge****,* and we reflect it in other ways, for instance by doing, making, using, or sometimes just recognising quality in an artefact. To take the familiar example of learning to drive a car, no-one can learn to drive simply by reading about, or being told, how to drive. However, systematic language *does* play a crucial part in learning how to drive, for instance in explaining why and how the clutch in a manual transmission car has to be used to disengage the engine from the driveshaft when changing gear, or explaining the use of road signs and signals.

Nevertheless, the satisfaction one feels when finally, one manages to drive without instruction is *the result of an “****embodied” knowledge*** (a knowledge in the body) that is almost impossible to put into words, it is *tacit* (unspoken or implicit) knowledge. At this point, the operations and procedures one had to think about consciously and logically at first, now become more and more *automatic* with practice.

If one wanted to become an expert driver, and enrolled for an *advanced driving* course, both the verbal (systematic) instruction and the physical, embodied practice to sharpen one’s technical skill (e.g. when braking hard on a slippery road) would be ratcheted up a few notches. Again, *both* types of knowledge would be crucial.

* Craft knowledge, which is the kind of knowledge that is mediated to students in a TVET college, combines *both* practical skill *and* systematised knowledge.

For Bill Lucas *et al* (2013, pp. 38-40) the overriding goal of vocational education is what, as you have already seen, they call “*working* competence”.

“*We do not deny for a moment that there is a good deal of knowledge and explanation involved in the skilful exercise of any vocation – there clearly is. But ‘knowing’ and ‘thinking’ are in the context of – and in the service of –* practical expertise*. The evidence of success is the working washing machine, the satisfied customer, the smooth putting green*…”

In other words, *not* the ability to be a learned authority who is able to *speak* *about* such things. Thus, as Lucas *et al* go on to say, “… *knowing and thinking, in the context of vocational education, have to be taught in such a way that they readily come to mind, and are useful*, *in practical situations*.”

### Stop and think

Take a few minutes to think about the parallels between what is said above about learning to drive a car, and learning to master the trade or occupational discipline or subject which you teach. For example, perhaps learning to drive at an advanced level, such as when actions and responses in maintaining stability in a sudden swerve on a wet road become automatic, may be equivalent to the experienced carpenter’s ability to judge straightness and symmetry by eye, or to detect sags, gaps or bows at a glance.

What part is played in your students’ learning by systematic verbal instruction, and what part is played by acquiring tacit knowledge, partly through unverbalised practice? What specific method(s) do you use to get tacit knowledge across to your students?

Record your reflections in your Learning Journal.

In Japan, individuals who have mastered various crafts such as certain types of pottery, archery or calligraphy are revered as "Living National Treasures" (*Ningen Kokuhō*) – something akin to living national monuments – and paid a stipend by the state as “preservers of important intangible cultural properties”. What we admire and respect in such figures is reflected in the depth and beauty of their tacit, embodied knowledge, including the conception of the finished, crafted work that they carry in their minds while they are making it. Though they may be able to describe many things about their craft in words, it is the tacit, embodied knowledge that impresses us the most – to the extent that we might be inclined to overlook the role that years of verbal and theoretical instruction must have played in their early apprenticeship.

If you relate this discussion to learning outcomes in a curriculum document, it should be clear why the learning outcomes need to describe *both* skills *and* systematised knowledge, and why they can only be achieved when the teaching is concerned with the latter as well as the former.

However, the *connection between knowledge and skill* sometimes gets forgotten in the emphasis on learning outcomes in outcomes-based education and training (OBET) (Gamble, 2013, p. 213). Learning outcomes in general express what the learner can expect to *be able to do* by the end of a course or unit, and such competence is required to be *demonstrated* in some verifiable way.

In other words, OBE’s emphasis on learning outcomes tends to foreground *skills* and *functioning knowledge*, otherwise known as knowledge *how*, at the expense of theoretical/declarative knowledge or knowledge *that.*

After OBE was introduced in South Africa, the notion became widespread that a content-focus is in itself “bad” because it involves students in the rote-learning of meaningless facts, which are generally quickly forgotten, compared with things that one learns *to do*. Unfortunately, curricula *limited to* content, and a good deal of rote-learning, are part of the historical legacy of apartheid education in South Africa, and still far from extinct in schools and colleges. However, it’s not the *content knowledge* should be thrown, but rather, it is the approach to teaching and learning that needs to change. In the current global “knowledge economy”, in which economic activity is increasingly based on the flow of information, a person’s ability to access, fully understand, analyse and manipulate knowledge is more important than ever.

Any curriculum document thus needs to provide clear information about both: what systematic content knowledge, as well as what skills, are needed to achieve the learning outcomes.

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| **Questions on 3: Knowledge and skill**  **For the purpose of analysing a curriculum plan, here are questions you could ask regarding the *relationship* between knowledge and skill:** |
| 1. What knowledge and which skills does the curriculum suggest students should acquire? 2. Does the *wording* of the learning outcomes and assessment criteria convey do-able, *working* competence (“the skilful exercise of practical expertise”) or do they in fact describe the recall of memorised facts and procedures, using only verbs like “explain”, “identify”, “list”, “state”, “define”, or even sometimes “calculate”. (There is no problem with using these verbs if there are additional requirements to *demonstrate skills*, for example, “Explain the generation and supply of electricity in single- and three-phase systems and *perform related measuring and calculations of power*.”) 3. What, if any, knowledge and sub-skills might be necessary to achieving the overall outcome but are *not* mentioned, i.e. what gaps need to be filled in the curriculum? Or are there *too many* finely-differentiated sub-skills, or even learning outcomes, listed, so that the curriculum becomes confusing or overcrowded? A seasoned lecturer writes: “Some of the learning outcomes are so similar, you battle to understand what they are actually trying to assess you on. |

1. **Progression, sequencing and pacing**

Once the selection of content and skills and sub-skills has been decided, the next step is to plan the progression and sequence 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 generally accepted principles are to sequence a course so that it progresses from known to unknown, from simple to complex, from immediately relevant and concrete to more abstract, from overview to detail and back to overview. These principles do not require much explanation, but they are unfortunately often forgotten. They are also not absolute – sometimes a course, unit or lesson may *start* with a problem, or a startling fact or imaginary scenario, in order 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, step-by-step way, or grouped together into interchangeable units or modules, or be repeated at ever higher levels of complexity – this unit, especially the first half, is an example. 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 students’ capabilities and the time available. What is important when you analyse a curriculum document with the intention of developing a lesson plan, is to ask: is the knowledge sensibly sequenced, or is there no visible attempt at sequencing at all? You may find that you need to re-order the sequence of content: an experienced lecture said of the N4 Entrepreneurship and Business Management curriculum,

*for years I taught from the back of the text book by starting out with types of businesses then going to the type of person who can run a business, etc*.

If anyone queries the sequence in which you are teaching the elements of a subject, you will need to have a convincing motivation for your decision.

Unfortunately, the use of learning outcomes has tended to weaken many educators’ grasp of the logic of progression and sequencing. Outcomes and assessment criteria describe what students should be able to do at the *end* of a process of learning. They do not usually tell us anything about *the learning path towards achieving the outcomes*. In such cases, it’s for lecturers to take on the responsibility to group the sub-skills and knowledge elements in whatever sequence is considered best to enable the students to learn and achieve the outcomes.

Another factor related to progression is the amount of *time* available to deal with the whole curriculum and for each section within it, which brings us back to *pacing*. In official curriculum documents, pacing is generally not prescribed (the CAPS school curriculum is an exception); however, it can often be *inferred* from credit values (i.e. notional hours) or relative weighting per topic. In an overcrowded curriculum that is difficult to complete, the first topics or outcomes listed may be the ones which get the most attention. This is particularly important when balancing the time spent teaching theory and the time spent developing practical skills. If the latter is constantly squeezed into the time left over once the theoretical component is completed, the practical component is doubly disadvantaged: it is likely to be skimped, and the (false) hidden curriculum message is that it is of less importance, even though the guidelines may indicate a weighting of 50 or 60%.

Whatever is or is not indicated about pacing in the official curriculum, there is clearly a close relationship between the priorities that the curriculum planners consider to be the most important, the lecturer’s pacing, and the students’ progression. Thus pacing is a most important aspect of the lecturer’s role as *mediator* of the curriculum. And this calls for a *professional interpretation* of curriculum priorities, in which the curriculum designers’ and examiners’ priorities cannot be ignored, but must be balanced with the intrinsic logic of the discipline or subject, and the logic of the students’ learning.

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| **Questions on 4: Progression, sequencing and pacing**  **For the purpose of analysing a curriculum plan, here are three critical questions to be asked:** |
| 1. Does the curriculum document *prescribe* the progression, sequence or pacing of learning (knowledge and skills) or not? If not, are there any *guidelines* regarding such progression, sequence or pacing? 2. In the light of your pedagogical content knowledge, do you agree with the sequence as it is set out in the curriculum document, or can you improve on it? Either give your reason for wanting to do so, or describe briefly *how* you would improve on it. 3. Does the curriculum document offer guidance in enabling the students to develop working competence, or does it seem more like a checklist of specific, task-based micro-competencies? |

1. **Forms and means of assessment**

Some of limitations about learning outcomes have been expressed above: they don’t usually provide guidance as to how they may be achieved, and thus tend to deflect attention away from the knowledge component of learning; also, overdependence on a multitude of very specific outcomes treated as stand-alone, assessable micro-competencies results in both lecturers and students losing sight of the “big picture” – the unifying principles that make sense of the overall, larger competence as a whole.

However, one of the most valuable contributions of outcomes- or competence-based education and training is the increased emphasis on, and much closer attention that we now pay to, assessment. No longer do we see assessment as something separate from the learning process, or as essentially a written examination that necessarily *follows* it, “marked” as either correct, incorrect, or against some dubious norm or standard (should artisans, such as an electrician, on whose reliability lives may depend, not have 95% pass marks?).

Thus it is not surprising that most of today’s official curriculum documents provide considerably more detail on assessment than in years gone by, sometimes even featuring information on formative and diagnostic assessment as well as summative assessment (assessment *for* learning as well as assessment *of* learning). The Assessment Guidelines for each NCV subject are a good example, they provide quite a comprehensive introduction to the purposes, principles, processes, types, methods, tools for collecting evidence and assessment, weighting, recording, reporting and moderation of assessment. In fact, they are considerably more pedagogically informative in this way than the NCV Subject Guidelines documents.

An important critical point that can be made in relation to assessment concerns the use made of assessment criteria in some South African vocational curricula – and on this score the NCV curriculum guidelines have been criticised for being less than helpful, as you will see in Activity 15.

|  |
| --- |
| **Questions on: Forms and means of assessment**  **For the purpose of analysing a curriculum plan, here are some critical questions you can ask with regard to assessment:** |
| 1. Does this curriculum document *prescribe* certain assessment procedures, or *describe* a range of possibilities? 2. How *supportive* is the guidance provided on assessment practices? Does the curriculum document take proper account of ongoing, formative assessment as well as end-of-course, summative assessment? 3. Are assessment criteria set out, and if so, are they integrated in such a way that they contribute to identifying the overall competence to be achieved, i.e. in such a way that the whole is seen to be more than just the sum of many parts? |

Instead of providing the usual Discussion of the Activity, extracts from two current official curriculum documents are provided for analysis:

* The first is from the National Certificate: Vocational (NCV): Electrical Principles and Practice Level 4 (2014) – both the Subject Guidelines and the Assessment Guidelines;
* The second is from the QCTO Occupational Certificate: Electrician.

Read, analyse and compare the two curriculum extracts in Activities 15 and 16. In the discussions that follow each of these activities, space constraints do not allow for responses to all the questions suggested in Activity 14; however, they do provide examples of critical analysis.

### Activity 15: Subject and Assessment Guidelines for an NCV subject

**Time needed: 45 minutes**

Click link to access [Reading 3](#Reading_3), the extracts from the National Certificate (Vocational) documents, Electrical Principles and Practice, NQF Level 4: *Subject Guidelines* and the *Assessment Guidelines.*

Comment on the division of the curriculum guidelines into Subject Guidelines and Assessment Guidelines. In what ways does this division assist you or hinder you?

1. Analyse and comment on the competence structure of the subject curriculum (learning outcomes, assessment criteria, etc.)
2. Comment on the mix of content knowledge and practical skill indicated in the competence structure.

Discussion of the activity

The first important thing to notice is that the basic curriculum documents for NCV subjects are called “Subject *Guidelines*” and “Assessment *Guidelines*”. This appears to reflect the point made earlier – that this is how lecturers should in fact view official curricula, i.e. as guidelines rather than a tightly-prescribed plan, so this represents a forward step.

However, the separation of assessment guidelines from subject guidelines conveys the unfortunate impression (think hidden curriculum) that assessment is something *separate* from teaching and learning, when in fact it is an integral part of the learning process. In addition, the fact that the extremely complex structure of outcomes and assessment criteria is incompletely spread across both documents (the Assessment Standards appear only in the Assessment Guidelines, whereas the Assessment *Criteria* appear only in the Subject Guidelines) making it even more complex to manage. The *two* documents therefore must be read in conjunction.

The detailed information provided in the Assessment Guidelines (AG) has already been mentioned. The Subject Guidelines (SG) document starts with a preamble that partly addresses the first three requirements we discussed above. The subject is defined (A), followed by a brief rationale for studying it (B).

In C, some of the Critical (Cross-field) Outcomes and Developmental Outcomes are foregrounded in an abridged form, and an attempt has been made to substantiate or validate each of them by linking them to actions taken from across the curriculum-in-practice for the entire Electrical Infrastructure Construction field, though not necessarily in this particular subject. For example “Work effectively with others…” (critical outcome) …”when solving problems” (activity likely to be done in the course of studying the Electrical Infrastructure Construction field, though not explicitly mentioned in this document). Given the complexity of the outcomes-and-assessment-criteria structure in this curriculum, it is doubtful whether most lecturers pay much attention to this section, and presumably it was included chiefly for accountability and compliance-related purposes.

It is difficult to know what to make of Section D (“Factors that contribute to achieving the *Electrical Principles and Practice* Learning Outcomes):

* “An understanding of technical (electro-mechanical) principles
* Analytical ability
* The ability to do mathematical calculations and manipulations
* Hand-skills (practical skills)
* Practical improvisation abilities.”

They are “*contributory factors*”, their status, however, needs to be clarified for them to be of value to lecturers or college senior management. While perhaps they add *something* to our understanding of the curriculum (they give us the first inkling in the Guidelines of the course’s *content*), they would be more helpful if a brief explanation was provided of *how* each of these factors is likely to contribute to achieving the learning outcomes, especially as there are some 87 learning outcomes in this course.

Returning to the outcomes and assessment criteria, the competence structure seems unnecessarily complex?

* On p. 4 of the SG one encounters four “Subject Level Outcomes” and four “Associated Assessment Criteria”.
* On p. 5 five Topics are set out under the confusing heading: “Subject and Learning Outcomes”, signalling that the “product” orientation of the NCV curricula does not have a pure outcomes or competence focus but also includes a content-based element (Topics). It turns out that the heading “Subject and Learning Outcomes” actually refers to the third- and fourth-tier “Subject Outcomes” (of which there are 15) and “Learning Outcomes” (of which there are 87, at a much more specific level than is usual for LOs), found from p. 6 onward.
* The category “Subject and Learning Outcomes” is confusing on account of the higher-level but similarly-named “Subject Level Outcomes” encountered on p. 4 (It is not clear if these are possibly *Exit* Level Outcomes?); in addition, in the AG (p. 8), reference is made to “Subject Outcomes” and “Specific Outcomes” in a single paragraph – again it is not clear as to which level of outcomes do *these* refer?

In order to identify the assessment criteria to match the 87 Learning Outcomes it is necessary as mentioned above to turn to the AG, where one finds 87 assessment criteria, but at this level they are referred to as “Assessment Standards”. No explanation of the distinction between “Assessment Standards” and “Assessment Criteria” is provided.

While it is good to have the detail there, and in a competence-based course there have to be learning outcomes and ACs/ASs, but a structure of *six layers,* with confusing, near-identical names, is hard to justify. Apart from the confusion around the naming of the various curriculum elements, it would make better sense for the subject level outcomes and the associated assessment criteria, all to be set out in a single table along the lines of Table 6 below, not scattered over several pages and two documents:

**Table 6: Outcomes and assessment structure for an NCV subject**

|  |  |  |
| --- | --- | --- |
| **SUBJECT-LEVEL OUTCOMES** | **ASSOCIATED ASSESSMENT CRITERIA** | |
| On completion of this subject the student should be able to:   * Apply the principles of electricity in DC and AC networks as well as RL, RC and RLC circuits to measure power and perform related power and error calculations. * Explain the generation and supply of electricity in single- and three-phase systems and perform related measuring and calculations of power. * Apply the principles of earthing in electrical appliances, installations and low voltage distribution systems to check for compliance to safety standards and regulations. * Explain the construction and operation of single- and three-phase transformers and DC and AC electrical machinery to calculate power, performance and efficiency. | * The principles of electricity in DC and AC networks as well as RL, RC and RLC circuits are explained with diagrams and sketches and power is measured and calculated. * The generation and supply of electricity in single- and three-phase systems are explained with diagrams and sketches and power is measured and calculated. * Earthing practices in electrical appliances, installations and low-voltage distribution systems are explained and safety and quality checks are performed. * The construction and operation of single- and three-phase transformers and DC and AC electrical machinery are explained with diagrams and sketches and power, performance and efficiency are calculated. | |
| **Topic 1: Fundamentals of Electricity** | | |
| **Second-tier Outcome: 1.1 Explain DC Networks**  **(Learning Outcomes and Assessment Standards below, as indicated:)** | **Theoretical assessment task/activity** | **Practical assessment task/activity** |
| The student is able to:   * **Define basic terms commonly used within an electrical network (LO)** * The basic terms commonly used within an electrical network are defined (AS)   *Range: Network, network element, branch, junction point, node and loop*   * **List and explain the classification of electrical networks (LO)** * The classification of electrical networks is listed and explained (AS)   *Range: Linear, non-linear, active and passive networks*   * **Calculate unknown voltages, currents and resistance in a circuit (LO)** * Unknown voltages, currents and resistance in a circuit are calculated (AS)   *Range: Series, parallel and series-parallel*   * **State and use Kirchhoff’s laws to determine unknown currents and voltages in a circuit (LO)** * Unknown currents and voltages in a circuit are calculated using Kirchhoff’s laws (AS)   *Range: Max. with two batteries and a generator* | * Assess the student on the achievement of the learning outcomes listed here. * Given a circuit, students use loops to obtain equations which are solved to determine unknown currents, for example current supplied by generator, current through battery A and B | * Student builds circuits on breadboard, the electrical quantities measured and compared with calculated values using Ohm’s and Kirchhoff’s laws |
| **Second-tier Outcome: 1.2 Explain measuring instruments,** etc., etc. |  |  |
|  |  |  |

The current formulation and layout of these to guidelines documents, unfortunately, makes them unnecessarily time-consuming to work through and confusing.

Some final points need to be made about the *content* of the multi-level competence structure. From the top: the four “Subject Level Outcomes” and “Associated Assessment Criteria” do appear to set out the shape and scope of the subject, and each of them involves a mix of theoretical knowledge and practical skill, of systematic content knowledge and knowing “how”. If the five overarching “Topics” are freed from the confusing “Subject and Learning Outcomes” label, they provide a content-based “lens” for viewing the course that draws attention to the role of systematic content knowledge in the subject and is not incompatible with the four “Subject Level Outcomes”.

However, the challenges in the lower levels of the competence structure already mentioned, are compounded when you scrutinise what these levels contain. While theoretical assessment and practical assessment are well differentiated in the “Assessment Tasks or Activities” cells of the structure tables in Section 3 of the AG, many of the 87 Learning Outcomes and Assessment Standards are described in the language of content-based learning rather than competence. The verbs are predominantly ones that indicate content-based assessment: “list”, “explain”, “define”, etc. This unfortunately means that the learning outcomes and assessment criteria are weakly conceptualised if they only require listing, explaining and providing definitions as indicators of competence.

The last, point to be made about the competence structure is the unworkability of having 87 *learning outcomes* for one subject. See what Biggs has to say on this:

*Another problem we have come across is that teachers start with the topics to be taught and then they try to write (learning) outcomes for those topics. In delivering a course, there might be say ten topics to be taught, but in writing several outcomes for each topic, a massive set of 30 or more outcomes would be created, which is unmanageable; you can’t align teaching/learning activities and assessment tasks to 30 outcomes* (Biggs and Tang, 2011, p. 120)

Perhaps the NCV guidelines take very literally the *teacher-centred* definition of learning outcomes as describing what learners are expected to be able to do by the end of a course. Perhaps it is fair that electricians could be expected to be able do 87 things as a result of completing this one subject. But these are normally captured in a relatively large number of detailed *assessment criteria*, which *together* enable a judgement to be made as to whether the student is competent, or what their *level* of competence is, in terms of a *handful* of learning outcomes, expressed at a much more general level of competence.

### Activity 16: Occupational Certificate: Electrician

**Time needed: 40 minutes**

Click link to access [Reading 4](#Reading_4), the extracts from the *SAQA-registered Occupational Certificate: Electrician*.

1. Comment on the quality of information provided in this curriculum document. What particular features strike you when you compare it to the NCV documents? How does it convey the mix of content knowledge and practical skill?

2. The two curriculum documents are pegged at the same level (NQF Level 4). What other similarities (or differences) can you find? What do you notice when you compare the learning outcomes in the NCV extracts with the learning outcomes in the Occupational Certificate?

3. Analyse and comment on the competence structure of this curriculum (learning outcomes, assessment criteria, etc.) Which approach to describing curriculum do you prefer, and why?

Discussion of the activity

The information provided is business-like and trimmed down. The document seems to avoid presenting itself as “guidelines”, and conveys what it needs to convey about assessment procedures in just two brief paragraphs.

On the other hand, two sections that are given detailed attention are the Rationale for the qualification and International Comparability – both are indicative of priorities in the minds of the curriculum planners. The first point to be emphasised in the Rationale section is the full-participation partnerships with industry, and an extensive range of employers – a defining feature of the Dual System-type model that is being adopted in the Occupational Certificates, the Centres of Specialisation and the Strategic Integrated Projects (SIPs). International Comparability is seen as important presumably because a priority of the new Occupational Certificate qualifications is to remain up-to-date, relevant and responsive to the needs of the labour market, including the international labour market.

Another notable feature is the avoidance of OBET jargon, which is reduced to the bare minimum. Following a crisp statement of the qualification’s purpose, and without a separate heading, the five key competences to be developed are spelt out briefly as things “the qualified learner will be able to (do)” rather than as “Subject Level Outcomes” or any such category. The actual Exit Level Outcomes are listed later, but are worded so as to be compatible with these key competences.

Under the heading “Qualification Rules” we read that “This qualification is made up of the following compulsory Knowledge and Practical Skill Modules”. Knowledge Modules, Practical Skill Modules and Work Experience Modules are then set out in very simple competence language (i.e. in terms of things the graduated student will be able to do), together with the NQF Level and number of credits, for example “Install, wire and connect electrical equipment and control systems, NQF Level 4, Credits 38.” The total number of credits for each type of module provides an immediate and clear indication of the relative weighting of knowledge and practical skills.

The simple structure of Knowledge Modules, Practical Skill Modules and Work Experience Modules means that there is no confusion related to multiple levels of outcomes, and no content-based indicators (“explain”, “list”, “define”, etc.) masquerading as outcomes-based learning outcomes such as one finds in the NCV curriculum documents. The new Occupational Certificates follow the traditional practice of presenting the *detail* of the intended competences in the Assessment Criteria section, where detail is to be expected and makes the most sense.

All-in-all, the designers of the new Occupational Certificates seem to have taken aboard many lessons learnt from earlier TVET curricula, and to be motivated by a need to shed technocratic jargon and unnecessary complexity.

Unit 3 has shown that the curriculum process offers scope for lecturer agency in the form of mediating and interpreting the curriculum.

# Unit 4: Planning your lessons

## Outcomes

This unit should enable you to make appropriate, justifiable curriculum decisions in developing work schemes and lesson plans that are contextually relevant and engaging for your students. By the end of this unit you should be able to:

1. Ask the key questions that will guide your planning and develop an adaptable lesson planning format
2. Identify and write SMART lesson outcomes
3. Plan and prepare a sound, professional lesson plans aligned to learning outcomes
4. Plan impactful lessons that will link theory to practice, challenging your students to engage in deep learning at a range of cognitive levels
5. Plan assessment and feedback as an integral part of the students’ learning.

## Introduction

This unit focuses on translating the curriculum into quality lesson plans.

It aims to do more than merely provide you with routine lesson plan templates. Rather, its purpose is to enable you to use the planning process to craft innovative and effective, professional lessons that you will be proud of, building on insights you have gained in the previous units.

The most important of those insights is that as a professional (and therefore as an agent), you are in fact empowered to do so much more than just “implement” or “cover” the curriculum, “transmitting” the basic content of your subject to your students as efficiently as you can so that as many as possible will pass the examination.

Instead, as you have seen in Unit 3, the pedagogic content knowledge you’ve acquired and your professional understanding of curriculum matters give you the authority to interpret the official curriculum and mediate it to your students in ways that will challenge them, surprise them, hold their attention, and enable them to truly master the subject *and* ace the exam.

To craft innovative, effective and professional lessons, there will be many considerations to bear in mind beyond the technical structuring of a lesson plan. These broader pedagogical priorities and considerations will be discussed briefly in appropriate sections throughout this unit.

However, for your convenience they are also gathered together, in one-line summary form, in a listat the end of the unit. The list is not comprehensive, and is merely included as a sort of memory aid should you wish to use it.

## The importance of being well-prepared

*The better prepared a TVET teacher is, the more likely it is that the teacher will feel safe and professional in the classroom or workshop* (Boehner, 2017a, p. 19).

If you plan and prepare your lessons thoroughly beforehand, it is more likely that:

* You will choose appropriate, engaging and effective teaching methods,
* you will be more relaxed and confident, and thus in a position to organise and conduct the lesson professionally and smoothly,
* You will gain the students’ respect, and
* The students will therefore tend to be co-operative and, in the case of younger students, less inclined to be disruptive.

If they *are* inclined to be unruly or uncooperative, part of your planning and preparation should be to think through how best to handle such behaviour, and to collect a good stock of responses for preventing bad behaviour or dealing with the odd misdemeanour, and turning it into a teaching/ learning opportunity. See the Module, *Managing the TVET Classroom for* further and detailed discussion on discipline.

Lecturers who are good at improvising may survive for a time by “winging it” without much planning *if* they can draw on a rich body of teaching experience. But they should not deceive themselves into thinking that this sort of improvising (ad-libbing)on a daily basis will be sufficient to carry them or their students far. It is unprofessional, and eventually the message will get through to the students that they are not regarded as worthy of being treated in a professional way. It is also not good for one’s self-esteem as a lecturer (Boehner, 2017a).

### Stop and think

Have you ever taught a lesson which you did not put much planning and preparation into, but which turned out briliantly? If so, why do you think this happened? What factors do you think produced the success? Did you conclude that this proves planning and preparation aren’t really necessary?

Discuss this with a colleague if possible and write down your responses in your Learning Journal. It’s an interesting theme to explore.

Most of us are capable of improvising a great lesson on occasion when we have to, but few of us implement a great lesson on a regular, ongoing basis without having a plan. or a “script” may have the effect of freeing up our spontaneity, and factors like humour can also help, but these are not the most reliable supports to good teaching over the long term. It’s also possible that our sense of relief at *not* having delivered such a bad lesson after all may be apt to blunt our ability to judge our own performance, so that the bright rays emanating from the more positive moments of the lesson may tend to blind us to the things we didn’t pay attention to.

Planning and preparing does not necessitate a load of extra work. In one’s first two or three years of lecturing there *is* more to do, certainly, but it is precisely in those years that the need to plan and to be prepared is most pressing. It is then that lecturers stand to lose the most by appearing before a class of students ill prepared, and when students can be most unforgiving. It is also as novice lecturers that they will be most in need of the confidence to be gained from knowing that they have prepared as well as possible. Fortunately, it is in one’s first years of teaching that it is easiest to seek support from more experienced colleagues, possibly even borrowing ideas and ready-made materials, and benefitting from the advice of officially-appointed mentors if their college observes a policy of providing such support.

A different challenge, on the other hand, is often experienced by more seasoned lecturers. For them the familiarity of teaching what may have become routine over the years, compounded by the weight of additional responsibilities, poses the temptation to skimp on planning and proper preparation, or do without them altogether. It is all too easy in these circumstances simply to repeat plans from the previous year. There are probably worse failings, particularly if the lecturer has built up a good stock of effective and successful plans and teaching approaches. Unfortunately, after two or three repeats, the presentation of content becomes “routinised” is likely to lose its interest and excitement for the *lecturer* concerned. Good lecturers know the importance of revisiting, every year, their lecture plans, teaching methods, notes, power point presentations and other materials so that they can face their new classes of students with fresh ideas, and no loss of their old enthusiasm for their subject.

## Designing a work scheme or *series* of lessons

For lecturers to conduct professional, i.e. meaningful, structured and consecutively coherent lessons, series planning is very important (Boehner, 2017a, p. 19). Series planning may refer to a year plan, a work scheme for a semester or trimester, or planning for a series of lessons around a particular section of work that forms part of one of these.

In your college there may be a top-down design process for year plans and work schemes that you are not part of. On the other hand, the work scheme may be the product of a collaborative and collegial planning process, or it may be entirely up to you. The format used may vary from college to college or region to region, and according to the discipline.

However, public TVET colleges are bound to insist on some sort of planning framework that is applicable institution-wide and that safeguards internal standards as well as ensuring the implementation of formal curricula. These work schemes will be less detailed than your own lesson plans, and focus on more basic information such as topics, sub-topics, timeframes, learning outcomes and assessment procedures. Methodological planning in detail and on a daily basis (i.e. lesson plans) should be considered the “pedagogical prerogative” of individual lecturers and left to them (Boehner, 2017a).

Certain pedagogic considerations need to be taken into account in planning for effective teaching and learning over the longer term (e.g. for a trimester, semester or year), rather than for individual lessons. If you do not have a hand in designing the year plans or work schemes that will structure your teaching over the longer term, it will still be wise to craft your own more detailed plan to accompany the work scheme provided, or at least make your own notes, giving consideration to the following points:

* Identifying and *prioritising important learning* – in particular, being clear about which important concepts the students absolutely have to develop over the course of the programme. As you saw in Unit 3, a *realistic* appraisal of the limited time available to complete the curriculum is a key factor in decision-making here.
* Asking *what value will be added* for the students (i.e. what will they gain) as a result of their learning during this course or series of lessons – what will they know, or be able to do, and how will their values or attitudes change, as a result of the teaching/learning experience? (Butcher *et al*, 2006, p. 20).
* Checking*fitness for purpose* – asking whether the intended learning (both prioritised and that which is perceived to be of lower priority but included in the curriculum) is appropriate for the students’ needs, abilities and employability.

In public TVET colleges following official curricula, the question of *fitness of**purpose* – whether the learning is indeed appropriate to the standards and expectations associated with the *qualification* that the students are seeking – is largely settled by the curriculum documents, having been decided during the curriculum design stage. This question is therefore only relevant when deciding whether to include any element that is not mentioned in the official curriculum but is perceived by the college and the lecturers concerned as vital (for instance, in order to bring the course up to date).

* Designing a *sequence of lessons and learning activities that will build on one another* over time to support the students in achieving the desired learning outcomes and overall competence. Pose this principle in the form of a quick question at the start of planning the series, and again as you plan each lesson: “Will this be likely to support the students in achieving the desired learning outcomes and overall competence?”
* Identifying the *timing and pacing* of the prioritised learning so that it is given the necessary attention and time required for mastery. Then try as far as possible to divide your work scheme into *manageable units that can be taught within single lessons.* This can make the difference between merely “covering the curriculum” and meaningful, step-by-step progression in learning (New Zealand Ministry of Education, 2013).
* Considering in some detail the crucial question: *Who are the learners?*If one starts this way, it is likely to become second nature to imagine how the students are likely to respond to lessons and teaching approaches every time you plan a lesson.

To teach students effectively, you need to know something about them (both as a class and as individuals): their learning needs, prior knowledge, experience and interests, and what is important to them.

Planning involves finding out about the students in front of you. During the first class session of a course, you could devote 20 minutes to an activity such as “Post-box” to help you do this. Provide question slips that will yield insights into the students’ lives and aspirations, for example: “What are you passionate about?” “What would your ideal job be?” “How do you spend your leisure time?” “What would you do with R1,000?” “Who do you admire the most, and why?” Consider having the students sort the *anonymous* answers and group the information on the whiteboard as a discussion starter (New Zealand Ministry of Education, 2013).

Catering to students’ *diverse learning needs* and preferences means providing, where possible, more than one learning option for students who may not be able to avail themselves of the one planned, and planning such things as group seating in the classroom.

* Making decisions as to the kind of *learning culture* that you will try to foster over the duration of the course, such as:
  + Consistently ensuring that the theoretical, systematic knowledge is always presented (or researched by the students) with a view to *supporting the development of practical expertise and working competence.* And ensuring that the corollary of this principle is also applied: that functioning knowledge and skill (knowing *how*) is not taught without developing *a systematic understanding of why things work as they do* (knowing *why* and knowing *that*). Even “just-in-time” technical and vocational teaching needs to be founded on and followed up with the necessary theoretical content.
  + Providing a variety of the sort of *challenges* that give rise to deep learning and elicit higher-order cognitive responses (applying, analysing, evaluating and creating), and maximum opportunities for *active, self-directed, exploratory and experiential learning***.**
  + Building a climate of respect for the learning process – *acceptance of mistakes* (one’s own and those made by others) as a part of learning. Students need to know they will not be shamed or embarrassed. Develop strategies for dealing with misconceptions: e.g. Keep and accumulate a “misconception bank” and use the entries you collect to create a quiz to use as a formative assessment activity.
  + Learning seen as a shared process – learners take responsibility for their own learning, but learning is also seen as a *social* process, more productive and enjoyable if cooperative rather than competitive. (This does not of course preclude *group competition* or self-competition in the context of gamification in certain learning activities).
  + Encouraging, modelling and providing frequent opportunities for *reflection* on things learnt and experienced in the classroom and workshop.
* Checking whether the *necessary resources* are available to enable the students to achieve the intended learning (library, internet, computers, access to staff and time). Include or

### Stop and think

|  |
| --- |
| Draft a brief “manifesto” or a proposal for the classes that you teach in your Learning Journal, setting out the elements that would constitute the kind of *learning culture* you would like to establish over the duration of your courses.   * The elements you choose to promote do not have to resemble the ones advocated above. * Give consideration to what will benefit the students as well as your own personal preferences. |

## Planning individual lessons

As lesson plans are individual tools which serve the lecturer both as a means of translating the curriculum into enacted practice and as a record of teaching and teaching competence for accountability purposes, the format should be left to the author. Provided that:

* It’s clear that a lesson is planned,
* The lesson proves to have been well thought through,
* It accommodates the needs of the students, and
* It’s aligned to the stated learning outcomes,

any form of lesson plan that can convey these qualities will suffice.

Lesson plans are expected to pay attention to the requirements of official curriculum and institutional work scheme, but beyond that there is usually a degree of professional freedom for lecturers to plan in accordance with their own content knowledge and pedagogic content knowledge. Generally, lesson plans that are set out in the form of a table have been found to work well (Boehner, 2017a, p. 21), as they are easy to refer to for both lecturing and monitoring purposes. However, you can adapt the format in whatever way suits you and is acceptable to those monitoring teaching at your college.

Your college may insist on your using an existing template, in which case remember that such forms will have been designed to ensure *minimum* compliance with curriculum requirements. It is still possible to include elements *in addition* to the stipulated minimum, so don’t let such requirements constrain your creativity. Simply add what you need to in the way of additional or alternative elements in your lesson, if necessary modifying the wording of headings in the template.

As you will see in the next section, the underlying*structure* of most TVET lessons is best understood in terms of *five essential phases* which may be modified in various ways. Another way of planning a lesson is to ask the *twelve key questions*set out in Table 7 below. These questions cover important aspects of lessons that cannot be thought of as phases, so the questions and the phases are complementary, and should be used together.

The planning elements and the 5-phase structure are all built into the lesson planning template, and after using this for a week you should find that the process will become second nature, and it should not take you more than 15 minutes to draw up a basic lesson plan. (Preparation of any materials or resources needed may of course take longer.)

**Note:** A video, *Lesson planning for TVET*, is also available (see the link in Activity 17 below) to introduce the template step-by-step while also drawing together the various discussion threads that make up Units 2, 3 and 4.

**Table 7: Twelve lesson planning elements and key questions**

|  |  |
| --- | --- |
| **Lesson planning elements** | **Associated questions** |
| Teaching aims/lesson rationale | Why am I teaching this, and proposing to do so in this way? |
| Learning outcomes | What should the students be able to do/what changes in attitude or behaviour are intended? |
| Content | What content knowledge will be best suited to achieving the aims *and* outcomes? |
| Teaching/learning methods | How am I planning to enable this learning? |
| Resources/materials/equipment | What resources/materials/equipment will I need / will the students need? |
| Inclusion | What allowances will I make for diversity and different levels of ability? |
| Formative assessment and feedback from students | How will I – and the students – know whether they are following and/or how they are progressing in the lesson? What was successful, and what did not work so well? |
| Post-assessment | How will I know that the students have achieved the learning outcomes? |
| Learning environment | What sort of learning environment and support will the students need, and should the learning environment be extended beyond the classroom or workshop? |
| Student output | What sort of output, if any, should the students be expected to produce – written/product of some sort? |
| Lecturer self-reflection and review | How might the lesson be improved? |
| Closure | What key concepts or terms do I want the students to *take away* – and bring back to the next lesson? |

## The backbone of lesson plans: Five lesson phases

*The format of detailed teaching plans should be left to individual teachers, as they know best what goes best with their needs* (Boehner, 2017a, p. 20)

Given that lesson plans are the tools of preparation of individual lecturers, the five phases of good lessons indicated below are strongly recommended as a basis on which to construct most if not all of your lesson plans. There are many such schema in existence; some of them make for dull, monotonous teaching, or do little more than state the obvious (e.g. “A lesson plan must have an introduction, presentation and application”).

There are no *absolutely* mandatory phases to be followed in crafting lesson plans, but most TVET lessons include the following five phases in one form or other. This structure can of course be modified, and the phases can be presented in different proportions or sequences. Sometimes almost an entire lesson could be devoted to a demonstration, lecture and question-and-answer, or to a self-directed student activity; or short periods of *reflection* (the fifth phase) may be interspersed throughout the lesson rather than being situated at the end.

But a lesson that, for example, left out phase 1, 4 or 5 altogether would in some ways lack balance and be pedagogically and professionally incomplete. The model below can be applied to almost any TVET lessons, whether they take place in a classroom, lecture theatre or workshop. This holds good for lessons ranging from 40 minutes’ duration to practical block periods that may be many hours long.

As stated, the *sequence* of the phases is not rigid; however, there is a clear logic to the basic sequence indicated here, as each phase builds on one that precedes it (Boehner, 2017. pp. 15-17).

**Phase 1:** Create curiosity (surprise students), and spur motivation;

build on students’ own experience/previous learning; show relevance to

the development of practical expertise or some aspect of work

**Phase 2:** Provide clear instructions for the learning activity, and any *necessary* content input

**Phase 3:** Students engage in self-directed and often co-operative work; the lecturer acts as supportive facilitator, organiser and expert when necessary (scaffolding)

**Phase 4:** Individual/group presentation of work done, and/or discussion

**Phase 5:** Reflection on results, findings, process and/or own learning; Closure/what have you learnt?

**Figure 9: Typical phases in a competence-based TVET lesson Source:**

Source: Based on Boehner, (2017. p. 15).

Each of the phases is discussed below. For examples of methods that can be used in each phase, click link to access the [Teaching Resources Pack](#_Teaching_Resources_Pack).

**Phase 1 – Key elements**

|  |  |
| --- | --- |
| * Create curiosity * Create surprise | * Link to previous relevant learning or everyday knowledge * Motivate to learn further |

Your first task is to arouse the students’ interest, either by surprising them with something unexpected or creating curiosity. A surprising (but relevant) fact, a puzzling or seemingly out-of-place action on your part, or strange image, an apparently impossible challenge (but one that turns out to be achievable), a relevant but seemingly weird saying by someone like Albert Einstein – just google these; there are scores of them – these are the sorts of stimuli you can use to grab students’ attention and “instigate” an enthusiasm for learning what it is you have to teach.

Then, or at the same time, make a conscious effort to connect the lesson to relevant experiences the students have already had – either to previous relevant learning or to their everyday knowledge, so that the students can assimilate the new learning into a frame of reference that they have already developed. For example, when introducing Business Studies concepts such as prioritising, confidentiality, accountability or reliability, refer students to part-time jobs, involvement in clubs, or monthly/weekly budgeting for food.

Sometimes students can be encouraged to share in determining the points of focus for the lesson ahead. For example, if the lesson topic allows for it, you could consider inviting them to suggest the *sequence* of sub-topics to be explored, or which questions should be asked in order to understand the topic.

### Stop and think

This is not the same as handing over responsibility for lesson planning to the students. It is simply a matter of intentionally *sharing* some of that responsibility in an already well-planned lesson, i.e. *authorising* the students to take some of the responsibility for steering their learning – not a bad idea for post-school students.

Your other concern in this phase is to *motivate* the students to want to learn more. Arousing curiosity is a useful way to generate motivation, as are explicit links to employability and the world of work. Sometimes it’s possible to link the lesson to the particular interests of at least some of the students, or to a recent issue or event that has attracted public attention; however, take care not to let any links of this sort seem contrived. They are also less important than arousing curiosity, connecting with students’ *prior knowledge* or *experience*, and linking the lesson to the world of work and practice that lies ahead.

One last point about the first phase. Time will always be limited. So if you plan to begin the lesson with an activity (such as a “Fishbowl” or “Learning Coach” – click on Resources below) in order to achieve the Phase 1 aims, it will be best to make sure that it either becomes the main activity for the lesson, or leads straight into that activity. Trying to pack too many co-operative learning activities into a single lesson can also end up confusing the students. If, on the other hand, you want to achieve an *additional* aim such as beginning a new section of the curriculum with an activity to assess the extent of the students’ relevant prior knowledge (baseline assessment), it is justifiable to devote the necessary time to conducting a short activity like “Background knowledge probe”

**Phase 2 – Key elements**

|  |  |
| --- | --- |
| * Information input * Convey any subject content that is necessary | * instructions for the learning activity to come |

At this point, the lecturer explains the learning task or problem to be solved (or perhaps *identified*) by students, and provides clear and exact instructions, such as the time available for independent work, and the exact arrangements for individual, pair or group work.

A very important consideration here is that whatever activity you plan, the students should be able to identify its purpose, or relevance to the course or expected learning outcome. If on a rare occasion you decide, for good pedagogic reasons, to introduce an activity that may mystify the students as to its relevance, you need to prepare them for this in some way (for instance, by assuring them that although they may be in doubt at first, they will soon see the significance of the activity).

Next, introduce the learning resource(s) needed for the activity. Whether print, physical objects, equipment or materials, these *must* be thoroughly prepared before the lesson. Instructions need to reveal the *expectations* regarding the final product. If necessary, provide the students with the relevant technical background at this point, for instance a short interactive lecture or presentation of the foundational information needed.

This lecturer-directed phase should, like the first phase, take up as little time as possible. Consider saving time and ensuring that all the students have a very clear idea (and as far as possible the *same* idea) of what they have to do, by preparing a sheet of instructions or necessary information which you can give out at the most suitable point in the lesson.

Learning activities may involve exercising higher-order cognitive skills in problem identification, problem-based, case study-based or scenario-based learning, product design, or research. These should be *high-challenge* but *low-threat*. The problem selected should be interesting to tackle and sufficiently complex to pose a challenge and engross the students, but should not be so far outside their zone of proximal development that they become afraid to say anything lest they embarrass themselves.

If a new topic is introduced, if the students are absolute beginners without any relevant prior experience, or if for some reason they are likely to fail when asked to research the information for themselves (with materials provided), it would be appropriate to give a brief, self-contained and illustrated lecture or demonstration, or to conduct a question-and-answer session. Otherwise dispense with these if the students will be discovering the facts, mechanisms or procedures for themselves. Don’t let yourself be entrapped by tradition into thinking that “the lecturer’s job is to lecture”. This may often be the case, but clinging to a belief like this is a recipe for mediocrity in teaching.

However, having said this, there are many times in vocational and technical teaching when systematic subject content knowledge *must* come to the fore, in which case don’t let yourself be entrapped by the (newer) belief that lecturing should be avoided and that the lecturer’s role is solely that of a *facilitator*! Directive teaching, too, has its place.

### Stop, step back, andthink!

If you sense that there is a pedagogical contradiction looming here, or at least that there are two opposing ideas about TVET teaching in tension with each other, you are quite right. To a large extent this is a pedagogical issue, about whether directive, transmission-model “instruction” (which will probably remind you of the “performance curriculum” – see p.35) should be replaced by constructivist-model mediation (the lecturer in the role of facilitator, coach and “scaffolder”, developing self-directed learning in the students – which should remind you of the “competence curriculum”).

This issue is of course also related to those other ideas-in-tension in the TVET domain: *theory* or *practice*, or the importance of building *systematic subject knowledge* vs that of developing *practical skill*. But the relationship between these two pairs of ideas-in-tension is *not*a simple one! *It would be wrong to think that the need for theoretical understanding points only to the need for lectures, while the need for developing practical skill points to the need for constructivist, facilitator-led teaching and self-directed learning – or to the straightforward need for practical work for that matter.*

Theoretical input from the lecturer does not only manifest itself in the form of lectures – it also happens in demonstations, and in “scaffolding”. But whatever form it takes, it should *feed into* the students’ development of their practical understanding and skill; likewise, students’ theoretical understanding will be enriched when they apply it in practice. On the other hand more exploratory, experimental, *faciltator*-led lessons that make use of problem-solving, problem identification and research to develop students’ ability as self-directed learners and problem-solvers promotes the development *of both* theoretical understanding *and* practical expertise – i.e. working competence.

Returning to the initial dilemma which gave rise to this “think box” – between being a lecturer or being a facilitator: fortunately, it is a question which only *lecturers* have to decide for themselves (i.e. you have to decide for yourself). Virtually everyone else – those who conduct research and/or write about these matters have for many years agreed about one thing: that *both* lecturing/directive teaching/building systematic knowledge*and* facilitative teaching/guiding problem-based learning/building practical expertise *are indispensable and complement each other*.

*Good* technical and vocational teaching and learning clearly requires *both forms of pedagogy* in combination – however, not necessarily in equal “doses”, especially where time in the classroom is concerned. As you read on p. 96, content knowledge in TVET must be *in the service of practical expertise*: “knowing and thinking, in the context of vocational education, have to be taught in such a way that they readily come to mind, and are useful, *in practical situations*” (Lucas *et al*, 2013, p. 38).

Finding the right balance here is a matter of realising that, generally speaking, the more you as the lecturer “dominate the classroom discourse”, the less opportunity students have to make sense of whatever it is they have to learn; that *active* students make better learners than *passive* students; and that as a rule of thumb, you can probably be a much more effective teacher by lecturing less than *you* were lectured to as a student.

And constantly try to make sure that your inputs (mini-lectures or longer) constantly refer forward to practical situations.

**Phase 3 – Key elements**

|  |  |
| --- | --- |
| * A variety of self-directed, goal-driven work * Authentic and therefore meaningful tasks, with a clear relationship to the development of practical expertise | * Permission to be wrong * Challenge |

In a typical lesson, this phase is likely to take up the largest part of the time available, as students will in all likelihood be exploring, questioning, discussing, comparing, experimenting (possibly thought experiments), recording observations, seeking advice, possibly researching online or engaging in a multitude of other possible activity. In most of this activity their learning will be self-directed (though supported by the lecturer), and is often conducted in interaction with their fellow students.

Students are not always ready to work in a self-directed fashion. If this does not form part of their expectations for learning in college, they may exhibit or even express resistance. In addition to learning their subjects, students also need to learn to *take responsibility* for their learning, reflect on their own progress, and take action to maximise their learning – but in most cases they will need support in order to do this. This support should firstly take the form of thoughtfully-devised activities, in which the main considerations are:

* High expectations and challenge (but low-threat)
* A safe space to make mistakes and pursue incorrect understandings
* Thoughtful “scaffolding” (the lecturer’s purposeful use of challenge, guidance, modelling, and support while increasingly encouraging students to take responsibility for their own learning – removing or “fading” the support as the students are ready to move forward)
* Authenticity (activities clearly linked to the world of work and the development of practical expertise)
* A variety of types of activity.

Obviously, all this activity needs to be set in motion by the lecturer with a view to achieving *deep learning*, definitely not merely for the sake of keeping the students busy. Entwistle (2005) distinguishes three approaches to learning that may be adopted by students. These different approaches can be seen in the behaviour of students in all sectors of post-school education and training, including TVET:

|  |
| --- |
| **Defining features of approaches to learning** |
| **Deep Approach:** Transforming Intention – to *understand ideas for yourself* by:  Relating ideas to previous knowledge and experience  Looking for patterns and underlying principles  Checking evidence and relating it to conclusions  Examining logic and argument cautiously and critically  Becoming actively interested in the course content |
| **Surface Approach:** Reproducing Intention – to *cope* with course requirements by:  Studying without reflecting on either purpose or strategy  Treating the course as unrelated bits of knowledge  Memorising facts and procedures routinely  Finding difficulty in making sense of new ideas presented  Feeling undue pressure and worry about work |
| **Strategic Approach**: Organising Intention – to *achieve the highest possible grades* by:  Putting consistent effort into studying  Managing time and effort effectively  Being alert to assessment requirements and criteria  Gearing work to the perceived preferences of lecturers |

While initial research on students’ study behaviour had tended to assume that such approaches were simply characteristic of different types of student, Entwistle is very clear about the relative importance of the *quality of teaching* and to some extent the educational *institution* in producing such different behaviours. In an earlier article, Entwistle quotes as follows:

*Good teaching” in my opinion stimulates self-activity, i.e. not only knowing dry facts, but awakening curiosity for backgrounds, relationships, etc. ... (It) involves the students as much as possible in the subject matter... (through) being open to criticism ... and discussing (the topic) ... with the students, so that all gain something from it. The teacher is then a guide....* (van Rossum and Taylor, 1987, cited in Entwistle, 1993, p. 8).

It is not too difficult to see that the kind of authentic, challenging and intrinsically-motivating tasks advocated under Phase 2 and Phase 3 are geared to elicit the behaviour described as deep learning, and to discourage surface learning and even the strategic approach that only focuses on achieving good exam results.

### Stop and think

A number of important ideas are converging as we focus attention on planning lessons. Think back to the previous Think Box. What connections do you see between combining both lecturing and facilitation in the service of developing practical expertise, and *teaching towards deep learning*?

This all strongly suggests that the roles of the lecturer in this phase must be those of supportive facilitator, organiser, poser of questions and advisor when necessary, as well as informal assessor. Lecturers often attest to feeling quite different about their role in this sort of lesson, as they have had in many cases to adjust from being the “sage on the stage” to being the “guide on the side”. Of course, their energies and focus during the activity are generally directed in very different ways from those of the traditional lecturer, and some attest to such lessons being quite strenuous (because of the multiple roles the lecturer performs), but they usually also agree that at the same time they felt “buoyed up” by the excitement and first-hand learning that is generated.

**Phase 4 – Key elements**

|  |  |  |
| --- | --- | --- |
| * Presentation | * Discussion | * Students’ voice |

It’s usual to follow the activity of Phase 3 by providing an opportunity for either some form of de-briefing report-back, or a presentation of results, be it in the form of a physical product that the students have fabricated manually or an oral, poster-based or multimedia presentation. This is often followed by an opportunity for the process and/or the devised product or solution to be discussed, usually in some form of plenary session.

It is important to make sure there are plenty of opportunities for the students to voice their own views and understanding (even if they are mistaken to begin with) and to exchange opinions. This is the obvious phase in which this should take place, but naturally it can also take place in all five phases.

Student discussion, either with peers or with the lecturer, can become animated at times, threatening to make the entire lesson overrun the time available, so this may need careful management. It is certainly sensible to have this particular phase set aside for the students to present and discuss the matter of the lesson, even if they are welcome to ask questions or make contributions during the other phases. But it’s also wise to have a visible time frame for the discussion, and to call a halt after giving a warning, such as “Two more questions, then we have to close this conversation to allow time for …” or “We have three minutes left, then we have to wrap it up.”

**Phase 5 – Key element**

|  |
| --- |
| * Reflection * Closure |

This phase is often omitted, but a great deal of research has shown that students always need to reflect on their learning process and outcome. For one thing, reflection helps them to become properly aware, in a *meta*cognitive way, of what they have learnt, done or in other ways achieved. It has been argued that the human species, contrary to what many think, does *not* necessarily learn by experience as such, but rather that we learn better by *reflecting* on experience. Reflection also creates a space to evaluate our efforts and think about possible improvements.

In addition, reflection enhances *long-term* retention of what has been learnt, and fosters the development of competence through building self-awareness – what we are capable of, and what we still need to work on (Boehner, 2017a, p. 16).

Reflection may be conducted in a variety of ways – in plenary, in groups, pairs or individually, in learning journals or some other written form of expression, depending on the time available, the activity’s purpose in terms of the learning outcomes, or possible issues of trust and confidentiality.

This phase also includes closure of the lesson, which may be incorporated in the reflection: a moment to refer to how the learning links to the LOs, and to what learning is to follow, and/or possibly what key points the students need to “take away” with them.

In conclusion, the phases are not carved in stone. Lecturers can, for example, plan to interrupt a long working phase with short reflection “breakaways”, or interject with further instructions, challenges or additional information. Other phases may be added, and it may be necessary to return to an earlier lesson to clarify something that is now causing confusion, or to fill in a gap in understanding.

Although plans may differ for theory lessons, demonstrations, simulations or workshop practicals, these five phases are generally applicable. Even in so-called theory lessons, problems and concepts that relate to work-relevant situations should still be dealt with. And lecturers presenting demonstrations should take note of the phase structure and ensure that students observe and listen actively during demonstrations, for example by handing out observation sheets with questions to be answered by each student in writing.

### Activity 17: Preparing a lesson plan

**Suggested time: 2.5 hours**

A blank WORD document lesson plan template is provided for your reference. Click the link to access a copy of the blank [Lesson Plan Template](#Lesson_Plan_Template). You can download and adapt it by adding or removing cells as you find necessary. The Lesson Plan Template is also exemplified below.

A template designed for a “flipped” lesson is also available. Click link to access this template in the [Teaching Resources Pack](#Teaching_Resources_Pack).

First, have a careful look at the sample template, then watch the video: Lesson Planning for TVET

Link: <https://youtu.be/bjneGkHkRfU> [Duration 15:07 CCBY].

Ensure that you have a pen and notepad or your Learning Journal at hand. Write down any questions you may have or notes you want to make. Pause the video wherever you like if you want to listen to the narrator again, re-read a slide or jot down a note.

Once you have watched the video, design a lesson plan for a subject you might need to teach later this week, use, and if necessary adapt, a copy of the sample template. Use the questions in Table 7 above to guide you.

When you have done all this, respond to the following questions in your Learning Journal:

1. Which did you find more helpful: filling in the template, or asking the questions related to the lesson elements? Why do you think this was the case?
2. Did you find the template to be helpful, or more of a constraint? If you found it necessary to modify the template, highlight the adaptations you made, and briefly note down whether you think the need to adapt it might stem from your particular teaching style, the nature of this particular lesson or subject matter, or some other factor.
3. Use either of the lesson planning templates to plan your lessons over the week ahead, taking note of the following:
   1. How helpful or constraining did you find the template to be in regular practice?
   2. Did you find that you needed to make *further* adaptations to the template, or not?
   3. Reflect for a minute: did planning your lessons in this manner have any influence on the way you actually taught the lessons? If so, how did it influence your teaching; if not, why not

Sample Lesson Plan Template

(Remove or add rows/cells as required)

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecturer** |  | **Date** |  |
| **Lesson Title** | *(Your own title for the lesson.)* | | |
| **Programme, Level** |  | **Subject** |  |
| **Module/Topic** | *(“Topics” as in 5 main Topics in NCV Subject Guidelines.)* | | |
| **Teaching Aims/ Rationale** | *(Should not be expressed in the same way as the LOs.)* | | |
| **Learning/Subject Outcomes** | *(e.g. By the end of this unit, you should be able to:… Generally one, or part of one LO, but not more than two LOs in a lesson, unless “extras” are critical cross-field or developmental outcomes)* | | |
| **Assessment Criteria/Standards** | *(Summative assessment and ACs may still be a long way off, but in “backward planning”, the students should know of the ACs as well as the LOs up front.)* | | |
| **Content** | *(What content needs to be introduced to enable students to achieve LOs?*  *Note down one or two key “Takeaway” points)* | | |
| **Overall teaching approach/method** | *(e.g. Demonstration followed by practising of skill; video followed by Q&A and problem- solving; short lecture followed by role-play; jig-saw learn-and-teach lesson, etc.)* | | |
| **Inclusivity** | *(e.g. how will you support your students to learn? What support will you provide to students with special needs and different levels of ability? What activities will you plan for more capable students? Seating plans for group work? How would groups be constituted? etc.)* | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time**  (mins) | **Phase** | **Lecturer activity** | **Student activity** | **Resources/media/equipment** |
| *e.g. 5* | Phase 1: Spur motivation; link to experience or previous learning, & work context | *(Engage attention, create curiosity, spur motivation; link to students’ own experience, previous learning, and/or work context)* | *(Students should preferably by active as early as possible)* | *(Fill in only where applicable)* |
| *5* | Phase 2: Instructions & content input | *(May be printed out: Instructions for activity must be clear; input only what content is necessary for activity)* | *(Students as active listeners/ readers)* |  |
| *25* | Phase 3:Self-directed, cooperative work | *(Checks individuals’ progress; guides; supports; takes note of errors and triumphs; challenges: “Have you tried this…?” )* | *(Self-directed, co-operative work: individually, in pairs or groups)* |  |
| *15* | Phase 4: Presentation & discussion | *(Takes a back seat and takes notes, or acts as “master of ceremonies”)* | *(Students make presentations to class; discussion can be organised in a variety of ways)* |  |
| *10* | Phase 5: Reflection & closure | *(Lecturer in charge of reflection and closure: link to LO(s), key concepts or terms. What will students* ***take away****?)* | *(Students to engage in reflection and writing)* |  |

|  |  |
| --- | --- |
| **Formative assessment and student feedback** | *(Many strategies for FA. Student feedback may include pre- and/or post-assessment, quick checks, e.g. What do the students know already that is relevant? Do they understand the content or can they demonstrate initial competence?)* |
| **Student output** | *(e.g. Written classwork, ‘poster’ presentation or physical product – if any.)* |
| **Extended learning** | *(e.g. Invite someone from the industry/colleague with expertise, downloaded videos for students to watch?)* |

### Discussion of the activity

There are no correct or incorrect responses to these questions, so this discussion will be brief. Whatever you found, if you responded to all five questions you were in fact engaging in professional reflection, curriculum interpretation and mediation. To the extent that you were free to use and adapt a lesson plan format of your choice, you were exercising the professional autonomy discussed in Units 3 and 4.

## Aims, learning outcomes, competencies and competence

It may be that in your college you are expected to copy the aims and learning outcomes at the year, semester or trimester level exactly as they are in the official curriculum documents, or that if they are modified or adapted in any way, this is the responsibility of others. It could be that you will collaborate with other lecturers in crafting work schemes, or that it will be up to you. In all likelihood, though, it will be your job to craft the specific aims and learning outcomes at the lesson level.

**Aims** are broad and general statements of educational intent, and should inform students of the overall purpose of a course, programme or module (Butcher *et al*, 2006, p. 41).

For example,

*To acquire knowledge and practice of acceptable norms and ethics applicable* in the business world in terms of self-development, interpersonal relationships and social interaction.

(NATED Syllabus (2019): Management Communication N4).

In many lecturers’ lesson plans, learning outcomes have come to replace aims as statements of purpose. However, the lesson aim is often a good feature to retain, since aim statements and learning outcomes themselves have different purposes. Whereas learning outcomes very distinctly set out what *students* can expect to be able *to do* as a result of their learning experience, the *aim* of a lesson conventionally expresses what it is that the *lecturer* aims to achieve in designing the lesson in a particular way. In TVET a lesson may be focused on the students acquiring an element of practical skill or know-*how*, but it could just as easily be focused chiefly on imparting content knowledge (knowing *that*) – or on both. Thus identifying your lesson aim will usually help you to clarify your thinking about the scope of the lesson and the teaching/learning methods and resources you will select to achieve your aim.

**Learning outcomes** need to indicate what students can expect to be able to *do* by the end of a unit of learning, and at the same time what they will be *expected to demonstrate* as a result of the learning in question. They are, in essence, descriptions of competence.

**Exit level outcomes** indicate the minimum competence requirements for credit to be awarded at the point of summative assessment, i.e. at the end of a course when the student may plan to progress to another course, level or qualification. Learning outcomes (including exit level outcomes) should be: Specific, Meaningful, Appropriate, Realistic and Testable (SMART). See further detail below.

**S**pecific They should provide enough detail about particular aspects of the expectations so that it is clear and unambiguous – but *just* enough detail. It is normal practice for additional, or very specific detail to be located in *assessment criteria,* as happens in the new national occupational certificates. A good example would be: “The ability to install, maintain, test and repair below-ground drainage systems and performing basic building work) (an *exit level outcome* for the Occupational Certificate: Plumber, 2018 – note that the Occupational Certificates do not include ordinary learning outcomes)

**M**eaningful They must be clearly related to developing working competence/practical expertise, and written in language that is understandable to others. Clarity is usually added by the criteria against which students will be assessed, but learning outcomes should be clear in their own right.

**A**ppropriate They should satisfy the required standards of the qualification and the official curriculum, but also fit the learners’ level of ability and experience. It should not require very much effort to design learning activities and assessment tasks and criteria that align with (i.e. lead to the achievement of) the learning outcomes

**R**ealistic They must be achievable given time constraints, availability of resources, etc.

**T**estable They must be demonstrable, and it must be possible to discern progress towards, or achievement of the outcomes, though this need not be quantifiable.

Learning outcomes bring certain *benefits* for lecturers and students. One is that they provide an alternative to the pure and endless transmission of content knowledge, which tends to (though it does not need to) elicit only the two lowest levels of cognitive activity in students – memorisation/ recall, and understanding.

Another benefit is that because they are (or should be) set out clearly before the beginning of a course (and especially if they are accompanied by clear assessment criteria), they reduce the mystery, usually encountered in more traditional forms of teaching, that surrounds what the students will be expected to know in order to pass the examination.

Careful attention should be paid to the *wording of learning outcomes,* especially as they will serve different purposes for students, lecturers and assessors respectively. It is common to write “the student *will* be able to …”; however, this is often somewhat over-optimistic – as you saw in Unit 2, it is not really possible for the lecturer to be absolutely sure what it is the student actually learns or does not learn. It does no harm to the learning, teaching or assessing processes to use the safer wording “the student *should* be able to …” (*cf* Butcher *et al*, 2006, p. 42), which has the two added advantages that it places the onus more squarely on the *student* to achieve the learning outcome, and that neither the lecturer nor the college can be held liable if a student is *not* able to do what is stated in the learning outcome by the end of the course.

Advocates of the “*will* be able to …” wording tend to argue that since outcomes-based education or training is *criterion-referenced* rather than *norm-referenced*, and the student is judged against clear-cut criteria rather than on a norm-based scale such as percentages, i.e. the student is either competent, not competent, or *not yet* competent. The wording “the student *should* be able to …” may not convey so clearly the definitive boundary between competence and non-competence – you can either administer an injection successfully, or the patients would run away when they see you approaching with a syringe and needle.

However, the reality is that competence according to learning outcomes is very often evaluated on the basis of *sets* of sub-skills or sub-competences not just one single skill. This allows the ***level*** of learning outcome achievement to be assessed since it would be unlikely that all the sub-skills would be mastered to the same level. In other words, *how well* can the student carry out the procedure as a whole? Hence checklists and rubrics are often used to enable the assessor to put together a *composite set of quality judgements* relating to all the sub-competences rather than simply deciding whether the student is competent, not competent, or *not yet* competent.

Furthermore, many skills, and much competence and expertise, can only be developed gradually and honed over time, from first, halting steps to the point where more and more of the student’s ability becomes tacit and almost unconsciously applied – or where knowledge and skill is routinely applied in quite different situations. At what point then can one say that the student is competent? The solution to this dilemma is usually to provide *more specificity* in the form of:

* *Range statements* regarding the *conditions* under which the student should be able to demonstrate a skill or other competence, and the *range* of, for instance, equipment or formulae that the student should be able to use in that demonstration (be it practical assessment task, examination or trade test); and
* Specific *assessment criteria* or *standards* which indicate the *level of performance* that is considered acceptable.

For example, in setting out the requirements of an outcome relating to the earthing of electrical appliances, installations and low-voltage (LV) distribution systems, a number of assessment standards might be specified, with range statements attached to those for which it is appropriate, such as:

**Assessment standard**: Tests to ensure that an installation conforms to earthing regulations are performed.

**Range**: Continuity of bonding; resistance of earth continuity conductor; earth fault loop impedance tests.

A final consideration is worthy of attention here. Learning outcomes indicate what competence students can expect to acquire, and be expected to demonstrate, as a result of a process of learning. Figure 6 on the curriculum process referred to how, in the official recontextualising field, skills, knowledge, values, attitudes and rules of inclusion or exclusion (KSVAR) are identified, debated and assembled after wider consultation, then selected and ordered as they finally appear in the *official curriculum policy*. You may remember that the “rules of inclusion or exclusion” are the elements of a discourse that reflect what thought, speech or actions knowledgeable members of a “discourse community” (say, fashion design or hospitality services) would consider to be acceptable or valid, or unacceptable/unjustifiable.

Occupational competence (see the next section) is seldom only an amalgam of theoretical knowledge and skills. Woven into this mix there is usually a complex of important *values, first principles, attitudes and “rules of the game”* which need to be learnt as well. Examples might be the paramedic’s key values of “the patient’s immediate needs come first” and remaining non-judgmental in a crisis situation; the values and attitudes involved in instilling a passion for craftsmanship in a cabinetmaker or fitter and turner; or the pride that the instructor *wants* the apprentice welder to feel in an expertly-executed weld.

These admittedly subjective and non-factual elements of an occupation cannot easily be measured, but they can definitely be demonstrated, and few would disagree about their importance. Their importance lies firstly in the level of *quality* they bring to the product or service in question. It also lies in the often-vital role played by such attitudes, and the value-knowledge and understanding of the “rules of the game”, in enabling the student or novice to become an accepted member of a discourse community.

Because learning outcomes are generally focused on competence in terms of skills and knowledge, and because these more dispositional, non-factual elements which form part of vocational learning are not easy to express as learning outcomes, the latter are often neglected. However, this need not prevent you from including more qualitative learning outcomes in your own lesson plans. Note the examples in the learning outcome section of the *Lesson Planning for TVET* video, which can be accessed here.

Link: <https://youtu.be/bjneGkHkRfU> [Duration 15:07 CCBY]

A single example is reproduced here:

*By the end of this unit, students should have developed both the ability to critically assess their own work, and the responsibility to do so on a regular basis.*

**Note:** The understanding you have gained above should enable you not only to craft sound learning outcomes but also to evaluate the learning outcomes, subject outcomes, etc. that are presented in official curriculum documents, textbooks and other lecturer support materials.

**Competencies**

*Learning outcomes can be achieved at a range of levels and, perhaps, in different ways – there is not just one way to get to a destination. A competency statement … is much more restricted: typically, it is either achieved or not, passed or failed rather than graded* (Butcher et al, 2006, pp. 44-45).

An example of such a competency statement would be the following Assessment Criterion from the SAQA-registered Unit Standard (2018): *Understand basic electronic theory and components*:

“*The number of solar cells required to deliver a particular current and voltage is calculated within the context of photovoltaic power systems*.” A calculation such as this will either be right or wrong, the student performing the calculation either competent or not (yet) competent.

The use of competencies as units of learning is often criticised on the grounds that they tend to make for a very atomised (fragmented) curriculum, in which the whole is nothing more than the sum of its parts – many small “bite-sized” chunks of learning. Each one deals with a small, almost self-contained learning requirement or demonstration of competence, and a mass of these put together to constitute a course – easy to complete one-at-a-time and easy to assess – may not lead to holistic learning in which the “big picture” is fully grasped.

However, this need not be the case. It is up to the lecturer to make sure that the students don’t come to see each small competence as something that can simply be “ticked off” on the way to completing a course. In practice, the achievement of such small competencies can – and do for many lecturers – make suitable and satisfying goals for single lessons, or parts of longer lessons. But they need to provide constant reminders of the *rationale* that binds all the many components together in the real world of work.

A last word about competencies is necessary. The term is often confused with the term “*competence”.* Used as an abstract noun in a general sense, the word “competence” does not pose any particular problem. The Chambers Dictionary defines it using simple synonyms like “fitness” and “capacity”. In the narrower context of work (and training) however, the definitions are more complex: competence is defined in Wikipedia as “a set of demonstrable characteristics and skills that enable and improve the efficiency or performance of a job”, and in the online Business Dictionary as “*a cluster of related abilities, commitments, knowledge and skills that enable a person … to act effectively in a job or situation*”.

*Competencies*, on the other hand, are much smaller entities – not *sets*, or *clusters* of skills or abilities, but rather single, readily definable skills.

The concept “competence” is discussed further in the next section.

## Theory and practice revisited: Occupational competence and deep learning

The link between theory and practice has already been discussed in the context of *knowledge* (the blend of systematised, theoretical knowledge and technical, skill knowledge that is taught and learnt in TVET – see pp. 96-98). It was also touched on in the context of *pedagogy* (lecturing vs facilitating – see p. 116). It remains to briefly consider theory and practice in the context of the *history of work and training for work*, a history which will provide a perspective on where we seem to be heading in the near future.

In traditional apprenticeship, “*for centuries the main source of formal vocational training for crafts and trades (in Europe)”* (Gamble, 2013, p. 212), theoretical knowledge was often implicit, or imparted to the apprentice repeatedly in small doses, by the master craftsman, in other words, *in the work situation*. The mass teaching of artisans that came with industrialisation in the nineteenth century created the need for generalised curricula applicable to a range of related jobs (*ibid*.). The more mass training catered for a wider range of possible jobs, and mobility between jobs under different employers, the more *generalised* the curriculum needed to become, and the more dependent on what the related-but-different jobs had in common, i.e. *theoretical* knowledge. This can, and did, lead to an increasing division between theory and practice, and to an increasing emphasis on theoretical knowledge at the expense of developing practical skill.

*A century later we have still not overcome the deep divisions between theory and practice and between academic knowledge and vocational learning which were first entrenched in these nineteenth-century institutional structures* (Green, 1995, p. 139, cited in Gamble, p. 212)

The pendulum swung in the opposite direction in the late twentieth century with the growing global popularity of outcomes-based education and training (OBET). This tended to see *content knowledge* as something to be selected *only as a means to achieving learning outcomes*, i.e. only on the basis that it can lead to a particular competence, never as a body of knowledge that is important for learners to know and understand in its own right (Allais, cited in Gamble, op cit., pp. 216-217).

Recently this trend is being reversed once again with occupations at many levels moving in the direction of “professionalising”, and higher qualifications, even university degrees, increasingly being seen as necessary for career preferment in a number of occupations, or even for entry into some. In addition, workers at almost all levels and in many occupations are to an increasing extent seen as needing to acquire “soft skills and twenty-first century abilities”. Critical and creative thinking and problem-solving, collaboration, adaptability, cross-cultural understanding, digital literacy, and a range of communication skills are now seen as vital learning to equip students in the employability race. Though most of these skills are probably best learnt through participation in class activities geared to active, self-directed and collaborative learning, they also require students to acquire *a certain level of awareness of themselves as having and using these skills*. This sort of metacognition [critical awareness and understanding of one's own thinking and learning processes] in turn requires a more *cognitive* slant to teaching and learning, and a broader outlook than one focused narrowly on developing the particular practical skill. In these moves towards professionalisation, the concept of competence itself broadens in scope.

### Stop and think

1. Do you see *content knowledge* as something to be selected only as a means to achieving learning outcomes and developing particular competences? Perhaps you feel that in general this *is* more appropriate for artisans, who are not meant to be professors or intellectuals. Or do you think there are at least some “bodies of knowledge” relevant to trades and occupations that need to be understood thoroughly and holistically rather than in a piecemeal fashion?

2. Perhaps you have noticed the increasing trend towards professionalising trades and occupations. How do you feel about this trend?

Try if at all possible to discuss these challenging but very topical questions with a fellow student or colleague. Be sure to record your reflections in your Learning Journal.

We have become used to qualifications based on the requirements for carrying out specific occupational tasks – particular work assignments or business processes in the labour market. But such qualifications are themselves not without problems in the twenty-first century. As a holder of a qualification, the “qualified” student becomes a *human resource* in the eyes of the employer, with the skills and abilities for performing *specific, definable work activities* that have not yet been objectified (i.e. analysed systematically and explicitly into fixed procedures) or mechanised. When occupational tasks and skills are objectified and then mechanised, the student, now a worker, may be seen as a holder of a *now-obsolete* qualification,who can be replaced by a technical system (Rauner *et al*, 2013, pp. 5-8).

As lower-level qualifications linked to specific occupational tasks are thus progressively devalued, the concept *occupational**competence* assumes greater importance, and qualifications based on more broadly-defined competence are sought after. Less easily defined than the concept “qualification”, occupational competence refers to *dispositions for performance* related to *more generalised work* *domains* (see Gamble’s argument above). Occupational competences (remember, these are very different from *competencies*) are defined in general rather than specific terms, and can therefore be applied in a greater range of different work contexts.

The student who has acquired various competences, defined by broader *learning outcomes* rather than by *concrete work tasks*, has gained something that is difficult if not impossible to objectify or mechanise. It includes *understanding*, *reflection*, *evaluation* of the occupational tasks and *insight as to the solution* of problems, as well as the ability to contribute to the *shaping* of work processes instead of merely implementing them as instructed. Thus in a sense occupational competence is an *extension of the student’s identity* that *reaches* *beyond* current occupational tasks to the *mastering of future tasks* (*ibid.*). Describing Germany’s Dual System and pointing out the need for flexibility in a rapidly changing digital economy, Ralf Hermann, head of the German Office for International Cooperation in Vocational Education and Training, says, "*A broader education in school is necessary to provide the soft skills that make responsible young people. Occupations have a broader sense of skills than mere training for one particular job*" (DW Business, 2018).

### Stop and think

Can you see a connection between, on one hand, the abilities that now tend to render workers with certain qualifications more resistant to redundancy than other workers, and on the other hand the so-called “soft skills and twenty-first century abilities” that we hear so much of?

It appears that the long struggle to bring theoretical knowledge and the world of practice together may be reaching another turning point in South Africa’s move to establish Centres of Specialisation, situated in conjunction with the government’s Strategic Integrated Projects (SIPs) and focusing on the development of the new Occupational Certificates for trades. Both the Centres of Specialisation and, as you saw in Unit 2, the new Occupational Certificates, are aimed at integrating theory and practice in strongly bonded ways through the deep involvement of industry, in deliberate emulation of the German Dual System. The curricula of the Occupational Certificates are also based on as wide a range as possible of related work contexts and responsibilities. Click link to access Reading 4: *Extracts from the SAQA-registered Occupational Certificate: Electrician* (Rationale):

*Electricians qualified through this qualification will be able to plan, prepare, install, maintain, commission and fault-find a range of equipment and systems within a variety of electrical installations in the construction, manufacturing, chemical, energy, mining, municipal, agricultural and railway environments. The work experience modules were written to reflect all the different contexts that were prevalent in the various sectors, and is aimed at producing an individual that is fully competent within the range of this curriculum.*

Such a curriculum seeks to establish a far broader base of competence than its predecessors to ensure the sustained employability of students in an uncertain future.

*Each occupational task is defined as a combination of the product or service to be delivered, the occupational responsibility towards that product or service and the occupational context within which that product or service is provided. An occupational task is therefore not a mechanical or rote completion of actions and is frequently internationally benchmarked* (QCTO, Curriculum and Assessment Policy, 2011, p.3)

However closely or otherwise the German model is followed, what is clear is that TVET here is moving in the direction of a balanced blend of trade-specific theoretical knowledge and workplace-based learning. In the German system two days per week (or the equivalent in blocks of several weeks) are spent in public vocational schools acquiring a grounding in the theory of their trade or occupation as well as learning general academic subjects such as German, politics and economics. Three days a week or longer block periods are spent in carrying out contracted tasks in the workplace.

In such a learning environment, models of learning such as Bloom’s taxonomy of cognitive levels and Entwistle’s analysis of deep learning are bound to assume greater significance. In building trade-specific theoretical knowledge and working competence, and in developing the so-called “soft” skills necessary for 21st-century employability or (self-employment), the engagement of students’ higher-order cognitive abilities (applying knowledge in unfamiliar situations, analysing, evaluating or creating) and harnessing the power of deep learning will undoubtedly be priorities. Hence lecturers will be wise to sharpen their own occupational skills in devising learning activities that will develop these skills and aptitudes. The higher-order cognitive abilities are well known and are widely discussed. Entwistle and Peterson (2004), have provided the following guidelines for learning environments that support a deep approach, “drawn from the burgeoning literature on student learning”:

* Provide *generative topics1*and *understanding aims2*, and regularly remind students of them.
* Relate teaching directly to prior knowledge and to the “*understanding aims.*”
* Identify *troublesome knowledge3* and *threshold concepts.4.*
* Teach so as to clarify meanings and arouse interest for students of contrasting abilities and goals.
* Provide extensive, carefully selected examples to develop accurate concepts.
* Encourage reflection, metacognitive alertness, and self-regulation in studying.
* Provide opportunities for group discussion of both content and learning processes.
* Introduce formative assessments designed to develop understanding, and provide timely feedback.
* Develop and make explicit marking criteria describing levels of understanding more precisely.
* Use assessment techniques that encourage and reward conceptual understanding.
* Create *constructive friction5*within the learning environment to encourage development.
* Ensure constructive alignment of aims with teaching, assessment and student support.

Open-ended topics that tend to generate interesting problems and productive thinking

2 Literally, educational aims which emphasise the achievement of understanding

3 Knowledge which students find difficult to understand

4 Concepts that serve as “portals” to developing a deeper understanding of the subject, “opening up a new

and previously inaccessible way of thinking about something”

5 Sometimes referred to as “disruptive pedagogy”, this involves confronting students with facts or

arguments liable to challenge or disrupt commonly held ideas or ways of thinking.

### Activity 18: Learning environments that support deep learning

**Suggested time: 10 minutes**

Click link to access and refer to the examples of teaching methods in the [Teaching Resources Pack](#Teaching_Resources_Pack). Select *five* of the factors conducive to deep learning from the list above, and identify *one* teaching method from the resources provided that will most aptly provide the conditions described in each factor.

## Inclusivity: Catering to students’ diverse needs and learning preferences

This is not the place to delve into the vast theory on this important element of both longer-term (works scheme) planning and lesson planning. It is discussed more fully in the module *Educational Psychology for TVET*, so this is just a brief note aimed at bringing to mind some relevant considerations with regard to planning lessons.

* Click link to access [Reading 5](#Reading_5), the article by Angelo and Cross: *Background Knowledge Probe*. This activity may be used either at the beginning of a course or in the first in a series of lessons dealing with a major unit. Review the feedback gathered and use it to guide planning for further lessons.
* Provide different tasks of varying levels of complexity (for example…).
* Offer differentiated levels of support, for example, learning independently by working through a worksheet or working in a small group with the teacher on the same material.
* Arrange seating according to differentiation needs: in groups according to perceived levels of ability, mixed-ability groups, pairs, etc. If ability-level groups are used, to avoid self-labelling do not use such grouping too frequently, intersperse it with other arrangements, and do not always have the same groups.
* Offer students a range of options for demonstrating their learning, for example, they could describe the steps required a write a report: using a flow chart, doing a poster presentation, or teaching a classmate how to write a report.

## Assessment for learning

Since this module is about curriculum and lesson planning, this brief discussion will focus only a few aspects of assessment that are relevant to planning lessons. The module *Assessment in TVET* deals with assessment much more thoroughly.

As the main purpose of summative assessment is to measure or judge the sum of the learning that has been achieved in a unit or course, it will not be discussed here. Formative assessment, on the other hand, or “assessment *for* learning”, forms an important and integral part of the learning process and takes place during that process, not at the end. It *may* (but does not have to) carry marks, and therefore may also be used to contribute to summative assessment (as in ICASS), or to serve the function of summative assessment for a small portion of a course or unit, but its main purpose is development rather than judgement.

Formative assessment enables students to demonstrate and improve their learning, provides feedback about their progress, and can motivate further learning activity by providing intellectual challenges and stimulating students’ interest. It can also provide opportunities for students to work collaboratively to achieve a common goal. In addition, formative assessment also enables lecturers to monitor and provide feedback on students’ progress, as well as monitoring the effectiveness of their own teaching (Butcher *et al*, 2006, p. 95).

With all these possible functions in mind, how, and in what form, do you insert formative assessment into your lesson plans?

**Aligning assessment to the learning outcomes and promoting deep learning**

The importance of *aligning curriculum elements* with one another was introduced in Unit 1. Now that you are considering the constituents of a good lesson plan, it is time to engage with the work of John Biggs, who has written extensively about the notion of “constructive alignment”.

### Activity 19: Aligning assessment to learning outcomes

**Suggested time: 10 minutes**

Read this article by Biggs, click [here](https://www.heacademy.ac.uk/sites/default/files/resources/id477_aligning_teaching_for_constructing_learning.pdf)

1. This brief introduction to one of Biggs’s books on constructive alignment is a fitting reading with which to conclude this module; in addition to constructive alignment, he touches on a number of points that have been made throughout the module. Try to identify at least two points that remind you of things you have learnt in this module. Do they add anything to what you have learnt already?
2. From your experience, would you agree that it is not uncommon for the aspirations expressed (the “rhetoric”) in learning outcomes to be belied by/out of alignment with the reality of teaching, learning and assessment in TVET? Motivate your answer.
3. In Bigg’s analysis of the psychology undergraduate’s experience, in what way is the assessment at fault for not being aligned with the aims of teaching?
4. What exactly do you think Biggs means when he writes “the learner is in a sense 'trapped', and finds it difficult to escape without learning what he or she is intended to learn”. (Hint: the third paragraph from the end of the article, and the diagram, will help you here.)
5. What do you think Biggs means when he writes that good students will turn declarative knowledge into functioning knowledge in the course of time, but most students will not if they are not required to?
6. Provide an example of “practices of assessment doing damage by being misaligned with teaching”, or of “assessment tasks mirroring the intended learning outcomes”.

### Discussion of the activity

1. Here are six points that Biggs makes which may resonate with things you have learnt in this module:

* All students need to be able to use *higher-order learning processes*.
* The undergraduate student adopting a “strategic learning” approach (geared to get good marks only) to Psychology and saving his energies for deep learning in his major subjects.
* Lecturers need to assess levels of achievement, not just achievement or non-achievement of competence.
* Learning Outcomes (LOs) need to convey a clear idea of what the lecturer wants the students to learn.
* References to *declarative* knowledge and *functioning* knowledge – link to knowing that and knowing how/knowledge in practice.
* We don't acquire knowledge only *so that we can tell other people about it* – being able to *talk about* a skill not the same as being able to use it.

1. This is an open-ended question; provide an example or argument to back your answer.
2. The student expects (and is capable of answering) more challenging, in-depth questions (what one would expect, no doubt, from the course description and LOs), but all the exam questions really require is the memorisation of important points. If the questions had been set in such a way as to clearly require higher-order thinking, they would be in line with the lecturer’s LOs.
3. Even if students ignore the learning outcome or the teacher’s intentions, simply by following the instructions in the assessment activity, they will find themselves working towards the aspirations expressed in the teacher’s aims and LOs.
4. Good students will find a way to put declarative knowledge (knowing *that*) to use, but for most (weaker) students their default level of work will be reproducing what they have memorised.
5. For example, when all that examinations require is rote learning or a parade of facts, despite the curriculum specifying that students “will be able to *critically analyse*”something. Another example would be lecturers capitulating to students’ tendency to study just what they need to pass the exam (Entwistle’s “strategic approach”) by *teaching* only towards tests and exams, rather than the curriculum as a whole.

Lessons then, like courses, should be designed around what you as the lecturer are trying to achieve, as expressed in aims and learning outcomes: enabling the students to build their competence in the form of the KSVAR relevant to your subject. These aspirations need to be established first, then you can select content, teaching approaches and learning activities that will contribute to (in other words be aligned to) the achievement of the aspirations. The selection of formative assessment tasks should for the most part make clear to the students what abilities are valued. Finally, choose summative assessment methods that will measure to what extent your students have succeeded.

*If you wish to promote deep learning, as opposed to surface or strategic (learning), it is clear that assessment tasks must not give mixed messages to students about the learning that is desired. For example, if we want students to apply their understanding of a topic or to synthesise their learning, we need to ensure that we do not send out signals that remembering and reproducing are required. These signals can be sent out in a number of ways: by the design of our assessment tasks, the way they are implemented, and even subtly by verbal/non-verbal communication on the part of the teacher* (Butcher *et al*, 2006, p. 102).

Butcher *et al* further point out that to promote deep learning, many of the elements of good practice in teaching can also be applied to the practice of assessment (*ibid*., p. 103). Assessment methods and tasks should be selected that allow students (where possible) to:

* Engage in active learning tasks (e.g. through working with others)
* Engage in reflection and self-evaluation
* Receive feedback on their learning (e.g. through peer assessment)
* Have a variety of learning experiences
* Make choices and decisions about their assessments, even sometimes being involved in planning their assessments (this refers especially to summative assessments, or “continuous” assessment tasks that may form part of summative assessment).

## Looking back and looking forward: Lecturer self-evaluation and reflection based on student feedback

This is an important “phase” in lesson design that was not included in the section on the five phases of lessons. It involves self-evaluative reflection based on feedback gathered from the students, and follows, rather than precedes, the actual lesson. But because lessons are part of a chain of learning rather than just stand-alone exercises, it is no less vital to crafting effective lessons still to come.

There are two simple (but often ignored) principles to observe:

1. ***Create opportunities* as often as possible for students to provide feedback.**

Vary the types of activity and their timing: at the beginning, middle or end of a lesson. These 5-minute activities can easily be designed to serve more than one purpose: engaging students’ attention, calling them to order after entering the classroom or a noisy group session, or focusing their critical faculties on what you have just taught.

But note that these activities are not to be confused with the type of assessments which the Psychology student scorned in the Biggs reading. Those were clearly “for marks”, i.e. they counted as part of a summative assessment on which the student was graded, and required longer essays. What Angelo and Cross describe (for instance in the *1-minute paper* activity) is anonymous and therefore is not meant to be graded, and requires the students to jot down a key thought within 60 seconds or so.

Click [here](https://library.educause.edu/resources/2012/2/7-things-you-should-know-about-flipped-classrooms) to read the following article, *Seven things you should know about flipped classrooms*. (Educause: 2012).

You may also find it interesting to watch this short video presentation:

**Title:** What is the Flipped Classroom?

**Video Link:** [The Flipped Classroom](https://www.youtube.com/watch?v=isTFb2USWQU) [Duration 5:30 CCBY

1. **Be sure to *use* the feedback.**

Quickly read or process the feedback (usually anonymous, so it is more likely to be frank, and doesn’t involve “correcting” or “marking”). Take a few minutes to reflect on whatever trends emerge. And use the insights that you gain in adapting your teaching intentions and making pedagogic decisions based on the students’ progress and understanding. Sometimes you will be surprised by the things many of the students already know before the lesson starts, or the points they have not understood in your lesson.

For a deeper understanding of reflection and self-evaluation, and for ideas of how you can go about these important processes, see the module *Reflective Practice in TVET*.

## Summary of pedagogical priorities/considerations discussed in this unit

This is merely included as a sort of memory aid in case you wish to use it. Feel free to add any concerns of your own that it does not include.

1. Activities, assessment tasks, assessment criteria and resources should all align with the LOs.
2. *Always* link theory to practice; include hands-on skill practice and/or simulation.
3. Provide plenty of opportunities for students to voice their own views and exchange them.
4. Support students to take responsibility for their learning and reflect on their own progress.
5. Provide extensive scaffolding: challenge, guide, model and then fade the support.
6. Cater to students’ diverse learning needs and preferences, and the need for variety.
7. Elicit different levels of cognitive engagement, types of knowledge, and deep learning.
8. Provide high-expectation, low-threat challenges**.**
9. Create thoughtful, SMART learning outcomes (LOs).
10. Use digital technologies, e.g. in blended learning, to maximise learning.
11. Prepare students for work in the twenty-first century, including “soft skills”.
12. Use a variety of methods to gather feedback from students on what they have learnt.
13. Model values and attitudes, e.g. craftsmanship, professional service, responsibility.
14. Use a variety of teaching/learning resources to stimulate and enable learning.
15. Make use of, or consider assembling, various types of simulation.
16. Take time to evaluate and reflect on your own teaching.

# Summative assessment

From interpreting curriculum to lesson planning

This assessment relates mainly to Learning Outcomes 2 and 3, and Units 2, 3 and 4 of the module.

The assessment task is both practical and theoretical – to design three lessons, draw up appropriate lesson plans, teach at least two of the lessons (incorporating an activity designed to gather feedback from the students), and write a reflective, self-evaluative account which reflects engagement with, and a grasp of, key concepts from Units 2, 3 and 4 of the module. The aim in this account is to make clear your understanding of these key concepts, and how they have influenced (or not influenced) your approach to the curriculum.

This must be packaged as a mini e-portfolio (maximum of 12 pages, including lesson plans).

Instructions:

1. Design *three* different TVET lessons in your subject/one of your subjects, each following a different teaching method or approach. Click link to access the [Teaching Resource Pack](#Teaching_Resources_Pack) which includes twelve proven methods.
2. Set your designs out in lesson plan format, *either* adapting the template provide in Unit 4, Activity 17 or using some other format that allows for a comparable level of detail.
3. Teach *at least two* of the lessons, then make critical and reflective notes following each taught lesson. If you are not in a position to teach the lessons (to either your students or your own fellow students/colleagues), your reflection, commentary and analytical account will have to be based on your imagined experience of teaching them.
4. If at all possible, include in at least one of the lessons a “five-minute” activity of the kind described in the Angelo and Cross reading, designed to generate feedback from your students. Click link to access [Reading 5](#Reading_5), the Angelo and Cross reading. Incorporate what you learn from this feedback into your reflective self-evaluation. (Don’t be afraid to be self-critical – you will *not* be penalised for commenting on lesson elements that you feel could have been better handled.)
5. In your reflective self-evaluation, comment on:
   * Challenges you faced in planning, preparing or teaching the lesson, and how you responded to them
   * Strengths and weaknesses that emerged in using the particular teaching methods
   * How, in *at least one* of the lessons, you exercised a degree of *professional agency* in
   1. *consciously interpreting*, and
   2. *mediating* the official curriculum document on which the lesson was based. Refer to relevant key concepts introduced in such as how knowledge is “recontextualised” in the classroom or workshop, or your role as a “policy actor” or “curriculum agent”, etc.
   * How, in the lesson you taught, you engaged with *at least two* of the pedagogic priorities or concerns summarised at the end of Unit 4, and reproduced below.
6. Your mini-portfolio should comprise the three lesson plans (see 2 above) and the reflective commentary and self-evaluation (as set out in 4 above).

Summary of pedagogical priorities/considerations discussed in Unit 4

1. Provide high-expectation, low-threat challenges**.**
2. Create thoughtful, SMART learning outcomes (LOs).
3. Activities, assessment tasks, assessment criteria and resources should all align with the LOs.
4. *Always* link theory to practice; include hands-on skill practice and/or simulation.
5. Provide plenty of opportunities for students to voice their own views and exchange them.
6. Support students to take responsibility for their learning and reflect on their own progress.
7. Provide extensive scaffolding: challenge, guide, model and then fade the support.
8. Cater to students’ diverse learning needs and preferences, and the need for variety.
9. Elicit different levels of cognitive engagement, types of knowledge, and deep learning.
10. Provide high-expectation, low-threat challenges**.**
11. Create thoughtful, SMART learning outcomes (LOs).
12. Use digital technologies, e.g. in blended learning, to maximise learning.
13. Prepare students for work in the twenty-first century, including “soft skills”.
14. Use a variety of methods to gather feedback from students on what they have learnt.
15. Model values and attitudes, e.g. craftsmanship, professional service, responsibility.
16. Use a variety of teaching/learning resources to stimulate and enable learning.
17. Make use of, or consider assembling, various types of simulation.
18. Take time to evaluate and reflect on your own teaching.

**Note regarding rubric:**

The weighting is the same for all five criteria (i.e. 1 – 4 points). Because of this, poor candidates may pick up a point or two against the first criterion, but criteria 2, 4 and 5 will sink them if they have gained very little from the module. Thus there is adequate scope in the rubric for the necessary discrimination.

**Rubric for summative assessment (weighting the same for all five criteria)**

| **Criteria** | **Excellent/outstanding (4)** | **Good (3)** | **Acceptable (2)** | **Not acceptable, does not meet competency requirements (1)** | **Student rating awarded, and comments** |
| --- | --- | --- | --- | --- | --- |
| **Lesson plans (LPs)** | | | | | |
| **1. Quality of aims, LOs, ACs, content, overall teaching method, differentiation, formative assessment, student output, & extended learning statements (or equivalents) in all three LPs** | Virtually all of these statements are crisply worded and well thought-out. Aims reflect what the *lecturer* aims to achieve; LOs express what competence is expected of the *students*. LOs are **s**pecific, **m**eaningful, **a**ppropriate, **r**ealistic & **t**estable (SMART). ACs, content, teaching approach are all *aligned* with the LOs. | These statements range from simply appropriate to well thought-out. A few lapses, such as aims insufficiently distinguished from LOs, or elements not well aligned. | The majority of these statements merely comply in a minimal sense, with some gaps. Lack of insight in places. Notable mismatch or lack of alignment between elements in places. | Significant gaps (e.g. no attention paid to differentiation or other elements, where these are clearly needed). Slapdash – details poorly expressed. |  |
| **2. Quality of main body of three plans (5 phases or equivalent)** | LPs provide evidence of conscious professional lesson design. All five phases are represented, unless inappropriate (even if not *expressed* as 5 phases). Both lecturer’s and students’ roles are clearly delineated. The methods selected promote active participation and active learning. Systematic/content knowledge is well integrated with practical skill development (a focus on working competence is to the fore). Several touches of inspiration, inventiveness, especially in Phase 1: students very likely to be engaged. | Lessons are on the whole well-designed towards effective teaching and learning, with provision for a good level of student participation and active learning. The five phases are well represented where appropriate, even if not *expressed* as such. A good balance of theory and skill development evident. Some innovative and creative methods in use. | Reasonably adequate, workaday lesson planning. Less consciousness of the kind of lesson that is likely to result, in particular the students’ involvement in active learning. Quite significant gaps in some of the LPs with regard to some of the “5 phase” elements, e.g. introduction, links beyond the lesson, student presentation and reflection. | Slipshod to sloppy, significantly lacking in detail; haphazard in structure. No sign of anything like the “5 phase” elements. Unconcerned with student involvement, let alone active learning. Little attention given to the development of working competence. |  |
| **Reflective self-evaluation, comment** | | | | | |
| **3. Account of challenges faced, and of strengths/ weaknesses of teaching methods** | An honest account that demonstrates insight, metacognition and an ability to grow professionally. A thoughtful and sincere self-reflection on the lecturer’s teaching and student learning (i.e. the *curriculum as taught*, and as *experienced*). | A clearly self-reflective account, but with less sign of metacognition, or of insight, and less consciousness of the *curriculum as taught,* and as *experienced*. | The account is mainly factual, with little that could be called evaluative or interpretation. No sense of the *curriculum as taught*, or of what students “take away”. | Little or no idea of what is required in this task. Misses the point. Unable to distinguish strengths and weaknesses of particular teaching methods in context. |  |
| **4. Account of conscious interpretation and mediation of curriculum** | In this account the candidate shows an in-depth understanding of the main ideas which permeate this module (the curriculum as practice; professional agency; the TVET lecturer as a professional, relatively independent and conscious mediator and interpreter of the official curriculum; recontextualising knowledge in the classroom or workshop; etc.). In addition, the lecturer is clearly able to *apply* these ideas in planning lessons with some degree of agency. | Reasonable grasp of the notions of the TVET lecturer as a mediator and/or interpreter of the official curriculum, but with little if any reference to key related concepts. Tends to stick to what is “safe”; less willing or able to risk going beyond what textbooks offer. | Limited to a very basic understanding and practice of the TVET lecturer’s teaching role. | Slavishly follows the official curriculum without adding anything. Little understanding of mediating or interpreting the curriculum. Account seems to have been thrown together. |  |
| 1. **Account of engagement with pedagogic priorities/ concerns** | The account reflects a thorough grasp of the pedagogic priorities or concerns selected, and clearly draws on a range of insights and key concepts from the module. The account as a whole demonstrates insight, and several telling examples are provided. Clear, logical structuring and expression. | At least two pedagogic priorities or concerns are clearly identified and reasonably well under-stood. Some examples are included. Structure reasonably logical. | Two of the pedagogic priorities/concerns are discussed, but with limited insight. Few if any examples offered. Possibly poorly structured. | Unable to relate any of the pedagogic principles or priorities to planning a lesson. Very little to nothing gained from the module content. |  |
| **Total:** |  | | | |  |

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# Resources

## Reading 1

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| From Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, *15*(2), pp. 4-14.<http://links.jstor.org/sici?sici=0013-189X%28198602%2915%3A2%3C4%3ATWUKGI%3E2.0.CO%3B2-X> |

**Those Who Understand: Knowledge Growth in Teaching**

"He who can, does. He who cannot, teaches." I don't know in what fit of pique George Bernard Shaw wrote that infamous aphorism, words that have plagued members of the teaching profession for nearly a century. (…) "He who can, does. He who cannot, teaches" is a calamitous insult to our profession, yet one readily repeated even by teachers. (…) Where did such a demeaning image of the teacher's capacities originate? How long have we been burdened by assumptions of ignorance and ineptitude within the teaching corps? Is Shaw to be treated as the last word on what teachers know and don't know, or do and can't do? (…)

*Shulman decries the sharp distinction between content knowledge and pedagogical process* *that has come about in teacher education, which led him to research the history of preparation for the profession of teaching. The earliest, medieval universities in Europe made no distinction at all between content and pedagogy. The highest degrees awarded in any university are to this day those of "master" or "doctor". Both words meant "teacher." "Doctor" or "dottore" means teacher, sharing the same root as "doctrine," or teaching. Master, as in school master, also means teacher. Thus, the* highest university degree *enabled its recipient to be called a teacher. The universities were therefore institutions for preparing the highest and most prestigious level of scholar, the teacher. The tradition of treating teaching as the highest demonstration of scholarship was derived from the writings of Aristotle, whose works formed the heart of the medieval curriculum. He regarded master-craftsmen as superior not merely because they have a grasp of theory and know the reasons for acting as they do. For Aristotle, what distinguishes the person who knows from the ignorant person is an ability to teach. Thus the sharp distinction between content knowledge and pedagogy does not go back to the beginning of education.*

In reading the literature of research on teaching, it is clear that central questions are unasked. The emphasis is on how teachers manage their classrooms, organise activities, allocate time, structure assignments, ascribe praise and blame, formulate the levels of their questions, plan lessons, and judge general student understanding.

What we miss are questions about the *content* of the lessons taught, the questions asked, and the explanations offered. From the perspectives of teacher development and teacher education, a host of questions arise. Where do teacher explanations come from? How do teachers decide *what* to teach, how to represent it, how to question students about it and how to deal with problems of misunderstanding? The cognitive psychology of learning has focused almost exclusively on such questions in recent years, but strictly from the perspective of *learners*. Research on teaching has tended to ignore those issues with respect to teachers. (…) What does a teacher know, and when did he or she come to know it? How is new knowledge acquired, old knowledge retrieved, and both combined to form a new knowledge base?

We assume that most teachers begin with some expertise in the content they teach. (…) Secondary teaching candidates, in particular, have typically completed a major in their subject speciality.

Our central question concerns the transition from *expert student* to *novice teacher*. How does the successful college student transform his or her expertise in the subject matter into a form that high school students can comprehend? When this novice teacher confronts flawed or muddled textbook chapters or befuddled students, how does he or she employ content expertise to generate new explanations, representations, or clarifications? (…) What pedagogical prices are paid when the teacher's subject matter competence is itself compromised by deficiencies of prior education or ability?

(…) Mere content knowledge is likely to be as useless pedagogically as content-free skill. But to blend properly these two aspects of a teacher's capacities requires that we pay as much attention to the *content* aspects of teaching as we have recently devoted to the *elements of teaching process*.

Often a young teacher will be expected to teach a topic that he or she has never previously learned. For example, the biology major encounters a unit on levers and simple machines in a general science course. (…) How does the teacher prepare to teach something never previously learned? How does learning for teaching occur?

Another (problem) occurs in conjunction with sections of textbooks that the teacher finds problematic, flawed in their conception of the topic, incomplete in their treatment, or inadequate in explanation or use of examples. How are these deficiencies in curriculum materials (which appear to be commonplace) apprehended and dealt with by teachers? How do teachers take a piece of text and transform their understanding of it into instruction that their students can comprehend?

(…) **A Perspective on Teacher Knowledge**

As we have begun to probe the complexities of teacher understanding and transmission of content knowledge, the need for a more coherent theoretical framework has become rapidly apparent. What are the domains and categories of content knowledge in the minds of teachers? How, for example, are content knowledge and general pedagogical knowledge related? (…) What are promising ways of enhancing acquisition and development of such knowledge? Because I see these as among the central questions for disciplined inquiry into teacher education. I will now turn to a discussion of some ways of thinking about one particular domain-content knowledge in teaching.

How might we think about the knowledge that grows in the minds of teachers, with special emphasis on content? I suggest we distinguish among three categories of content knowledge: (a) subject matter content knowledge, (b) pedagogical content knowledge, and (c) curricular knowledge.

*Content Knowledge*. This refers to the amount and organisation of knowledge *per se* in the mind of the teacher. We already have a number of ways to represent content knowledge (for instance) Bloom's cognitive taxonomy (…) See Question 1

In the different subject matter areas, the ways of discussing the content structure of knowledge differ. To think properly about content knowledge requires going beyond knowledge of the facts or concepts of a domain. It requires understanding the structures of the subject matter (…)

The structures of a subject include both the substantive and the syntactic structures. The *substantive structures* are the variety of ways in which the basic concepts and principles of the discipline are organised to incorporate its facts. The *syntactic structure* of a discipline is the set of ways in which truth or falsehood, validity or invalidity, are established. When there exist competing claims regarding a given phenomenon, the syntax of a discipline provides the rules for determining which claim has greater warrant. A syntax is like a grammar. It is the set of rules for determining what is legitimate to say in a disciplinary domain and what "breaks" the rules. See Question 2

Teachers must not only be capable of defining for students the accepted truths in a domain. They must also be able to explain *why* a particular proposition is deemed warranted, *why* it is worth knowing, and how it relates to other propositions, both within the discipline and without, both in theory and in practice (…)

We expect that the subject matter content understanding of the teacher be at least equal to that of his or her lay colleague, the mere subject matter “major”. The teacher need not only understand that something is so; the teacher must further understand *why* it is so, on what grounds its warrant can be asserted, and under what circumstances our belief in its justification can be weakened and even denied. Moreover, we expect the teacher to understand why a given topic is particularly central to a discipline whereas another may be somewhat peripheral. (…)

*Pedagogical Content Knowledge.* A second kind of content knowledge is pedagogical knowledge, which goes beyond knowledge of subject matter per se to the dimension of subject matter knowledge *for teaching.*

Within the category of pedagogical content knowledge I include, for the most regularly taught topics in one's subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations – in a word, the ways of representing and formulating the subject that make it comprehensible to others. Since there are no single most powerful forms of representation, the teacher must have at hand a veritable armamentarium of *alternative forms of representation*, some of which derive from research whereas others originate in the wisdom of practice. See Question 3

Pedagogical content knowledge also includes an understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of those most frequently taught topics and lessons. If those preconceptions are misconceptions, which they so often are, teachers need knowledge of the strategies most likely to be fruitful in *reorganising* the understanding of learners, because those learners are unlikely to appear before them as blank slates. See Question 4

Here, research on teaching and on learning coincide most closely. The study of student misconceptions and their influence on subsequent learning has been among the most fertile topics for cognitive research. We are gathering an ever-growing body of knowledge about the misconceptions of students and about the instructional conditions necessary to overcome and transform those initial conceptions. Such research-based knowledge, an important component of the pedagogical understanding of subject matter, should be included at the heart of our definition of needed pedagogical knowledge.

*Curricular Knowledge*. (…) The curriculum is represented by the full range of programmes designed for the teaching of particular subjects and topics at a given level, the variety of instructional materials available in relation to those programmes, and the set of characteristics that serve as both the indications and contraindications for the use of particular curriculum or programme materials in particular circumstances.

(…) We expect the mature physician to understand the full range of treatments available to ameliorate a given disorder, as well as the range of alternatives for particular circumstances of sensitivity, cost, interaction with other interventions, convenience, safety, or comfort. Similarly, we ought to expect that the mature teacher possesses such understandings about the *curricular alternatives* available for instruction. (…) Would we trust a physician who did not really understand the alternative ways of dealing with categories of infectious disease, but who knew only one way?

In addition to the knowledge of alternative curriculum materials for a given subject or topic within a grade, there are two additional aspects of curricular knowledge. I would expect a professional teacher to be familiar with the curriculum materials under study by his or her students in *other subjects they are studying at the same time.*

This lateral curriculum knowledge (appropriate in particular to the work of junior and senior high school teachers) underlies the teacher's ability to relate the content of a given course or lesson to topics or issues being discussed simultaneously in other classes. (…)

*Content Examinations.* What might the expectation that our teachers possess these varieties of content knowledge entail for the assessment of teacher competence? If such a conception of teacher knowledge were to serve as the basis for a subject matter content examination for teachers, that examination would measure deep knowledge of the content and structures of a subject matter, the subject and topic-specific pedagogical knowledge associated with the subject matter, and the curricular knowledge of the subject. *We would have a form of examination that would be appropriate for assessing the capacities of a professional*. It would not be a mere subject matter examination. It would ask questions about the most likely *mis*understandings of photosynthesis among preadolescents, for example, and the strategies most likely to be useful in overcoming those difficulties. As such, it could distinguish between a biology “major” (a student taking more than one undergraduate course in biology at university) and a biology *teacher*, and in a pedagogically relevant and important way. *It would be much tougher than any current examination for teachers.* See Question 5

*Forms of Knowledge.* (…) I would like to suggest three forms of teacher knowledge: *propositional knowledge*, *case knowledge*, and *strategic knowledge*.

Much of what is taught to teachers is in the form of *propositions*. When we examine the research on teaching and learning and explore its implications for practice, we are typically (and properly) examining propositions. When we ask about the wisdom of practice, the accumulated lore of teaching experience, we tend to find such knowledge stored in the form of propositions as well.

The research-based principles of active teaching, reading for comprehension, and effective schools are stated as lists of propositions. (For instance,) the experience-based recommendations of planning five-step lesson plans, (or) “never smiling until Christmas” (…) are posed as sets of propositions. In fact, although we often present propositions one at a time, we recognize that they are better understood if they are organised in some coherent form, lodged in a conceptual or theoretical framework that is generative or regenerative. Otherwise they become terribly difficult to recall or retrieve. (...)

[Note: For Americans, "never smile until Christmas" means “never smile until the end of the first term.”]

I will argue that there are fundamentally three types of propositional knowledge in teaching, corresponding to the three major sources of knowledge about teaching: disciplined empirical or philosophical inquiry, practical experience, and moral or ethical reasoning. I will refer to these three types of propositions as *principles*, *maxims*, and *norms*.

A *principle* typically derives from empirical research. One of my favourite examples is "Ordered turn-taking in class is associated with higher achievement gains than is random turn-taking in first grade reading groups" (Anderson, Evertson, and Brophy, 1979). The teaching and school effectiveness literatures contain many examples of such useful principles for teaching.

The second kind of proposition makes not a theoretical claim, but a practical one. In every field of practice there are ideas that have never been confirmed by research and would, in principle, be difficult to demonstrate. Nevertheless, these maxims represent the accumulated wisdom of practice, and in many cases are as important a source of guidance for practice as the theory or empirical principles. "Never smile until Christmas" would qualify as such a maxim, as would "Break a large piece of chalk before you use it for the first time, to prevent squeaking against the board."

The third kind of proposition reflects the norms, values, ideological or philosophical commitments of justice, fairness, equity, and the like, that we wish teachers and those learning to teach to incorporate and employ. They are neither theoretical nor practical, but normative. They occupy the very heart of what we mean by teacher knowledge. See Question 6

These are propositions that guide the work of a teacher, not because they are true in scientific terms, or because they work in practical terms, but because they are *morally* or *ethically right*. The admonitions to provide each student with equal opportunity for taking turns, or not to embarrass a child in front of peers, are examples of normative knowledge.

The representation of knowledge in the form of propositions has both a distinct advantage and a significant liability. Propositions are remarkably economical in form, containing and simplifying a great deal of complexity. The weakness of propositions is two-fold. First, they become very hard to remember, especially as they aggregate into long lists. This is where theoretical frameworks as intellectual scaffoldings become indispensable. Second, they gain their economy precisely because they are decontextualised, stripped down to their essentials, devoid of detail, emotion, or ambience. Yet, to be remembered and then wisely used, it is precisely the detail and the context that may be needed.

Although principles are powerful, they are not particularly memorable, rendering them a problem to apply in particular circumstances. How does a teacher apply, for example, the principle "check for understanding," certainly among the most important in the direct instruction and the active teaching research bases? For these reasons, I am proposing that we look seriously at the usefulness of a second type of knowledge, a necessary complement to knowledge of propositions, i.e. case knowledge. (…)

A case, properly understood, is not simply the report of an event or incident. To call something a case is to make a theoretical claim-to argue that it is a "case of something,'' or to argue that it is an instance of a larger class. A red rash on the face is not a case of something until the observer has invoked theoretical knowledge of disease. A case of direct instruction or of higher-order questioning is similarly a theoretical assertion. I am therefore not arguing that the preparation of teachers be reduced to the most practical and concrete; rather, using the power of a case literature to illuminate both the practical and the theoretical, I argue for development of a case literature whose organisation and use will be profoundly and self-consciously *theoretical*.

Case knowledge is knowledge of specific, well-documented, and richly described events. Whereas cases themselves are reports of events or sequences of events, the knowledge they represent is what makes them cases. The cases may be examples of specific instances of practice-detailed descriptions of how an instructional event occurred – complete with particulars of contexts, thoughts, and feelings. On the other hand, they may be exemplars of principles, exemplifying in their detail a more abstract proposition or theoretical claim. (…)

The identification of case knowledge, a case literature, and case-based teacher education as central elements in our discussions and inquiries produces a rich and vital agenda for research. What is involved in the elevation of an event into a case? (…) How does one learn from and use cases in teaching? If the conception of propositional knowledge is deductive, where applications are deduced from general propositions, how is the analogical reasoning from cases learned, practised, and tuned? Can we learn from other disciplines or professions such as law or architecture, where analogical reasoning from cases is much more typical, how to conceive of and use case knowledge in education? Why are cases memorable? Is it because they are organised as stories, reflecting the grammar of narrative forms of discourse, that makes them more readily stored, ordered and retrieved than their expository or propositional analogue?

(…) Cases are documented occasions or sets of occasions with their boundaries marked off, their borders drawn. (…) A “case” of Budweiser (beer) is marked off from other cases by physical attributes that are immediately visible. But a case of direct instruction, or of teacher expectations, or of student misconception, is a theoretical construction. *Hence, there is no real case knowledge without theoretical understanding*. What passes for non-theoretical case knowledge is merely an anecdote, a parable without a moral. See Question 7

I am not offering herein an argument against the conception of teaching as a skill. I am instead arguing for its insufficiency – its incompleteness as an account of teaching ability and performance. We are only half way toward understanding the knowledge base of teaching when characterising a research-based conception of the *skills* of teaching. This account must be complemented by a conception of teaching in which the principled *skills* and the well-studied *cases* are brought together in the development and formation of *strategic pedagogical knowledge.*

I have referred to *strategic knowledge* as the third "form" of teacher knowledge. Both propositions and cases share the burden of unilaterality, the deficiency of turning the reader or user toward a single, particular rule or practical way of seeing. Strategic knowledge comes in to play as the teacher confronts particular situations or problems, whether theoretical, practical, or moral, where principles collide and no simple solution is possible. Strategic knowledge is developed when the lessons of single principles *contradict* one another, or the precedents of particular cases are incompatible. From Rowe's (1974) research on wait-time for example (i.e. providing time for learners to come up with an answer to a teacher’s question), we learn the *principle* that longer wait-times produce higher levels of cognitive processing. Yet Kounin's (1970) research on classroom management warns the teacher against slowing the pace of the classroom *too severely* lest the frequency of discipline problems increase. How can the principle of longer wait times and that of quicker pacing *both* be correct?

It is in the very nature of the practical or policy fields that individual principles are fated to clash on particular occasions. Knowledge of the relevant propositions and cases is needed to form the underlying knowledge base. Strategic knowledge must be generated to extend understanding beyond principle to the *wisdom of practice* (…) when confronted by situations in which each of the alternative choices appears equally "principled." (…) *Strategic knowledge* (or judgment) is then invoked.

I envision the use of case method in teacher education, whether in our classrooms or in special laboratories with simulations, videodisks and annotated scripts, as a means for developing strategic understanding, for extending capacities toward professional judgment and decision-making. These methods of instruction would involve the careful confrontation of principles with cases, of general rules with concrete documented events-a dialectic of the general with the particular in which the limits of the former and the boundaries of the latter are explored (Shulman, 1984). What happens when cases are applied to principles or principles to cases? What happens when two principles are in conflict, or when two cases yield contradictory interpretations?

When strategic understanding is brought to bear in the examination of rules and cases, professional judgment, the hallmark of any learned profession, is called into play. What distinguishes mere craft from profession is the indeterminacy of rules when applied to particular cases. The professional holds knowledge, not only of how – the capacity for skilled performance, but of what and why. The teacher is not only a master of procedure but also of content and rationale, and capable of explaining why something is done. The teacher is capable of reflection leading to self-knowledge, the metacognitive awareness that distinguishes draftsman from architect, bookkeeper from auditor. A professional is capable not only of practising and understanding his or her craft, but of communicating the reasons for professional decisions and actions to others. See Question 8

## Reading 2

### Overview of curriculum development in the TVET educational subsector

This serves as a brief account of developments internal to the TVET sector that have affected TVET curricula over the past two decades. For reasons of space it does not focus on the many SETA-supported courses based on unit standards. Nor does it attempt to analyse external influences on the official vocational curriculum – social, economic, political and technological, the Government’s early agenda to integrate education and training and later shift to outcomes based education, or the massive expansion of TVET enrolments including younger, Grade 9-level school-leavers. These topics are treated in two other modules, those dealing with TVET history and policy, and with the political, economic and social context in which TVET takes place.

**Contextual factors: The recent history of TVET curricula in South Africa**

In 2000, the National Technical Education Diploma (NATED, N1-N6) curriculum which the then-FET colleges offered was long overdue for major overhaul. Although N-course students spent about three quarters of each year practising a trade in a workplace and one quarter in colleges learning theory, there was in fact little interaction between the colleges and the companies providing the practice. The theoretical content and written examinations attracted more and more criticism for having become increasingly out of touch with industry, a situation often simply perceived as a gap between theory and practice. The NATED N1-N6 system was also incompatible with the National Qualifications Framework (NQF). In addition, the national Department of Education at the time saw the FET colleges’ main function as being to provide *general vocational training* for post-Grade 9 learners, thus providing a parallel stream to the last three years of high school and opening the way for a new, younger age group of students to enter the college system (Wedekind, 2016).

A new three-year programme, the National Certificate: Vocational (NCV) was designed at NQF Levels 2, 3, and 4 with the intention of addressing these needs. It was also meant to enable colleges to address more strategically the actual demands for skills in the workplace, at the same time providing a viable alternative for young people who wanted to follow a vocational pathway (Gewer, 2016:32). At NQF Level 4, this certificate was regarded as the vocational equivalent of the National Senior Certificate or matric.

Colleges were instructed to phase out the old NATED subjects, and the NCV curriculum was fast-tracked to be implemented in 2007. Almost immediately the NCV caused tension between colleges and Government:

* The NCV was supposed to integrate theory and practice through *in-college workshop-based practice,* which created staffing and resource challenges for many colleges that had not provided practical workshop training in the past.
* Despite their shortcomings, the NATED courses were seen as more responsive to the labour needs of employers (employers were also more familiar with these courses). In addition, the three-year full-time NCV programme meant that students were not able to move between college and industry for relatively short periods of time, and were not able to earn the small income earned by NATED students.
* NCV students would “qualify” at NQF Level 4 (technically equivalent to matric, and demanding far more study in more subjects than the NATED system) without having acquired workplace skills or experience.
* While the NATED programmes were being phased out, colleges were required to run the NCV and N-programmes simultaneously, resulting in heavier workloads for lecturers.
* Funding was linked to the enrolment of NCV students, not NATED students, but the NCV programmes turned out to be more expensive to run than the NATED programmes. This put the colleges at risk financially (Wedekind, 2016).

In 2011 the TVET colleges were transferred away from being under the authority of provincial education departments (PEDs), to the new national DHET (function shift). In response to employers’ strong preference for the NATED curriculum and a widespread mistrust of the new NCV, it was announced that the NATED programmes would be retained and receive subsidies, while all offerings, NCV and NATED, were to be reviewed.

These changes also added new layers of confusion to the colleges. In addition, they occurred in a context of some turbulence. This included recent institutional mergers, changes of governance from provinces to partial autonomy, then later to DHET, uncertainty and concern among college staff over conditions of service, rapid acceleration of student enrolments, significant increases in the staff: student ratio as well as the need to become accustomed to profound changes in the make-up of the student body in terms of age, socio-economic background, home language, gender mix and population group.

In 2013, the Quality Council for Trades and Occupations (QCTO), was mandated to develop new or revised national qualifications for occupations, and to design curricula leading to these qualifications that would prioritise responsiveness to the changing needs of the workplace and industry. Previously, a large number of diverse occupational qualifications had been developed by the SETAs using unit standards. The new Occupational Certificates that are in many cases due to replace these diverse qualifications are recognised in the NQF Occupational Qualifications Sub-Framework [OQSF] Policy (2013), occupying levels 1 – 8 of the NQF’s ten levels (QCTO, 2013).

An up-to-date occupational profile for each trade is produced in close partnerships with employers, identifying what artisans will need to know and be able to do in order to be considered competent. The occupational profiles are then used to design new and up-to-date qualifications for “A21 apprentices” – apprentices for the 21st Century. Thirteen priority trades have been selected for initial development.

Importantly, the development of the new Occupational Certificates was planned as an integral part of the DHET’s Centres of Specialisation initiative, designed to address the demand for priority trades needed for implementing the National Development Plan and National Infrastructure Plan. A second aim was to build the capacity of TVET colleges to deliver trade qualifications in close collaboration with employer partners in a development along lines similar to the German Dual System (DHET, 2016).

The Centres of Specialisation in their turn form part of the government’s planned infrastructure investment programme consisting of 18 Strategic Integrated Projects (SIPs) spread across South Africa. Each SIP is a collection of projects that seek to address a particular socio-economic opportunity or challenge (*ibid*.).

As the many components of this composite plan are steadily assembled, and given the target of producing 30 000 artisans a year by 2030, the Government and particularly the public TVET sector share high hopes for the re-establishment of a sound, responsive artisan training system and the development of capacity and quality in the TVET college system to deliver trade qualifications with employer partners.

From this summarised account, which has focused on a segment of the contextual factors revolving around the TVET curricula rather than on the content of the curricula, it should be clear that the introduction of new curricula and the phasing out or revision of the old are far from straightforward “policy missiles” to be aimed at a certain “target audience”.

Group agendas (such as those of senior management in the national government, or employers), concerns about curriculum relevance and responsiveness to the workplace, about the place of TVET relative to schooling and the post-school sector, about the balance between theory and practice, about standards, about the needs of the population and the economy, about institutional viability and about lecturers’ conditions of service – each of these represents a “force field” that shapes the domain of the curriculum as practice, moulding it this way and that like a potter’s fingers.

Such pressures influence the visions, goals and selection of knowledge that go into the design of official curricula. They also influence the pedagogic approach of textbooks, the shape of the academic calendar and assessment, the way lecturers approach the curriculum, and of course students’ choices. Thus all of these factors need to be borne in mind when mediating, and particularly interpreting the curriculum.

## Reading 3

|  |
| --- |
| **Extracts from National Certificate (Vocational): Subject Guidelines and Assessment Guidelines: Electrical Principles and Practice NQF Level 4, Implementation: January 2015** Source:  <https://www.dhet.gov.za/National%20Certificates%20NQF%20Level%204/NC(Vocational)%20Assessment%20Guidelines%20Level%204/Electrical%20Infrastructure%20Construction/Electrical%20Principles%20and%20Practice%20(AG).pdf> |

**NATIONAL CERTIFICATE (VOCATIONAL)**

**SUBJECT GUIDELINES**

**ELECTRICAL PRINCIPLES AND PRACTICE**

**NQF LEVEL 4**

**IMPLEMENTATION: JANUARY 2015**

**INTRODUCTION**

**A. What is *Electrical Principles and Practice*?**

This subject covers the basics of electrical principles and practice and is designed to be an introduction to the field of learning. For Level 2 the assumption is that the student has no previous electrical background. Level 3 and 4 are a continuation of the learning material.

**B. Why is *Electrical Principles and Practice* important in the Electrical Infrastructure Construction programme?**

This subject contains enough trade specific skills, knowledge, attitudes and values for the students to understand how electricity is applied in practice.

**C. The link between the *Electrical Principles and Practice* Learning Outcomes and the Critical and Developmental Outcomes**

This subject covers a substantial portion of the theoretical knowledge component of the exit level outcomes. The application of this subject is orientated to outcomes and relates to the critical and developmental outcomes. Students will be taught to:

* **Identify and solve problems:**

Recognise principles of electricity and react appropriately

* **Work effectively with others**

When solving problems

* **Organize and manage their activities and themselves**

Apply planned procedures for using, storing and looking after equipment, tools, test equipment, drawings and parts

* **Collect, organise and evaluate information, and take appropriate action**

Use media-centres to collect information

* **Communicate effectively**

Use proper terms for electrical equipment, tools, test equipment, drawings and parts

* **Use science and technology**

Use and apply science and technology principles in both theory and practice

* **Demonstrate understanding of subject content through the application of acquired knowledge**

Solve problems by using subject content.

**D. Factors that contribute to achieving the *Electrical Principles and Practice***

**Learning Outcomes**

* An understanding of technical (electro-mechanical) principles
* Analytical ability
* Ability to do mathematical calculations and manipulations
* Hand-skills (practical skills)
* Practical improvisation abilities

**(…)**

**2 SUBJECT LEVEL OUTCOMES AND FOCUS**

**SAQA Qualification ID: 50441**

On completion of this subject the student should be able to:

* Apply the principles of electricity in DC and AC networks as well as RL, RC and
* RLC circuits to measure power and perform related power and error calculations.
* Explain the generation and supply of electricity in single- and three–phase systems and perform related measuring and calculations of power.
* Apply the principles of earthing in electrical appliances, installations and low voltage distribution systems to check for compliance to safety standards and regulations.
* Explain the construction and operation of single- and three–phase transformers and DC and AC electrical machinery to calculate power, performance and efficiency.

**Associated Assessment Criteria**

* The principles of electricity in DC and AC networks as well as RL, RC and RLC circuits are explained with diagrams and sketches and power is measured and calculated.
* The generation and supply of electricity in single- and three–phase systems are explained with diagrams and sketches and power is measured and calculated.
* Earthing practices in electrical appliances, installations and low-voltage distribution systems are explained and safety and quality checks are performed.
* The construction and operation of single- and three–phase transformers and DC and AC electrical machinery are explained with diagrams and sketches and power, performance and efficiency are calculated.

**(…)**

**7 SUBJECT AND LEARNING OUTCOMES**

On completion of *Electrical Principles and Practice Level 4* the student should have covered the following topics:

Topic 1: Fundamentals of electricity

Topic 2: Generation and supply of electricity

Topic 3: Earthing practices

Topic 4: Transformers

Topic 5: Electrical machines

**Topic 1: Fundamentals of electricity**

**Subject Outcome 1.1: Explain DC Networks**

**Learning Outcomes:**

The student is able to:

* Define basic terms commonly used within an electrical network

*Range: Network, network element, branch, junction point, node and loop*

* List and explain the classification of electrical networks

*Range: linear, non-linear, active and passive networks*

* Calculate unknown voltages, currents and resistance in a circuit

*Range: series, parallel and series-parallel*

* State and use Kirchhoff’s laws to determine unknown currents and voltages in a circuit

*Range: Max with two batteries and a generator*

**Subject Outcome 1.2: Explain measuring instruments**

**Learning Outcomes:**

The student is able to:

* Sketch and explain how measuring instruments are inserted into circuits

*Range: Voltmeters, ammeters, ohmmeters, wattmeter (single phase), frequency meters, insulation resistance testers, clamp on ammeter and instrument transformers*

* Calculate the value of series and shunt resistors required to extend the range of voltmeters and ammeters in a circuit
* List and explain the two different methods of connecting a voltmeter and ammeter in a circuit

*Range: short and long shunt*

* Explain using the Wheatstone bridge how the value of an unknown resistance is calculated
* List and explain the practical applications of the Wheatstone bridge
* Calculate errors in measurement

*Range: Absolute error and percentage relative error*

**Subject Outcome 1.3: Explain alternating voltages and currents etc., etc.**

**(…)**

**NATIONAL CERTIFICATES (VOCATIONAL)**

**ASSESSMENT GUIDELINES**

**ELECTRICAL PRINCIPLES AND PRACTICE**

**NQF LEVEL 4**

**IMPLEMENTATION: JANUARY 2015**

**SECTION A: PURPOSE OF THE SUBJECT ASSESSMENT GUIDELINES**

This document provides the lecturer with guidelines to develop and implement a coherent, integrated assessment system for Electrical Principles and Practice Level 4 in the National

Certificates (Vocational). It must be read with the *National Policy Regarding Further Education and Training Programmes: Approval of the Documents, Policy for the National Certificates (Vocational) Qualifications at Levels 2 to 4 on the National Qualifications Framework (NQF)*.

This assessment guideline will be used for National Qualifications Framework Levels 2-4.

This document explains the requirements for internal and external subject assessment. The lecturer must use this document with the *Subject Guidelines: Electrical Principles and Practice Level 4* to prepare for and deliver Electrical Principles and Practice. Lecturers should use a variety of resources and apply a range of assessment skills in the setting, marking and recording of assessment tasks.

**SECTION B: ASSESSMENT IN THE NATIONAL CERTIFICATES (VOCATIONAL)**

**(…)**

**2 ASSESSMENT FRAMEWORK FOR VOCATIONAL QUALIFICATIONS**

The assessment structure for the National Certificates (Vocational) qualification is as follows:

**2.1 Internal continuous assessment (ICASS)**

Knowledge, skills values, and attitudes (SKVAs) are assessed throughout the year using assessment instruments such as projects, tests, assignments, investigations, role-play and case studies. The internal continuous assessment (ICASS) practical component is undertaken in a real workplace, a workshop or a “Structured Environment”. This component is moderated internally, and externally quality assured by Umalusi. All internal continuous assessment (ICASS) evidence is kept in a Portfolio of Evidence (PoE) and must be readily available for monitoring, moderation and verification purposes.

**2.2 External summative assessment (ESASS)**

The external summative assessment is either a single or a set of written paper(s) set to the requirements of the Subject Learning Outcomes. The Department of Higher Education and

Training (DHET) administers the theoretical component according to relevant assessment policies.

A compulsory component of external summative assessment (ESASS) is the **integrated summative assessment task (ISAT)**. This assessment task draws on the students’ cumulative learning throughout the year. The task requires **integrated application of competence** and is executed under strict assessment conditions. The task should take place in a simulated or “Structured Environment”. The ISAT is the most significant test of students’ ability to apply acquired knowledge.

The integrated assessment approach allows students to be assessed in more than one subject with the same ISAT.

External summative assessments will be conducted annually between October and December, with provision made for supplementary sittings.

**(…)**

**9 INSTRUMENTS AND TOOLS FOR COLLECTING EVIDENCE**

All evidence collected for assessment purposes is kept or recorded in the student’s Portfolio of Evidence (PoE).

The following table summarises a variety of methods and instruments for collecting evidence. A method and instrument is chosen to give students ample opportunity to demonstrate the Subject Outcome has been attained. This will only be possible if the chosen methods and instruments are appropriate for the target group and the Specific Outcome being assessed.

|  |  |  |  |
| --- | --- | --- | --- |
| **METHODS FOR COLLECTING EVIDENCE** | | | |
|  | **Observation-based**  (Less structured) | **Task-based**  (Structured) | **Test-based**  (More structured) |
| **Assessment instruments** | * Observation * Class questions * Lecturer, student, parent discussions | * Assignments or tasks * Projects * Investigations or research * Case studies * Practical exercises * Demonstrations * Role-play * Interviews | * Examinations * Class tests * Practical * examinations * Oral tests * Open-book tests |
| **Assessment tools** | * Observation sheets * Lecturer’s notes * Comments | * Checklists * Rating scales * Rubrics | * Marks (e.g. %) * Rating scales (1-7) |
| **Evidence** | * Focus on individual students * Subjective evidence based on lecturer observations and impressions | **Open middle**: Students produce the same evidence but in different ways.  **Open end**: Students use same process to achieve different results. | Students answer the same questions in the same way, within the same time. |

**(…)**

**12 COMPETENCE DESCRIPTIONS**

All assessment should award marks as evaluation of specific tasks. However, marks should be awarded against rubrics and should not simply be a total of ticks for right answers. Rubrics should explain the competence level descriptors for the skills, knowledge, values and attitudes that a student must demonstrate to achieve each level of the rating scale.

When lecturers or assessors prepare an assessment task or question, they must ensure that it addresses an aspect of a Subject Outcome. The relevant Assessment Standard must be used to create the rubric to assess the task or question. The descriptions must clearly indicate the minimum level of attainment for each category on the rating scale.

**(…)**

**SECTION C: ASSESSMENT IN ELECTRICAL PRINCIPLES AND PRACTICE**

**1 ASSESSMENT SCHEDULE AND REQUIREMENTS**

Internal and external assessments are conducted and the results of both contribute to the final mark of a student in the subject.

The internal continuous assessment (ICASS) mark accounts for 50 percent and the external mark for 50 percent of the final mark. A student needs a minimum final mark of 50 percent to achieve a pass in the subject.

**1.1 Internal assessment**

Lecturers must compile a detailed assessment plan and assessment schedule of internal assessments to be undertaken during the year in the subject (e.g. date, assessment task or activity, rating code/marks allocated, assessor, moderator).

All internal assessments are then conducted according to the plan and schedule using appropriate assessment instruments and tools for each assessment task (e.g. tests, assignments, practical tasks/projects and memoranda, rubrics, checklists).

The marks allocated to the minimum number of both practical and written assessment tasks conducted during the internal continuous assessment (ICASS) are kept and recorded in the Portfolio of Evidence (PoE) which is subject to internal and external moderation.

A year mark out of 100 is calculated from the ICASS marks contained in the PoE and submitted to DHET on the due date towards the end of the year.

The following internal assessment units **GUIDE** the internal assessment of *Electrical Principles and Practice NQF Level 4.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TASKS** | **Timeframe** | **Type of**  **assessment**  **activity** | **Minimum time and proposed mark allocation**  (\*can be increased but  not reduced) | **Scope of**  **assessment** | **% contribution**  **to the year mark** |
| Do not confuse the weightings of topics in the Subject Guidelines with the % contribution to the year mark | |
| 1 | Term 1 | Test | 1 hour (50 marks) | Topics completed in  Term 1 | 10 |
| 2 | Term 1 | Practical  Assessment/  Assignment | Determined by the scope and nature of the task | One or more of the  topics completed as  an assignment | 25 |
| 3 | Term 2 | Practical  Assessment/  Assignment | Determined by the scope and nature of the task | One or more of the  topics completed as  an assignment | 25 |
| 4 | Term 2 | Test\* | 1 hour (50 marks) | Topics completed in  Term 1 and 2 | 10 |
| 5 | Term 3 | Internal  Examination\* | *As per external*  *examinations*  (P1 & P2 where  applicable) | Topics completed to  Date (P1 =15  & P2=15, where  applicable) | 30 |
| **TOTAL** | | | | | **100** |

**2 RECORDING AND REPORTING**

Electrical Principles and Practice is assessed according to five levels of competence. The level descriptions are explained in the following table.

***Scale of Achievement for the Vocational component***

|  |  |  |
| --- | --- | --- |
| **RATING CODE** | **RATING** | **MARKS %** |
| **5** | Outstanding | 80-100 |
| **4** | Highly Competent | 70-79 |
| **3** | Competent | 50-69 |
| **2** | Not yet competent | 40-49 |
| **1** | Not achieved | 0-39 |

The planned and scheduled assessment should be recorded in the lecturer’s Portfolio of

Assessment (PoA) for each subject. The minimum requirements for the **Lecturer’s Portfolio of Assessment** should be as follows:

* Lecturer information
* A contents page
* Subject and Assessment Guidelines
* A subject Year Plan /Work Scheme/Pace Setter
* A subject assessment plan
* Instrument(s) (tests, assignments, practical) and tools (memoranda, rubrics, checklists) for each assessment task
* A completed pre-moderation checklist for each of the ICASS tasks and their accompanying assessment tools
* A completed post-moderation checklist once the task has been administered and assessed
* Subject record sheets per level/class reflecting the marks achieved by students in the ICASS tasks completed
* Evidence of review – diagnostic and statistical analysis, including notes on improvement of the task for future use.

The college could standardise these documents.

The minimum requirements for the **student’s Portfolio of Evidence (PoE)** should be as follows:

* Student information/identification
* Declaration of authenticity form – duly completed (signed and dated)
* A contents page/list of content (for accessibility)
* A subject assessment schedule
* The evidence of marked assessment tasks and feedback according to the assessment schedule
* A summary record of results showing all the marks achieved per assessment for the subject
* Evidence of moderation (only where applicable for student’s whose tasks were moderated)

Where tasks cannot be contained as evidence in the Portfolio of Evidence (PoE), their exact location must be recorded and they must be readily available for moderation purposes.

**3 INTERNAL ASSESSMENT OF SUBJECT OUTCOMES IN ELECTRICAL PRINCIPLES**

**AND PRACTICE – LEVEL 4**

**Topic 1: Fundamentals of Electricity**

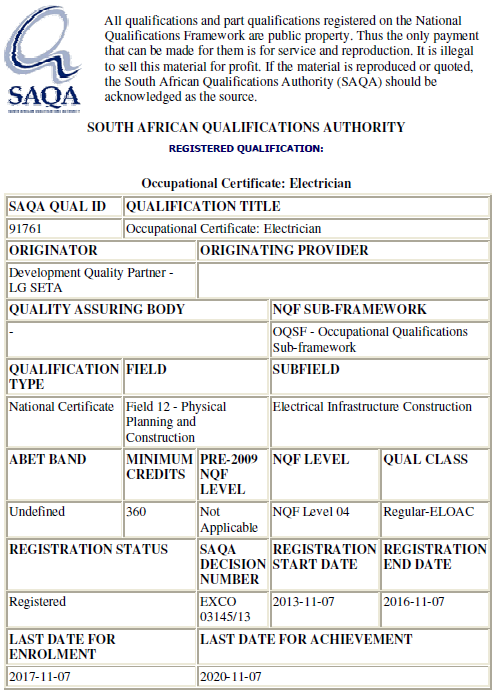
|  |  |
| --- | --- |
| **SUBJECT OUTCOME** | |
| **1.1 Explain DC Networks** | |
| **ASSESSMENT STANDARD** | **LEARNING OUTCOME** |
| * The basic terms commonly used within an electrical network are defined   *Range: Network, network element, branch,*  *junction point, node and loop* | * Define basic terms commonly used within an electrical network |
| * The classification of electrical networks is listed and explained   *Range: linear, non-linear, active and passive*  *networks* | * List and explain the classification of electrical   networks |
| * Unknown voltages, currents and resistance in a circuit are calculated   *Range: series, parallel and series-parallel* | * Calculate unknown voltages, currents and resistance in a circuit |
| * Unknown currents and voltages in a circuit are calculated using Kirchhoff’s laws   *Range: Max with two batteries and a generator* | * State and use Kirchhoff’s laws to determine unknown currents and voltages in a circuit |
| **ASSESSMENT TASKS OR ACTIVITIES** | |
| Theoretical assessment   * Assess the student on the achievement of the learning outcomes listed here. * Given a circuit, students use loops to obtain equations which are solved to determine unknown currents, for example current supplied by generator, current through battery A and B.   Practical assessment   * Student builds circuits on breadboard, the electrical quantities measured and compared with calculated values using Ohm’s and Kirchhoff’s laws. | |

|  |  |
| --- | --- |
| **SUBJECT OUTCOME** | |
| **1.2 Explain measuring instruments** | |
| **ASSESSMENT STANDARD** | **LEARNING OUTCOME** |
| * The manner in which measuring instruments are inserted into circuits is sketched and explained   *Range: Voltmeters, ammeters, ohmmeters,*  *wattmeter (single phase), frequency meters,*  *insulation resistance testers, clamp on ammeter and instrument transformers* | * Sketch and explain how measuring instruments are inserted into circuits |
| * The value of series and shunt resistors required to extend the range of voltmeters and ammeters in a circuit is calculated | * Calculate the value of series and shunt resistors required to extend the range of voltmeters and ammeters in a circuit |
| * The two different methods of connecting a   voltmeter and ammeter in a circuit are listed and explained | * List and explain the two different methods of   connecting a voltmeter and ammeter in a circuit  *Range: short and long shunt* |
| * The calculation of the value of an unknown resistance is explained using the Wheatstone bridge | * Explain using the Wheatstone bridge how the value of an unknown resistance is calculated |
| * Practical applications of the Wheatstone bridge are listed and explained | * List and explain the practical applications of the Wheatstone bridge |
| * Errors in measurement are calculated   *Range: Absolute error and percentage relative error* | * Calculate errors in measurement |
| **ASSESSMENT TASKS OR ACTIVITIES** | |
| Theoretical assessment   * Assess the student on the achievement of the learning outcomes listed here.   Practical assessment   * Student must be able to connect the measuring instruments stated in the range * Demonstrate the two different methods of connecting a voltmeter and ammeter in a circuit * Build a Wheatstone bridge | |

|  |
| --- |
| **SUBJECT OUTCOME** |
| **1.3 Explain alternating voltages and currents, etc., etc.** |

**(…)**

## Reading 4



**PURPOSE AND RATIONALE OF THE QUALIFICATION**

**Purpose:**

The purpose of this qualification is to prepare a learner to operate as an Electrician. Electricians plan, prepare install, test, connect, commission, maintain, alter and repair electrical equipment, wiring and control systems and apply the knowledge and skills obtained, in a variety of contexts.

A qualified learner will be able to:

* Plan and prepare work site, equipment, tools, consumables and materials for electrical activities and operations.
* Install, wire and connect electrical equipment and control systems.
* Test and inspect electrical equipment, control systems and installations.
* Commission control systems and installations.
* Maintain and repair electrical equipment, control systems and installations.

**Rationale:**

The Occupational Certificate: Electrician was developed with the full participation of the Metal and Chemical Industries, Mining, Railways, Electrical Contractors Authority, Agricultural Sector, Eskom, South African Navy, Further Education and Training Colleges and Municipalities. The development of this qualification will ensure that the training of Artisan learners will consistently produce Artisans that can fully function within all the sectors mentioned. Once qualified the mobility of Artisans between sectors will significantly be improved.

The entry requirements of the Qualification will allow learners leaving the general schooling system after Grade 9 to gain access to the qualification.

Electricians qualified through this qualification will be able to plan, prepare, install, maintain, commission and fault find a range of equipment and systems within a variety of electrical installations in the construction, manufacturing, chemical, energy, mining, municipal, agricultural and railway environments. The work experience modules were written to reflect all the different contexts that were prevalent in the various sectors, and is aimed at producing an individual that is fully competent within the range of this curriculum.

Various specialisation areas where a learner must first be qualified as an electrician were identified within the areas of metering, high voltage and medium voltage (HV and MV), live work, hazardous areas, medium and high voltage cable jointing, switching and protection.

**LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING**

**(…)**

**QUALIFICATION RULES**

This qualification is made up of the following compulsory Knowledge and Practical

Skill Modules:

**Knowledge Modules:** Total number of credits for Knowledge Modules: 91.

Health, Safety, Quality and Legislation, NQF Level 4, 5 Credits.

Tools, Equipment and Materials, NQF Level 4, 8 Credits.

Electricity and Electronics, NQF Level 4, 13 Credits.

Industry Context, NQF Level 3, 2 Credits.

Wireways and Wiring, NQF Level 4, 11 Credits.

Rotating Electrical Machinery, NQF Level 4, 13 Credits.

Electrical Supply Systems and Components, NQF Level 4, 31 Credits.

Low Voltage Protection, NQF Level 4, 5 Credits.

Fault Finding, NQF Level 4, 3 Credits.

**Practical Skill Modules:** Total number of credits for Practical Skill Modules: 113.

* Use hand and power tools, NQF Level 3, Credits 22.
* Plan and prepare the process for the wiring, connection, testing, inspecting, commissioning and maintaining electrical installations and control systems, NQF Level 3, 5 Credits.
* Prepare worksite set up for installing, wiring and connecting electrical equipment and control systems, NQF Level 3, 3 Credits.
* Install wireways, NQF Level 4, 5 Credits.
* Install, wire and connect electrical equipment and control systems, NQF Level 4, Credits 38.
* Conduct pre-commission inspection (power on and off) fault find and test new and existing installations, NQF Level 4, Credits 5.
* Carry out commissioning tests, NQF Level 4, Credits 13.
* Fault find and repair electrical control systems and electrical installations, NQF Level 4, Credits 22.

**This qualification also requires the following Work Experience Modules:** Total number of credits for Work Experience Modules: 156.

* Planning and preparation process for the wiring, connecting, testing, inspecting, commissioning and maintaining of electrical installations and control systems, NQF Level 4, Credits 8.
* Processes of installation, wiring and connection of electrical equipment and control systems, NQF Level 4, Credits 74.
* Processes of testing and inspecting of electrical equipment, control systems and installations, NQF Level 4, 15 Credits.
* Processes of commissioning electrical installations and control systems, NQF Level 4, 15 Credits.
* Maintenance processes for electrical installations and control systems, NQF Level 4, 44 Credits.

**EXIT LEVEL OUTCOMES**

1. The ability to plan and prepare work site, equipment, tools, consumables and materials for electrical activities and operations.
2. The ability to install, wire and connect electrical equipment and control systems.
3. The ability to test and inspect electrical equipment, control systems and installations.
4. The ability to commission control systems and installations.
5. The ability to maintain and repair electrical equipment, control systems and installations.

**ASSOCIATED ASSESSMENT CRITERIA**

**Associated Assessment Criteria for Exit Level Outcome 1:**

* Risk assessments, including work related hazards and ergonomics, are carried out and reports completed as per statutory requirements.
* Evidence of mitigation is observed in accordance with standard operating procedures.
* Approved work permit or other documentation is completed to reflect risk assessment conducted in accordance with approval procedures.
* The relevant tools, material and equipment are correctly listed and quantities recorded in accordance with the task specification.
* The correct human resources are listed that meet the job specification.
* The work flow/work order is correctly analysed and applied in accordance with the task specification.
* Worksite is prepared in terms of the procurement of resources, preparation and transportation of resources and the preparation equipment, tools, consumables and materials.
* Knowledge and understanding of planning and preparation of work site, equipment, tools, consumables and materials for electrical activities and operations are demonstrated.

**Associated Assessment Criteria for Exit Level Outcome 2:**

* The correct wire ways are selected in accordance with relevant regulations and codes that meet the operational conditions of the installation.
* The correct installation methods are selected in accordance with relevant regulations and codes, job instruction and environmental requirements.
* Tools, material and equipment are safely and correctly used while adhering to worksite and workshop safety procedures.
* Personal protective equipment are correctly selected and used according to statutory requirements.
* Power tools are selected and used correctly and safely while adhering fully to workplace safety regulations.
* Wireways are installed in accordance with design and layout requirements, termination and joining requirements and bonding requirements.
* Electrical equipment and control systems are installed, wired and connected in accordance with the requirements of identified hazards and the selection and installation method and installation, wiring and termination workshop practices confirmed.
* Knowledge and understanding of installing, wiring and connecting electrical equipment and control systems are demonstrated.

**Associated Assessment Criteria for Exit Level Outcome 3:** etc., etc.

**(…)**

**Integrated Assessment:**

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the Exit Level Outcomes and associated assessment criteria.

The external assessment model requires that the external assessment will be conducted through practical task at an accredited trade test centre. The examination and practical tasks will be concluded at an accredited assessment centre and marked by registered assessors. The trade test will be conducted over a period of two working days.

**INTERNATIONAL COMPARABILITY**

This International comparability study was undertaken to examine a selected number of electrical trades/occupations, including their levels of qualifications and related curricula. The purpose is to provide baseline information towards benchmarking of the electrical curricula under development for all sectors in South Africa.

The review included 5 countries: Australia, New Zealand, United Kingdom, Canada and South Africa. New Zealand and Australia were considered to be particularly the most appropriate countries with which to compare with South Africa. Amongst the Southern African Development Community (SADC) there are countries which align with the United Kingdom's model of Vocational Education and Training (VET), through the London City and Guilds qualification framework and the National Vocational Qualification system (NVQ). Despite the fact that SADC countries are not as industrialised as the United Kingdom, it could be concluded that countries using the British qualifications compare favourably to similar South African qualifications as discussed under the U.K. section. In all SADC countries researched, none currently have an active training infrastructure in electrical engineering.

**Conclusion:**

The findings reveal that the South African Occupational Electrical qualification is generally comparable to what is found in the chosen countries. The comparison mainly extends to the qualifications awarded, level of qualification, modes of delivery and, to some extent, the contents of the curricula. South Africa was found to generally have more detailed curricula. The difficulty in comparing curricula is that units/unit standards are shared between qualifications from levels 2-5 in the reviewed countries thus a direct comparison on the higher levels become skewed.

In the study it became apparent that the qualifications that were inspected in the selected countries were broken down into smaller units pitched between the levels 2-5. In terms of content the South African qualification compared favourably to the other qualifications/programmes.

Brief sections follow on **Articulation Options** (Horizontal and vertical), and on **Unit Standards** (this qualification is *not* based on unit standards).

**(…)**

## Teaching Resources Pack

### Twelve lesson methods

The following lesson methods have proved to be effective in promoting deep learning and the practice of higher-order cognitive processing, as well as high levels of recall.

Some of them will spread across all of the five phases outlined in Unit 4; others may be suitable for a single phase.

Most are co-operative group learning methods; those that are not can be adapted for co-operative learning situations.

Only Web Quests are fully Internet-dependent. Flipped Lessons, and these days’ lessons based on Learning Stations, usually have an important online component, but both these techniques can be used with print-based material. Finally, powerful digital tools are available that provide simulations and enhance the making of Mind Maps; however, the use of simulations and mind maps is not limited to these, and a great deal can be accomplished using paper-based activity. The lessons and methods below are arranged roughly from those which are not at all dependent on online learning to those that are.

**Problem-based Lessons**

Problem-based learning tends to combine simultaneously both technical/occupational skills and so-called soft skills such as critical and creative thinking, collaboration and teamwork, complex communication, global thinking, flexibility, and often ethical awareness. It is associated with improved motivation and performance (Witte and Rogge, 2016), and widely recognised toady as an essential element in TVET.

The authentic work-based problems used in problem-based learning are not routine work challenges that can be dealt with by employing basic content knowledge and standardised procedures. In addition to these, they tend to involve creative thinking, flexibility, group communication and collaboration, research, planning, trialling, and the ability to draw on one’s own prior experience. Typically, a problem-based activity starts at the point where basic content knowledge is not enough, or where standard procedures or equipment, or routine repair operations do not work.

Traditionally taught students graduate with high levels of *declarative knowledge*. Practice on the other hand, according to Biggs and Tang (2011, p. 178),

“*requires functioning knowledge that can be put to work on the spot. Traditionally taught graduates manage to do that with varying degrees of success and, with experience in the real world, become increasingly better at it. However, if students graduate with that functioning knowledge already to hand, their induction into real-life professional practice is that much quicker.”*

Biggs and Tang argue that problem-based learning provides practice in the use of *functioning knowledge* that would otherwise be gained only in the workplace. It promotes learning by *doing*.

Problem-based learning lessons may vary according to the *amount of structure provided* by the lecturer – from problems in which all the information needed to solve them is given, to those in which it is left to the student to decide what information is needed and to research it in order to deal with the problem.

Problem-based learning is often confused with problem-solving learning. The latter simply means setting straightforward problems for students to solve after they have been taught conventionally. In problem-based learning, it is not the traditional disciplines which define what is to be learned; it is the *problems* which do this (Savin-Baden, 2000). And the learning that results embraces traditionally-learnt declarative knowledge, practical skills, self-management, and attitudes. Thus problem-based lessons need to be carefully thought out:

1. Map all the *concepts* likely to be involved from the relevant disciplines, as well as the *skills* required to resolve the problem (see Mind-maps/Concept-maps below).
2. Identify the *intended learning outcomes.* What do you expect the students to be able to do with the new knowledge and skills?
3. Identify an *authentic problem* from a real-life situation – one that the students are likely to encounter in their future jobs.
4. When *writing* problems:

• Use the present tense. Otherwise problems look like just another textbook exercise.

• Provide a specific *context* and practitioner *role*.

• Provide specific data rather than vague descriptions.

• Require the students to delivera *decision or report*, as they would have to if the situation were real (adapted from Biggs and Tang, 2011, p. 181).

**Role Plays**

There are many ways in which role plays can be used in TVET. Just one is presented here, based on Bünning, 2007, p. 45.

Participants may be selected or elected, or volunteer to take on fictitious roles which involve different positions in society, and different modes of thinking and acting. In the role play situation, which is usually explained carefully by the lecturer, they will experience, discuss and attempt to solve a work-related problem within a limited space of time, with each participant trying to act appropriately in the role he or she has been allocated. Before they begin with the actual role play, they must be given some time to prepare a course of action which can help to solve the problem.

The participants outside the acting group take the role of observers, who usually attempt to view the role play as objectively as possible. Later, during a plenary discussion, they may adopt more critical positions.

As a general rule, when the actual role play begins, the “actors” will act out the problem and try to work toward a solution, which is either “implemented” or presented in some way.

Afterwards, a discussion and evaluation of the role play is carried out, either in groups or in plenary. This is probably the most important part of the lesson in terms of learning for the class as a whole.

The lesson should conclude with a de-briefing session run by the lecturer, including a generalisation of the problem situation and possible solutions, linking these to the real world of work.

**My Answer/Our Answer**

This is a useful activity for encouraging students to think more deeply about their subject. It also provides an opportunity for challenging discussion at a professional level, but in a low-threat situation.

The method is quite simple, and can be based on any well-thought-out multiple choice quiz. It’s important that the questions in the quiz, and the selection of answers provided for each question, should be at a challenging level rather than obvious. But there are numerous sources of good Multiple Choice questions on the Internet. The questions in the example, on Early Childhood Development, are taken from Indiana Core Assessments for Educator Licensure, which provides both challenging questions *and* thorough explanations of the correct answers to each question.

See: <https://www.in.nesinc.com/Content/STUDYGUIDE/IN_SG_SRI_004.htm>

Four or five potential answers should be provided for each question. Between five and ten clearly-numbered questions, with the potential answers listed below each question, should be typed in a wide middle column between two narrow columns to the left and right (use MS Word or a similar programme). Print off enough copies for every student in the class to have one. Head the first two columns: **My answer**, and **Questions and Answers** (see example below). Leave the right-hand column un-headed:

|  |  |  |
| --- | --- | --- |
| **My answer** | **Questions and Answers** |  |
|  | 1. Which of the following actions by an early childhood teacher would likely be most effective in fostering the moral development of young children?   1. involving the children in creating specific behaviour rules for each area of the school and classroom 2. helping the children understand how their actions may affect others and consistently modelling caring and equity 3. establishing a set of clear behaviour rules at the beginning of the year and applying consequences without exception 4. awarding a prize each Friday to the child who has been most cooperative during the course of the week |  |
|  | 2. A four-year-old child at the sand table is trying to fill a container with sand using a measuring cup. However, the child's attempts result in more sand spilling on the floor than filling the container. Which of the following statements by the teacher would most likely prompt the child to engage in problem solving in this situation?   1. "I'm going to watch you fill the container step by step. You tell me what happens at each step." 2. "I wonder if you'd be more successful if you tried to fill a wide-mouth container." 3. "Now I see what's happening. You're pouring the sand before the cup is above the container." 4. "Perhaps it would work better to use the container to scoop up the sand." |  |
|  | etc, etc. |  |

The students need to be arranged in groups of four or five, and each participant should receive one sheet of questions. Instruct all the students to answer the questions as individuals, writing their choice of answers in the left-hand column. Tell them how much time they have to do this. About 8 minutes should be enough time for ten reasonably challenging questions, but if you see that some students are still trying to answer questions, delay giving the “Time’s up” signal for a bit longer.

Then instruct the students to answer the same questions *as groups*. In other words, they need to discuss the answers chosen by their group’s members and reach consensus on the answer that the group agrees on as being the correct, or most appropriate one. Only *one* answer may be provided for each question (groups may not put forward two answers for any question). Tell the class more or less how much time they have in which to complete this stage of the activity, but make sure that all the groups have completed the task before you tell them “Time’s up.” (If a group is taking far too long to reach consensus, give the whole class a warning that they have one minute to wrap up.)

At this point read out the questions and answers one at a time, and as you read out each answer, ask the groups to raise their hands if they chose that answer. When you have read out all the answers, tell the class which is the correct answer, and allow plenary discussion if any groups chose incorrectly. You will need to be prepared to explain *why* the correct answer is correct, and what was wrong with any other answers that students may still want to defend.

Only proceed to read out the next question and the answers following it when you have completed the discussion of the preceding question.

The quiz can have fewer than ten questions, but you will find that more than ten questions will probably take too long to discuss, and most students will begin to lose interest. If there is very little discussion, it means that the correct answers were too easy to identify.

**Placemat Method**

This is an effective method for pooling ideas. It can be used at the end or even in the middle of a lesson, but is particularly useful for establishing the level of students’ prior knowledge, experience or common sense at the start of a unit, at the same time generating some enthusiasm for the topic at hand. The only challenge for the lecturer is to think up a suitable and realistic workplace-based problem or challenge.

1. The lecturer explains how the activity works, and sets out the problem, challenge, task or question.
2. Students are arranged, or arrange themselves, in groups of four.
3. Seated together in their groups, the students first work on their own for a set period (five minutes or longer, depending on the complexity of the task), writing their ideas legibly in their own section of the “placemat” (a sheet of paper from a flipchart – see Figure 1 below).
4. At a signal from the lecturer the students then work collaboratively, reading one another’s contributions, attempting to reach consensus, and writing their consensus view in the rectangle in the middle of the placemat.

**Trainee 1 writes ideas HERE**

**Trainee 4 writes ideas**

**HERE**

**Trainee 2 writes ideas**

**HERE**

**Team Outcome/ Compromise HERE**

**Trainee 3 writes ideas HERE**

**Figure 1: Placemat layout**

1. Again at a signal from the lecturer, the groups swap tables, leaving their placemat on their table. They examine another group’s placemat, identifying any differences from their own, and discussing whether their own should be modified or not.
2. The groups now return to their original table and decide whether or not to make amendments to their original placemat.
3. Each group now presents their final product (what is written in the middle of their placemat) to the entire group.
4. The class discusses and decides on a final product. Any individual dissenting ideas are also noted and discussed.

For example, a lecturer may pose the following challenge in a Food Preparation class: “You’re the first to enter the restaurant kitchen on a Friday morning. Puddles of water on the floor alert you to the fact that the power must have been off for much longer than the usual two-and-a-half-hour load-shedding period overnight. Food in the refrigerators and freezers – all well-stocked for an anticipated busy weekend – is already thawing. What course of action do you follow?”

The final consensus of one group may look like Figure 2 below, after all the individual contributions have been processed.

The placemat method is a goal-directed approach, identifying different ways of approaching a problem at work. It may bring to light “out of the box” as well as conventional ways of tackling a problem. It can build students’ confidence and promote both technical and cross-curriculum thinking.

Check whether the larger cuts of meat have started thawing, and pack these together into the coldest refrigerator or freezer.

Phone the municipality to find out if the power is likely to be restored soon.

First, check fuses. If none have tripped, phone municipality to find out if the power is likely to be restored soon. If this is uncertain, contact supervisor for advice. If necessary, transfer more costly food to the coldest refrigerator or freezer. Prepare to offer a “special” on dishes for which ingredients may spoil if not cooked the same day.

Check the fuses in the switchboard, and contact your supervisor/the head chef.

Check Fuse Box and change fus

Offer a “special” on dishes that include the smaller, thawed cuts of meat and other more costly perishables.

**Figure x: Potential placemat method product of one team**

**Figure 2: Possible placemat output of one team**

**Ball Bearing Method**

The Ball Bearing co-operative learning method can be used at the start or middle of a lesson, but is most useful as a “Phase 4” activity, i.e. to practice sharing information or reporting on findings. It is also useful for practising general communicative skills. The students sit two to a table facing each other, with the tables arranged in a circle. Two circles of students are thus formed, one inside the other – an inner and an outer circle. In the case of uneven numbers of students in a class, one student may face two partners at one of the tables.

The method can be used to communicate individual work results or group work output, or for students to discuss work-related issues – or even to brainstorm a problem. The students may be allowed to take notes, or draw sketches or mind maps. A variant in this activity is to instruct students to try to remember what they have been told, and to transmit this to their next partner after they have shifted places.

After a few minutes, the students in the inner circle are instructed to shift a few seats in a clockwise direction. With the next change a few minutes later, instruct the *outer* circle to shift a few seats *counter-clockwise*, and so on. The activity can end with the inner and the outer circle presenting the shared opinions, or differences of opinion, to the whole class.

One use of the method is as a follow-up presentation after group work. For example, four teams of four students each work on one case study, four other teams of four work on a different case study. Ultimately, the 16 students of one case study constitute the inner circle, the 16 of the second case study form the outer circle. The students alternate in explaining the potential solutions to their respective case study to their face-to-face partners. In the end, the entire outer circle group presents the cumulative ideas of the inner circle about their case study solutions in the plenary session, and vice versa. This way all the students present are involved, many ideas are put forward, and value is added to the solutions initially presented.

The following illustration visualises the teaching arrangement used for the Ball Bearing method; however, virtually any number of pairs can be accommodated.

**Figure 3: Basic seating arrangement for the Ball Bearing method**

In the illustration given above, the short double-sided arrows indicate communication, the larger curved arrows represent the initial clockwise movement of students after one round of talking has been concluded. For the next shift, the inner circle can move into the opposite direction, i.e. counter-clockwise.

The Ball Bearing method ensures that all the students make presentations, even those who are shy and would normally remain silent.

**Gallery Walk and Graffiti Wall**

Routine plenary presentations and class discussions of student outputs (Phase 4 activities) need to be tightly managed by the lecturer to prevent them dragging on, taking up too much time if several groups have to report back, and ending what may have been an enjoyable learning activity with students becoming bored. Thus it is useful to have alternative techniques such as Gallery Walk or Graffiti Wall, which can be used if the students have been working in groups of four or five to produce some sort of visible group output such as a poster, a list of points on newsprint, or a model of some sort. These activities work particularly well of the various groups were assigned different but related tasks or topics.

The groups display their outputs on the wall or tables, at stations spread around the classroom. To save class time, before the lesson the lecturer should stick one or two pieces of newsprint (numbered) at suitable places around the room to indicate where the stations will be. While groups are displaying their presentations, the lecturer should place two or three different-coloured markers at each display, and appoint a student to collect them at the end of the activity.

Once the presentations are displayed (right next to or above the pre-placed sheets of newsprint), groups visit each presentation in turn. Indicate clearly which group starts at which presentation, and when groups need to move on to the next presentation (i.e. after four or five minutes). The lecturer should be alert and actively monitor what is going on throughout this activity, to ensure that everything runs smoothly.

Groups read what has been posted by each other group, and write their group’s responses and comments on the newsprint provided (these may be combined or individual).

When the lecturer gives the signal, the groups rotate to the next station, quickly scan the original group’s presentation and the comments that have been added on newsprint, discuss any point that stands out, and add comments of their own. Once all the groups have visited each station, have them return to their first station to read all the comments that have been added. There may be no need for a plenary discussion, but if you as the lecturer feel that there is, bring the class back together to discuss what has been learned and draw final conclusions.

When used in the way that has been described above, the Gallery Walk can be turned into a Graffiti Wall by encouraging the students to respond to the group outputs in the form of drawings as well as word comments, and to be as creative as possible.

**Jigsaw Method**

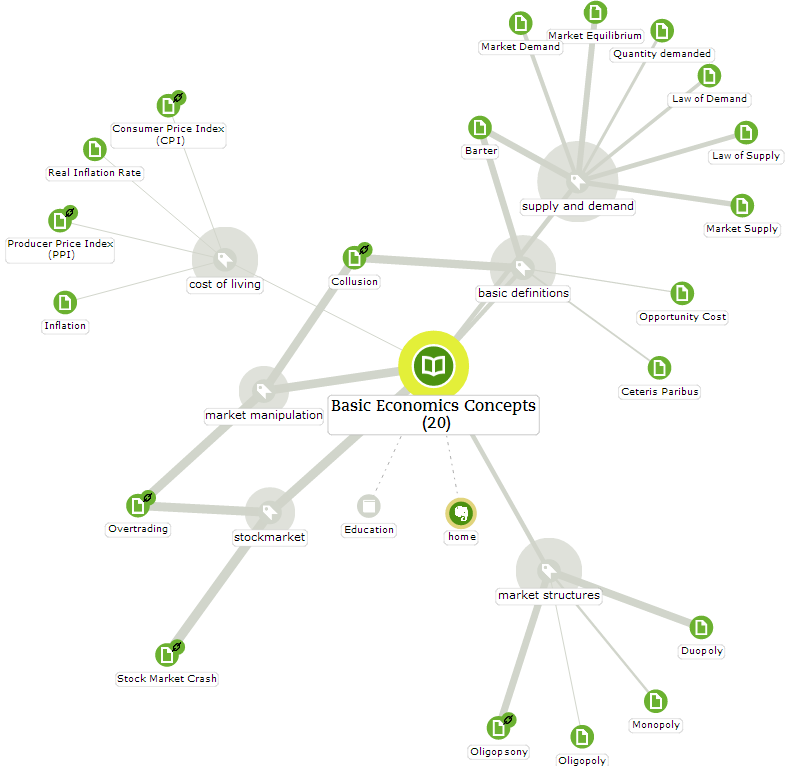
The excellent video <https://www.youtube.com/watch?v=euhtXUgBEts> (CC-BY) makes a written description of this student-centred method redundant. This popular and well-tried method of learning can span a 90-minute lesson period or an entire day. It requires some effort at the preparation stage, but like Learning Stations, the resources you identify and the materials collected can be re-used in subsequent offerings of the course, and the self-directed nature of the learning that takes place will allow you the freedom to move around and interact with students on an individual or group level.

**Mind-maps / Concept-maps**

Mind-mapping and concept-mapping are useful ways to make sense of complex systems or technical realms in a more or less systematic way. For students they provide a valuable cognitive tool that enables them to organise and represent knowledge, and to enhance meaningful learning. They help to bring order where there has been disorder in a student’s mind, providing an effective method for exploring and consolidating a field of learning – and simply for helping the student to memorise a complex field of knowledge.

The two terms are often used synonymously. However, to the extent that a valid distinction can be made between them, it can be said that mind maps tend to focus mainly on seeing *basic connections* between concepts, objects or other entities in terms of relative weight or importance (as sub-topics to topics) and relatedness to a central topic, concept or other entity. Concept maps, on the other hand, tend to be more *explanatory* in nature, and are used to develop or reflect a *deeper understanding* of a system or technical realm. Consequently, they tend to represent in more detail the complexity of *how* things are interrelated – for example, in terms of cause-and-effect, dependency, or simply by being commonly associated with one another.

Mind maps therefore tend to have *simpler structures*, employing different labelled shapes (e.g. rectangles, circles, arrows and connecting lines) to indicate concepts or examples, as well as different sizes, colours and shape outlines to indicate different levels of importance and interrelationships (see the example in Figure 4).

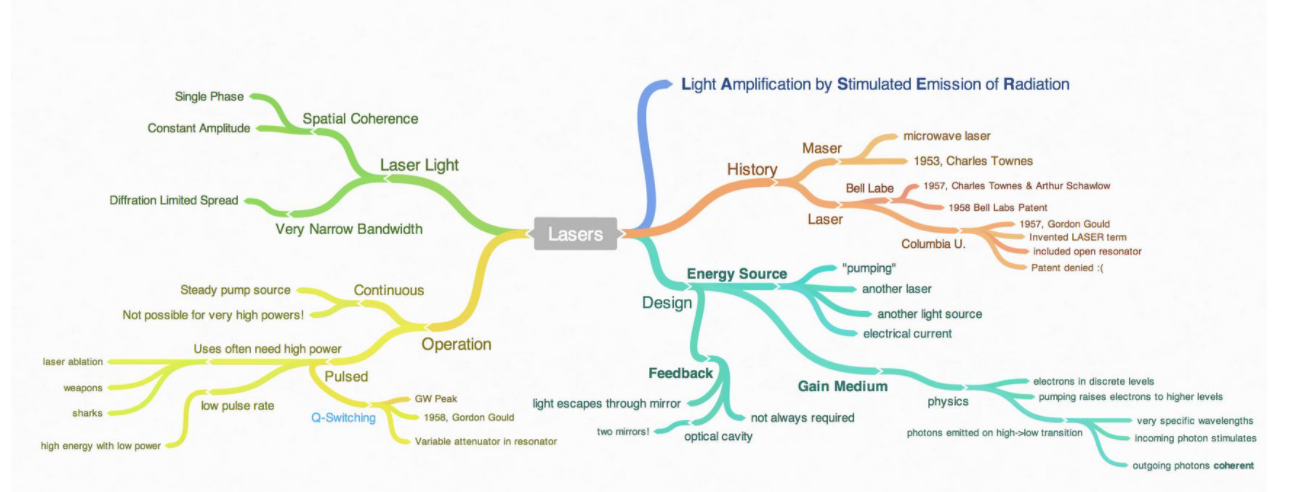


**Figure 4: Example of a mind map,** from Wikimedia Commons, the free media repository

[https://commons.wikimedia.org/wiki/File:Economics\_Concepts\_-\_student flashcard.png](https://commons.wikimedia.org/wiki/File:Economics_Concepts_-_student%20flashcard.png)

Concept maps (see Figure 5 below) tend to be more complicated in structure, in that they are employed to convey more about *how* and *why* the things depicted are interrelated, and do not necessarily start from a single central concept. They may also employ more complex sets of symbols and conventions than mind maps do, and may thus include a key or legend to and when used in concept maps, they tend be accompanied by labels. Dotted or solid explain the meaning of these. Connecting arrows indicate the directionality of relationships, and connecting lines are used to indicate the relative strength of a connection or relationship. In this way concept maps are a form of infographic, whereas mind maps are more like simple network diagrams (no matter how many components are represented).

As a teaching method, both mind maps and concept maps are a good choice if you want to build students’ capacity to understand how the components of a subject or unit of study relate to one another, and enable students to grasp the “big picture” when they are confronted with a large number of different new concepts.



**Figure 5: Example of a concept map produced using Coggle, from** <https://biztechnews.net/coggle-mind-map-and-flow-chart-tool-review/>

The following steps are usually regarded as necessary when introducing mind maps or concept maps to students who may not have used them before:

1. Start by modelling the process of constructing a simple mind map (introduce them to more complex concept maps later). Show the students how to identify the major concepts in a unit of study or area of knowledge, and how to organise ideas into categories.
2. Use lines or arrows on the map to represent how concepts and categories are connected to one another, and to the main concept.
3. Instruct the students to complete the map individually, or set them to produce a new one from scratch that is relevant to their studies.
4. When students have finished their maps, instruct them to share and compare them in pairs, reflecting on how they each made the connections between concepts.
5. Encourage students to use such mind maps in their own study, and in revising for exams.

Both mind maps and concept maps can be drawn by hand or produced with the help of free software tools, e.g. Coggle, which the authors promise will be "free forever" (see <https://coggle.it/> ), or Mindmaster (<https://www.edrawsoft.com/mindmaster/> ).

**Learning Stations**

Station learning takes some effort to set up in advance, but this method is highly student-centred, and once the lesson is in progress, it results in a significant amount of self-regulated learning. Teachers plan and set up from four to six information stations in different locations of a classroom or workshop where students find self-learning material to complete a work-related task or solve a workplace-related problem.

Information from several stations is needed in order to find the overall solution or complete the task. One or two additional stations may be set up to provide extra material for high-achieving learners to upgrade the solutions reached by their groups. Each station caters to a different need, and provides a different mode of access and type of media. For example, on one table a laptop may be set up providing a tutorial video, a recorded podcast or audio recording may be available through headphones at another table, and at others there may be respectively an article, a set of pictures, a work manual or piece of legislation, etc.

With this method in mind, lecturers should over time build up a file of relevant material (and links to videos, podcasts and simulations) in order to reduce the time it takes to search for materials when preparing for a station learning lesson.

As for web quests, templates may be provided in order to introduce a greater measure of control over the student output, but again this provides less scope for student self-direction. Likewise, the lecturer can choose to specify that students should circulate among the stations in a certain order, but this also makes it difficult to avoid bottlenecks and friction.

The typical set-up of a classroom or workshop for the station learning method looks like this:

**🗍**

Online video tutorial

Articles

Lecturer’s table



Podcast

🕮🕮

Manual

Group work

**Figure 6: A typical learning station set-up in a classroom**

It is best to allow one-and-a-half to two hours for the actual Phase 3 part of this activity. If necessary, the procedure can be introduced during the previous lesson, and/or the presentation and reflection phases can be conducted in the following lesson.

**Flipped Lessons**

The “Flipped Classroom” is not a single teaching method, but rather a pedagogic structure or model in which *the typical lecture and homework elements are reversed*, and in which many different teaching methods may be used. The input for such lessons is conveyed *prior* to the class session, and may consist of short, pre-recorded video lectures or other learning resources which the students view or process *at home* *or in the college library*, typically the day before the lesson. As a result, the class contact session is available for *more differentiated* work than is usually possible, so that all the students may be involved. The lesson is also devoted to *higher order, active* learning: projects, discussions or other activities, with the lecturer available as a guide, support, advisor and assessor, mostly on an individual or small group basis.

In traditional lectures, students often try to transcribe the lecturer’s words. They cannot stop to reflect on what they are hearing, and often miss important points because they are too busy taking notes. There is also usually little time for the lecturer to work in a differentiated manner with individuals or small groups that are struggling.

By contrast, the flipped classroom is characterised by student-centred, active learning. Before the class, students watch and re-watch inputs as needed. This is of particular value for students whose first language is not English, or those with hearing impairments.

In the class contact session, lecturers “repurpose class time into a ‘workshop’ where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities”1.

Effective flipped lessons require careful preparation, but many educators attest to how effective they can be. Inputs may include:

* Pre-recorded lectures, PowerPoint presentations or simple recorded podcasts providing systematic theoretical knowledge
* Videos of process or procedural demonstrations
* Online tutorials or manuals
* Technical drawings
* Research findings, and
* Online quizzes, activities or worksheets to help students check their own understanding.

These should be digitally accessible so that they can be watched, listened to or read, and repeated if necessary in the students’ own time. However, if all the students do not have reliable access to devices and the Internet, printed material may be used.

In the lesson the lecturer may lead a discussion or organise those students who are struggling to understand a concept into an *ad hoc* workgroup that will shed light on the issue. But essentially the lesson is given over, as much as possible, to self-regulated learning and student-centred action. The students put into practice what they learned from the inputs they viewed the previous day, and the lecturer encourages them in individual inquiry and collaborative effort, and assesses their progress.

Lecturers have found that producing online inputs for the students is not that difficult. It involves:

1. Fine-tuning the core message you want to get across
2. Finding a quiet space such as an empty classroom
3. Standing in front of a whiteboard so that you can write or draw as necessary
4. Sharpening your speech and usage of technical terms
5. If possible, making the tutorial fun or pleasant to watch and listen to
6. Limiting the recording to between 5 and 8 minutes (according to research on attention, this is the ideal time frame for such a tutorial)
7. Attaching your smartphone or digital camera to a lightweight tripod or stand by means of duct tape or other means, and pressing Record
8. Uploading the file to the college’s e-learning platform – technical assistance is usually available in colleges to help you with this.

Source: *Seven things you should know about flipped classrooms*. Educause (2012).

<https://library.educause.edu/resources/2012/2/7-things-you-should-know-about-flipped-classrooms>

**A lesson plan template for a flipped lesson may look something like this:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecturer** |  | **Class session date** |  |
| **Lesson Title** | *(Your own title for the lesson.)* | | |
| **Programme, Level** |  | **Subject** |  |
| **Module/Topic** | *(“Topics” as in 5 main Topics in NCV Subject Guidelines.)* | | |
| **Teaching Aims/ Lesson Rationale** | *(Should not be expressed in the same way as the LOs.)* | | |
| **Learning/Subject Outcomes** | *(e.g. By the end of this unit, you should be able to:… Generally one, or part of one LO, but not more than two LOs in a lesson, unless “extras” are critical cross-field or developmental outcomes)* | | |
| **Assessment Criteria/Standards** | *(Summative assessment and ACs may still be a long way off, but in “backward planning”, the students should know of the ACs as well as the LOs up front.)* | | |
| **Key Content** | *(What content needs to be introduced to enable students to achieve the LOs?*  *Note down one or two key “Take away” points)* | | |
| **Overall teaching approach/method** | *(e.g. Demonstration followed by practising of skill; video followed by Q&A and problem- solving; short lecture followed by role-play; jig-saw learn-and-teach lesson, etc.)* | | |
| **Differentiation** | *(e.g. What activities will you plan for more capable students? Seating plans for group work? How would groups be constituted? How would you interact with the groups? etc.)* | | |

| **Time**  (mins) | **Phase** | **Lecturer activity** | **Student activity** | **Resources/media/equipment** |
| --- | --- | --- | --- | --- |
| *e.g.*  *5-15* | **Phase 1: Pre-class session content input, incl. instructions** | *(Online or printed out. Input may be pre-recorded lectures or tutorials, PowerPoint presentations, podcasts or videos, manuals, technical drawings, research findings, online quizzes, activities or worksheets. Instructions for activity must be clear.)* | *(Students as active viewers/ listeners/readers)* | *(Materials/resources uploaded on college platform – students need to have access to the Internet, preferably on personal devices – or in print)* |
| *e.g. 5* | Phase 2, next day: (May well be incorporated in Phase 3.)  Spur motiv-ation; link to experience or previous learning, and work context | *(Engage attention, create curiosity, spur motivation. Link Phase 1 “homework” to students’ own experience, previous learning, and/or work context, but especially to lesson of the day)* | *(Students should preferably be active as early as possible in the lesson)* | *(In most cases, not a separate activity with different resources from those used in Phase 3)* |
| *25- ?* | **Phase 3, (main focus of lesson): chiefly self-regulated, student-centred learning; students apply what they learned from Phase 1 inputs** | *(Checks individuals’ progress; guides; supports; takes note of errors and triumphs; challenges: “Have you tried this…?”)* | *(Self-directed – individually, or in pairs or groups)* | *(Whatever equip-ment, resources or materials are necessary)* |
| *0-15* | Phase 4:  Presentation & discussion (May not be necessary as whole-class activity) | *(Takes a back seat and takes notes, or acts as “master of ceremonies”, assessor)* | *(Students make presentations; discussion can be organised in variety of ways)* |  |
| *5-10* | Phase 5: Reflection & closure | *(Lecturer in charge of reflection and closure: link to LO(s), key concepts or terms. What will students take away?)* | *(Students to engage in reflection and writing, possibly as part of preparation for next lesson)* |  |

|  |  |
| --- | --- |
| **Formative assessment and student feedback** | *(Many strategies for FA. Student feedback may include pre- and/or post-assessment, quick checks, e.g. What do the students know already that is relevant? Do they understand the content or can they demonstrate initial competence?)* |
| **Student output** | *(e.g. Written classwork, ‘poster’ presentation or physical product.)* |
| **Extended learning** | *(e.g. Invite someone from the industry/colleague with expertise; further application at a deeper level)* |

**Simulations**

Digitally-based simulations, augmented reality and immersive virtual reality offer the potential for learners to practise many skills in online environments that replicate real life to a remarkable degree of authenticity. In simulations individuals are given imaginary roles related to the simulations, such as “You are a supervisor working for textile company X”, or “In this simulation your goal is to boost production be 20% per annum”. The almost incredible advances in gaming technology are now being used to create educational simulations. However, such software is not yet available for all subjects or skills developed in TVET, and is costly to develop and therefore usually proprietary and expensive to purchase. It also requires adequate technological infrastructure – making it inaccessible for providers in many countries and contexts.

However, the Covid-19 pandemic has given enormous impetus to the development of online educational media. As global usage steadily increases, prices tend to come down and in time some of the technology becomes freely available under open licence. In addition, augmented reality software can be hosted on mobile devices (smartphones and tablets), so hardware costs are reduced and the programmes can be far more widely accessed.

For a glimpse into the future as it is already taking shape in South-East Asia, see the informative Labtech Website (<https://labtech-academy.com/index.php/about/about-virtual-tvet> ), and read the reading from a UNESCO handbook: ‘Virtual and Augmented Reality: Institute of Technical Education, Singapore’ (Reading xxx). Also have a look at what has been introduced in Kenya at <https://www.smartclassroom.nl/wp-content/uploads/2017/04/Smart-Classrooms-for-TVET-improvement-in-Kenya.pdf> .

Fortunately, some simulations are either not dependent on information and communication technology (ICT), or make use of simple software already freely available for use on laptops and mobile devices. Many related methods such as Case Study-based Simulation may be *enhanced* by the use of computers, but are essentially paper-based and can be employed without any special software other than a word processing programme and printer.

The same can be said for Role-based Learning, which focuses on specific roles and tasks to be performed, and Scenario-based Learning, which requires students to work their way through an imagined but realistic work situation. These methods usually involve a complex problem requiring critical thinking and decision-making. In these forms of simulation, scenario- or role-based tasks provide students with an opportunity to participate in authentic situations, applying learnt theories and concepts in work-simulating roles, so they develop and practice real life skills. Research indicates that these forms of learning activity are both popular with students and highly effective because of their obvious relevance to skill development in the context of real work situations.

**Web Quests (requires access to the internet for all the students)**

*“Know where to find the information and how to use it. That’s the secret of success.”*

– Albert Einstein

A web quest is an inquiry-based activity in which students are given a task (relevant to virtually any subject or occupation) and provided with access to on-line resources to help them complete it. Web Quests are usually introduced at the beginning or end of a unit of study. They can be elaborate or quite simple, and can be designed for individual or collaborative inquiry. They are usually focused on real-world problems and can provide practice in independent thinking as well as building competency in the use of technology and the internet.

Web Quests typically start with some form of stimulus and/or challenge that leads students to develop a product or service, develop or evaluate a business plan, give advice on a nutritional issue, manage a crisis, engage in a debate, or address some challenge. The key to a productive web quest is to craft a challenging question or task that will require students to explore a range of information sources.

For example, "*Research and develop a general guide to the balanced nutritional requirements of an athlete for a sport of your choice*," or "*Decide whether the new business you’re about to start will provide a service or manufacture or retail a product. Develop a business plan for your proposed new business, and present it to the class in a PowerPoint presentation of not more than fifteen slides. Consider who your competitors will be, how the service or product you offer will differ from others, how your venture will be financed, and a competitive pricing structure*.”

The lecturer provides tools such as web sites and hyperlinks, and usually sets parameters for the quest like those in the last sentence of the previous paragraph, limiting the sort of information that will be considered relevant. An alternative to formatting the parameters as instructions is to provide templates for the students to fill in, though this tends to allow less scope for student creativity. The lecturer also usually sets a time frame for the activity. The lecturer then guides the students as they carry out the task, offering advice on key words, how to manage time and make the best use of search engines, and strategies for working in groups.

It is vitally important for the lecturer to prepare for the quest by thoroughly reviewing each potential web source that will be recommended:

* Do the sites provide the necessary information, or lead the searcher to it?
* Are they credible?
* Are they up to date?
* Do they support the view for which you are aiming?
* Do they not feature any links to dubious, inappropriate or undesirable sites?

The lecturer should also build a mechanism for student reflection into the instructions; for example, “*Identify the four most important points you have learnt from this activity*.” The students’ final presentation or report is best assessed by means of a carefully-prepared rubric or checklist.

Crafting a web quest requires only a little effort, and you can use the same quest with new classes. There are also large numbers of ready-made web quests on the internet that you can adopt or adapt. Simply type “web quest xxx” into your search engine.

## Lesson Plan Template

(Remove or add rows/cells as required)

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecturer** |  | **Date** |  |
| **Lesson Title** | *(Your own title for the lesson.)* | | |
| **Programme, Level** |  | **Subject** |  |
| **Module/Topic** | *(“Topics” as in 5 main Topics in NCV Subject Guidelines.)* | | |
| **Teaching Aims/ Lesson Rationale** | *(Should not be expressed in the same way as the LOs.)* | | |
| **Learning/Subject Outcomes** | *(e.g. By the end of this unit, you should be able to:… Generally one, or part of one LO, but not more than two LOs in a lesson, unless “extras” are critical cross-field or developmental outcomes)* | | |
| **Assessment Criteria/Standards** | *(Summative assessment and ACs may still be a long way off, but in “backward planning”, the students should know of the ACs as well as the LOs up front.)* | | |
| **Content** | *(What content needs to be introduced to enable students to achieve LOs?*  *Note down one or two key “Take away” points)* | | |
| **Overall teaching approach/method** | *(e.g. Demonstration followed by practising of skill; video followed by Q&A and problem- solving; short lecture followed by role-play; jig-saw learn-and-teach lesson, etc.)* | | |
| **Inclusivity** | *(e.g. how will you support your students to learn? What support will you provide to students with special needs and different levels of ability? What activities will you plan for more capable students? Seating plans for group work? How would groups be constituted? etc.)* | | |

| **Time**  (mins) | **Phase** | | **Lecturer activity** | **Student activity** | **Resources/media/equipment** |
| --- | --- | --- | --- | --- | --- |
| *e.g. 5* | Phase 1: Spur motivation; link to experience or previous learning, & work context | | *(Engage attention, create curiosity, spur motivation; link to students’ own experience, previous learning, and/or work context)* | *(Students should preferably be active as early as possible)* | *(Fill in only where applicable)* |
| *5* | Phase 2: Instructions & content input | | *(May be printed out: Instructions for activity must be clear; input only what content is necessary for activity)* | *(Students as active listeners/ readers)* |  |
| *25* | Phase 3:Self-directed, cooperative work | | *(Checks individuals’ progress; guides; supports; takes note of errors and triumphs; challenges: “Have you tried this…?”)* | *(Self-directed, co-operative work –* ***individually, or*** *in pairs or groups)* |  |
| *15* | Phase 4: Presentation & discussion | | *(Takes a back seat and takes notes, or acts as “master of ceremonies”)* | *(Students make presentations to class; discussion can be organised in variety of ways)* |  |
| *10* | Phase 5: Reflection & closure | | *(Lecturer in charge of reflection and closure: link to LO(s), key concepts or terms. What will students* ***take away****?)* | *(Students to engage in reflection and writing)* |  |
| **Formative assessment** | | *(Many strategies for FA. Student feedback may include pre- and/or post-assessment, quick checks, e.g. What do the students know already that is relevant? Do they understand the content or can they demonstrate initial competence?)* | | | |
| **Student output** | | *(e.g. Written classwork, ‘poster’ presentation or physical product – if any.)* | | | |
| **Extended learning** | | *(e.g. Invite someone from the industry/colleague with expertise, downloaded videos for students to watch?)* | | | |

|  |
| --- |
| From Angelo, T. and Cross, K. (1993). Classroom assessment technique examples, 2nd edition, *Classroom Assessment Techniques*: *A Handbook for College Teachers*, 2nd ed. |

## Reading 5

… These techniques are to be used as starting points, ideas to be adapted and improved upon.

### Background knowledge probe

**Description:**

At the first class meeting, many college teachers ask students for general information on their level of preparation, often requesting that students list courses they have already taken in the relevant field. This technique is designed to collect much more specific, and more useful, feedback on students' prior learning. Background Knowledge Probes are short, simple questionnaires prepared by instructors for use at the beginning of a course, at the start of a new unit or lesson, or prior to introducing an important new topic. A given Background Knowledge Probe may require students to write short answers, to circle the correct response to multiple-choice questions, or both.

**Step-by-Step Procedure:**

1. Before introducing an important new concept, subject, or topic in the course syllabus, consider what the students may already know about it. Recognizing that their knowledge may be partial, fragmentary, simplistic, or even incorrect, try to find at least one point that most students are likely to know, and use that point to lead into others, less familiar points.
2. Prepare two or three open-ended questions, a handful of short-answer questions, or … multiple-choice questions that will probe the students' existing knowledge of that concept, subject, or topic. These questions need to be carefully phrased, since a vocabulary that may not be familiar to the students can obscure your assessment of how well they know the facts or concepts.
3. Write your open-ended questions on the chalkboard, or hand out short questionnaires. Direct students to answer open-ended questions succinctly, in (one or two) sentences if possible. Make a point of announcing that these Background Knowledge Probes are not tests or quizzes and will not be graded. Encourage students to give thoughtful answers that will help you make effective instructional decisions.
4. At the next class meeting, or as soon as possible, let students know the results, and tell them how that information will affect what you do as the teacher and how it should affect what they do as learners.

### Minute paper

**Description:**

No other technique has been used more often or by more college teachers than the Minute Paper. This technique … provides a quick and extremely simple way to collect written feedback on student learning. To use the Minute Paper, an instructor stops class two or three minutes early and asks students to respond briefly to some variation on the following two questions: "What was the most important thing you learned during this class?" and "What important question remains unanswered?" Students write their responses on index cards or half-sheets of scrap paper and hand them in.

**Step-by-Step Procedure:**

1. Decide first what you want to focus on and, as a consequence, when to administer the Minute Paper. If you want to focus on students' understanding of a lecture, the last few minutes of class may be the best time. If your focus is on [work prepared at home], however, the first few minutes may be more appropriate.
2. Using the two basic questions from the "Description" above as starting points, write Minute Paper prompts that fit your course and students. Try out your Minute Paper on a colleague or teaching assistant before using it in class.
3. Plan to set aside five to ten minutes of your next class to use the technique, as well as time later to discuss the results.
4. Before class, write one or, at the most, two Minute Paper questions on the chalkboard (or screen).
5. At a convenient time, hand out index cards or half-sheets of scrap paper.
6. Unless there is a very good reason to know who wrote what, direct students to leave their names off the papers or cards.
7. Let the students know how much time they will have (two to five minutes per question is enough), what kinds of answers you want (words, phrases, or short sentences), and when they can expect your feedback.

### Muddiest point

**Description:**

The Muddiest Point is just about the simplest technique one can use. It is also remarkable efficient, since it provides a high information return for a very low investment of time and energy. The technique consists of asking students to jot down a quick response to one question: "What was the muddiest point in ........?" The focus of the Muddiest Point assessment might be a lecture, a discussion … or a video.

**Step-by-Step Procedure:**

1. Determine what you want feedback on: the entire class session, or one self-contained segment? A lecture, a discussion, a presentation?
2. If you are using the technique in class, reserve a few minutes at the end of the class session. Leave enough time to ask the question, to allow students to respond, and to collect their responses by the usual ending time.
3. Let students know beforehand how much time they will have to respond and what use you will make of their responses.
4. Pass out slips of paper or index cards for students to write on.
5. Collect the responses as or before students leave. Stationing yourself at the door and collecting "muddy points" as students file out is one way; leaving a "muddy point" collection box by the exit is another.
6. Respond to the students' feedback during the next class meeting or as soon as possible afterward.
7. As you review the students’ feedback, or over time, you will probably notice trends emerging in the mistakes students commonly make, or the misunderstandings or “myths” they commonly harbour. Keep a “bank” of such myths, for use in your teaching, or in a game-based activity.

### One-sentence summary (adapted from Angelo and Cross)

(…) **Step-by-Step Procedure:**

1. Try out the activity yourself for a lesson you are going to teach.
2. At a convenient time, hand out half-A4 sheets of scrap paper.
3. At the end of the lesson, instruct the students to condense the essence of the lesson into a single sentence of not more than 30 words. The papers or cards should be left anonymous.
4. Let the students know how much time they will have (three minutes maximum), what kinds of answers you want (words, phrases, or short sentences), and when they can expect your feedback. Take their cards or papers in and review.

### What's the solution? (adapted from Angelo and Cross)

**Description:**

After students figure out what type of problem they are dealing with, they often then have to decide what principles or solutions to apply in order to solve the problem. This technique focuses on this step in problem-solving.

**Step-by-Step Procedure:**

1. Identify the basic principles or solutions that students have been taught or that you expect them to learn in your course...
2. Find or create sample problems or short examples that require these solutions or that illustrate each of these principles.
3. Create a “What's the Principle/Solution?” form that includes the specific problem and a list of possible principles or solutions for students to match to the problem.
4. Give out the forms and take them in as the students leave. Review for the next lesson.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*