AN ILLUMINATIVE EVALUATION OF THE WORKPLACE LEARNING COMPONENT OF UNISA'S DIPLOMA IN ANIMAL HEALTH

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A research report submitted to the School of Education, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Education, under the supervision of Prof. R Basson

Johannesburg, 2007

Declaration

I declare that this research report is my own unaided work. It is submitted for the degree of Master of Education in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other university.

Signed on this 6th day of August 2007 at Florida

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ABSTRACT

This research report describes an illuminative evaluation study of the workplace learning component of the Diploma in Animal Health, a vocationally-oriented qualification offered by the University of South Africa (Unisa). In illuminative evaluation, a programme is studied by qualitative methods to gain an in-depth understanding of its "instructional system" – its intended teaching arrangements, as well as its "learning milieu" – the actual sites of learning interaction; this results in a rich description of the programme that allows "matches" and "mismatches" between the instructional system and learning milieu to be uncovered. In this study, this approach was applied to investigate the instructional system through document analysis, and the learning milieu through interviews, observation and a student questionnaire. The data revealed a number of "matches" but also "partial matches". Matches included the immersion of students in an actual work environment where they fully participated in real work activities; this generally allowed them to be work-ready on graduation, as intended. Partial matches included the component's intentions to have a well-functioning co-operative relationship, to have a curriculum that is fully relevant to student workplaces, and to have designated mentors who provide both academic and personal support; all these intentions were only partially achieved in the learning milieu. In uncovering these matches and partial matches the illuminative approach provided in-depth insights into the workplace component that might not have been obtained by using another evaluation methodology.

Keywords: Illuminative evaluation, educational evaluation, instructional system, learning milieu, design of vocational qualifications, workplace learning, work-based learning, co-operative education, animal health training

Acknowledgements

The researcher would like to gratefully acknowledge the assistance of the following in this study:

- Professor Ray Basson, who provided research supervision and specialist guidance for this study.
- The University of South Africa, which provided partial funding for the degree studies of which this research formed a part.
- Dr A Bartkowiak-Higgo of Unisa, who consented to the workplace component of the Diploma in Animal Health being evaluated in this study, and consistently gave further support and information.
- The contributions of those who expended both time and effort to participate in this study are particularly highly valued. These participants included interviewees, questionnaire respondents, and those who granted access to their workplace sites for observation purposes. In terms of the latter, officials from provincial offices of the Department of Agriculture were especially helpful.
- Mrs Marietjie van Rensburg provided much appreciated assistance with the processing of questionnaire responses.
- Finally, the general support and encouragement of friends and colleagues were also of great value and are highly appreciated.

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Note: Due to the extent of data collected, only certain annexures have been reproduced in the printed copy of this report, but the total set of annexures appear on the compact disc that accompanies the report. Where an annexures appears on the CD only, it has been shaded below.

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LIST OF ACRONYMS

AC:	Advisory Committee for the Diploma in Animal Health
AHT:	Animal health technician
CHE:	Council on Higher Education
DAE-KZN:	Department of Agriculture and the Environment, KwaZulu-Natal
DAH:	Diploma in Animal Health
DoA:	Department of Agriculture
HEQC:	Higher Education Quality Committee
LM:	*Learner Manual*
MG:	*Mentor's Guide*
SAVC:	South African Veterinary Council
SV:	State veterinarian (in the Department of Agriculture)
TSA:	Technikon Southern Africa
Unisa:	University of South Africa
VS:	Veterinary Services (of the Department of Agriculture)

PREFACE

1. The aim of this research report

This research report provides a detailed account of a research study undertaken for the purposes of completing the degree Master of Education (Curriculum Studies) at the University of the Witwatersrand, Johannesburg.

The purpose of the research study is to evaluate the workplace learning component of the Diploma in Animal Health, a vocationally-oriented qualification offered by the University of South Africa (Unisa). The approach of illuminative evaluation will be used to explore both the component's instructional system and its learning milieu to investigate to what extent the intentions of the instructional system are realised in the learning milieu. In the process, it is hoped to illuminate the aspects of the component that facilitate and those that hinder the students' learning in the workplace.

2. The structure of this report

This report consists of five chapters, a list of references and a number of annexures. The topic of each chapter is briefly delineated below.

- **Chapter 1** sketches the background against which the study will be conducted, presents the research problem and the research questions, and provides a rationale for undertaking the research.
- **Chapter 2** reviews the literature on two aspects pertinent to the study, namely the literature on workplace learning, and literature on the nature and use of the illuminative evaluation methodology.
- **Chapter 3** outlines the research design of the study.
- **Chapter 4** describes the data collected from five data sources involved in the study, and identifies the main themes that emerge from the data.
- **Chapter 5** summarises the findings of the study, and presents a number of recommendations for improving the workplace component of the Diploma in Animal Health.

The various annexures are numbered sequentially in the order that they are referred to in the body of the report. Due to the scope of the data collected, only certain annexures appear in

the printed copy of the report. The full set of annexures are however provided on the compact disc that accompanies the report.

3. Citation style

The adapted APA citation style was used for in-text citations as well as for the list of references at the end of this report. Examples of each of these two forms of citation in this style are given below:

- "According to Lave and Wenger (1991:36), peripheral participation is …"; or "Peripheral participation is … (Lave & Wenger 1991:36)".
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

The following resource (amongst many others) sets out the conventions of the APA citation style and was consulted for the purposes of this report: *References: APA Style*, by the University of Queensland, available on the Internet at http://www.library.uq.edu.au/training/citation/apa.pdf.

CHAPTER 1: THE BACKGROUND TO THE STUDY AND THE RESEARCH PROBLEM

In this study, it is proposed to evaluate the workplace learning component of the Diploma in Animal Health, a vocationally-oriented qualification originally offered by Technikon SA and currently by the new University of South Africa (Unisa), after its merger with Technikon SA in 2004.

This chapter will firstly sketch the background against which this study was conducted. It will then proceed to describe the research problem and present the research question and sub-questions. Finally, a rationale will be provided for undertaking the research.

1. BACKGROUND TO THE STUDY

The Diploma in Animal Health (DAH) was introduced at Technikon SA (TSA) in 1992 at the direct request of veterinary staff members within provincial Directorates of Animal Health, which fall under the government's National Department of Agriculture (Bartkowiak-Higgo & Brandt 2005:203). The aim of the Diploma is to train "animal health technicians" (AHTs).

To understand the history, management and curriculum of the Diploma it is necessary to have a grasp of what AHTs do and how they fit into the broader structure of the Department of Agriculture (DoA) – in short, to understand the industry context of the Diploma. This is briefly discussed below. In the sections that follow, the professional and institutional context of the Diploma and its curriculum are also described. Finally, recent institutional and other changes affecting the Diploma are sketched.

1.1 The industry context of the Diploma in Animal Health

The original aim of the Diploma in Animal Health was exclusively to train staff for the Department of Agriculture. The DoA has a national office in Pretoria, which co-ordinates nine provincial offices, one in each province. While every provincial office is structured differently, they all provide certain veterinary and other animal health services to their provinces. These services are mainly the following (DAE-KZN 2005):

- To constantly monitor animal populations (on farms and in game reserves) for specified contagious and infectious diseases (e.g. rabies, bovine tuberculosis, avian influenza).
- To control disease outbreaks and epidemics where these occur.

- To ensure hygiene at abattoirs and other sites where animal products are processed.
- To regulate the export and import of animal products in order to prevent the transmission of diseases.
- To provide information and assistance to farmers and other animal workers with a view to controlling diseases and maintaining the health and productivity of their animals.

Every regional veterinary office is staffed by one or more "state veterinarians", and the state veterinarians are assisted by animal health technicians. Collectively, these officials perform the functions listed above. Disease control measures such as sample-taking, vaccination, controlling parasites and testing for certain diseases, particularly TB and brucellosis, are usually carried out by AHTs independently (SAVC n.d.). With regard to the performance of clinical procedures on animals and treatment of animals, however, the AHTs stand in relation to the state veterinarians much as a nurse to a doctor in human medicine. They may assist the veterinarians, carry out certain simpler clinical procedures (e.g. castration of calves younger than 3 months) but are prevented by law from undertaking more complex procedures (e.g. surgery).

Before 1992, the Veterinary Services in the various provinces had generally recruited untrained people and then trained them on-the-job in animal health or "stock inspection" techniques. An extract from a letter by an official of the DoA describes the situation and the rationale for instituting the Diploma (DAE 2003):

> The Department of Agriculture, RSA (Veterinary Services) identified the need for a tertiary qualification to upgrade the qualifications of officials who served the livestock industry. The sector was at that stage served by the former Stock Inspectors who were trained by means of internal courses only. It was decided to approach TSA to develop the course.

It was thus felt that a formal qualification in the field would be valuable as it would give these workers more extensive formal knowledge and skills in the field, and enable them to be officially designated as trained Animal Health Technicians. Veterinary Services staff then approached TSA and the DAH was developed in a cooperative effort between them and TSA.

1.2 The professional context of the Diploma

In South Africa, all matters pertaining to the veterinary professions are regulated by the professional body, the South African Veterinary Council. Registration with the Council is a prerequisite for practising veterinary or paraveterinary medicine. The Veterinary Council sets its own standards in terms of what it regards as acceptable education for veterinarians and other veterinary professions, including animal health technicians. After the inception of TSA's Diploma in Animal Health, the Council agreed that it would register graduates as veterinary paraprofessionals; it also monitors the quality of the programme to ensure that it meets the Council's standards (Bartkowiak-Higgo & Brandt 2005:203).

1.3 The institutional context of the Diploma and its curriculum

The DAH was originally conceived as a technikon qualification (rather than a university qualification). Before 2004, technikons in South Africa provided vocational education at a tertiary level in co-operation with specific industry sectors. At technikons, it was general policy that all programmes, wherever possible, should be "co-operative education programmes". Groenewald (2004:17) quotes the following definition of co-operative education provided by the US National Commission for Cooperative Education: "a structured educational strategy integrating classroom studies with learning through productive work experiences related to a student'a academic or career goals … Co-op is a partnership among students, educational institutions and employers".

From 2004, most technikons in South Africa ceased to exist as they were subsumed by other institutions to become either "universities of technology" or "comprehensive institutions". Technikon SA merged with the existing University of South Africa (Unisa), the only dedicated distance education university in South Africa, to form a "comprehensive institution" offering both academic and vocationally-oriented programmes via distance education. The Diploma in Animal Health continues to be offered by the new institution.

At the former TSA, all co-operative education programmes were co-ordinated by a so-called "Advisory Committee", and this is still the case with the DAH. Advisory Committees generally consist of representatives of the industry for which the qualification is being offered, as well as other stakeholders such as representatives of professional bodies, and a representative of the students (Baird & Groenewald 2000:4). The Advisory Committee (AC) for the Diploma in Animal Health currently consists of at least one, in some cases two, representatives of the

government Veterinary Services for every province – most of whom are qualified, senior AHTs, and some of whom are state veterinarians.

The original curriculum was developed by the AC in consultation with the person who was the lecturer at that stage, and the changes that have been made to the curriculum since then have also been effected under their guidance. The AC further provides input on teaching and assessment; for example, the tasks that students have to complete for their workplace logbook were specified by the AC, as well as the number of "repetitions" of these tasks, the method for quantifying marks for them, and the pass mark (Dis-PC:6[1]). Furthermore, through liaison by AC members, the Veterinary Services provides many of the resources for the DAH, such as sites for the workplace learning component, mentors, courseware authors and markers.

In the late 1990s, it was decided no longer to restrict the DAH to employees of the government Veterinary Services, but to open it to any suitable candidates. According to the current Programme Co-ordinator, the AC made this decision because they reasoned that the government Veterinary Services would like to have a pool of skilled human resources from which to appoint new, ready-qualified animal health technicians (Dis-PC:5). Since these "private students" (as they are called) were allowed in 2000, their numbers have increased and they now constitute more than 30% of the approximately 300 students. According to the Programme Co-ordinator, as far as she is aware, the majority of private students who have graduated have found employment (Dis-PC:5).

Before 2002, as it was never envisaged that the DAH would be a very large programme in terms of student numbers, initially a lecturer responsible for another programme (Nature Conservation) served as co-ordinator for the DAH (Dis-PC:5). In 2002, a new lecturer or "Programme Co-ordinator" was appointed who took full-time responsibility for the DAH. A second lecturer was appointed in 2005, and a third lecturer in 2007. The reason for the increase in staff was not a significant increase in student numbers, which seems to have ranged between 150 and 300 for most of the programme's history, but rather the fact that the workload involved in managing and teaching the DAH proved to be too extensive for one person.

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[1] A series of informal discussions was held with the Programme Co-ordinator. Full notes on the discussions are included as **Annexure 5** on the compact disc that accompanies this report. The Programme Co-ordinator signed a consent form both to verify the correctness of the notes and to agree to their being used as a source of information for this study. In this report these notes will be referenced as "Dis-PC", followed by the page number in the relevant Annexure.

Under the new Programme Co-ordinator a number of changes were introduced. Firstly, the assessment of the workplace learning was adapted. Up to that point, the students had had to complete twelve projects, each linked to one of the twelve modules that made up the "theoretical" curriculum. However, these projects were marked by the mentors only, and for TSA's purposes it was only required that the mentors should indicate that the students had completed the projects to their satisfaction (Dis-PC:6). In the view of the new Programme Co-ordinator the twelve projects involved too great a workload for the private students, and some of the projects were also not useful (Dis-PC:6). She therefore reduced the number of projects to six. She further changed the marking arrangements, requiring all projects to be submitted to her, and to be co-assessed by herself and the mentor. The new arrangements affected all students registered for the workplace learning from January 2003. As many students take several years to complete the Diploma, there are thus still active students working under the old arrangement, where they have to complete 12 projects. All these projects, however, are now marked by the lecturer as co-assessor.

In 2003 it was also decided to restructure the original programme which had been in use since 1992. The restructured programme was developed by the AC in consultation with the Programme Co-ordinator and has been offered from 2006. The existing programme is however still being phased out; the first level was offered for the last time in 2005, the second level in 2006, and the third level is being offered for the last time in 2007. In other words, at the time of writing, the former and the new programmes were running concurrently, but all the students doing the workplace learning component were still doing the "old" programme. While the structure of the programme overall has changed, the workplace learning component in itself is not affected.

The structure of the former programme is shown in Annexure 1 (as this is the programme the students and mentors who are involved in this study have worked with). The various "theory" modules in the programme (as they are called) are all taught via distance education, by means of a package of printed materials that is sent to students. Each of these modules is studied over one academic year. Formative assessment takes the form of two or three written assignments that are sent in to the university, and the summative assessment comprises a written examination, generally of three hours. Some modules, like Anatomy and Physiology and Laboratory Diagnostics, are supplemented by face-to-face lectures and practical work sessions during the related "practical courses". The students generally have to complete a test, either written or practical or both, to "pass" each practical course, and completing all the practical courses successfully is a prerequisite for the award of the Diploma.

The workplace component of the programme may be completed over "a minimum" of six months, but students may take up to five years to complete it (Unisa 2006:36). During the five-year period, registration is automatically "renewed" every year without further fees being required. Furthermore, if students do not finish in five years, they may re-register – in which case they do pay a registration fee again – and then remain registered for a further five years. In fact, there seems to be a fair number of students who are still in their second five-year period without having completed. To date, it is not known how many students, and which particular individuals, have taken longer than five years to complete the diploma.

In the workplace component, students have to complete a number of workplace tasks which are entered into a logbook and for which they earn "points", as well as six "practical projects". The arrangements for this component will be discussed in more detail in Chapter 4.

The majority of the students are already in the employ of the government Veterinary Services when they commence the workplace component, and thus have the opportunity of doing these tasks as part of their day-to-day job. Private students, however, have to find placements with organisations where they can complete these tasks. Many of them are accommodated by the VS as temporary trainees, but some also find other placements to complete some of the tasks, for example private veterinarians or animal welfare organisations.

1.4 Recent institutional and other changes affecting the Diploma

In the wake of the merger with Unisa, TSA's Animal Health department has been incorporated into a larger department that is headed by a Director from the pre-merger Unisa. None of the former Unisa programmes now in the department has ever involved "co-operative education" or work-based learning. Further, in the new institution, posts of administrative staff members who used to assist with the workplace component have been cut. How these changes will affect the Diploma and its workplace component is not clear yet.

Changes in the broader national context will also affect the workplace component. In terms of legislation all higher education institutions are expected to introduce quality assurance sytems and will be subject to audits by the Higher Education Quality Committee (HEQC). The HEQC's quality criteria for vocational programmes stipulate that all such programmes must have well-planned and well-managed workplace learning components (CHE 2004:21), which would include regular evaluation of the component. As such an internal evaluation of the

component has not been undertaken before and no standard procedures for it currently exist, such procedures will have to be devised and implemented.

2. THE RESEARCH PROBLEM

In this section, the nature of the research problem is first explored. Then a research question and sub-questions are proposed, and finally a rationale is provided for the study.

2.1 The nature of the research problem

The various arrangements relating to the workplace learning component in the Diploma in Animal Health were first established in 1992, and since then have not changed substantially. No extensive, formal evaluation of the component has ever been undertaken. For example, there is no clear or systematic information in response to questions like the following:

- What learning and teaching activities do students and mentors at the different sites of learning generally undertake for students to be able to eventually achieve the learning outcomes? To what extent are such learning and teaching practices standardised or not standardised across the different sites of learning?
- Which elements of the component facilitate the learning process for the students, and which elements cause difficulties? How effective, for example, are the logbook tasks that the students have to complete in assisting them to acquire the necessary practical skills?
- Which elements of the component facilitate the mentoring process from the point of view of the mentors, and which elements cause difficulties?
- What may be done to mitigate any difficulties that might exist and to improve the component, if necessary?

Generally, there is an absence of systematic, recorded information about issues that relate to the component and its effectiveness in achieving its intended aims. It is therefore impossible to make a judgement about the component's strengths and possible shortcomings. Given this fact, it is difficult for the lecturers to produce evidence that might be necessary to retain the component in its current form in the face of more academically-oriented (rather than vocationally-oriented) management. Furthermore, there is no baseline information to use in order to start implementing the quality assurance procedures for workplace components required by the HEQC.

Any "evaluation" of Animal Health's workplace learning component will present a large number of difficulties, however. Workplace learning environments such as those of the DAH are characterised by their complexity. In the workplace learning component of the Diploma, the specific learning environment of each student is unique. Each student works with a different mentor or mentors. The learning takes place at multiple sites all over South Africa where, while the tasks performed are similar, both the specific institutions and the broader farming communities in which the work is done have different organisational and sociocultural structures and characteristics. During the learning process the students have to perform a vast range of tasks and projects, requiring different combinations of practical skills, communication and interaction with others, and research and academic skills.

In a workplace learning environment with these characteristics, performing an evaluation that will provide both a fair adjudication, as well as information that can be used for improvement, is evidently problematic. Evaluation methodologies such as:

- applying predetermined, general sets of criteria for workplace learning, or
- measuring student performance, or
- conducting a student and mentor satisfaction survey,

will all fail to achieve these aims in certain respects. In the first place, while there are existing sets of criteria for the evaluation of workplace learning, these are generally very broad and general (e.g. CHE 2004), or have been drawn up with the context of a particular situation or institutions in mind (e.g. AVMA 2004), and may therefore not take the characteristics of our local Animal Health context into acount. Student performance and satisfaction surveys may provide a broad indication of a general trend or trends in the programme, but will not generate specific and detailed information about the *reasons* behind these trends which could then be used for improvement.

The workplace component of the Diploma in Animal Health thus presents a particular research problem. It is a complex educational phenomenon which needs to be investigated evaluatively in order to provide information needed by stakeholders and decision-makers, but the investigation will require a methodology that can both provide the necessary information and also take into account the complexity of the context-dependent situations involved.

Given the nature of the research problem, it is suggested that the methodology of illuminative evaluation may offer a useful evaluation approach in this situation. First proposed by Parlett and Hamilton in 1972, illuminative evaluation is a descriptive, naturalistic approach to evaluation rooted in social anthropology and ethnography. The approach aims to achieve an in-depth, holistic understanding and interpretation of a programme in its own terms. The

evaluator builds a relationship of trust with participants and attempts to view the situation from their perspective (thus taking an emic or insider's view), so gaining an understanding of their contexts and the meanings they ascribe to the programme being evaluated. In this way, the general principles underlying the programme are uncovered, and the programme is ultimately explained and adjudicated in its own terms by representing all the voices involved in the evaluation.

Given the nature of the Animal Health workplace component, and the possibility of investigating this by means of an illuminative evaluation study, a research question and sub-questions are proposed below.

2.2 The research question and sub-questions

For an illuminative evaluation study of the Diploma in Animal Health, the following research question may be posed:

What are the aspects that facilitate, and those that hinder, students' learning in the workplace component of Unisa's Diploma in Animal Health?

The methodology of illuminative evaluation involves comparing a programme's instructional system, the "formalized plans and statements which relate to particular teaching arrangments", with its "learning milieu", the "social-psychological and material environment in which students and teachers work together" (Parlett & Hamilton 1976:89). Any illuminative evaluation study will thus necessarily involve considering the nature of the instructional system, and the nature of the learning milieu, and then determining the matches and mismatches between the two. For this reason, the sub-questions that support the main question are the following:

- What is the nature of the component's instructional system, and how does it aim to facilitate learning?
- What is the nature of the component's learning milieu, and which aspects of it facilitate and hinder learning?
- What are the matches and mismatches between the instructional system and the learning milieu with regard to aspects that facilitate and hinder learning?

A descriptive and interpretivist methodology such as illuminative evaluation will generally not use a hypothesis or pre-ordinate theoretical framework to commence the study, but will first

gather and analyse data, and then follow any significant issues that emerge during the analysis. However, given the nature of the workplace learning component that is being explored, there are a number of issues that are anticipated as likely to arise since, in the literature of the field, these are flagged as important elements that impact on workplace learning. It is thus anticipated that these issues **may** serve as further potential sub-questions for the inquiry – or, more accurately, as one subquestion with a number of components. This sub-question with its components is the following:

How do the following aspects either facilitate or hinder students' learning in the workplace component of Unisa's Diploma in Animal Health?

- The set programme of activities, and the ways in which these are assessed (cf. Billett 2000; Hager & Butler 1996)
- The nature of the interactions between the student and his/her mentor (cf. Darwin 2000; Billet 2000; Billet 2002)
- The nature of the interactions between the student and other roleplayers in the learning situation, specifically other colleagues in the workplace, and the university lecturer/s (cf. Engeström 1993; Davis & Sumara 1997; Billett 2000; Geertshuis et al. 2002)
- The social community and language/s in the workplace (cf. Lave & Wenger 1991)
- The relationship between the "theoretical" curriculum and the actual skills that are practised in the workplace learning environment (cf. Kolb 1984; Schön 1987; Scribner & Wakelyn 1997; Andresen et al. 2001; Auret 2005)

While these aspects will be attended to and will be pursued if they emerge as significant issues during the inquiry process, this will not preclude the investigation and further exploration of any other aspects that might be uncovered as significant during the course of the study.

2.3 Rationale for the study

An illuminative evaluation of the Animal Health workplace learning component will uncover matches and mismatches between the instructional system and the actual learning milieu within the workplace contexts, and will therefore make it possible to ascertain whether the component is meeting its own formulated goals. Furthermore, in providing a rich description of some of the contexts within the component, it should provide information that can be used as a basis for making improvements, should this be shown to be necessary.

This study thus has the potential to offer the following benefits:

- It will provide Unisa's Department of Animal Health, as well as their co-operative "partner", the government Veterinary Services, with information about strengths and weaknesses in the component, which may serve as a basis for improving the component.
- It may provide baseline data that the lecturers will be able to use to set up an internal evaluation and monitoring system that will bring them in line with HEQC requirements.
- While the findings will obviously not be generalisable to other programmes with workplace components at Unisa or elsewhere, the study may nevertheless provide insights about issues in workplace learning, and methodologies for investigating and evaluating such learning, that may inform further studies of workplace learning in other Unisa programmes. The findings may also be compared with the findings of research on other similar components, at Unisa and elsewhere, from which generalisations could then possibly be drawn.

In summary, the study may potentially contribute to the curriculum development and evaluation of the workplace components of vocational programmes at Unisa as well as other vocationally oriented educational institutions, and to further research on workplace learning.

CHAPTER 2: LITERATURE REVIEW

In this chapter, literature on two aspects pertinent to this study will be reviewed. Firstly, since the research question focuses on elements that promote and hinder learning in a workplace situation, literature on workplace learning will be reviewed, as this will point to the main issues and debates in the field and suggest how a workplace component might be structured and offered in order to promote effective learning. Secondly, since illuminative evaluation has been proposed as a suitable methodology to explore the workplace learning component of the Diploma in Animal Health that is being investigated in this study, the literature on the methodology and application of illuminative evaluation will also be reviewed.

1. A REVIEW OF LITERATURE ON WORKPLACE LEARNING

There is a great deal of literature on the phenomenon of workplace learning and the related but more inclusive concept "experiential learning". For the purposes of this study, the literature review will concentrate on work that offers a theoretical perspective on workplace learning and that proposes a theoretical framework or model with which to understand and describe the workplace learning environment. From this literature various aspects of the workplace learning environment will be identified that can be attended to for the purposes of evaluating the workplace learning component in this study.

Literature that will *not* be reviewed in this study includes the following:

- Literature defending the inclusion of workplace or "experiential" learning in institutionally-based learning programmes. In this study, it is assumed that a workplace learning component is a functional and significant part of career-oriented programmes.
- Literature that deals with the systemic and administrative aspects of programmes that combine institutional learning and workplace learning – for example, literature examining the division of responsibilities between educational institution and workplace.
- Literature that deals with the question of how programmes that combine institutional and workplace learning should be structured overall – for example, whether institutional learning should precede workplace learning, or be undertaken concurrently.

Fenwick (2000) provides a broad sketch of the theoretical field by distinguishing between five main current perspectives on experiential learning (and thus also workplace learning), namely:

- the constructivist perspective;

- the psychoanalytic perspective;
- the situated learning perspective;
- the critical theory perspective; and
- the enactivist perspective.

As Fenwick herself explains, this classification does not have concrete reality, but is essentially an artificial construct that is aimed at bringing some organisation and therefore better understanding to a study of the field: the various perspectives "overlap" considerably, have had mutual or related origins, and have also mutually influenced each other (Fenwick 2000). (Illeris (2003) presents a similar typology.) In this literature review, an overview will be provided of the key ideas in three of these perspectives, namely the constructivist, situated learning, and critical theory perspectives. The reasons for omitting the psychoanalytic and enactivist perspective is that very little literature on workplace learning from the point of view of these perspectives was found. The review will however deal with an additional perspective, one described by Davis as the "technological pragmatist" perspective (Davis 1996:134), since much of the literature on workplace learning and training seems to be written from this perspective. Further, within the framework of some of these perspectives, a number of evaluation studies of workplace learning will also be briefly reviewed. Finally, an overview will be given of conclusions drawn from this part of the literature review.

1.1 THE TECHNOLOGICAL PRAGMATIST PERSPECTIVE

Below I first discuss the principles of this perspective, and then look at evaluation and some evaluation studies conducted from the perspective.

1.1.1 Principles of the technological pragmatist perspective

In the technological pragmatist perspective on education generally, and specifically on workplace learning, education is seen as aimed at fulfilling the interests of the economy, industry and technology (Davis 1996:34). Learning within a workplace or organisational context, from this perspective, would be directed at enabling the learner ultimately to be more productive and contribute to the organisation's efficiency and, in capitalist systems, to its profitability.

The technological pragmatist perspective is also termed "instrumentalist" (e.g. by Mezirow 1985:18) or "functionalist" (e.g. by Darwin 2000:199). The paradigm rests on an objectivist view of the world – the belief that the phenomena we experience are real, exist independently

of human perception, and are objectively knoweable, and that this objective world should be studied by empirical and positivist methods, that is, through observation and systematic experimental investigation. Objectivism is generally seen as the favoured approach of behaviourist psychologists and educators (Carr 1986:273), and thus workplace learning within the technological pragmatist paradigm is usually construed in behaviourist terms. Behaviourism rests on the notion that human learning can be researched only by studying observable behaviour, as a subject's inner mental states are unknowable (Santrock 2004:211). Learning takes place through the positive reinforcement of desirable responses to stimuli, and either negative reinforcement (lack of reinforcement) or censure ("punishment") of undesirable responses (Santrock 2004:216).

In teaching or guidance using this approach, there is a decided asymmetrical power relationship between learner, on the one hand, and teacher or guide, on the other. The teacher or guide possesses the knowledge or skills to which the learner is aspiring, models this for the learner and guides him or her towards it. Decisions about what should be learnt and how learning should take place thus lie entirely with the teacher or guide.

Behaviourism as an approach to learning and pedagogy is today largely disparaged (Davis 1996:179). Possibly as a result of this, no current literature could be found that espouses this approach, by name, in offering guidelines for workplace learning. However, there are innumerable examples of "training" materials and manuals that have an implicit behaviourist perspective and are "pragmatic" – in other words, are aimed at increasing the competence and thus ultimately the efficiency of employees. In the training methods used and recommended in this literature, the "teachers" (supervisors or coaches) determine what is to be learnt and control the learning situation; training methods are behaviourist, for example by breaking procedures down into smaller sequential steps which are then reinforced. One of many examples is *Improving workplace performance through coaching* by Lawson (1996). Lawson (1996:38) sketches how coaching should be implemented when a supervisor observes a "performance problem" on the part of an employee, and comments: "The goal of coaching is to create a change in behaviour, to move employees from where they are to where you [the supervisor] want them to be" (Lawson 1996:12). The coaching is ultimately aimed only at ensuring that the employee meets organisational requirements.

1.1.2 Evaluation studies from the technological pragmatist perspective

From the technological pragmatist perspective, the evaluation of workplace learning is usually conducted with the aim of establishing to what extent learning has ultimately contributed to

the organisation's productivity and effectiveness. In this effort, a measurement approach involving quantitative data is frequently used. One well-known model for evaluating training programmes is Donald Kirkpatrick's "four-level" model. At the first "level", the reaction of learners or "customer satisfaction" is evaluated; at the second level, the learning of the participants; at the third level, the extent to which the participants' behaviour has changed due to the training; and at the fourth, "highest" level, the "final results", which include "increased production, improved quality, decreased costs … increased sales, reduced turnover, and higher profits and return on investment" (Kirkpatrick 1994:21-25). At this level, results are evaluated by measuring the relevant quantities (e.g. sales, profits) before and after the training (Kirkpatrick 1994:28,43,53,65). Many later authors on training evaluation propose methodologies that are rooted in Kirkpatrick's work (e.g. Van Adelsberg and Trolley (1999), Kraiger (2002) and Philips et al. (2004)).

Gosenpud (1990) reviews evaluation studies of experiential learning ranging from 1950 to 1990. Out of the 56 studies reviewed, 37 used measurement techniques, mainly experimental and control groups and pre- and post-testing, to establish whether the training had been successful; most of the remaining studies surveyed learner perceptions and/or observer ratings of learner performance (Gosenpud 1990:306-321). From this review it thus seems that most evaluation studies of experiential learning before 1990 were based in the measurement paradigm. Some examples of later studies within this paradigm are Van Gyn et al. (1997) and Keen (2001), who used pre- and post-testing to evaluate educational programmes, and Liddell et al. (2002), who used experimental and control groups.

1.2 THE CONSTRUCTIVIST PERSPECTIVE

This section will first sketch the development and principles of the constructivist perspective, and then consider the application of the constructivist perspective to experiential and workplace learning. Finally, constructivist-oriented studies of workplace learning will be reviewed.

1.2.1 The development and principles of the constructivist perspective

Early theorists who have been called "constructivists" include Jean Piaget and Jerome Bruner, who worked within the broader framework of cognitive psychology. Cognitive psychology diverged from behaviourist psychology in regarding internal mental processes as a legitimate object for research and theory-building (Anderson 1980:9). Piaget and Bruner showed that mental representations do not originate automatically, but rather are actively

constructed and elaborated by developing individuals in interaction with their environments (Piaget 1950:31; Anglin 1973:127). Similarly, the psychologist Lev Vygotsky argued that "concept formation is a creative, not a mechanical passive, process" (Vygotksy 1986:99; original work published in 1934). Further research in cognitive psychology has produced insights into the ways people use cognitive as well as metacognitive strategies – strategies for thinking about thinking (Santrock 2004:247-248). In education, techniques derived from cognitive psychology have been widely used to promote the acquisition of knowledge and skills. In this approach, educators are seen not only as transmitters of information, but also as "cognitive guides", helping learners develop learning, cognitive and metacognitive strategies (Santrock 2004:246, 274).

While the ideas of Piaget, Vygotsky and Bruner have been termed "constructivist", they were arguably still working within an objectivist epistemological framework. The term "constructivism" has however evolved to become a label for a different epistemological school of thought, which Von Glasersfeld (1995) describes as follows: "radical constructivism … starts from the assumption that knowledge, no matter how it be defined, is in the heads of persons, and that the thinking subject has no alternative but to construct what he or she knows on the basis of his or her own experience" (Von Glasersfeld 1995:1).

In education, the shift towards a constructivist epistemology led to the development of a philosophy and resulting pedagogy that include the following characteristics, as described by Honebein (1996:12):

- Authentic learning: Knowledge is influenced by the particular situation or context in which it is learned. If the goal of the learning is that learners should be able to function in a particular environment, then the learning process should involve this particular environment.
- Problem-based learning: The most effective stimulus for learning is real problems for which the learners need to find solutions.
- Experience in the knowledge construction process: The outcome of the learning is not merely to acquire knowledge and practical skills, but also cognitive, metacognitive and learning skills.
- Learner autonomy: The learners should develop responsibility for their own learning. The educator's task is to initiate and support the learner's personal process of knowledge construction – thus he or she is no longer an "instructor", but rather a "facilitator" of learning (Windshitl 2002:2).

1.2.2 The constructivist perspective on workplace learning

Both the earlier cognitivist ideas on individual knowledge processing and construction, and the later ideas on constructivist learning facilitation, have been applied to learning for and in workplaces. A review of the constructivist literature on workplace learning highlight a number of themes, which include the following:

- The role of experience in learning
- Reflection in learning
- Critical reflection and transformative learning
- The role of workplace mentors
- Metacognition in workplace learning
- Assessment of workplace learning
- The use of learning contracts

Each of these themes is explored in some more detail below. To conclude this section, a summary will be provided of those aspects that, in the constructivist literature, are recommended to bring about effective workplace learning.

1.2.2.1 The role of experience in learning

The notion that individuals construct knowledge through engagement with their *experience* and *actions*, or "doing", in the world is consistently highlighted in experiential learning literature. One of the earlier exponents of this idea was John Dewey. In *Experience and education*, originally published in 1938, Dewey argued that "progressive" education is based on the idea that "there is an intimate and necessary relationship between the processes of actual experience and education" (Dewey 1998:7, original edition 1938). Learning must be "rooted in conditions of experience and arouse an active quest for information and new ideas"; within the experience problems should arise, as "problems are the stimulus to thinking" (Dewey 1998:96). Dewey advocated the value of involving all kinds of experiences, including "everday social applications" (Dewey 1998:98), as a source of and part of education.

The "experiential learning model" of David Kolb has been particularly influential in vocational and professional programmes and in workplace learning (Beaudin & Quick 1995:11, Andresen et al. 2000). According to Kolb, "knowledge is continuously derived from and tested out in the experiences of the learner"; drawing on Dewey, Piaget, Paulo Freire, and

Kurt Lewin's model of "action research", Kolb defines learning as "the process whereby knowledge is created through the transformation of experience" (1984:27,38). For Kolb, then, as for the constructivists in general, knowledge is not pure acquisition but is actively generated by the learner through his or her experiences and interaction with the environment. This interaction is a cycle, as illustrated below.

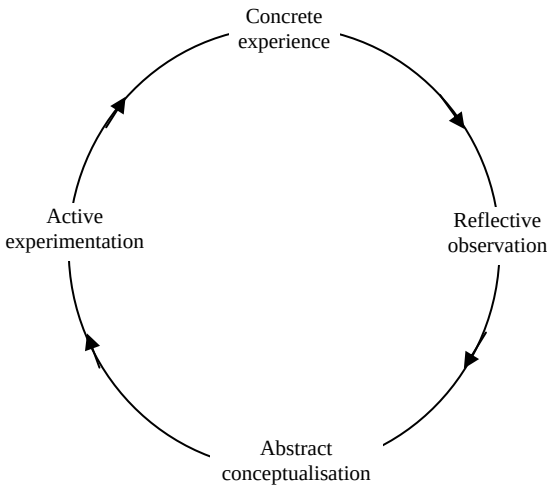

Figure 2.1: Kolb's learning cycle (1984:42)

The learning cycle consists of the following phases: the learner is engaged in a concrete experience, reflects on and observes the experience from different perspectives, creates concepts that integrate these observations into a "theory" or explanation of what he/she has observed (even if this is done informally), and then uses this "theory" to make decisions and solve problems (Kolb 1984:30).

Kolb emphasises that simply undergoing experiences and recalling them are not sufficient for learning: "the central idea here is that learning, and therefore knowing, requires both a grasp or figurative representation of experience and some transformation of that representation" (Kolb 1984:42). Transformation, in turn, involves "the active [mental] extension and grounding of ideas and experiences in the external world and … internal reflection about the attributes of these experiences and ideas" (Kolb 1984:52).

1.2.2.2 Reflection in learning

Kolb's emphasis on "reflective observation" and the conscious consideration of experience has become a feature that is closely associated with experiential learning in workplaces (Beaudin & Quick 1995:4,11). In fact, this notion – expressed by the term "reflection" – has

become a central feature of the constructivist approach to learning in general (Fenwick 2000:248). It should be noted, though, that reflection is always inevitably reflection on concrete actions or experiences; thus, the two activities of engaging in action and then reflecting on that action are considered integral to each other and to learning in the constructivist perspective (Andresen et al. 2000:1). As Kolb had already indicated (1985:16), this view to some extent derives from Paolo Freire who saw the relationship between action and reflection as a dialectic process termed "praxis" (Freire 1970:68). For Freire, however, "praxis" had a sociopolitical emancipatory and transformative goal and his philosophy is more closely aligned to the critical theory perspective (discussed below) than to the constructivist perspective.

One of the main theorists who has elaborated the idea of this reflection-action relationship as it applies to learning in workplaces, particularly by professional practitioners, is Donald Schön (1987). Schön observed professionals at work, as they were working independently and also as they were mentoring novices, and sketched how they learn by noticing and framing problems in certain ways and then flexibly experimenting with a variety of potential solutions – in short, by practising "artistry" (Schön 1987:13). Their knowledge is constructed, Schön argues, through reflection in the midst of this process – "reflection-in-action" – as well as reflection after the process – "reflection-on-action" (Schön 1987:26). Reflection is not a consciously analytical cognitive act but, rather, is intuitive and improvisational (Schön 1987:31).

The role of reflection in the process of experiential learning has also been explored by David Boud, alone and as co-author. In a volume of articles entitled *Reflection: Turning experience into learning* (1985), Boud, Keogh and Walker use the ideas of Dewey and Kolb as a point of departure to develop a detailed model of reflection in experiential learning, where reflection is seen as taking place in various stages (Boud et al. 1985:18-26). In a later article, Andresen, Boud and Cohen (2000) develop this model further and highlight the cyclical nature of reflection. Boud suggests various means through which reflection can be involved in the learning process, including the use of learning journals, learning partners with whom to reflectively discuss ideas, learning contracts of which the fulfilment requires reflection, self-assessment "schedules", critical incident analysis, autobiographical writing, and various forms of computer-based dialogue (Boud & Knights 1996:24).

1.2.2.3 Critical reflection and transformative learning

Two authors who have further elaborated the idea of reflection in experiential learning and are commonly associated with a constructivist perspective are Jack Mezirow (1985, 1990) and Stephen Brookfield (1987). Both these authors emphasise the need for reflection to be critical. Brookfield describes "thinking critically" as a process that ''involves our recognising the assumptions underlying our beliefs and behaviours" (Brookfield 1987:13), and argues that this process is particularly important in the workplace, both for managers and workers (Brookfield 1987:138-155). Mezirow, in turn, distinguishes "critical reflection" from general reflection: "Whereas reflection involves the assessment of the assumptions implicit in beliefs … critical reflection … refer[s] to challenging the validity of *presuppositions* in prior learning" (Mezirow 1990:12, emphasis in original). Learning that involves critical reflection is "transformative learning" (Mezirow 1990:18).

As the discussion above has shown, a dialectic between action or experience, on the one hand, and reflection, on the other – denoted "praxis" by Freire (1970:68) – clearly underlies much of constructivist thinking. This suggests how the traditional distinction between "theory" and "practice" is regarded in the constructivist perspective: practice (action) informs theory (reflection), and theory then in turn informs practice – thus, the two mutually shape each other, so creating a dialectical relationship.

1.2.2.4 The role of workplace mentors

Stephen Billett has written extensively on diverse facets of workplace learning. The findings of a 2003 research study with workplace mentors by Billett highlighted the very demanding nature of the work for mentors, and the necessity of support for mentors if mentoring is to be effective (Billett 2003:112).

Unlike Billett's research, that looked at mentoring from the personal point of view of mentors, much of the earlier literature on workplace mentorship is concerned with the nature of the mentor-student relationship. Maynard and Furlong (1995) identify three main models for this relationship that are described in this literature:

- In the "apprenticeship" model, the mentor acts mainly as supervisor who instructs the student until the latter can emulate the mentor's skills and has acquired sufficient competence for the mentor to withdraw from the relationship (Maynard & Furlong 1995:18).

- In the "competency" model, the mentor initially works collaboratively with the student and provides coaching and feedback, but gradually gives the student increasing control (Maynard & Furlong 1995:20).
- The "reflective practitioner model" follows the same course as the "competency" model but takes the process further: the mentor introduces a critical element into the mentoring, challenging the student to question the fundamental presuppositions on which work processes are based in order to think about them in new ways (Maynard & Furlong 1995:21).

The "apprenticeship" model is congruent with the technological pragmatist approach. The "competency" and "reflective practitioner" models clearly draw on both cognitivist and constructivist ideas, while the "reflective practitioner" model integrates Brookfield's and Mezirow's notion of "critical reflection".

Writers in all these models are concerned with the personal qualities that, according to them, good mentors should exhibit, and the nature of the roles they should play vis-á-vis the student. Gay, for example, notes that the roles of the mentor include "those of teacher, counsellor, negotiator, supervisor, entertainer and coach" (Gay 1994:4). Sponsor, host, role model, moral supporter and "invisible godparent" are also mentioned (Bova 1987:121-122). Generally, much emphasis is placed on the idea that mentoring goes beyond coaching in work tasks to providing personal counselling for the student, and being emotionally supportive, caring, and nurturing (Bova 1987:123; Anderson & Shannon 1995:26). From a more critical perspective, Darwin (2000:198) points out that this view is essentially paternalistic, and indeed most descriptions of mentoring seem to take the view that mentors are older guides for young people (e.g. Gay 1994:4; Gibb 1994:32). Darwin suggests that the relationship should be reconceptualised as more egalitarian (Darwin 2000:207).

1.2.2.5 Metacognition in workplace learning

Constructivist authors on workplace learning, building on the cognitivist tradition, frequently also express a concern that metacognitive processes in workplace learning should be recognised and, where possible, metacognitive techniques should be taught to learners to enhance their learning. Metacognition involves "active monitoring and consequent regulation and orchestration of cognitive processes to achieve cognitive goals" (Hacker 1998). Authors who describe various metacognitive strategies that can be involved in workplace learning include Dealtry (2004), Munby et al. (2003) and Bauer et al. (2004:284).

1.2.2.6 Assessment of workplace learning

Hager and Butler (1996) distinguish between two basic paradigms involved in the assessment of workplace learning, namely a "scientific measurement" and a "judgemental" model of assessment, with the former epistemologically related to objectivism and the latter to constructivism. Hager and Butler argue that the judgemental model is more suited to assess a person's personal competence in a domain of practice.

Yorke (2005) has reviewed research and theory on the assessment of "practice-based professional learning". In discussing Hager and Butler's models of assessment, he warns against seeing assessment in "over-polarised" terms and reasons that the scientific measurement model does have a place in the assessment of workplace learning (Yorke 2005:19). However, this model cannot be the sole approach as "the professional practitioner is often in the position of achieving the best outcome possible in the prevailing circumstances and not the best possible outcome in the abstract" (Yorke 2005:19). Yorke argues that "no one [assessment] method will deal adequately with the complexity of performance, and so the logic is that a variety of methods needs to be used, and the assessment outcomes triangulated in order to develop a rounded picture of achievement" (Yorke 2005:20). Possible methods, which vary in function, validity and reliability, include direct observations of performance, the opinions of others such as colleagues or clients ("surrogate assessment"), simulations of clinical practice (e.g. with a "simulated" patient), logbooks, work diaries or porfolios, and workplace reports (Yorke 2005:20).

Diaries or journals, portfolios and workplace learning reports, in particular, are frequently used in constructivist-oriented assessment as they both contribute to and can be used to assess the development of reflective competence (Yorke 2005:20). As such they are possibly more useful in formative than summative assessment (Yorke 2005:24).

1.2.2.7 The use of learning contracts

Learning contracts have been proposed as a strategy for generating greater learner self-directedness, as well as ensuring greater equity between the various parties in the educational situation. Anderson et al. (1998:163) define a learning contract as "a formal written agreement between a learner and a supervisor which details what is to be learnt … what will be produced as evidence of the learning having occurred and how that product will be assessed". With learning contracts the learners have the opportunity to participate in negotiating outcomes and the criteria that will be used to assess them. In co-operative

education, it is also recommended that a form of contracting be used to spell out the various responsibilities of the educational institution, the learner and the employer (Groenewald 2004:21-22).

1.2.2.8 A summary of constructivist recommendations for workplace learning

The constructivist perspective offers the following recommendations for developing the workplace component of a learning programme:

- The workplace situation should be viewed and designed as a "rich environment for active learning": the learners should be provided with a project or projects to actively undertake in this environment, the necessary support should be provided, but within this framework the learner should be allowed to construct his or her own meanings.
- Strategies should be used to instil reflective practice, or critical reflection, in learners as a habitual way of learning. Also, learners should be assisted to develop other metacognitive strategies for monitoring and enhancing their learning.
- Mentors should be involved to facilitate learning but also to provide a supportive (though not paternalistic) role.
- The assessment of workplace learning should be an integrated assessment of knowledge, skills, and behaviour, and should involve a variety of methods and evidence sources. It should also involve the assessment of reflection.
- Learning contracts should be used to negotiate and specify the roles of all roleplayers involved.

The constructivist perspective arguably remains one of the most influential perspectives on education and is in fact captured in the term "experiential learning" itself.

1.2.3 Constructivist-oriented studies of workplace learning

Below, a number of evaluative research studies on workplace learning which generally studied constructivist-oriented courses and/or used constructivist-oriented (qualitative) methodologies are briefly reviewed.

Scribner and Wakelyn (1997) conducted a large-scale qualitative evaluation of Wisconsin's Youth Apprenticeship Programme, a programme in which students are employed and their work-based learning is integrated with formal, "school-based" vocational training. The researchers focused on the questions of how training and work-based experiences are

integrated, and on the ways in which the programme enhances learning for students (Scribner & Wakelyn 1997:5). They conducted a document analysis and surveyed students and other roleplayers using focus group interviews, individual interviews and telephone surveys (Scribner & Wakelyn 1997:8). A number of salient findings were the following:

- Students generally viewed the workplace-based training as highly valuable, both because it helped them to acquire income-generating skills and offered the opportunity to participate in meaningful activities (Scribner & Wakelyn 1997:10).
- Some students expressed a concern that they were involved in too many mundane workplace tasks that were not helping them to learn (Scribner & Wakelyn 1997:11).
- The majority of students (80%) identified their relationship with their workplace mentors as a major factor enhancing learning (Scribner & Wakelyn 1997:12). Other students, however, experienced their mentors as unavailable or uninvolved (Scribner & Wakelyn 1997:13).
- Most students found their co-workers to be supportive and helpful, thus aiding their learning (Scribner & Wakelyn 1997:15).

As mentioned above, Stephen Billett has written prolifically on workplace learning. Much of Billett's earlier work is synthesised in a 2000 article that reports on a research study with mentors in a variety of workplaces (Billett 2000). The study is based in the cognitivist/constructivist as well as the situated learning perspective, principally the work of Rogoff and Lave (Billett 2000:273, 285). As such, the study will be further discussed in the section on situated learning theory below. Within the framework of the constructivist perspective, however, it may be noted that Billett found that learning through work activities is more effective when learners are not left to work completely on their own, but receive guidance from another person – thus, if they have a mentor. The more frequent this guidance, the more effective learning is likely to be (Billett 2000:279). The type of guidance strategies adopted, and their frequency of use, also affect learning. The guidance strategies investigated include the following, given in the order in which they were perceived as useful:

- Modelling (demonstration of a task with accompanying explanations) and coaching (instruction in how to perform a task, sometimes while the learner is doing so).
- Questioning dialogues – conversations with the learners during which the mentor prompts them to interrogate their own learning. This is thus a reflection technique.
- The use of diagrams to visually represent aspects of the knowledge learnt.

Billett further found that effective learning depends on the learners' interest in the work and whether they "engage in learning in a concerted and effortful way" (Billett 2000:283). Ultimately, then, effective learning in the workplace depends on "rich interdependence

between individuals' existing knowledge that is variously made vulnerable, transformed or strengthened by these engagements [in work activities]" (Billett 2000:283).

Later evaluative studies of work-based learning include those of Poon et al. (2003), Nikolou-Walker and Garnett (2004), and Smith and Lev-Ari (2005). In general, these studies highlighted the value that students derived from workplace learning, and the effectiveness of mentors and peers in supporting learning. Difficulties identified in the workplace components included lack of time, and expectations by mentors that were "too high", assuming that the students would have been better prepared in practical skills by the university at the time they started the workplace learning (Poon et al. 2003:78).

Auret (2005) conducted a large-scale study of perceptions of Library and Information Studies alumni who had graduated from 2000 to 2004, at all South African higher education institutions, on the role of "experiential learning" in their programmes. The study is significant for this research as it included a programme at Unisa, the same institution offering the Diploma in Animal Health. Findings included that many students felt the links between the "theory" modules they studied and the practice encountered during the workplace component were not clear; many students were involved in insignificant workplace tasks; for many, the workload was too great; and the workplace supervisor was seen as a major source of learning facilitation and support (Auret 2005:66-69).

In summary, the studies on workplace learning reviewed above found that the workplace component was generally experienced to be a very valuable part of the learning programme, sometimes the most valuable part. Major aspects enhancing learning success were found to be interaction with workplace mentors as well as colleagues (fellow workers) and fellow students, and the involvement of reflective practice in the component or programme. Barriers to learning included the involvement of menial rather than meaningful tasks, too great a number of tasks, and mentor uninvolvement.

1.3 THE SITUATED LEARNING PERSPECTIVE

Situated learning theory emphasises the sociocultural context of workplace learning and the ways in which learning and knowledge emerge through mediation, participation and the interaction between individuals and their environments (Fenwick 2001:6; Guile & Young 1998:176-177). The approach of situated learning theory, as entailed in the work of Lave and Wenger (1991) and other authors who take essentially the same theoretical position, is sometimes also termed "sociocultural learning theory" or "social learning theory" (e.g. by

Guile and Young 1998). (In other instances, however, these two terms are used more broadly to refer to any theory of learning in which sociocultural issues are prominent.) As Ramsey (2005:219,223) suggests, it is an approach related to "social constructionism" in sociology.

This section will first examine the principles of situated learning theory, and then provide a review of workplace learning studies from a situative perspective. Finally, a summary will be given of requirements for workplace learning from the situative perspective.

1.3.1 Principles of situated learning theory

This section will deal with the following main points:

- Rogoff's notion of situated learning
- Lave and Wenger's situated learning theory
- Offshoots of the situative approach: Activity theory and expansive learning

1.3.1.1 Rogoff's notion of situated learning

Situated learning theory is grounded in the work of Vygotsky (Rogoff 1990:13), who argued that all learning is socially mediated, both through other people and through signs and cultural artefacts, particularly language (Vygotsky 1934:108). Vygotsky introduced the notion of the "zone of proximal development" (ZPD) of an individual in learning, which is "the distance between the actual development level … and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more able peers" (Vygotsky, quoted in Guile & Young 1998:178).

Some of the earlier Western authors to explore the implications of these ideas for cognition and learning in the late 1970s and 1980s were educational psychologists James Wertsch, Michael Cole and Barbara Rogoff, and social anthropologist Jean Lave. In a 1990 work, *Apprenticeship in thinking*, Rogoff synthesises many of the ideas developed earlier by herself and these theorists (Rogoff 1990:xi). She delineates the object of enquiry in the situative perspective on learning, simultaneously distinguishing the latter from the constructivist approach: "From the sociohistorical perspective, the basic unit of analysis [in the learning situation] is no longer the (properties of) the individual, but the (processes of the) sociocultural activity, involving active participation of people in socially constituted practices" (Rogoff 1990:14). In their attempt to understand learning, the constructivists have focused mainly on the mental process in which individuals engage; in this perspective, the focus shifts to

embrace the individual as well as others, and features of the social context. In fact, cognitive processes, on the one hand, and the context in which these occur, cannot be separated: "Rather than examining context as an influence on human behavior, I regard context as inseparable from human actions in cognitive events or activities. I regard all human activities as embedded in context; there are neither context-free situations nor decontextualised skills" (Rogoff 1990:27). Apart from other people, this "context" involves both people and social goals and procedures, institutions, and tools and technologies (Rogoff: 42-61). For the learner, a critical component of the context remains "partners who have relatively greater skill and understanding", who provide "bridges" from familiar to new knowledge (Rogoff 1990:39, 86).

1.3.1.2 Lave and Wenger's situated learning theory

The term "situated learning theory" derives from a 1991 publication by Jean Lave and Etienne Wenger, *Situated learning: Legitimate peripheral participation*, in which they propose a model for understanding learning, particularly learning in the situation of apprenticeship, or that of a newcomer in a workplace situation. The theoretical basis for the work is the same elaboration of Vygotskyan ideas proposed by Rogoff, as discussed above. Learning occurs through activity and all activity is situated in a particular context (Lave & Wenger 1991:31,33) – thus, the only way to analyse and understand learning is to analyse and understand the context in which it occurs. This context is inevitably sociocultural and includes, in a situation of craft or work, a community of practitioners.

Lave and Wenger (1991:53) argue that learning, conceived in this way:

> involves the whole person; it implies not only a relation to specific activities, but a relation to social communities – it implies becoming a full participant, a member, a kind of person. … To ignore this aspect of learning is to overlook the fact that learning involves the construction of identities.

Learning is thus more than a mastery of knowledge and tasks, but involves a *transformation of the identity* of the newcomer into that of a fully-fledged member of the community of practice. This community, in turn, is a complex set of relations that mediates learning and knowledge. A community of practice consists not only of the people who are its members, but is also constituted by its own social history, its artefacts and technologies, and its own discourse which shapes its nature (Lave & Wenger 1991:109); furthermore, it is a dynamic, constantly changing phenomenon (Lave & Wenger 1991:55).

In such a community, the "curriculum" is a "learning curriculum", not a "teaching curriculum": it is not a pre-designed, structured set of learning tasks with clear predetermined goals, but involves the full range of everyday activities and experiences of the newcomer that will eventually lead to the transformation of his or her identity (Lave & Wenger 1991:97). The learning curriculum is often structured differently to traditional teaching curricula, with novices performing simpler tasks first, even if those tasks come later in the normal production sequence (Lave & Wenger 1991:96).

Lave and Wenger identify the following key points that relate to learning curricula and that should therefore be taken into account where curricula for workplace learning are considered:

- Learners should have **access** to the community – "access to a wide range of ongoing activity, old-timers, and other members of the community; and to information, resources, and opportunities for participation" (Lave & Wenger 1991:101).
- Access for newcomers can be **structured** and manipulated in a variety of ways. For example, learning may not be sequenced according to normal work sequences but according to what is feasible for newcomers to do.
- The **tools and technology** of practice not only provide the means to perform tasks, but also "connect with the history of the practice" and contribute to its "cultural life" (1991:101). Learners should therefore not only learn to use the technology, but should also come to recognise its cultural significance in the community (1991:101-103).
- To become full members of the community of practice, newcomers have to be inducted into its **discourse** – they have to undergo a process of "learning to speak as a full member of a community" (Lave & Wenger 1991:108). Again, this does not take place through direct teaching, but the newcomers learn the discourse through conversations with more experienced members and also by hearing the "stories" of the old-timers, particularly stories about difficult cases they have experienced that serve as a source of learning (Lave & Wenger 1991:108). This implies that newcomers need to engage in informal social activities (e.g. conversations) with other members of the community.
- Learners learn from the **activities** they undertake, from what they hear and observe in the community, and from all members of the community, not only from the master alone (Lave & Wenger 1991:94).
- As participation increases, the learner begins to experience "an increasing sense of **identity** as a master practitioner", and this acts as a powerful motivator for further learning (Lave & Wenger 1991:111-112).

Situated learning theorists further propose that actions, including skills and ideas, only gain meaning in their particular context, and are thus in principle not abstractable (Lave 1993:22-

23). From an epistemological point of view, situated learning theory departs from both the positivist and constructivist perspectives, neither of which questions the possibility of abstracting the general from the specific, the decontextualised from the context.

1.3.1.3 Offshoots of the situative approach: Activity theory and expansive learning

Lave and Wenger's theory of situated learning, as well as "the Soviet cultural-historical research tradition, which today is commonly called activity theory" (Engeström 1993:64) have formed the basis for a "second generation" of activity theory proposed by the Finnish education theorist, Yrjö Engeström. Engeström has devised an activity theory model for describing and analysing "activity systems" such as workplace learning environments.

Activity systems are any contexts in which human activity is conducted. The various components of the system are the learning subject, the object at which the subject's activity is directed, the community with its particular social "rules" and division of labour in which the activity takes place, and the tools or artefacts, including language, by means of which the activity is produced (Engeström (1993:73-98).

Engeström later (2001) uses activity theory as a basis to propose a theory of "expansive learning". Expansive learning occurs when two or more activity systems interact, and the resulting communication (and frequently, conflicts that arise) induces learning in all of the systems so that they change dynamically (Engeström 2001:138).

1.3.2 Workplace learning studies from the situative perspective

Stephen Billett, in a 2000 article already mentioned in the section on constructivism above, conducted a research study in which elements of both the constructivist and the situated learning perspectives were used as a theoretical lens to study learning in a variety of workplace settings. In the study, mentors received training in techniques of guiding mentees, and then attempted to implement these techniques in the workplace over time. In subsequent in-depth interviews and questionnaires administered to both mentors and mentees, and using the critical incident technique, Billett identified the various elements that most successfully promoted learning at work in the situation. These included the following:

- The number of opportunites to participate in everyday work activities. The more opportunities were offered, the more successful workplace learning was (Billet 2000:272).

- Facilitation of learning by a mentor, using the techniques listed in the section on constructivism above.
- Other workers (colleagues/peers) who "are used as models for performance … and as source of how work tasks should proceed " (Billet 2000:272).
- The physical workplace environment that provides "important clues, cues and models that assist individuals' thinking and acting and hence their learning " (2000:272).

Billett further argues that learning is promoted not only by supporting the learners but also by supporting the mentors, and providing opportunities for mentor training and peer mentoring, that is, different mentors supporting each other (Billet 2000:281). Billett elaborated these views of workplace learning in three later studies (Billett 2002, 2004 and 2006).

In a study of apprenticeships in the UK that also draws on Lave and Wenger but introduces Engeström's (2001) concept of "expansive learning", Fuller and Unwin (2003) come to similar conclusions as Billett about the key elements promoting learning at work. Three key aspects make expansive learning possible: the extent of participation allowed to apprentices, an emphasis on their personal development, and institutional arrangements that are specifically organised to support learning at multiple sites (Fuller & Unwin 2003:407).

Geertshuis and others (2002) report on an evaluation of the learning of 92 subjects in a variety of workplace-based training courses. The researchers sought the learners' evaluation of the course and perceptions relating to a variety of issues, but the most pertinent here is "barriers [to learning] and sources of support" (Geertshuis et al. 2002:13). The authors had hypothesised that "learners with weaker barriers and stronger sources of support will report higher levels of learning" (Geertshuis et al. 2002:13). This hypothesis held true, but an additional insight emerged, namely that there was a strong impact of factors *external* to the training context on levels of learning. Such external factors included support from family and friends, and help from colleagues (Geertshuis et al. 2002:14).

The influence of the situated theory perspective is discernable in a recent publication by Boud and others, *Productive reflection at work* (2006), in which a core aspect of constructivism, reflection, is now re-introduced and re-examined as a social activity within a community of practice. Productive reflection has "an organisational rather than an individual intent and a collective rather than individual orientation" (Cressey et al. 2006:19). In a study in which four groups in four different workplaces were studied with a view to determine influences on their learning, Boud uncovered that reflection is only effective when time is made for it but, paradoxically, this time should not be formally delineated and labelled as, for example, a

"reflection session", as this both leads to the activity being contrived and also perceived as taking time away from "actual" work. Reflection is thus most effective in informal social situations (Boud 2006:165-166).

1.3.3 Summary: Requirements for workplace learning from the situative perspective

From the perspective of situated learning, the following summary may be drawn of aspects that should be taken into account in workplace learning:

- Guided learning is more effective than independent learning. However, the guidance situation is not hierarchical but egalitarian – both partners construct the object of learning together.
- All the various elements that constitute the workplace situation either mediate or have an influence on learning (e.g. the learner, the object of learning, and the workplace community).
- Active and meaningful participation by the learner in the community is a prerequisite for learning.
- Multiple sites for learning, and both formal and informal opportunities for learning, should be available to the learner.
- Learning is ultimately a change in the identity of the learner from a newcomer to a fully-fledged member of the community of practice. As such the workplace curriculum should support actions that enhance such identity formation, for example socialisation with other members of the community.

In essence, the situative perspective looks at the activity system in the workplace as a whole, and involves all its elements in the learning process in an integrative way.

1.4 THE CRITICAL THEORY PERSPECTIVE

Critical theory and its educational offshoot, critical pedagogy, developed out of the Marxist philosophical tradition and focuses on the need for attaining social justice and social and individual emancipation. Kincheloe describes the purpose of critical pedagogy as follows: "[It] is dedicated to the notion of egalitarianism and elimination of human suffering … a critical curriculum attempts to engage students in the understanding and implementation of a critical democracy grounded in concerns for community building and social justice" (Kincheloe 1999:72-73). Two of the best known exponents of this approach are Paolo Freire, who advocated a "pedagogy for the oppressed" (1970:30), and Henry Giroux, who argued that

pedagogy should create "a notion of democracy capable of mobilizing a variety of groups to develop and struggle for … a positive alternative vision" (Giroux 1997:153).

A literature search revealed very few studies of workplace learning, or of programmes incorporating workplace learning, from an explicit critical theory perspective. Wagner and Childs (2000) describe a qualification involving workplace learning that was designed with critical theory principles in mind, in which the roles of all participants (students, lecturers, work-based co-ordinators) have been diversified to make them more equitable. In a case study of the first qualifiying cohort of the same qualification, Houlbrook (2000) reports that the students generally perceived the university as being supportive of their efforts, but the various workplaces much less so (Houlbrook 2000:8).

Darwin's study of mentoring (2000), as mentioned earlier, critiques traditional models of mentoring as "paternalistic" (Darwin 2000:201). Darwin comments that "from a Radical Humanist rather than a functionalist perspective, a variety of workplace mentoring relationships would be encouraged, for example, peer mentoring that offers mutually supportive and challenging partnerships of coequals, marked more by reciprocal influence and less by notions of downward influence and role-defined relationships" (Darwin 2000:207).

In summary, the critical theory perspective offers the following insights for workplace learning:

- The distribution of power within a workplace – between the learner, mentors, supervisors and colleagues – may have substantial implications for the extent of learning that takes place there. In the design of workplace components, the issue of equity between the roleplayers in the workplace should be attended to.
- From an emancipatory perspective, the learner should develop a critical awareness of these power relations and encouraged to empower him- or herself in disempowering situations.

1.4 IMPLICATIONS OF THE LITERATURE REVIEW ON WORKPLACE LEARNING FOR THIS STUDY

An illuminative evaluation study, as an interpretivist approach aimed at uncovering and following emergent themes, will generally *not* use a pre-ordinate theoretical framework for its investigation of the instructional system and learning milieu. However, the review above has provided an overview of issues and debates that are generally considered relevant to workplace learning, and of elements of the workplace environment that may support or hinder

learning. As the inquiry proceeds, these issues may thus initially be probed to establish whether they may be playing a role in the workplace component.

The issues and workplace elements identified by the literature review may be summarised as follows:

- The various sites of learning that relate to the student's learning in the workplace (e.g. the workplace itself and the university), and the relationship between them.
- The various elements that constitute the workplace environment, particularly the learners' participation in real workplace activities
- The relationship between the "theoretical" curriculum and the actual skills that are practised in the workplace learning environment.
- The structure of the "learning curriculum", e.g. the sequence in which tasks are learnt.
- The change in identity, if any, brought about in the student by the learning process, and the extent to which workplace socialisation may have contributed to this.
- The nature of the relationship between the student and learning mediators, including mentor/s, and the construal of this relationship as authoritarian or empowering.
- The way in which learning in the workplace is assessed.

Although these elements may be probed as possible influences on learning, this will not preclude the exploration of any other aspects that might be uncovered as significant during the course of the study.

2. A REVIEW OF LITERATURE ON ILLUMINATIVE EVALUATION

In this section, a review of illuminative evaluation literature will be introduced by a brief consideration of the nature of evaluation, as described in evaluation literature, and of the antecedents of illuminative evaluation, as this perspective is useful for an understanding of the approach. Then the nature and methodology of illuminative evaluation will be explored, as described in the article that originally introduced the approach (Parlett & Hamilton 1976). This will be followed by a review of illuminative evaluation studies. Finally, literature providing an appraisal of the approach will be reviewed.

2.1 The nature of evaluation, and the development of illuminative evaluation

The purpose of this evaluation study is to investigate an educational or curricular phenomenon, namely the workplace learning component that forms part of an educational

programme. With this in mind, it is useful to ascertain how the term "evaluation", and more specifically "curriculum evaluation", is interpreted in educational and evaluation literature.

Hamilton (1976:4) defines curriculum evaluation as "the process or processes used to weigh the relative merits of those educational alternatives which, at any given time, are deemed to fall within the domain of curriculum practice". Worthen and Sanders (1987:24), in turn, describe educational evaluation as "the act of rendering judgments to determine value – worth and merit – without questioning or diminishing the important roles evaluation plays in decision-making and political activities".

The most important points arising from these definitions of curriculum and educational evaluation are the following:

- Curriculum evaluation involves making a *judgement of merit or value*. As the word "evaluation" itself implies, the process is aimed at adjudicating the value of the object of study.
- Curriculum evaluation is a *changing phenomenon*. By including the phrase "at any given time" in his definition, Hamilton suggests that curriculum evaluation is a dynamic, not a static, concept.
- As the point above implies, curriculum evaluation is a *human construct*: the nature of the activity depends on how the people who are conducting it perceive, understand and describe "curriculum" and "evaluation" at a particular time. This suggests that there is no single, ideal way in which to undertake evaluation: as Hamilton states, it cannot be said that curriculum evaluation "is moving slowly towards a more rational or perfectible technology" (1976:4).
- Curriculum evaluation is aimed at *decision-making*. Evaluations are always conducted with a view to providing relevant information about the merits of a programme or innovation. As such, their ultimate aim is to provide a basis for making decisions about the future of the relevant project.
- Curriculum evaluation is always *political*. In adjudicating a curricular project or innovation, one alternative is inevitably assigned greater value than another existing or possible alternative, and the process will thus (directly or indirectly) provide support to the interests of the group favouring the project to which the greatest value is assigned. In addition, many aspects of the investigation process are inherently political, as Worthen and Sanders explain: "consider the political nature of decisions regarding whose values are attended to … how information is reported and to whom … and how the evaluator may be co-opted by individuals or groups" (Worthen & Sanders 1987:197).

One particularly salient point made above is that the evaluation process itself is a "construct". With this in mind, it is necessary to further explore the notion of evaluation by briefly tracing the development of ideas surrounding this concept.

The idea that evaluation is a constantly changing conception and thus "constructed" is clearly illustrated by the gradual evolution of different forms of evaluation, including illuminative evaluation. Before the 1960s, evaluation (and research studies generally) were largely rooted in an objectivistic epistemological paradigm. Objectivism holds that the phenomena that we experience are real, objective and exist independently of human perception, and that knowledge is only valid if it is empirically verifiable. Researchers and evaluators within this paradigm attempt to maintain an objective perspective, work with "scientific", pre-ordinate experimental designs that are replicable by others, and use deductive methods and quantitative data (Worthen and Sanders 1987:46; Patton 1997:273; Cohen et al 2000:9).

The 1960s marked the beginning of a shift from this paradigm, also referred to as "modernism", to a subjectivist or "post-modernist" paradigm. Post-modernism is characterised by a rejection of fixed notions of reality, knowledge, and method, and the acknowledgement of subjectivity (Atkinson 2002). Subjectivism holds that the knower and the known are interactive and inseparable; realities are constructed and thus multiple; and behaviour and data are socially situated and therefore context-dependent (Cohen et al. 2000:137). Researchers and evaluators within this paradigm recognise "the validity of subjective experience, work with flexible naturalistic designs involving studies of specific contextualised phenomena, and use inductive methods and qualitative data" (Patton 1997:273). (The term "naturalistic", frequently used to characterise this approach, is intended to suggest that this type of research is conducted in natural settings rather than in contrived, experimental ones (University of Southampton n.d.).)

In the field of evaluation, the publication in 1972 of the occasional paper *Evaluation as illumination: A new approach to the study of innovatory programmes* by Malcolm Parlett and David Hamilton marked the first comprehensive statement of a naturalistic, qualitative agenda for evaluation that departed from the quantitative paradigm which, up to that point, had been dominant in evaluation (Stronach 1997:23). In fact, however, the qualitative approach that these authors advocated in the form of illuminative evaluation had a number of antecedents. These included Michael Scriven, who developed the notion of "goal-free" evaluation (Scriven 1972:131); Robert Stake, who introduced the approach of "responsive evaluation" (Stake 1977:163); Lawrence Stenhouse, who rejected the objectives model for research on the

effects of curriculum in favour of "understanding" (1970:119); and Elliot Eisner, who suggested that evaluation should be "illuminated" by the tools of art criticism (Eisner 1972:96).

While Parlett and Hamilton's 1972 paper was thus written in a broader context where the shift from quantitative to qualitative approaches had already begun, the paper was nevertheless "fundamental to the development of what was later to be called 'new paradigm' research … and has now taken its place … as a founding reference and paradigm marker" (Stronach 1997:23). It also contains a detailed exposition of the nature and methodologies of this "new" approach, which are described below.

2.2 The nature and methodology of illuminative evaluation

In their 1972 article[1], Parlett and Hamilton set out by contrasting their proposed approach with the traditional objectivist paradigm. After describing the characteristics of research in this paradigm, the authors list what they regard as the shortcomings of the approach:

1. These evaluations generally attempt to measure whether an operating educational programme is a "true implementation" of the programme goals and whether these goals are achieved. However, measurement of goal achievement is "never unequivocal", and to speak of a "true implementation" is utopian (1976:86).
   The variables in studies of this kind are too numerous and too complex to control. Attempts to resolve this problem by randomizing parameters through the use of very large samples are inefficient.
2. Longitudinal ("before and after") studies assume that the project being evaluated undergoes little or no change during the course of the evaluation. Because parameters are pre-specified, "variables which emerge during the study are likely to be left out of the analysis", which may even invalidate the study (1976:87).

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[1]References to the Parlett and Hamilton article in this report are to the 1976 edited version of the original 1972 text. The differences between the two versions are negligible; the main difference is that information that had been included as footnotes in the earlier version was subsumed into the main text in the later version.

3. Measurement methods "impose artificial and arbitrary restrictions on the scope of the study" (1976:87). While these studies may provide information on the state of a programme, they may provide less or no information on the *reasons* for that state.
4. These studies are "insensitive to local perturbations and unusual effects" (1976:88) that may in fact be significant.
6. These studies do not acknowledge "the diversity of questions posed by different interest groups" (1976:88).

As an alternative model, Parlett and Hamilton then propose "illuminative evaluation", an approach of which the main concern is "description and interpretation rather than measurement and prediction". They locate the methodology within the "social-anthropological" paradigm, that is, the subjectivist, naturalistic, approaches that researchers had started to apply in social psychology, sociology and anthropology (Cohen et al. 2000:19-22). The aims of illuminative evaluation are the following (Parlett & Hamilton 1976:89):

> to study the innovatory project; how it operates; how it is influenced by the various school situations in which it is applied; how students' intellectual tasks and academic experiences are most affected. It aims to discover and document what it is like to be participating in the scheme, whether as teacher or pupil; and, in addition, to discern and discuss the innovation's most significant features, recurring concomitants, and critical processes.

The intention is thus to "illuminate" the project. Two basic concepts are crucial to this process, namely the "instructional system" and the "learning milieu".

The *instructional system* is the "formalized plans and statements which relate to particular teaching arrangements"; it includes "a set of pedagogic assumptions, a new syllabus, and details of techniques and equipment" (Parlett & Hamilton 1976:89). It is a blueprint that specifies the project's goals, desired outcomes and assessment strategies. Parlett & Hamilton are at pains to point out, however, that this system is essentially "a shared idea, abstract model, slogan or shorthand", which in its actual application is different in every situation: teachers, students and administrators "interpret and re-interpret the instructional system for their particular setting. In practice, objectives are commonly re-ordered, re-defined, abandoned or forgotten. The original 'ideal' formulation ceases to be accurate or, indeed, of much relevance" (1976:90). A different concept, the learning milieu, is necessary to describe the details of the instructional system's implementation.

The *learning milieu* is the "social-psychological and material environment in which students and teachers work together" and is a network of "cultural, social, institutional, and psychological variables" that "interact in complex ways to produce … a unique pattern of circumstances" (1976:90). The prerequisite for any evaluation study is to acknowledge the diversity and complexity of this milieu, as the innovation cannot be separated from its context.

The distinction between the instructional system and the learning milieu is fundamental to illuminative evaluation. The authors argue that the instructional system is essentially abstract and takes on a concrete form only through its "translation and enactment" by teachers and students, which will evidently differ in every context (1976:100). The evaluator needs to concentrate on the "process" in the learning milieu, rather than on the outcomes, or "product", specified by the instructional system (1976:100).

Illuminative evaluation, therefore, investigates both the instructional system and the learning milieu and uncovers the connections (or lack of connections) between the two. In doing so, it adopts a variety of techniques, since illuminative evaluation "is not a standard methodological package but a general research strategy" (Parlett & Hamilton 1976:92). The use of various methods results in a "triangulation approach" that "facilitates the cross-checking of otherwise tentative findings" (1976:92). The research process may involve "progressive focusing": "Beginning with an extensive data base, the researchers systematically reduce the breadth of their inquiry to give more concentrated attention to emerging issues" (1976:93). Within this framework, illuminative evaluation uses four main research methods:

- *Observation*. This includes observing and documenting the "day-to-day activities" in the project under study as well as a variety of other events such as meetings and informal conversations in "back of the shop" settings (1976:94).
- *Interviews*. Here, "open-ended and discursive forms" of interviewing are more suitable for discussing complex topics than structured interviews (1976:94).
- *Questionnaires and tests*, used later in the study, "can sustain or qualify earlier tentative findings". Illuminative evaluation therefore does not completely eschew quantitative methods, as long as they "enjoy no privileged status within the study" (1976:95).
- The analysis of *documentary and background information* may provide useful insights, for example on the history of the programme, and may uncover specific areas for inquiry (1976:96).

In its concern for a true rendering of the participants' expressions, views and the detailed context of the programme, illuminative evaluation clearly aligns itself with the ethnographic

approach to research. In seeking to present a rich description of the culture of a social group, ethnographers adopt an "emic" or "insider's" perspective through actual participation in the culture, so that the ethnographer him- or herself in fact becomes "the research instrument" (Wolcott 1988:190).

After setting out the research methodology of the illuminative approach, Parlett and Hamilton explore the various objections that could be raised against the approach. Two main questions may be asked, the first relating to the subjectivity of the approach and the second to its scope.

In terms of subjectivity, the authors argue that any research approach is subject to this potential shortcoming, also "scientific" studies. For this reason "precautionary tactics" should be used, including triangulation, having the analysis and interpretations checked by third parties who can play "devil's advocate", and the presentation of evidence in such a way that its quality can be judged (1976:97). It is also vital that evaluators act with tact and a sense of responsibility, and adhere to ethical standards.

In terms of the scope of illuminative studies, while they are clearly suited to small-scale investigations, they could also be applied on a wider scale in that different learning milieux could be studied simultaneously and then compared (Parlett & Hamilton 1976:98).

In concluding their exposition of illuminative evaluation, Parlett and Hamilton discuss the issue of reporting the research findings and making adjudications, as well as the contribution of illuminative evaluation to decision-making. In line with the participatory, democratic nature of the approach, findings should be communicated to all stakeholders as well as to any external interested parties (e.g. other researchers). An important way in which illuminative evaluation diverges from earlier evaluation approaches is that it is not seen as the evaluator's responsibility to make an adjudication that will determine the future of the evaluated programme – rather, the evaluator's role is to "broker" all the viewpoints of all the various participants and stakeholders, and decisions are then made by sponsors or management: "illuminative evaluation thus concentrates on the information-gathering rather than the decision-making component of evaluation. The task is to provide a comprehensive understanding of the complex reality (or realities) surrounding the project: in short, to 'illuminate'" (1976:99).

After the publication of the 1972 article, illuminative evaluation was applied in various settings and underwent development in different directions, as outlined in the review of illuminative evaluation studies below.

2.3 A review of illuminative evaluation studies

After 1972, the basic principles of illuminative evaluation were increasingly applied in evaluation studies, although these studies were not always termed "illuminative". In fact, the approach continued to evolve in different ways and was, as it were, "transmuted" into a number of new approaches to evaluation. These include ethnographic evaluation (Fetterman 1984), connoiseurship evaluation (Eisner 1985), "fourth-generation" evaluation (Guba & Lincoln 1989), utilization-focused evaluation (Patton 1997), participatory and collaborative evaluation, and empowerment evaluation (Fetterman 2001).

A review of evaluation studies conducted within the framework of these more recent approaches falls outside the scope of this study. For the purposes of this review, an outline will be provided only of studies that have explicitly termed themselves "illuminative" and that have used the original 1972 Parlett and Hamilton framework to ground their inquiry.

Hamilton (1975) conducted an evaluation of the way a new "integrated" science curriculum was implemented at two different Scottish schools. Using Bernstein's (1971) distinction between "collection" and "integrated" curricula as a conceptual framework for the study, Hamilton observed the science classes at both schools over a period of 16 complete weeks, and combined this method with teacher interviews and six questionnaires administered to pupils. In an article on the evaluation Hamilton provides a detailed summary of relevant aspects of the learning milieu, including its changes over time, and then narrows the scope of the description to focus on two specific features of the milieu (the timetable and testing), which he identified as having a particularly strong effect on the implementation of the curriculum. He concludes that a number of important issues were uncovered by the evaluation, including the fact that the incorporation of integrated curricula into a collective system created untenable conflicts for teachers, that an initial, seemingly trivial, mismatch between the instructional system and learning milieu can take on serious dimensions over time, and that an instructional system can undergo transformations in the learning milieu which, ultimately, "resulted in its serving ends directly opposed to those intended" (Hamilton 1975:205).

The important effects of the learning milieu are highlighted in a 1977 study by Parlett, who refers to research findings that suggest "memories ten years after [graduation] are often more vivid for context (e.g. place, individuals, atmosphere) than for content (of courses and texts)" (Parlett 1977:173). He recommends three ways of studying the learning milieu: observation and analysis of social processes common in the milieu; interviewing that involves engaging in informal dialogue; and collecting examples of what Parlett calls "ideas in currency" – pervasive beliefs about the institution's or department's aims, descriptions of its character, and definitions of its problems (Parlett 1977:178-179).

Miles (1981) used the illuminative approach to evaluate a school project in which learners' "learning styles" were matched with mathematics teacher's "teaching styles". The study involved both qualitative and quantitative techniques, e.g. interviews with all stakeholders (learners, teachers, parents) and observations, but also pre- and post-tests of pupil achievement. According to Miles, the study revealed many benefits of the innovation, and interviews in particular yielded a great amount of useful information that would not have been gained by tests alone (Miles 1981:487).

Chambers (1988) studied a post-basic psychiatric nursing course with a view to "critically examine what was happening from the course members' frame of reference to facilitate future development of the course" (1988:331). She argues that illuminative evaluation, with its concern for rendering the learning milieu from the participant's point of view, was thus a particulary suitable evaluation approach in this case. Chambers used a large variety of inquiry methods, namely interviews, two sets of questionnaires, an archival search, a discussion group, and participant and non-participant observation (1988:332). Chambers mentions that (in line with illuminative methodology) she commenced the study with no specific hypothesis, but nevertheless specifically formulated certain elements which she anticipated would emerge from the study: "good course member/teacher relationships; a considerable emphasis on the provision of a service for patients; some confusion about the relationship between theory and practice; and uncertainty about the role of the supervisor" (Chambers 1988:336). These anticipated elements seemed to have delineated the focus of the study to some extent, although Chambers also discusses some other issues that emerged (1988:340).

For the purposes of a Masters dissertation, Downs (1992) used illuminative evaluation to investigate experiential learning within a curriculum, in the form of simulations of courtroom processes in a legal course. While also not formulating "precise questions" for the inquiry in advance, Downs argues that it is nevertheless possible, in advance, "to identify matters for

evaluation and aspects of the theory of experiential learning, that raise questions of importance for consideration " (1992:79). Downs combined qualitative methods – questionnaires, interviews and observation – with quantitative methods – a pre-and post-test of the students' knowledge (1992:73, 84-85). He concludes by identifying both strengths and shortcomings of the experiential learning in the course (1992:282-294).

Smith et al. (1995) wished to develop an evaluation model that would be suitable for the "health promotion component" of a nursing curriculum (1995:245), and found illuminative evaluation to be apt for this purpose. They used the model to conduct an evaluation "incorporating in-depth case studies of four [health] centres and a variety of programmes" (1995:245). They decided to combine illuminative evaluation with a case study approach: "the strengths of using case studies lie in the depth that is possible when using a limited number of people thereby allowing the researcher to focus on individual experiences" (1995:246). Some noticeable features of Smith et al.'s methodology are the following:

- They approached the study with a broad framework of elements to consider during the evaluation.
- To gather data on the instructional system, they studied curricula and supporting documents such as timetables and assessment criteria.
- The learning milieu was studied by "qualitative fieldwork" – interviews, discussions, questionnaires and classroom observations. They also drew on "general observations, including what Parlett and Hamilton refer to as 'back-of-the-shop activities', such as conversations in coffee rooms and during car journeys" (1995:246).
- Informants were teachers, students and practitioners, and they were selected by a combination of purposive sampling and convenience sampling (1995:246).

To assist "in organising and interpreting our data and inform our analysis" (1995:248) the evaluators used research studies on the curriculum area (health promotion) to generate a conceptual framework (thus pre-identifying certain themes for the analysis).

Basson and Nonyongo (1997) adopted the interpretivist stance of illuminative evaluation to evaluate a face-to-face tutorial support programme offered by the South African Committee for Higher Education Trust (SACHED) to students of the University of South Africa, a distance education provider. The aim of the study was to provide a basis "for reflecting on … tutorial provision from the perspective of insiders 'within' the programme" (Basson & Nonyongo 1997:97). Basson and Nonyongo drew on Parlett and Hamilton, Wolcott and Fetterman in using "a descriptive approach … to uncover in situ 'how things are and how they got that way'

… The purpose here is to understand actors, what they do, how they make sense of and give meaning in the Programme" (1997:98). In addition, the authors used Moore's (1986) concept of "transactional distance" between student and institution in distance education, a distance which is intensified or reduced by the institution's "responsiveness" (1997:99). According to Moore, responsiveness is a function of three variables: structure, the institutional arrangements and their ability to provide for student need; dialogue, the interaction between student and tutor; and autonomy, the opportunity for and ability of students to take responsibility for their learning (Basson & Nonyongo 1997:99). Basson and Nonyongo used these three variables as a point of departure and framing device for their study, specifically investigating and evaluating the programme's "responsiveness" with regard to each of these three variables. Based on non-participant observation, in-depth interviews and questionnaires, they uncovered "matches and mismatches between what 'actually happens' in the programme ('learning milieu') and the formally planned 'ideal' ('instructional system')" with regard to the three variables (Basson & Nonyongo 1997:100).

Dewar and Walker (1999) used illuminative evaluation in six case studies to evaluate work-based learning in a nursing degree programme. Methods comprised document analysis, participant and non-participant observation of teaching sessions and of meetings between the supervisors and supervisees, interviews and focus groups. Initially, key themes were identified through interviews and focus groups. These themes then became the key focus of subsequent data collection and analysis; in this way the concept of "progressive focusing" was applied (1999:1461). While the initial aim of the study was to examine potential benefits of work-based learning and how it impacted on students' practice, the inquiry process uncovered that there was a considerable "gap" between the educational philosophy and the way it was delivered within the department (1999:1459), particularly in terms of the role of supervisors (1999:1460); it was found that learners were not adequately supported to engage in reflection and thus to learn from their experience (1999:1463). Based on the findings, the evaluators propose a set of recommendations to improve practice (1999:1465).

Sloan and Watson (2001) adopted an illuminative approach to investigate educational processes involving the interpersonal interaction between "supervisors" and their "supervisees" during clinical supervision in a nursing setting. The aim of the study was to determine "which supervisor interventions facilitate and constrain the supervisee's use of individual clinical supervision" (2001:664). This study again combined an illuminative and a case study approach, and used interviews, critical incident journals, session documents and recordings of supervision as inquiry methods (2001:664). A particular, existing model

(Heron's "six-category interventions") was then used as a framework to analyse and interpret the findings (2001:669).

Alcroft (2002) reports on an evaluation of a course to teach design fundamentals in a university-based design school. Illuminative evaluation was combined with "critical trialling", an action research method that provides a basic framework for analysing a programme, which was used to gather, analyse, synthesise and document data (Alcroft 2002). The illuminative methodologies used included observations, interviews, conversations, questionnaires, tests of the students, and document analysis (Alcroft 2002). The methodology uncovered a fundamental problem in the learning milieu that had not been discovered by previous studies which had focused only on the effect of learning problems, not on their "real cause", which was revealed to be the essential attitudes of students: they had a "hero-genius view" of the designer, and consequently did not believe that design could really be taught and took little interest in the course content (Alcroft 2002). By uncovering this attitudinal issue, the evaluation revealed why student performance had not been improved by simply adapting the course materials, an approach that had been tried earlier and had failed.

Banning and Cortazzi (2004) conducted an illuminative evaluation of a programme to train "nurse prescribers", a category of nurses who are allowed to prescribe certain medications in the UK. Focus group interviews were used, and participants were selected by purposive sampling to include only students who "were functioning at an advanced level of nursing practice" (Banning and Cortazzi 2004:437). The study resulted in a number of concrete recommendations, for example that students need a degree of structured teaching and not exclusively self-directed learning (Banning and Cortazzi 2004:442).

A descriptive evaluation involving the illuminative technique of uncovering matches and mismatches between instructional system and learning milieu was undertaken by Netshandama and Basson (2004), who investigated the impact of training workshops conducted for educators and principals by Penreach-Penryn College in Nelspruit. The materials used for the workshops were studied to determine what was presented and which principles were taught to the workshop participants (the "instructional system"). Non-participant observation was then conducted in classrooms and at schools of educators and principals who had attended the workshops, to establish to what extent the principles learnt were being applied in practice (the "learning milieu"). These methods were complemented by questionnaires to the educators and principals, as well as interviews, in which participants were asked to report on the impact of the workshops on their practice (Netshandama & Basson 2004:2). The study found many matches between what was taught and practised,

but also some mismatches, and these formed the basis for a set of recommendations (Netshandama & Basson 2004:26-27; 40).

Two other illuminative studies conducted in 2004 are an evaluation of the "Quality Team Development Programme" of the Royal College of General Practitioners in the UK, a programme to improve the quality of service provided by general medical practitioners (Macfarlane et al), and an evaluation of an e-mail network service for UK healthcare practitioners (Russell et al). Both these studies provided greater insights relating to the success factors of the two programmes.

Educational contexts served as the setting for a number of illuminative studies undertaken in 2005. In an illuminative study conducted at the polytechnic Unitec in New Zealand, McKegg (2005) evaluated the use of "structured learning communities", an innovation in which students from Maori and other minority cultures worked with tutors to apply collaborative learning strategies; the study revealed largely positive effects of this approach. A longitudinal study on continuing professional education (CPE) in nursing (Ellis & Nolan, 2005) used a "case study approach operationalised within an illuminative evaluation model" (2005:97), while an illuminative evaluation approach was also used in evaluating a German course at Monash University, Australia, where this approach was found suitable because its findings could be integrated with the concurrent redevelopment of the course (Demeurt & Spratt 2005).

As this review has shown, illuminative evaluation has been applied mainly in the fields of health, particularly nursing, and education. Chambers suggests that this is no accident: these fields are characterised by complex, "unpredictable and 'messy'" situations, and the illuminative approach is particulary suitable for the evaluation of such situations (1988:331).

In summary, some of the main points regarding the application of illuminative evaluation in these studies are the following:

- Most researchers stress the importance of first becoming familiar with the setting before formal inquiry methods are applied, and of gaining the trust of the participants (e.g. Downs 1992; Smith et al. 1995; Basson & Nonyongo 1997; Sloan & Watson 2001; McKegg 2005).
- Illuminative evaluation is frequently combined with other qualitative research approaches, generally case studies (e.g. by Smith et al. 1995; Dewar & Walker 1999; Sloan & Watson 2001; Alcroft 2002; Ellis & Nolan 2005); and some studies also

combine qualitative and quantitative methods (e.g. Miles 1981; Downs 1992; Alcroft 2002).

- In many cases, a pre-existing theoretical framework or set of questions is employed to generate anticipated issues and to focus the inquiry to some extent (e.g. in the studies by Hamilton 1975; Chambers 1988; Downs 1992; Smith et al. 1995; Basson & Nonyongo 1997; Sloan & Watson 2001).
- Purposive and/or convenience sampling is generally used (e.g. Smith et al. 1995; Dewar & Walker 1999; Banning & Cortazzi 2004).
- Most studies use multiple sources of data, and some include data that was informally gathered (e.g. Smith et al. 1995); some apply the concept of progressive focusing (e.g. Smith et al. 1995; Dewar & Walker 1999; Alcroft 2002), but others do not specifically apply this principle (e.g. Chambers 1988; Downs 1992; Banning & Cortazzi 2004).

2.4 Appraisal of the illuminative approach

Appraisals of the illuminative approach generally belong to two categories. Firstly, critique has been offered from an epistemological and methodological perspective – not generally of illuminative evaluation as such, but of the group of descriptive and interpretivist methods to which illuminative evaluation belongs. This critique has emanated from the "traditional" objectivist paradigm but also, more recently, from post-modern, constructivist authors. Secondly, some of the researchers who have used illuminative evaluation (whose studies were reviewed in the section above), as well as some writers on evaluation in general, have commented on its value for their particular line of inquiry, and on its practical advantages and disadvantages as an evaluation approach. Below, both these categories of appraisal will be outlined, starting with the epistemological critique.

Parlett and Hamilton themselves already anticipated the various objections that could be raised to the approach from the objectivist paradigm, as discussed in section 2 above. These include subjectivity, and the small-scale scope of the approach, which would preclude the possibility of generalisation (Parlett & Hamilton 1976:97-98). As already discussed, Parlett and Hamilton offered a number of counterarguments to this critique (Parlett & Hamilton 1976:98).

Post-modern authors, in turn, critique descriptive approaches in general – particularly the approach of grounded theory, which is methodologically similar to illuminative evaluation – by arguing that while these approaches claim to transcend the quantitative paradigm, they are in fact still rooted in the same objectivist epistemology (Pidgeon & Henwood 2004:628).

Descriptive and interpretivist researchers aim to observe and in so doing discover and "uncover" meanings to which they then give an interpretation. In grounded theory, the theory is similarly said to "emerge" from the data. However, inherent in this approach is the belief that there *are* real, deep meanings implicit in the world that will show themselves – "emerge" – as long as the observation is acute and wide-ranging enough. Likewise, the belief in grounded theory that the theory will emerge from the data presupposes that there *is* a certain objective theory that *can* emerge. These studies thus take a similar form to those of objectivist scientists who observe the "real" world in order to describe it accurately or to develop a theory with which to explain it.

Post-modernists argue that such "real" meanings and objectively inherent theories do not in fact exist; all meanings and explanations are subjective constructions and, ultimately, there *is* no "real" meaning to uncover. In this tradition, authors like Guba and Lincoln (1989) and Walker and Dewar (2000) argue that evaluation should be "constructivist", rather than descriptive or interpretivist: it should be recognised and made explicit that both the data collected and interpretations and findings are personal constructions, and that the evaluation is a learning process in which the researcher and participants collaboratively achieve new understandings (Walker & Dewar 2000:719).

While Parlett and Hamilton do not explicitly align themselves with this strong post-modernist position (possibly because "radical constructivism" was not yet a well-articulated, mainstream school of thought in the 1970s), it may be argued that the notion of "constructivist" evaluation is in fact inherent in their approach, both in the fact that they recognise the inevitability of subjectivity, and in their concern that the voices of all participants should be represented in the final adjudication (Parlett & Hamilton1976:99).

Writing in the same post-modernist tradition as that described above, Stronach (1997) approaches illuminative evaluation from a somewhat different angle, namely from the post-structuralist perspective. He uses the concepts and tools of post-structuralism to "deconstruct" Parlett and Hamilton's 1976 article in a close discourse analysis. Stronach argues that the article deliberately constructs a profound dichotomy between the quantitative and the qualitative approaches with the purpose of disparaging the first and establishing and affirming the latter as a valid "new" paradigm. Since post-structuralism rejects dichotomies or "oppositional categories" as rhetorical constructs (1997:32-33), Stronach reasons that the qualitative/quantitative divide as presented in Parlett and Hamilton's article is a subjective and simplistic construct that is not in keeping with postmodernism: "methodology has to accept a

hybrid nature rather than seek to purify and separate itself from its rivals/antecedents" (1997:32).

Appraisals of illuminative evaluation methodology by those who have used it, or by evaluation writers in general, raise a number of key points. Firstly, illuminative evaluation makes it possible to establish *reasons* for particular situations or conditions that will not be or have not been shown by quantitative studies – in short, it "illuminates" situations, especially complex ones. A number of authors referred to above cited this as an advantage of the approach (e.g. Sloan & Watson 2001:665; Miles 1981:492; Worthen & Sanders 1987:141; Chambers 1988:331; Alcroft 2002). Secondly, illuminative evaluation proved a suitable methodology for revealing differences between actual practices and the espoused "theory" or ideal in a programme, differences which could have serious implications (e.g. Hamilton 1975:205; Miles 1981:496; Basson & Nonyongo 1997:100-106; Dewar & Walker 1999:1459; Sloan & Watson 2001:664). As a result, the insights gained through illuminative evaluation provide more accurate information for decision-making and recommendations than quantitative studies (Miles 1981:496; Sloan & Watson 2001:665). Finally, the approach has the advantage of being flexible, offering the possibility of integrating a variety of methods (Worthen & Sanders 1987:141; Chambers 1988:331; Sloan & Watson 2001:666).

Disadvantages of the approach (apart from disadvantages raised by the critique discussed above, such as the potential for subjectivity) centre around the issue of resources. The approach is time-consuming (Miles 1981:496), labour-intensive and thus costly (Worthen and Sanders 1987:142).

In summary, illuminative evaluation is generally considered to be an approach that can potentially provide rich information and crucial insights into the programme that is being evaluated, as long as resource considerations such as time and costs can be contained.

CHAPTER 3: RESEARCH DESIGN

In this chapter, the research design of this study will be described and elucidated. Firstly, the broad philosophical paradigm in which the research approach is located will be identified. Secondly, the features of the specific methodology adopted, namely illuminative evaluation, will be outlined. Finally, the data collection and analysis methods will be discussed.

1. THE RESEARCH PARADIGM

This study is situated within the qualitative research paradigm. As already described in Chapter 2, the qualitative or naturalistic paradigm was a departure from the quantitative paradigm which had been dominant up to the 1960s. The latter is based in an objectivist epistemology, and researchers in this paradigm generally use pre-ordinate, replicable experimental designs involving deductive methods and quantitative data (Worthen and Sanders 1987:46; Patton 1997:273; Cohen et al 2000:9).

From the 1960s, as post-modernism gained greater influence in human and social studies, a subjectivist or constructivist epistemology evolved that gave rise to the qualitative research paradigm. In subjectivism, the knower and the known are seen as inseparable; realities are constructed and thus multiple; and behaviour and data are socially situated and therefore context-dependent (Cohen et al. 2000:137). Researchers working within this paradigm rejected quantitative methods, which they saw as contrived, and advocated a "naturalistic" approach, that is, research conducted in natural settings (University of Southhampton n.d.). This approach recognises the validity of subjective experience, studies contextualised (rather than general) phenomena, uses inductive methods and qualitative data (Patton 1997:273), and consciously seeks to *interpret* (rather than simply quantify) the data that has been gathered.

A fundamental tenet of this interpretivist approach, and the methods that accept it as guiding paradigm (including illuminative evaluation and grounded theory), is that inquiry is not "pre-ordinate". That is, the researcher does not approach the object of study with a preformulated theoretical stance and hypothesis that he or she then seeks to confirm or refute. Rather, interpretive researchers "begin with individuals and set out to understand their interpretations of the world around them. Theory is emergent and must arise from particular situations; it should be 'grounded' on data generated by the research act … Theory should not precede research but follow it" (Cohen et al. 2000:23).

2. THE RESEARCH METHOD

Illuminative evaluation, which is a qualitative mode of inquiry, was used as the research and evaluation method in this study. The development, principles, methodology and application of illuminative evaluation were discussed in detail in section 2 of Chapter 2. For this reason, the discussion here will suffice with a summary of its main principles and procedures.

The aim of illuminative evaluation is to inquire into and ultimately to produce an adjudication of a phenomenon by using "description and interpretation rather than measurement and prediction" (Parlett & Hamilton 1976:88). During the inquiry, the phenomenon to be evaluated is not approached with pre-ordinate criteria of what constitutes "good" practice. Rather, it is investigated and described as it is, and issues are allowed to emerge as the inquiry proceeds. Issues that are "uncovered" as significant are then pursued.

In evaluating educational phenomena, illuminative evaluation distinguishes between two fundamental concepts, the "instructional system" and the "learning milieu". The instructional system is the "formalized plans and statements which relate to particular teaching arrangements"; it includes "a set of pedagogic assumptions, a new syllabus, and details of techniques and equipment" (Parlett & Hamilton 1976:89). However, it is essentially abstract and needs to be interpreted for a particular setting (Parlett & Hamilton 1976:89). This interpretation is manifested in the learning milieu, which is the "social-psychological and material environment in which students and teachers work together" and a network of "cultural, social, institutional, and psychological variables" that "interact in complex ways to produce … a unique pattern of circumstances" (Parlett & Hamilton 1976:90). In illuminative evaluation, both the instructional system and the learning milieu are investigated, and the connections (or lack of connections) between the two – the "matches" and "mismatches" – are uncovered.

Parlett and Hamilton state that illuminative evaluation "stands unambiguously with the … anthropological paradigm" (1976:88-89). It is thus essentially an anthropological, or ethnographic, approach to evaluation and research. Ethnographers generally participate in the actual culture of the social group they are studying, so that the ethnographer him- or herself in fact becomes "the research instrument" (Wolcott 1988:190). Here they attempt to adopt an "emic" or "insider's" perspective of the group, and explore the activities and discourse of the group in such a way that they are ultimately able to produce a rich description of it, where possible in its own discourse in order to create a faithful representation of it (Fetterman 1989:30).

In investigating the instructional system and learning milieu, illuminative evaluators may use "an ecletic set" of methodologies (Miles 1981:480), including both qualitative and quantitative methods (Parlett et al. 1977:32). The main data collection methods are observation and interviews, which are complemented by questionnaires and documentary and background information (Parlett & Hamilton 1976:94-96).

Illuminative evaluation recognises the subjectivist nature of the data provided by participants as well as the opinions and judgement of the participants and evaluator. Certain methods can be used to reduce the subjectivity of findings, which include triangulation, and the presentation of evidence in such a way that its quality can be judged (Parlett & Hamilton 1976:97). Illuminative evaluation does not claim to be value free, but aims "to represent different value positions, ideologies and opinions encountered" during the investigation and to "represent them in ways considered fair by those holding these positions" (Parlett & Hamilton 1977:33). It is not the evaluator's responsibility to make a final adjudication that will determine the future of the evaluated programme – rather, the evaluator's role is to present all the viewpoints of all the various participants and stakeholders, and decisions are then made by sponsors or management: "illuminative evaluation thus concentrates on the information-gathering rather than the decision-making component of evaluation. The task is to provide a comprehensive understanding of the complex reality (or realities) surrounding the project: in short, to 'illuminate'" (Parlett & Hamilton 1976:99).

Parlett & Dearden (1977:ii), after conducting a number of illuminative studies, concluded that the approach was particularly apt for evaluating programmes of the following nature:

1. Programmes that have complex goals that are difficult to define precisely;
2. Programmes that are "significantly distorted by the local character of the institution or dominated by other 'special' influences"; and
3. Progammes that are "clearly not suitable as candidates for formalized evaluation designs because, for instance, of lack of time, a paucity of standard data, or simply because of uncertainty about the precise questions to be answered by the evaluation exercise".

The workplace component of the Diploma in Animal Health is very well described by these characteristics. The outcome statements of the component are broad, rich statements (e.g. "apply effective animal health management of domestic and game animals") which have not been broken down into more precise outcomes, and which will also take on their own character depending on the contexts in which they are realised. Furthermore, no set of

explicit quality criteria has ever been compiled that describe what the nature of the component should be and that can thus serve as a basis for evaluation. The local character of every workplace site will influence how the workplace learning takes shape there, and "special influences" or circumstances are characteristic of the workplace component – for example, the fact that students may spend a virtually indefinite time completing it. There is both a paucity of standard data on the component and, at this stage, uncertainty about precisely which questions need to be answered in order to provide information that can be used for the component's improvement, if necessary. In the light of this, illuminative evaluation may be considered as particularly apt for evaluating this component.

Within the broader guiding framework of illuminative evaluation, it is proposed to use a number of specific data collection methods to study the instructional system and the learning milieu of the workplace component. Below the proposed methods for inquiring into the instructional system is first described, and then that for exploring the workplace milieu.

3. DATA COLLECTION METHODS FOR INVESTIGATING THE INSTRUCTIONAL SYSTEM

The formalised "instructional system" of the workplace component will be investigated primarily by means of a document study, with content analysis applied to relevant documents. Documents relating to the workplace component include material with information on the aims, intentions, structure, content and context of the workplace component. As such they have the potential to serve as a rich source of information about the instructional system. These documents will therefore be scrutinised and analysed, using a selection of techniques for qualitative content analysis described by Denscombe (2003:221-223) and Babbie (2004:314-322):

- Choosing an appropriate sample of texts. In the case of this study, texts will be selected that contain information on the aims and expected outcomes of the workplace component, and that can throw light on the pedagogy inherent in it.
- Examining the text initially to form a "hypothesis" about the essential message it conveys. In this case, the texts will be examined to form an impression of the nature of the instructional system – the nature of the outcomes that it is envisaged the students will achieve, and the pedagogical and assessment methods used to assist the students in achieving these.
- Developing relevant themes, based on the initial impression, for analysing the texts, and coding the text in accordance with the themes.

- Discerning recurrences and patterns in the themes and providing an analytical account of the text based on its inherent patterns.

If necessary, informal interviews with the Programme Co-ordinator will be used to clarify any aspects in the documentation.

4. DATA COLLECTION METHODS FOR INVESTIGATING THE LEARNING MILIEU

The actual learning milieu will be investigated by means of the methods described below.

4.1 Analysis of student portfolios

A number of portfolios that have been completed by students and marked will be scrutinised. These portfolios are sets of documents that the students submit on completion of their workplace learning and that contain evidence of their learning during the component. As such these documents will serve as a source of information on actual events in the learning milieu, and on the way assessment is actually conducted and feedback given during the workplace component.

Initially, three portfolios will be randomly selected and scrutinised to identify aspects revealed by them to have either promoted or hindered learning in the component. Two or three main aspects will then be selected and an additional number of portfolios, also randomly selected, will be examined to establish whether the initially identified issues are indeed recurring or significant features. An analytical account will then be written on the findings revealed by the portfolios.

4.2 Interviews

In naturalistic inquiry, interviews are generally unstructured and follow a flexible agenda, with particular lines of inquiry being generated *in situ* to uncover and pursue emerging issues (Cohen et al 2000:140).

Since illuminative evaluation is essentially an ethnographic research method, ethnographic interview techniques are particularly relevant to this study. Fetterman describes the interview as "the ethnographer's most important data gathering technique" (Fetterman 1989:47). As with all naturalistic approaches, ethnographic interviews are frequently informal and uncover and pursue emerging issues (Fetterman 1989:48-49). Informal interviews are used

throughout but particularly at the beginning of a study. They proceed much like a conversation, following the interviewer or participant's interests, but the interviewer nevertheless needs to guide them in a fashion that will enable him or her to systematically learn more about the participant's life or experiences. According to Spradley (1979:58), "it is best to think of ethnographic interviews as a series of friendly conversations into which the researcher slowly introduces new elements to assist informants to respond as informants". In contrast, semistructured and structured interviews are "most useful at the middle and end stages of a study for the collection of data about a specific question or hypothesis" (Fetterman 1989:48). At this stage, the interviewer will be able to formulate such a specific question because of his or her increased understanding of the "insider's perspective".

Certain types of questions are characteristically used in ethnographic interviews. Spradley identifies one of the main types of questions as "descriptive questions" (Spradley 1979:60). Descriptive questions are "intended to encourage an informant to talk about a particular cultural scene", in the process eliciting utterances in the informant's particular discourse (Spradley 1979:85). These questions can take the form of "grand tour" questions, which ask for a verbal description of significant features of the situation being studied (Spradley 1979:87). "Mini-tour" questions deal with smaller units of experience. Other types of questions in this category are "example" and "experience" questions (Spradley 1979:87-88).

Interview questions may also be open-ended or closed-ended (Fetterman 1989:54). As suggested above, open-ended descriptive questions such as "tell me about …" or "give me an example of …" will be frequently used in ethnographic interviews. Closed-ended questions, on the other hand, "are useful in trying to quantify behaviour patterns" (Fetterman 1989:54); an example would be "how many times would you interact with a mentor in a week?" According to Fetterman, "ethnographers typically ask more open-ended questions during the discovery phases of their research and more closed-ended questions during confirmational periods" (1989:54).

It is envisaged that many of these interview techniques will be used during the study, as described in more detail below.

4.2.1 The interview sample

Interviews will be conducted with two current students, two mentors, and two graduate students. The two current students will be fully immersed in the experience and as such should be able to provide detailed information about events in the learning milieu. The graduate students will have a retrospective impression of the experience and are thus likely to provide considered information of the component in a more holistic way. The mentors will serve as additional sources of data who have co-experienced the learning milieu, but from another perspective. A study of the information they provide will thus supply further information on the same milieu, and will be functional for triangulation purposes.

Students who are currently registered for the workplace component of the Diploma in Animal Health are distributed throughout the country. However, the relatively small scope, short timeframe and limited resources of this study will preclude extensive travelling by the researcher. For this reason the participants will have to be within an accessible travelling distance of the researcher, and by implication resident in the same province. The sample of participants was selected by convenience sampling.

2.2.2 The interview format

It was envisaged that the researcher would conduct three interviews with each participant. The interview format for the first interview with students (both current and past) consisted of a short initial structured section with the aim of collecting basic personal data on the participants and, following this, a semi-structured section in which the participants were asked to verify which outcomes of the component they had been working on and which they had achieved more or less sucessfully. The rest of the interview would then proceed in a more or less unstructured way and follow emergent lines of inquiry. As this suggests, the aim of the initial interview would be both to acquire basic background data and then to inquire into the learning milieu in an exploratory way. Depending on the way in which the first interview proceeded, exploration continued in the second interview, but this interview also served to inquire in more depth and confirm themes that emerged during the first interview. Finally, the third interview would have more of a confirmatory character, serving to corroborate and where necessary further clarify points raised earlier. Multiple interviews involving this type of progression are characteristic of ethnographic research (cf. for example Fetterman 1989:48), and thus in line with the ethnographic nature of the illuminative evaluation study. Given this anticipated progression, and in line with the exploratory nature of the study, it was evidently

not possible to draw up interview schedules for the second and third interviews before the data gathering actually commenced.

The interview schedule for the first interview with students is included at the end of this report as Annexure 2. The various phases of the interview, as outlined above, are evident from the schedule, which consists of a first set of closed-ended questions aimed at obtaining demographic data. This is followed by a broader introductory question: the interviewees were asked to explain what happened during the component to help them achieve the outcomes they identified as most successful, and which aspects hindered them in achieving those outcomes they experienced as difficult. This question is aimed at answering the research question "What are the practices that facilitate, and those that hinder, students' completion of the workplace learning component of Unisa's Diploma in Animal Health?"

Once this question was posed, the discussion was open-ended and unstructured. While the participants were asked to focus on elements that "helped" and "hindered" their learning in the component, it was envisaged that this would simultaneously entail a description of their learning milieux, so that a picture could be developed of "what actually happened" in the learning milieu. In the process, descriptive questions, particularly experience and example questions, were asked (e.g. "Can you describe what happened when you did this for the first time and you found it so difficult?"; "Can you give me an example of how the mentor has helped you?").

Although the discussion was open-ended and followed significant points that emerged, a list of possible supporting questions was nevertheless developed to assist in exploring all potential elements that might in fact have helped or hindered learning. These possible supporting questions are given under sections 6 and 7 in the interview schedule attached as Annexure 2. The elements probed by these questions were derived from the literature review on workplace learning (section 1 of Chapter 2).

The interview schedule for the first interview with mentors is included as Annexure 3. Opening with a "grand tour" question asking the mentor for an overview of his or her experience with Unisa students, it proceeds with open-ended questions to probe issues similar to those in the student interview. In addition, the mentor is then also asked to highlight any elements that might have facilitated or hindered his or her mentoring experience, as this would also contribute to answering the research question.

In this study, it was planned to commence data gathering with the initial set of interviews with participants. Subsequently, observation (discussed below) of a student in the workplace learning environment would be conducted. It was hoped that an initial round of interviews might provide information that wouldl enable the researcher to select an observation site that was relatively typical of the environments in which the students worked, and also to observe in a more focused way. The initial interviews might also result in establishing the contacts necessary for arranging the observation. The second and third rounds of interviews would then be conducted subsequent to the observation, which would have the benefit that they would be additionally informed by the experiences of the researcher during observation.

4.3 Observation

Observation is particularly important in ethnographic studies (Fetterman 1989:45). Naturalistic observation is conducted in natural, real-world settings by a researcher who him- or herself becomes the "research instrument", attending not only to events but also to the sociocultural context of these events (Wolcott 1988:190-193). Observation of this nature is a functional method of gathering data on what actually occurs in the learning milieu.

In this study it was envisaged that non-participant observation of a student in the work environment would be conducted during a number of work sessions. While participant observation is the preferred mode of observation for ethnographic studies (Fetterman 1989:45), it was precluded in this study by the fact that the researcher would be observing specialist tasks (veterinary work) in which she was not qualified to participate. However, the observation would be "participant" in the sense that the researcher would interact informally with the participants and, if the opportunity arose, would also engage them in informal conversation about the events observed.

As already mentioned above, the researcher attempted to select an observation site that was relatively typical of sites where students completed the workplace learning component, based on information gleaned from the initial set of interviews, as well as the analysis of the instructional system and the earlier study of student portfolios. However, here again the selection was constrained by practical considerations, in the sense that the observation had to be conducted at a site accessible to the researcher. As such the site was selected by convenience sampling.

During the observation, as far as possible, field notes were taken to record the events and interactions observed. These notes were then be extended after the observation to provide a

full account of what was observed. The notes were subsequently analysed with a view to identifying elements in the workplaces observed that facilitated and hindered learning.

4.4 Questionnaire

Questionnaires, particularly postal questionnairs, are a useful data gathering instrument for the purpose of obtaining data from large numbers of respondents in many locations (Denscombe 1998:145). In being highly structured and requiring written responses, questionnaires do not have the same flexibility as interviews and observation and might not be able to provide data of the same detail, depth or clarity (Fetterman 1989:64). However, they are "an excellent way to tackle questions dealing with representativeness" (Fetterman 1989:65). In other words, by being distributed to a larger sample than can be used in interviews and observations, questionnaires can throw light on how representative a particular issue or opinion might be in a certain population.

In this study, a questionnaire was used to validate data obtained through the prior stages in data gathering – the analysis of the instructional system and student portfolios, interviews and observation – among a larger sample of students. First, a draft was prepared containing similar items to those in the interview schedule, including items relating to elements that might potentially facilitate or hinder learning along the same lines as the "possible supporting questions" in the interview schedule. This draft was then amended or extended based on the data obtained during interviews and observation before the final version was drawn up and mailed.

4.4.1 The questionnaire sample

The questionnaire was mailed to a random sample of 200 current students and 50 past students. While there was a larger number of students in both groups, the relatively small scale and short timeframe of this study as well as cost considerations were constraining factors limiting the number of questionnaires that could be distributed.

4.4.2 The questionnaire format

The initial draft of the questionnaire is included in this report as Annexure 4. To encourage completion of the questionnaire on the part of the respondents, an initial letter was included to explain the purpose of the study and to motivate them to participate. In the sections that follow, most of the questions are closed-ended questions that require respondents only to

select and tick a particular option from a range of possible options. It was hoped that the limited effort required by this format would encourage participation.

The first section of the questionnaire contains questions that are aimed at collecting basic demographic information. The second section is concerned with general aspects of the workplace component (the "experiential learning"). Here, aspects that were anticipated to either facilitate or hinder learning are listed, and the respondents are asked to tick a relevant block to indicate to what extent the aspects helped or hindered them. The third section deals more specifically with the sequence of workplace tasks carried out during the component, as it was anticipated that this might also have affected learning. The fourth and fifth sections are aimed at eliciting more information about the role the student's mentor/s and fellow workers at the workplace, respectively, played in their learning and how they might have helped or hindered learning. Here the questions ask for information not only about direct or indirect assistance by these roleplayers at work, but also about the degree to which the student socialised with them, given the proposition in situated learning theory that socialisation and consequent identity formation are major influences on learning. The final section of the questionnaire consists of an open-ended question on each of the preceding main sections, which afforded the respondents the opportunity to volunteer any information that they considered relevant and that might not have been dealt with by any of the earlier questions.

In summary, the questionnaire was intended as a user-friendly yet comprehensive instrument that would supply data from a broader population and provide both more extensive information as well as information with which the data gathered during the interviews and observation could be validated.

5. DATA ANALYSIS

Following Miles and Huberman (1984), coding of the interview transcripts or notes and the observation notes was used as data analysis technique. Using the various aspects anticipated to be identified as aspects facilitating or hindering learning (as contained in the "possible supporting questions" in the interview schedule and discussed above), a start list of descriptive codes was drawn up for each of these aspects. As the analysis proceeded and additional or different issues emerged, codes were created for them (as described by Miles and Huberman 1984:68). As the data accumulated, patterns and themes were identified. In other words, the analysis process was inductive.

Finally, a set of propositions were developed expressing the findings or conclusions of the data analysis on both the instructional system and the learning milieu. The findings on the learning milieu were compared with those on the instructional system and conclusions were drawn about those practices that were facilitating or hindering the students' learning in the component. In this way the component could be explained and adjudicated in its own terms, with the adjudication representing all the different voices that had been involved in the inquiry.

6. CONCLUSION

As detailed above, this study falls within the qualitative research paradigm and the phenomenon being studied was not evaluated according to a preordinate theory or criteria; instead, issues that emerged during the investigation served as a basis for the eventual findings. While the descriptive and intepretive nature of this approach inevitably involved a degree of subjectivity, it is suggested that the research design described above resulted in findings to which a high degree of validity can be ascribed. During the first round of interviews, information obtained from the different sets of participants – current students, past students, and mentors – provided the opportunity of comparing the data provided by these different sources. Subsequently, the observation data, later interviews, and the questionnaire data all enabled a great deal of cross-checking of data, which ensured a high degree of validity.

As the study was focused on a single educational phenomenon only, its findings are obviously not directly applicable to other programmes with workplace components at Unisa or elsewhere. Nevertheless, the study provided insights about issues in workplace learning that might inform further studies of workplace learning in other Unisa programmes. The findings might also be compared with the findings of research on other similar components, at Unisa and elsewhere, from which generalisations could then possibly be drawn.

CHAPTER 4: DATA ANALYSIS

In this chapter, the data collected by means of the various methods discussed in Chapter 3 will be described, and the main patterns and themes that emerge from the data will be identified.

1. ANALYSIS OF DATA ON THE INSTRUCTIONAL SYSTEM

As outlined in Chapter 3, content analysis of various documents pertaining to the instructional system was undertaken in order to generate a description of the system. Below, it is first outlined which documents were consulted. Secondly, the essential arrangements pertaining to the workplace component (as evident from the documents) are described in order to clarify the rest of the discussion. Thirdly, the most important features of the component's instructional system, as derived from the documentation, are described. Finallly, a brief overview of the instructional system is provided as summary.

1.1 Information sources consulted

The main documents that were analysed for the purposes of this report will be referred to as the "core documents", and other documents that were scrutinised but not closely analysed as "additional supporting documents".

The **core documents** analysed for the purposes of understanding the instructional system are the following:

- Two relevant sections from the 2006 *Calendar* for Unisa's College of Agriculture and Environmental Sciences (CAES). These sections contain a description of the Diploma in Animal Health, and information on co-operative education.
- *Tutorial letter 1* (**TL1**) for Animal Health Practice III (the workplace component of the Diploma).
- The *Learner Manual for Experiential Learning* for Animal Practice III (**LM**).
- The *Logbook for Experiential Learning* for Animal Health Practice III (**LB**).
- The *Mentor's Guide for Experiential Learning* for Animal Health Practice III (**MG**).
- An article: "Multiple sites of learning: Co-operative education in the ND: Animal Health at Unisa", written by the Programme Co-ordinator, A. Bartkowiak-Higgo, and a colleague, C. Brandt. This was published in a 2005 Unisa internal publication, *Distance Experiential Education Practices*, in which various Programme Co-ordinators reported on the workplace learning components within their programmes.

The **additional supporting documents** consulted are listed below:

- The SAQA registration document for the Diploma in Animal Health, as it currently appears on the SAQA website.
- Minutes of meetings of the Advisory Committee of the Diploma in Animal Health in 2004, 2005 and 2006.
- The Veterinary and Para-veterinary Professions Act 19 of 1982.
- A document, "Rules for Animal Health Technicians", published on the website of the SA Veterinary Council, at http://www.savc.co.za/ahtrules.htm. This document, which is still in draft form and being negotiated by the SA Veterinary Council and animal health technicians, specifies which services may be provided by AHTs, including which of these services have to be done under the supervision of a veterinarian, and which may be done independently.
- Unisa's Work-integrated Learning (WIL) policy, approved in 2005 (an internal Unisa document).
- The learning guides for the various modules that form part of the programme.

In addition to the documents above, the following two sources of information were used to clarify aspects of the instructional system and to obtain further background information:

- A series of informal discussions with the Programme Co-ordinator. Notes reflecting the content of these discussions are included as Annexure 5 on the compact disc accompanying this report. The Programme Co-ordinator formally consented to these notes being used as a source of information for this study. (In this report these notes will be referenced as **Dis-PC**.)
- Two sets of questions to a member of the Advisory Committee of the Diploma and his answers, which were communicated via e-mail; these are included as Annexure 6 on the compact disc. (This information source is referenced as **Dis-ACM**). Again, the AC member consented to the information being used.

1.2 Essential arrangements of the workplace component

In order to clarify the features of the workplace component's instructional system, discussed below, it is necessary to have an understanding of the essential arrangements in the component. These are thus briefly described in this section.

As already described in Chapter 1, the workplace component, also called Animal Practice III or "experiential learning" (EL), forms part of the formal programme structure at the second

and third level of the programme. Chapter 1 contains a description of the programme as a whole and how Animal Practice III is located within it.

For Animal Practice III, the students receive the following materials, the contents of which were already described above: Tutorial Letter I, The *Learner Manual*, The *Logbook for Experiential Learning*, and the *Mentor's Guide*. All in all, the requirements for Animal Practice III are essentially two sets of tasks the learners have to complete: practical work activities, and written projects.

The practical work activities are entered into the logbook. Students are required to complete each type of practical work activity a number of times – for example, it is required that students inoculate 100 large stock, and take the temperature of 5 horses. A maximum number of "points" is allocated for each type of activity. For instance, taking the temperature of horses counts 25 points. If the student does not or cannot perform the full number required, a proportional number of points are awarded. For example, if a student takes the temperature of 2 horses only, the points for this will be calculated as 2/5 x 25 = 10 points out of 25 points. In this way, a final percentage mark for the collective practical work activities is calculated. The pass mark for this section is 65%.

Annexure 7 to this report shows the various practical activities that have to be completed, together with the points they count, and number of times they have to be done. (The table in the annexure is a summary of the information appearing in the logbook.)

In addition to the logbook activities, the students also have to complete six "practical projects". An overview of these projects is given in table 4.1 below.

Table 4.1: Overview of projects			
Name of project	**Prerequisites: To undertake the project, a student should have completed or be registered for the following module in the programme:**	**What the project comprises: The student has to …**	**Weighting of mentor marks (M) vs lecturer marks (L)**
Pasture	Pasture and Nutrition	Collect, identify, describe and mount 15 edible plant species and 5 poisonous species. The mentor will then submit the student to an oral test on the plants.	M 80: L 20
Nutrition	Pasture and Nutrition	Evaluate the pasture on any cattle farm and its impact on herd health, and write a report on this.	M 20: L 80
Commu-nication	Occupational Communication	Present a talk on any animal health topic to the mentor and an audience using notes (to be submitted), and write an evaluative report on his/her own performance.	M 50: L 50
Zootech-nology	Zootechnology	Study literature on a breed of cattle, use this to draw up an evaluation form, evaluate a herd of this breed on a farm, and write an evaluation report.	M 20: L 80
Epidemio-logy	Epidemiology	Conduct an epidemiological survey of a disease in at least 10 herds in his/her area and write a scientific report on this. Then make a formal presentation on the survey to management and colleagues (to be assessed by the mentor as well as one other colleague).	Colleague 20: M 30: L 50
Legislation	Legal Aspects	In response to a given scenario on a crime that has been committed, describe how he/she will investigate the crime and complete the relevant documentation (e.g. a charge sheet).	M 80: L 20

For each project, assessment sheets are provided for both the mentor and the lecturer, with relevant assessment criteria. (A set of typical mentor and lecturer assessment criteria is included at the end of this report as Annexure 8.) The pass mark for each project is 50%.

To pass Animal Practice III, students need to hand in a "portfolio". The portfolio is a file containing the completed logbook and the completed and marked projects. In addition, the portfolio should contain a CV of the student; an "experiential learning report"; and any other evidence of activities or achievements which the students may want to include. The "experiential learning report" is described as an "essay" in which an overview must be given of where the workplace learning was undertaken, the kinds of activities performed must be described in a "brief and exact" way, and the student should explain "how the experiences gained have benefited you personally and, if possible, how they fit into your overall career plan" (TL1:9-10). The pass mark for the portfolio is 50%. In the course documentation the researcher studied, there was no set of specific assessment criteria for the portfolio, but TL1 contains a set of specifications including the sections that the portfolio should contain, and that it should be "neat and orderly" (TL1:8).

To calculate the final mark for Animal Practice III, the final percentage mark for the logbook, the final average percentage mark for all the projects, and the percentage mark for the portfolio are added and divided by three.

A total of 48 credits is allocated to the workplace component in the programme structure. This implies that students should be able to complete the activities involved in it in a minimum of 480 hours, thus 12 full-time weeks. However, students are allowed up to five years to complete the component.

1.3 Features of the workplace component's instructional system

The following five points were identified as the main features of the instructional system of the workplace component.

1. The main purpose of the component is to enable the students to become "work-ready" – fully-fledged practitioners – in the occupation of animal health technician or a related occupation.
2. The approach of "co-operative education" is used to achieve the main purpose of the component, and to ensure that its curriculum is relevant to the workplace.
3. The component seeks to achieve its aims by immersing students in a real workplace environment, where they can participate in authentic workplace tasks and also complete six "practical" projects.
4. The component seeks to enable students to achieve the outcomes by involving a number of learning mediators, principally a mentor.
5. The component seeks to enable students to achieve the outcomes by means of formative assessment and feedback, using a variety of assessment methods.

Each of these points is dicussed in more detail below.

- ***Feature 1 of the instructional system: The main purpose of the component is to enable the students to become "work-ready" – fully-fledged practitioners – in the occupation of animal health technician or a related occupation.***

The course documentation makes it clear that the Diploma as a whole, and particularly the workplace component, is strongly career-focused and that its ultimate aim is to equip students to apply their occupation to contribute to the economy and society. For example, the purpose statement of the Diploma in its SAQA registration document reads as follows (SAQA n.d.):

> [The purpose of the qualification is] To qualify the learner as an Animal Health Technician who would be competent in applying animal health care,

> disease control and management techniques in the prevention and control of animal diseases in order to support animal and veterinary public health.

The Programme Co-ordinator and a colleague, in an article on the Diploma, distinguish between two "components" in the programme, namely an "institution-based distance education component" and "a context-based component, which is flexible and allows for workplace experience as well as for community services" (Bartkowiak-Higgo & Brandt 2005:208). They comment that the aims of the "context-based component" include the following:

- To assist learners to start with a career plan during their studies
- To train learners according to the requirements of a specific industry
- To provide industry with potential workforce-ready employees once learners have completed their qualification, thus enhancing the employability of graduates

Further comments in the article, as well as information in the *Learner Manual for Experiential Learning* (LM), support the notion of "work-readiness" as a major concern of the component.

While the focus in the Diploma is clearly on the work of an animal health technician, the course documentation indicates that that programme will also prepare students for various other relevant occupations. For example, the Calendar entry for the Diploma, under the heading "Career opportunities", lists the additional careers of "feedlot manager", "pharmaceutical representative" and "stock farm manager" Unisa 2006:41). Bartkowiak-Higgo and Brandt further state the following (2005:203, 208):

> Graduates are able to pursue career paths in different fields of the animal health industry, such as animal health technicians as part of a veterinary team, meat inspectors, feedlot managers, zoo-keepers, pharmaceutical representatives or stock farm managers. … Although primarily intended for training learners within the veterinary services, the curriculum is flexible enough to accommodate learners in a broad range of veterinary workplaces …

The intention of the programme, and in particular of the workplace component, is thus not to be exclusively focused on one occupation but to provide sufficient flexibility to prepare students for a variety of occupations.

- ***Feature 2 of the instructional system: The approach of "co-operative education" is used to achieve the main purpose of the component.***

In order to achieve the strong career orientation of the Diploma, the approach of "co-operative education" is followed. This is the case not only with this programme as such, but also with all its ex-Technikon SA "sister" programmes in the College of Agricultural and Environmental

Sciences, given that "co-operative education" was closely associated with technikon education. The Unisa Calendar describes co-operative education as follows (Unisa 2006:34):

> Co-operative education is an educational model that incorporates productive work into the curriculum as a regular and integral element of a higher education course. There are three co-operative partners in this model, the educational institution, the student and the industry.
>
> Co-operative education not only produces an able work force, it reinforces the link between the institution and industry and provides access to on-the-job earnings. It is an effective means of developing a nation's human resources by reducing training costs, ensuring short lag time between hiring and productivity and by lessening supervisory time.

The article by Bartkowiak-Higgo and Brandt also emphasises the co-operative nature of the workplace component (2005:206). Evidently, the use of the co-operative education approach is closely linked to the first point identified above, namely that the aim of the Diploma is primarily to produce competent occupational practitioners.

The following features of co-operative education, mentioned in the quotations above, are also displayed by the Animal Health programme and its workplace component, as evident from the analysed documentation:

- During the workplace component, the students are engaged in doing "productive work" (LB:50-74).
- There are strong and extensive links between academic staff and representatives of "industry", principally by means of the Advisory Committee which currently (2006) has a membership of 15 industry representatives. The industry representatives on the AC are actively involved in decision-making about the curriculum, teaching and assessment.
- Guidelines on the workplace learning are provided for students (in TL1 and LM), as well as guidelines for mentors in the *Mentor's Guide*.
- According to the Programme Co-ordinator graduates are readily appointed because they are "work-ready" (Dis-PC:5; Bartkowiak-Higgo and Brandt 2005:214), thus ensuring the "short lag time between hiring and productivity" at which co-operative education is aimed.

Based on the course documentation, the following features of co-operative education are **less** evident in this programme:

- The fact that "on-the-job earnings" for students may be involved. TL1 states the following: "You do not replace full-time employees; **you are not guaranteed a job at the end of the training period and you are not entitled to wages during experiential**

learning, although some organisations do pay a nominal allowance or bursary to assist learners" (TL1:7, emphasis in original):

- The partnership between industry and the academic staff, in Unisa's case, does not extend to organising placement opportunities on behalf of the students. The Unisa *Calendar* makes this clear (Unisa 2006:35), and the course documentation echoes this policy in the information provided to students:

> Although we will do our best to provide assistance in securing placements for experiential learning, we cannot guarantee these placements. **It is your responsibility to find suitable employment (full-time or part-time) that will ensure adequate experiential learning** (LM:6, emphasis in original).

Finding placements is thus seen as the students' own responsibility. Furthermore, the students, as the third party in the co-operative relationship, are also tasked with ensuring the quality of their own learning in the compponent:

> Ensure that the experiential learning received is up to standard and complies with [Unisa's] guidelines (LM:6).
>
> Look for the best mentor available. Do not settle for mediocre assistance! Find another mentor or venue [if the existing one is not suitable] to get the best possible practical experience (TL1:5).

- While information on the responsibilities of the three partners is provided in the *Learner Manual* and *Mentor's Guide*, there are no actual, formal contracts between the partners that are individually agreed to and signed.

The strong "co-operative education" relationship that exists between Unisa academic staff and the animal health industry is thus mainly aimed at ensuring curriculum relevance and integrating productive work into the curriculum, rather than at organising practical placement arrangements for students.

The issue of ensuring that the curriculum is relevant to the workplace is further consistently highlighted in the course documentation by repeated statements that the component aims to link the learning that takes place in other modules of the programme – termed "theory" – with the learning in the workplace component – termed "practice". In the documentation, "theory" is contrasted with "practice" but also has a particular link to it: it forms the "knowledge base" for practice without which practice cannot be undertaken (Unisa 2006:34-35); it therefore informs – and thus presumably shapes – practice; yet it is also "applied" in – transformed or translated into – practice (LM:3). Given this, the view of theory seems to be informed by the objectivism of the technological pragmatist perspective (theory as a form of knowledge distinct from and shaping practice), but also to some extent by constructivism (theory as a

form of knowledge that exists in a dynamic interrelationship with practice). Furthermore, certain generic skills or "critical cross-field outcomes" are said to be inherent in both these structural components of the programme:

> The guidance of learners in the workplace situation combines both academic and practical components. … [The aim of EL is] to realise a balance between conceptual or theoretical content and practical or explicit content (Bartkowiak-Higgo & Brandt 2005:204, 208).
>
> The object of this [workplace learning] component is to apply the theoretical background obtained from the lectures in practice. (LM:3).
>
> [The mentor should help the students] to see how theory is linked with practice (MG:5).
>
> [Mentors should] help [the students] develop time, self-responsibility, problem-solving and self-organising skills (MG:4).

With regard to the issue of generic skills, it is interesting to note, given the strong emphasis on reflection as a generic skill in constructivist education literature, there is very little mention of the term in the studied course documentation. Only two direct uses of the term could be found, in the article by Bartkowiak-Higgo and Brandt: it is said that the mentor or AHT in the field assists students "with regard to the practical requirements of the logbook tasks and reflective practice" (2005:205); and that the Epidemiology project involves a "critical reflection" on the student's results (2005:212). While the term is not explicitly used, there are certain reflective elements that have been built into the course, for example, a type of reflection needs to be done in the case of two projects.

In the light of the quotations above, it is clear that it is an aim of the workplace component to establish strong interrelationships between "theory", "practice" and generic skills, infusing practice into the theoretical curriculum and theory into the practical curriculum, so that the curriculum of the Diploma as a whole will ultimately be maximally relevant to the workplace.

It is interesting to note that the instructional system with its concern for meeting the needs of industry, employability and ensuring the performance of productive work has certain echoes of the technological pragmatist approach to workplace learning. On the other hand, its concern about the interrelationship between theory and practice and the involvement of some reflective elements are typical of a more constructivist approach.

- ***Feature 3 of the instructional system: The component seeks to achieve its aims by immersing students in a real workplace environment where they need to complete real workplace tasks.***

The instructional system of the workplace component seems to regard it as very important that the students have the full experience of an authentic work environment.

> Even though you choose, or maybe are forced through circumstances, to gain this [EL] experience on a part-time basis and not over a full year, try to have at least one period of at least 30 consecutive days. It is very important that you also experience the day-to-day and often mundane (boring!) tasks of being in the workplace and not only the exciting aspects (LM:3).

The Programme Co-ordinator, when asked about the reasoning behind this statement, responded as follows:

> Experiencing routine tasks will prepare them for the workplace – it will provide them with realistic expectations of what it is really like to be an AHT in the workplace. As AHTs they will not have emergencies and excitement every day, much of the work will be routine, and they need to understand that, to experience what the job is really like (Dis-PC:8).

In this regard, therefore, there seems to be a consonance between the instructional system of Animal Health's workplace component and the view of Lave and Wenger that learning in the workplace depends on active participation in authentic workplace activities, even if this participation is initially "peripheral". Workplace learning is not simply a matter of performing a number of workplace-based tasks; it involves the full experience of what it means to *be* a practitioner, so that the learner can *become* a practitioner. In this process – as the course documentation makes clear – the learner should experience all the aspects of the workplace environment, including workplace tasks, the workplace community, the workplace's particular "rules" and division of labour, and workplace tools. Of particular importance, though, is the performance of workplace tasks, and the curriculum of the component makes it compulsory for the learners to undertake such tasks by requiring them to complete a number of practical activities, or "logbook tasks", as well as a number of projects.

The required practical tasks are not only of a wide variety, but a certain *number* of performances is also required for each task, in some cases quite a large number (e.g. 100 inoculations of cattle, 20 sheath washes, blood samples of 100 cattle). In the course documentation, the frequency of performance required is referred to as "repetitions":

> The assessment of logbook activities is based on repetition, with a defined number of repetitions per activity qualifying the learner for a maximum number of points allocated (Bartkowiak-Higgo & Brandt 2005:211).

> [The number] indicates the minimum number of repetitive actions that should be done to ensure that the technician would be able to maintain the required norm once he/she works on his/her own (LB:49, emphasis in original).

The quotations above suggest that the principle espoused here is that the repeated performance of a task will ensure proficiency. (This is another aspect of the instructional system that is suggestive of a technological pragmatist or behaviourist approach to workplace learning.)

The projects are also aimed at enabling learning through workplace participation, since they also involve real workplace tasks: "the projects reflect typical problems encountered by animal health staff in their daily work" (Bartkowiak-Higgo & Brandt 2005:212). While most of the projects as they appear in the *Learner Manual* are quite specific to the work of a government-employed animal health technician, the Programme Co-ordinator, in a personal discussion, confirmed that adaptations in the topics may be made to make the projects more relevant to private students who find themselves in different work environments. She gave the following example:

> One student was working as a laboratory technician and in terms of animals dealt mainly with rats. In his case she agreed that the assignment on Nutrition, for example, where students have to evaluate the pasture on a farm and give farmers nutritional advice, could be adapted to focus on the nutritional work they were doing with the laboratory rats (Dis-PC:10).

Together, the logbook tasks and the projects are intended to prepare the students to become "work-ready" through active participation in the workplace.

In its emphasis on the educational value of authentic activity in real environments, the instructional system involves elements of both a constructivist and situated approach to workplace learning.

- ***Feature 4 of the instructional system: The component seeks to enable students to achieve the outcomes by involving a number of learning mediators, principally a mentor.***

The course documentation suggests that mediation of learning during the workplace component is considered crucial to the students' learning. The lecturer and university obviously play a mediation role to some extent. In the workplace itself, it is recognised that a number of people may play a role in the students' learning, a situation that will also necessarily arise where private students do their workplace learning at different organisations:

> You may have different mentors for different projects (LM:6).
>
> State veterinarians are contracted as … workplace mentors. Animal health technicians in the field contribute to the success of workplace-based learning by assisting, training and evaluating learners with regard to the practical requirements of the logbook tasks (Bartkowiak-Higgo & Brandt 2005:205).

While the last quotation above may create the impression that only veterinarians are appointed as mentors, the *Mentor's Guide* states that a mentor may be "any person who has a sound educational background; preferably a person with a national diploma (Animal Health or equivalent) or higher qualification in the direction in which the learner wants to study, i.e. veterinarians or senior animal health technicians" (MG:3).

Although it is thus acknowledged that a variety of mediators may be involved, the greatest responsibility in terms of workplace learning mediation is undoubtedly seen as that of the mentor. The *Mentor's Guide* gives an extensive description of "mentor duties and responsibilities". On the basis of this and other course documentation, the various roles that the mentor is expected to play are the following:

- Workplace supervisor (and, to some extent, coach) (LM:6; LG:19; LB:49; MG:2,5)
- Co-ordinator of workplace learning experiences (LM:7,10; MG:4,5)
- Academic tutor, facilitator of "theoretical" knowledge (Unisa 2006:34; MG:2,4,5)
- Facilitator of the development of the student's generic skills (MG:2,4)
- Assessor and provider of constructive feedback (MG:5)
- "Protector" of the student, accepting him or her as protégé in the workplace and vis-à-vis the lecturer (MG:3,4)
- Professional role model (MG:5)
- Nurturing guide and counsellor (MG:2,3)

One of the references to the latter role of the mentor included that mentors should "counsel and provide moral support in times of stress" (MG:3). When asked to clarify this, the Programme Co-ordinator responded as follows:

> "Stress" here … [refers] to stress specifically related to their experiential learning. Examples of such stress might be when the students have to visit an abattoir and find it hard to deal with seeing animals being slaughtered, or when they see animals dying or in pain. (Dis-PC:3).

The mentor is thus expected to play an extremely wide-ranging role, from supervisor and assessor to tutor, counsellor and personal guide.

In its emphasis on the importance of the mentoring role, the approach of the instructional system is consonant with constructivism, which affords mentors an important role in learning, as well as with situated learning theory, which sees mediation by a more experienced person as a crucial part of learning. The model of mentorship that is used, however, seems rather to be a combination of the "apprenticeship" and "competency" models (cf. point 1.2.2.4 in chapter 2) than the "reflective practitioner" model; the emancipatory aim of critical pedagogy is also not reflected. A proviso to the latter, though, is that the mentors *are* charged with developing the students' critical thinking skills (MG:4), and to encourage them to "express their views and to disagree" (MG:5).

- ***Feature 5 of the instructional system: The component seeks to enable students to achieve the outcomes by means of formative assessment and feedback, using a variety of assessment methods.***

The assessment of the workplace component is said to be "continuous" (Bartkowiak-Higgo & Brandt 2005:211, 213). This refers to the fact that students work on assessed tasks and projects throughout the component, and that feedback on projects is intended to be formative, giving students the opportunity to hand in drafts and revise projects if initial drafts are not acceptable (Dis-PC:3,8). As already explained, each project is co-assessed by the mentor and lecturer, with the mentor generally expected to judge the student's performance of tasks during the course of the project, while the lecturer judges the final product, concentrating on its scientific character.

Students are given the various assessment criteria in order to help them in the process of completing their projects:

> Look at the project assessment sheets at the end of this manual to give you an idea of what the assessors will look for when marking your project (LM:12).

The final portfolio needs to contain, in addition to the marked projects and completed logbook, an experiential learning report. When asked about the function of this report, the Programme Co-ordinator said:

> [The function is] to help them reflect, think back on what they have done, and summarise the whole experience that they've had over 3 or 4 years … In putting the details down in a report they realise and become more aware of what they are actually doing. It makes the whole procedure more of a conscious one, and forces them to reflect on what they've done, and they learn more by doing this. (Dis-PC:13).

The assessment aims to be formative and developmental rather than summative and judgemental:

> Assessment is an interactive process. You are welcome to submit your portfolio for comments or partial assessment as soon as you have sufficient information available (TL1:7).
>
> If [Unisa] or the employer feels that you do not meet the minimum requirements for the national qualification and your performance is not up to standard, you may be asked to re-do some of the activities/ projects, or you may need to extend your period of experiential learning (TL1:7).

While the course materials inform students that they may hand in their portfolios for formative feedback before they submit it for final assessment, this is not explicitly said about the individual projects; however, according to the Programme Co-ordinator, the same situation applies to them.

> Students can re-submit their projects if they fail them the first time. … [However] she does not like to stress this fact as, in reality, the mentors should be giving the students feedback and helping them to re-draft projects if necessary so that, by the time the project is sent to Unisa, it is completely acceptable. However, she understands that this does not always happen in practice. She generally tells students about the resubmission arrangement verbally, in the first-year Anatomy and Physiology practical (Dis-PC:8).

Assessment is thus regarded, not merely as a tool to distinguish the "competent" from the "not yet competent", but rather as a process through which learning and development takes place. As such, the approach to assessment in the instructional system is consonant with a constructivist approach, which involves an integrated assessment of knowledge, skills and behaviour, and a variety of methods (cf. point 1.2.2.6 in Chapter 2).

1.4 Overview of the instructional system

In the instructional system described, learning seems to be understood as a process that is undertaken by a self-directed learner, through active participation in a real workplace with all its various constituent elements, and that involves a progression from a novice to a fully-fledged practitioner – thus, to some extent at least, a change in identity; however, for this progression to take place the guidance of other, more knowledgeable people, particularly a mentor, is essential. The extent of guidance that is recommended is largely authoritarian (e.g. the mentor is the "supervisor") but also involves recognition of the student as a self-directed agent.

If one were to relate the instructional system to the theoretical perspectives of workplace learning described in Chapter 2, it would seem to involve a number of elements from more

than one perspective. The purpose of the component – making students "work-ready" and "efficient" so that they can do "productive work" – is phrased in technological pragmatist terms, and it also has a number of other pragmatist elements: the essentially asymmetrical power relationship between mentor and student, as well as that between veterinarians and AHTs, and the contribution of the instructional system to the reproduction of this structure; the understanding of theory and practice as fundamentally distinct; and the intention to have students acquire certain skills through "repetition". On the other hand, many constructivist aspects are also represented here, including the belief that learning takes place through actual experience, and that effective learning depends on the involvement of a self-directed learner; and the principles of establishing an interrelationship between theory and practice, learning through mediation and a degree of reflection, integrating generic skills with the learning of knowledge and practical skills, and assessing all these elements in an integrated way. Finally, there also seems to be congruence with the situated learning and activity theory view that learning involves immersion in the whole workplace environment, is mediated there by more experienced others, and results in a change in the identity of the student from newcomer to professional practitioner. The critical pedagogy approach that aims at the emancipation and empowerment of the learner is generally not espoused, except in the principle that students should be given room to express their opinions and to "disagree".

In summary, the instructional system is a system that aims to help students learn, and remove hindrances to their learning, in the ways shown in table 4.2 below.

Table 4.2: Aims of the instructional system

The instructional system aims to help students by …	**and simultaneously to remove or reduce the hindrance of …**
ensuring that they are **work-ready** on graduation	incomplete preparation for the workplace, so that students might need re-training there or have difficulties finding employment
ensuring **curricular relevance** to the workplace, and facilitating the students' learning through **co-operation** between them, the workplace and the university	the learning of skills that are irrelevant to the workplace, and learning difficulties due to lack of communication between the students, the workplace and the university
immersing them in an authentic **work environment** where they will engage with all the elements of that environment and participate actively in **workplace activities**	lack of exposure to a real workplace environment, and to opportunities to practise the full scope of authentic workplace activities
providing **mediation** of workplace learning by a number of people, but particularly the **mentor**, who has a wide-ranging developmental role	unguided and undirected learning by the student in the workplace, and lack of support for him/her there
providing continuous formative **assessment** opportunities, assessing all knowledge and skills learnt, until the student achieves the outcomes	uninformative and judgemental assessment that will hinder the student's progress and completion

A diagrammatic overview of the instructional system is shown in figure 4.1 below.

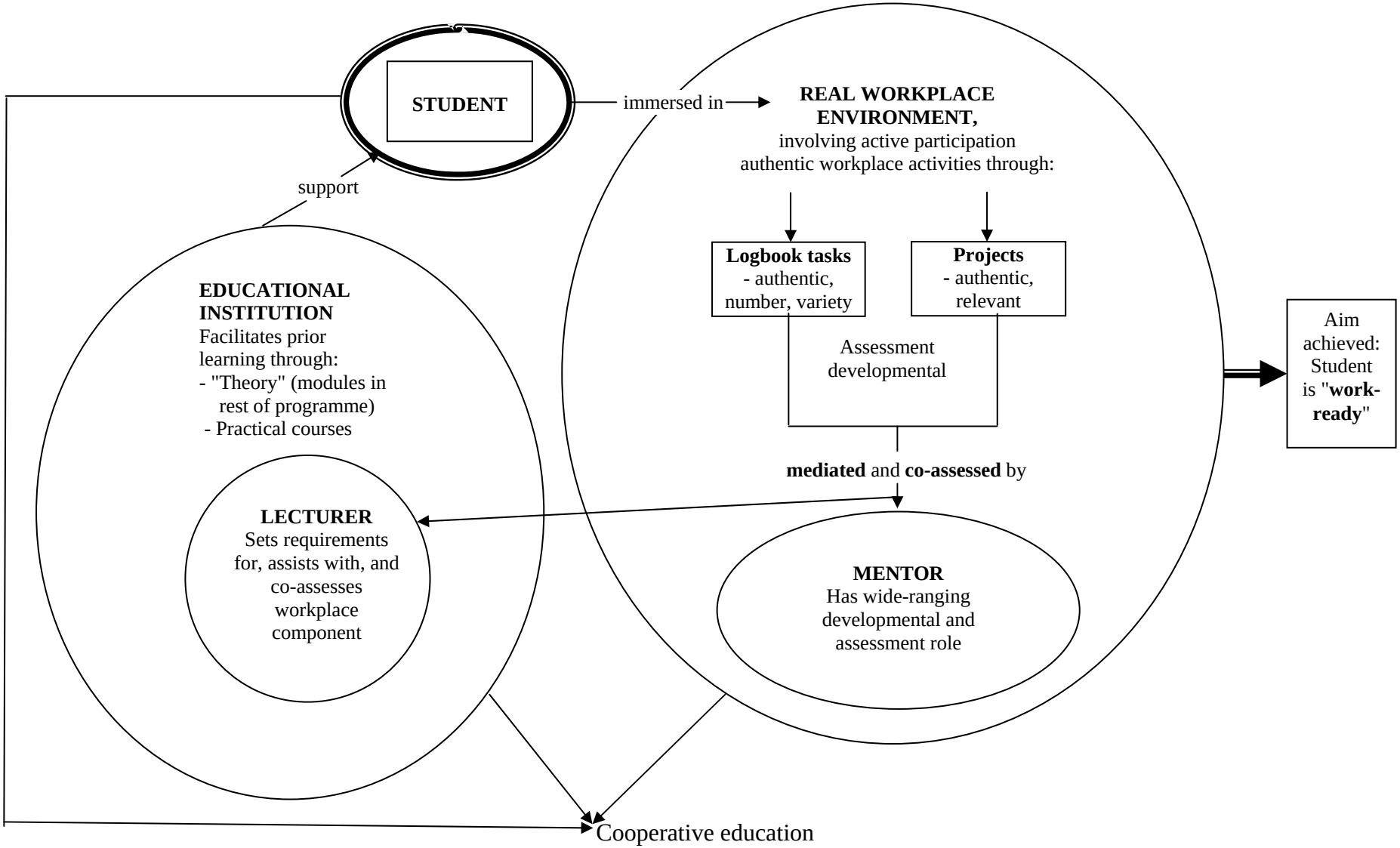

Figure 4.1: The instructional system of the workplace component of the Diploma in Animal Health

The data analysis of the learning milieu, as discussed below, will evidently throw light on the degree to which the instructional system's aims are achieved.

2. ANALYSIS OF STUDENT PORTFOLIOS

As a first source of data on the learning milieu, a number of student portfolios were analysed. Each portfolio contains biographical details of the student, a report by the student of his or her activities during the workplace-based period, and his of her completed projects with the mentor's and lecturer's marks and feedback. Completed student portfolios are thus potentially rich sources of information about the circumstances of the students' workplace learning.

Fifteen recently completed portfolios were collected from the Animal Health department for analysis. It transpired that 6 of these portfolios had been completed under the pre-2003 assessment arrangements, and 9 under the current arrangements. It also became clear that these 9 were the only ones available that were completed under the current arrangements. (This is understandable given that the workplace learning with its portfolio is generally only undertaken in the third year of study or later, and many students who first registered in 2003 would by the time of writing (2006) probably still be working on it.) For this reporting process the two groups of portfolios will be commented on separately where relevant.

The first portfolios that were examined suggested a few issues which seemed significant and were related to the research question, and it was decided to concentrate on these issues only in examining the rest of the sample. These issues are the following:

- The **length of time** it took the student to complete the workplace component (a longer period suggests that difficulties might have been encountered).
- Elements that **helped** the student to achieve success in the component, and elements that **hindered** them, as explicitly mentioned by the students themselves.
- The **grading of and feedback on projects** given by the mentors and the lecturer. This would be relevant to the explicit intention of the instructional system to help students through formative assessment, and to provide mediation of learning by the mentor.

The basic data gleaned from the portfolios of the pre-2003 students is shown in Annexure 9, and those of the post-2002 students in Annexure 10. Relevant findings on each of the three points above are discussed below.

2.1 Period of completion

There were great differences between students in terms of the time it took them to complete the workplace component (as well as the Diploma as a whole), and from the portfolios studied it was difficult to link longer completion times to any one factor in particular.

The data relating to this issue is shown in table form in Annexure 11. Looking only at the time taken to complete the workplace component, it would seem that, broadly speaking, reducing the projects from 12 to 6 did contribute to completion times – the longest periods (7 and 5 years) occur where students had to do the greater number of projects. However, some of the students who completed six projects took longer than some others who completed twelve. This therefore does not seem to be the only factor influencing completion time.

If one disregards the 12/6 project distinction as an influence, and organises the data by completion time of the workplace component and situation of students (part-time or full-time), the following table may be drawn.

Table 4.3: Completion times given in portfolios

Time over which the component was completed	Situation of students
7 yrs	• 1 student, employed by VS (PF 3)
5 yrs	• 1 student, employed by VS (PF 5) • 1 private, part-time student (PF 6)
4 yrs	• 1 private, part-time student (PF 13)
3 yrs	• 1 private, part-time student (PF 4) • 1 “combination” student (PF 14)
2 yrs to 2 yrs 3 months	• 1 student employed by VS (PF 8) • 2 private, part-time students (PF 11 and 12) • 1 “combination” student (PF 2)
1 year or less	• 2 private, full-time students (PF 1 and 15) • 2 “combination” students (PF 7 and 10) • 1 private, part-time student (PF 9)

"VS" refers to the government Veterinary Services, and “PF” refers to the particular portfolio. “Combination” students refers to students who started out as private students, and then were employed by the VS at a later stage during their studies.

The last student in the list (PF 9, private, part-time) may be omitted from consideration as he had studied and worked extensively before and so received credit for some of the projects as well as the logbook tasks. With this in mind, the data in the table seems to suggest that, generally, students who are employed throughout their studies take longer than those who study full-time. Interestingly, however, it also shows that students employed by the VS

throughout their studies (or students employed in other animal-related jobs) did not complete the component more quickly than others (which might have been expected as they would have had ample opportunities to perform a variety of tasks with animals). It would seem that employment *as such* might be an element that prolongs the time students spend on the component.

It may further be worth noting that even a student who seems to have had the optimal situation, the student completing PF 7 (who studied full-time for 3 years, was then employed at VS for 1 year, and did only 6 projects), took 4 years in all to complete the Diploma, and that 4 years was the shortest completion time of any of the "six-project" students, including those studying full-time. This is at odds with the registered "minimum credits" of the Diploma, namely 360, which implies that students should be able to complete all the learning in the Diploma within a three-year full-time period. Having these allocated credits exceeded by as much as a year in the *best* student scenario suggests that these credits might not be a true reflection of completion time needed.

2.2 Elements the students identified as helpful

Table 4.4 below shows the elements students specifically identified as helpful, and the number identifying the element.

Table 4.4: Helpful elements identified in portfolios

Element no.	Element	Number identifying element
1	Help of mentors and colleagues	10
2	Their love of animals, and/or interest in the course content or tasks, their own eagerness to learn	8
3	The farmers ("clients") they worked with	3
4	Organisation by VS of special "practical block" in which students had the opportunity to undertake tasks	1
5	Special workplace opportunities for practical experience (e.g. disease outbreaks)	1
6	Practical courses that are part of the Diploma (e.g. TB/Brucellosis)	1
7	Support of family members	1

Help and support by mentors and workplace colleagues were the most frequently identified element that the students saw as promoting their learning. This suggests that the mediation role of learning by the mentor envisaged in the instructional system was in fact present in the learning milieu of these students. It was however interesting that everyone who mentioned this point did not refer to designated mentors alone, but also to other colleagues (e.g. other animal health technicians) in the work environment.

Elements relating to the students themselves were the next most frequently mentioned aspects, suggesting that the students' own abilities and interests played an important part in their learning. As the data shows, a number of other elements such as co-operation by farmers and a practical block at the VS were also identified as helpful by a smaller number of students.

2.3 Elements the students identified as hindrances

Table 4.5 below shows the elements identified as hindrances.

Table 4.5: Hindering elements identified in portfolios

Element no.	Element	Number identifying element
1	Not all required tasks covered at VS	5
2	Workload at employer, difficulty of doing workplace learning while employed	3
3	Lack of help/support by mentor	3
4	Lack of academic background	2
5	On-the-job injuries	2
6	Transport problems	2
7	Family problems	2
8	Lack of practical background	1
9	Costs e.g. costs of travel to workplace learning site, rent while staying near the site	1
10	Lack of computer access	1
11	Lack of library access	1
12	Lack of facilities in the field	1
13	Safety (from crime) in the field	1
14	Time away from family	1
15	Age	1

Five of the students mentioned that difficulties were caused for them by the fact that not all the required tasks in the logbook had been done during the time they had available to spend at the government Veterinary Services – thus they did not have the opportunity to perform these tasks in this time, and either had to find another organisation at which to do the tasks, or spend a later block of time at the VS again. One student (PF 6) stated that 85% of the time at the VS was generally spent on vaccinations, and there was thus little time for other tasks; another (PF 14) reported that he had spent a period of 3 months at the VS but had had no opportunities to work: "I spent the whole three months at the office without doing anything until I decided to leave".

This element is contrary to expectation. The Diploma was originally and still is largely aimed at training animal health technicians working for the government. While it could thus have been expected that private students, who do their workplace learning at other organisations with another focus (e.g. private veterinarians), might have a problem in finding opportunities

to complete all the required tasks, one would have thought that there would be no lack of opportunities at the VS itself for students to undertake all the required tasks. Four of the five students reporting this indicated that the reason for this situation was that the main work routine at the VS in fact involves only certain types of tasks, and that some of the other required tasks were done only in emergency cases or depended on there actually being a request for the task, which did not always happen (for example, inserting a stomach tube, which is only done infrequently in emergency cases). In one case, PF 14 mentioned above, the student seems to suggest that he was deliberately not granted work opportunities by the relevant VS staff.

Three students who were studying part-time mentioned that their full-time employment (including employment at the VS) was a hindrance as it meant they had less time for their studies. For private students, being employed meant that they had to take leave to complete the logbook tasks of the workplace component.

In contrast to the 10 students noting help by the mentor as a supporting factor, three students mentioned that their mentors caused difficulties for them. One noted lack of help by a mentor, one the fact that mentors often did not have time to help, and one stated that his mentor took so long to mark his projects that he eventually sent his unmarked projects to the lecturer (who accepted them and omitted the mentor from the marking and grading process).

A variety of other factors were mentioned by a minority of students, as indicated in the table above.

2.4 Grading of projects and feedback on projects

An issue that was immediately apparent in looking at the first few portfolios was that marks awarded for the projects by the mentors were generally higher than those awarded by the lecturer, sometimes as much as 20% higher. This could be explained by the fact that, in the post-2002 projects, the mentors are given different assessment criteria to the lecturer: in terms of these criteria, the mentor essentially in most cases assesses the *practical performance* of the students *while* working on the project, while the lecturer assesses the *completed written report* that is handed in. (A set of mentor and lecturer assessment criteria, as they appear in the *Learner Manual* and *Mentor's Guide*, is attached as Annexure 8.) However, the exact arrangements for the projects vary, as shown in table 4.6 below.

Table 4.6: Assessment of projects		
Project no.	**What the mentor assesses, and weighting of his/her mark**	**What the lecturer assesses, and weighting of his or her mark**
1	Actual "herbarium" handed in, and oral test of student's theoretical knowledge (80)	Actual herbarium (20)
2	The student's performance during the work on the project (20)	The completed project report (80)
3	Performance during work on project, also direct assessment of a public talk given by student (50)	The completed project report (50)
4	Performance during work on project (20)	The completed project report (80)
5	Performance during work on project, also direct assessment of a public talk given by student (50)	The completed project report (50)
6	The completed project report (80)	The completed project report (20)

On the one hand, these different arrangements suggest a sensitivity in the instructional system to the distinction between elements best assessed by the mentor, and those best assessed by the lecturer. On the other hand, given the differences between projects, it could perhaps be expected that both mentors and students might be confused about exactly what is expected of the mentor, unless they read the assessment sheets very carefully. Students (and mentors) might also not recognise the essentially different bases for the mentor's and lecturer's marks – particulary as this is not directly explained in the material – and might thus be confused if the two marks differ greatly.

To complicate the assessment issue, there are somewhat different arrangements for the pre-2003 projects which still apply to some of the currently registered students. Before 1999, there were apparently no specific criteria for the projects given to mentors, and they also graded the written reports as such. Between 1999 and 2003, the mentors were given similar "performance" criteria for some of the projects, but apparently still had to give a mark for the written report as well (although exactly what they had to do is not very clear from the assessment sheets of this period). Portfolios are thus still being handed in under three different sets of assessment arrangements.

In grading, mentors did not apply the criteria in exactly the same way. The table below shows the basis of marks awarded by mentors in the portfolios studied, and the number using the particular basis, both before and after 2003.

Table 4.7: Basis for mentor marks	
Basis	**Incidence**
Before 2003	
Marked actual written project as whole	3
Used given set of criteria related to student's work performance (not the written project as such), gives one overall mark for set of criteria	1
Used given set of criteria related to student's work performance. Gives own assigned mark for each criterion independently (assigning own weighting to each of these), then calculates final mark as average	1
Gave marks for each criterion with own weighting, as above; but also marks actual project and gives independent mark for this, e.g. 60%; writes both marks on assessment sheet	1
2003 onwards	
Used given sets of performance-related criteria (for most projects there are two sets). Gives overall mark for each set, then calculates average of two marks	5
Used given criteria. Gives a mark out of 10 or 100 for each, then calculates average	2
Used given criteria. Assigns own weighting to each criterion, gives mark for each and calculates average	1

As this shows, in the post-2002 system some mentors seemed to assign holistic impression marks for the whole project, while others more specifically assign a mark for each criterion, sometimes giving their own, different weighting to different criteria. (One mentor also filled in both the mentor and lecturer sheets, apparently not recognising that they were meant for different assessors.) This situation suggests that different students are in fact being assessed on somewhat different bases, which means that the assessment system overall may contain an element of unfairness to some students. Furthermore, the situation also suggests that mentors did not have a uniform understanding of the marking and grading process.

While the criteria the mentors should use for marking generally relate to the students' performance during the project and not the project report as such, the *Mentor's Guide* suggests, and the lecturer in an interview confirmed (Dis-PC:8), that mentors should nevertheless assist students with the project report, giving formative feedback on this and helping them to hand in an acceptable completed product for marking to the lecturer. The nature of feedback on projects by mentors, as judged by comments written on the projects in the studied portfolios, also however differed widely. In the post-2002 system, one mentor gave no comments whatsoever, on any project; four gave one or a few general, not very informative comments, usually addressing the lecturer rather than the student, e.g. "The student is becoming a good AHT"; and in three cases mentors wrote extensive comments on the actual text of the project, recommending improvements. There was also one case where a student received very low lecturer marks in a project because he had not understood the basic instructions; yet, his mentor had given positive comments and a high mark for his performance, suggesting that the mentor had not recognised what the student had omitted to

do. This data reinforces the observation made above, namely that there is no uniform understanding among mentors of what is expected of them.

Feedback by the lecturer in some cases, especially on students' first projects, is quite extensive. In other cases, particularly on students' second or later projects, feedback usually takes the form of telegram-style marginal annotations in red pen e.g. "Specify", "Evaluation form?", "What for?" etc., and then one overall comment e.g. "Well researched and presented" or "You did not provide sufficient information. See comments on text". In certain instances the reasoning behind the grading does not seem clear; for example, one excellent student who received around 88% and even higher for most of the projects is awarded 76% for one, with the lecturer's only comment being "Well done", so that it would be impossible for the student to see how the particular project should be improved to match the others. There are also times when the lecturer feedback seems curt, e.g. "Attach! Explain!".

Clearly, however, in all cases students whose projects had serious shortcomings were allowed to re-do these and re-submit them until they received a pass mark or a better mark. While there is some scope, therefore, to improve assessment feedback so that this will be more informative, motivating and supportive, the portfolio analysis suggests that in general the intention of the instructional system that assessment should be continuous and formative is achieved in the learning milieu.

3. ANALYSIS OF INTERVIEWS

In this section the interview process will first be briefly described, and the main themes and findings emerging from the interviews will then be discussed.

3.1 The interview process

As described in Chapter 3, it was originally intended to interview two current students, two graduate students, and two mentors, all selected by convenience sampling. In practice it proved very difficult to achieve this aim, for the following reasons:

- It transpired that there were in fact relatively few students and past students in the province where the study was being conducted (here called "Province X" for purposes of confidentiality). Most students are situated in other provinces with larger agricultural sectors.

- To obtain optimal data from interviewed students, they should obviously have done a fair number of the tasks and projects required for the workplace component. It was discovered that of the group of students registered for the component in Province X, many had not started on the required tasks, making the pool from which the sample could be drawn smaller. Furthermore, many graduate students who had done the course while in Province X had moved into posts in outlying provinces.
- Students who met these two requirements and were employed were extremely busy in the field. The opportunities to interview these students were thus limited, and several potential interviewees declined to take part in the study on this basis. Even the students who did consent to be interviewed were typically quite willing to take part in the initial hour-long interview, but had difficulties with providing two further hours of their time, and typically either frequently rescheduled appointments, or started the interview but then could not spend the full scheduled hour in the interview. A similar situation existed with regard to mentors.

Due to these circumstances it proved difficult to find two graduate interviewees. One of the interviewees, however, was on the verge of completing the Diploma when she was approached and in fact graduated three months after the initial interview. For the purposes of this study, she was thus be regarded as a graduate student.

The sample of interviewees with relevant information relating to each is shown in Annexure 12 to this report. During the interviewing period, three interviewees were dropped from the process due to the reasons shown in the annexure, and replaced with others. However, the initial interviews with these three also contained useful data and their interview transcripts were analysed as part of the data set. As far as possible, the first interviews with all the participants were held first, and only after this the second and third round started, so that different issues emerging from the various participants' interviews could then be raised with others.

The main themes and findings resulting from the interviews are discussed below.

3.2 Main themes and findings resulting from the interviews

The interviews were analysed with a view to identifying sources of support for learning, and barriers to learning, in the various work environments of the interviewees and as they went about completing the required projects, and to see how these correlated with the intentions of the instructional system.

The various points emerging from the analysis can be clustered under the following themes, each representing an element which either supports or hinders learning (depending on the circumstances):

- Co-operative education (that is, the relationship between workplaces and the university) and participation opportunities for students
- The scope of the workplace component and time needed for completion
- The relevance of the component's curriculum for the actual workplace
- Participation in authentic workplace activities
- The role of learning mediators
- The component's assessment
- The role of the university or lecturer and related matters

Each of these is discussed in more detail below. Reference is made throughout to the interview transcripts. Given the extent of the transcripts, only some of these are included as annexures in the printed copy of this report. All the transcripts, however, are included on the compact disc accompanying this report. The transcripts in the print copy are the following:

Interview 1 with student 1 (Annexure 13)
Interview 1 with student 6 (Annexure 18)
Interview 1 with mentor 1 (Annexure 19)
Interview 1 with mentor 3 (Annexure 21)

The other interviews appear on the compact disc as annexures 14-17, 20, and 22-32, as indicated in the table of contents of this report.
(Note: The interviews are referenced as shown by the following examples: S1:1:2 = "Student 1, interview 1, page 2"; M3:2:4 = "Mentor 3, interview 2, page 4".)

3.2.1 Co-operative education and participation opportunities for students

The following main issues emerged, all of which are related:

- **Lack of task variety at placement sites**

One of the first points highlighted by Student 1 in the first interview and often reiterated was that for her, as a private student, it was difficult to get placements where she could undertake

the whole range of required logbook tasks within a reasonable space of time (S1:1:1,5,7,12,16, S1:2:2, S1:3:1). Here it should be noted that it was not difficult for her to *find* placement opportunities in the first instance; she reports being very readily accepted as a student both by the Veterinary Services (VS) and other organisations (S1:3:1). The difficulty was that those organisations, particularly the VS, did not cover all the tasks required by the logbook, which then extended the time she had to spend on the workplace component:

> A: […] I was doing experiential learning for six months […] and they spent almost two months vaccinating for anthrax, and then other two months for *Brucella abortus*, you know, they take time […]
> Q: So it was difficult for you to cover all the tasks in one place?
> A: Yes, yes. Because they take time. They can spend like three months for rabies. And then spend another three months for anthrax. So you see the time just goes like that. (S1:1:5)

Apart from vaccination and sample-taking, the tasks required by the students' logbooks were either done quite seldom, or only in emergency cases:

> A: […] you go there, you get by yourself, it's not easy to tell them to do what you want […] they've already planned their programme […] Unless, otherwise, if there are emergency cases, […] then you are lucky because then you can see – they do the temperature, they do everything. (S1:1:16)

This particular difficulty of private students in the VS workplace was confirmed in interviews with Student 3 (S3:1:7,9; S3:2:2,4), and the three mentors interviewed (M1:1:1; M2:1:2; M3:1:10).

Student 2, also a private student, initially had more difficulties than Student 1 in finding a placement (S2:1:5), and also stressed that at her current (private) placement a very limited range of tasks was done, meaning that she would need to go to other organisations to get all the tasks completed, which would extend the time she spends on the workplace learning (S1:1:4,8,9). Student 6, the other private student in the sample, was employed by a private veterinarian where most of the required tasks were done except some tasks that are specific to the government environment, such as census-taking and regulatory tasks.

In addition to having a limited range of tasks, Student 1 also mentioned that at some workplaces she was asked to do insignificant tasks that were not in her logbook. (This was reminiscent of two studies discussed in the literature review, those by Scribner and Wakelyn (1997) and Auret (2005), in which students had also raised this issue as a problem.) While the student did these tasks initially, she later asserted herself and said that she could not

continue working there unless she was given the required tasks (S1:3:4). None of the other interviewees reported a similar situation, however.

The students employed by the VS, all of whom had been working there for several years, reported no difficulties in completing the required range of tasks.

- **Lack of a uniform internal policy on students in the Veterinary Services**

In the first part of interview 1, Mentor 1 immediately made it clear that he recognised that not all required tasks were routinely done in the VS, and in fact had devised his own solution to this problem faced by private students:

> A: So what I actually do with those logbooks, I sit down with a student, and then we highlight those sections that our department covers. So I will sit down with them and say, 'Some of the sections, we actually don't do them', but then we work with *[ARC dairy farm]* […] I can phone my colleague there to say 'I have so many students, when are you drawing the semen, I want them to come and have look'. So then we arrange and tell the students […] The same applies to Onderstepoort, OVI *[Onderstepoort Veterinary Institute]* […] So we sort of 'outsource' what we don't do. (M1:1:1)

Thus, when there are a number of private students in Mentor 1's VS workplace, he arranges a variety of opportunities for them that will ensure that they have exposure to the required tasks; in fact, the interviews suggested that he is extremely dedicated in this regard. His particular problem in this situation, however, was that this worked best when he had a large group of students who could all go together, but since Unisa students are free to do their workplace learning at any time, some of them arrived individually at unexpected times, and his "outsourcing system" could not really accommodate such cases:

> A: The problem is that we actually don't know when we are expecting the next batch of students. That's the first thing, if we can know it will help us plan better. (M1:1:5)

> A: Some students were left behind in terms of practicals. Because I can only go a certain time to T *[private agricultural company]*, for example, to do those specialised types of tests. And you'll find that if there's one student who comes late, you know, that student is outside the scope […] It should not be left to individual students to decide when they are going to start […] (M1:1:11)

Mentor 1's approach would clearly have been a solution to the difficulties reported by Student 1, but this student completed her placement periods at the VS at centres other than the one where Mentor 1 was working, where no such steps were implemented. The two other mentors interviewed, who worked in the same province as Mentor 1 (one at the same centre), also did not report taking such steps to accommodate students.

Apart from internal differences in the way private students were accommodated at the various centres in Province X, the very notion of accepting private students in the first place was apparently not uniformly accepted. At one centre the researcher was informally told by a senior AHT (who did not form part of the interview sample) that he did not accept private students in his VS department. Mentor 1 confirmed that there was no uniform internal policy on how exactly students should be accommodated; he was the only person to do this, the "outsourcing" depended on his own network of contacts:

> A: It's a pity, it's not uniform in our department. But I just wish it could spread to the other side. And so far it's been our office, and *[Centre B2]*, that's where students go, you know, for that. (M1:1:7)
>
> Q: I was wondering, because you obviously go to a great deal of trouble with the external students – I talked to some other people and they told me they did not want external students – so that's why I was wondering whether there is some kind of uniform policy about mentoring?
> A: There is no uniform policy. And to be honest, it is only those who are passionate who will have them, others will not do it.
> Q: So it's up to individual people to decide whether they will accept students or not?
> A: Yes.
> Q: And there's no problem with that? If you do it, it's accepted, and if you don't do it, it's also accepted?
> A: Yes. It's within the framework […].
> Q: But then – you go the extra mile, obviously. So is there some sort of recognition for you […] do you get *[any reward]* for this work?
> A: No, I don't. I don't expect it, anyway. (M1:2:7)
>
> A: […] you see, as I say, *[the system depends on]* "buddy-buddy" communication.
> Q: Yes, it's like networking – by yourself – the institution doesn't support you?
> A: No, it doesn't support me. When I go on leave for a month, then the system crumbles. (M1:3:4)

Mentors 2 and 3 confirmed the lack of uniformity of internal policy (M2:1:2, M3:1:8). Both Mentors 1 and 3 also mentioned that the reason some colleagues gave for not accepting private students was that such students did not have insurance against workplace accidents, and that if such an accident should occur the Department of Agriculture would be liable (M1:2:7, M3:1:6). (In fact Unisa had taken out such insurance for students for the workplace component a number of years ago, something of which none of the mentors interviewed was aware.) Mentor 3 went further to state that, in his opinion, the insurance issue was a smokescreen deliberately used by colleagues who did not want external students in their workplaces, and that the real issue was racial discrimination: these colleagues generally turned away Animal Health students, who were mainly black, but always accepted Onderstepoort veterinary students, all of whom were white (M3:1:5). Mentor 3 also said that in his experience it was difficult for black private students to find placements with private veterinarians, because white veterinarians did not "receive" them "with the right attitude", and there were very few black veterinarians to which they could go; consequently, as one of few

black veterinarians with a private practice, he had received many requests from students from very far afield (M3:1:5). This aspect was not directly mentioned by any of the other interviewees, although Mentor 1 also mentioned that he received requests from far afield (M:1:11).

The lack of a clear uniform policy on accepting students for mentoring in the VS raised the question of how people were designated as "mentors" in the first place. Several interviewees explained the history of this practice (S3:1:1,4; S3:2:1; S4:1:1; S5:1:1,3; M1:2:1; M3:1:1). It had been decided at managerial level in the Department of Agriculture that in every province (or regional centre) one person would be designated as "mentor" for each one of the various modules students had to complete within the TSA diploma; in other words, in every region students had a mentor for Anatomy and Physiology, a mentor for Epidemiology, and so on. This is still the case, although according to Student 3 the number of internal students has declined and there has been a corresponding decrease in the number of designated mentors (S3:2:1). The majority of these mentors have been state veterinarians (M3:1:1), and in fact both Students 4 and 5 refer to mentors as "the doctors" (S4:2:1,3; S5:1:4). A few senior AHTs were also designated as mentors however, including the AHT interviewed as Mentor 2, although he mentioned that students with academic queries tended to approach their state veterinarian first, rather than himself (M2:1:3).

At official level in the Department of Agriculture, "mentors" thus seem to be understood as specialist academic tutors for internal students. External students who are accommodated in temporary placements are also said to have "mentors", but in this case the role of such mentors is unclear and left to the individual who is willing to act as "mentor" to define for him- or herself. As detailed in the discussion of the instructional system (section 1 of this chapter above), Unisa's *Mentor's Guide* conceptualises a mentor not only as a tutor but more broadly as a role model responsible for the holistic development of the student. Based on the interview data, there thus seems to be a mismatch between the understanding of the role of mentor by the university, on the one hand, and the major employer of students, the Department of Agriculture, on the other. (A similar mismatch between conceptions of mentoring in fact emerged in one of the illuminative studies reviewed in Chapter 2, that by Dewar and Walker (1999).)

- **The need for improved communication between the university and employers or mentors**

According to the interviewees, mentors who were working with the post-2002 arrangements generally *did* seem to have read the *Mentor's Guide* and were thus aware of what was expected of them (S2:1:8; S3:1:4; S6:1:12; M1:1:7); however, they were apparently not always able to meet these expectations (S1:1:9). (This will be further discussed below.) Nevertheless, as the above discussion suggests, communication between the university and the employers or mentors of students did not seem to be optimal:

- Based on the interview sample, there did not seem to be much direct communication between mentors and the university. Only one of the interviewed mentors, Mentor 3, reported that he ever spoke to a lecturer directly (M3:2:3).
- Mentor 2, who was responsible for marking one of the projects under the pre-2002 arrangements, was completely unaware that this project had been discontinued, or that new assessment arrangements had been implemented after 2002 (M2:1:1).
- Mentors received no information from the university about how appropriate or inappropriate their assessment was, even though they would have liked this (M1:3:10; M2:1:4; M3:1:9).
- As mentioned above, none of the interviewed mentors was aware that external students from Unisa were insured against workplace accidents.
- There apparently has not been communication between the university and the VS about the possibility of letting private students do the workplace component in groups and "in blocks", as Mentor 1 suggested – or at least, if so, Mentor 1 was unaware of this (M1:1:11). He mentioned, however, that he thought there had been a start in negotiations between Unisa and the provincial VS about the province accommodating private students and co-ordinating opportunities for them in the way that he had been doing, but he did not know how those negotiations had progressed or if they had ever been formalised (M1:2:6-7).

- **The need to investigate more structured arrangements between the university and employers**

Student 1 expressed a need for Unisa to formalise and structure training arrangements for private students at the VS or other sites:

A: I think for experiential learning, it's better for school *[Unisa]* to find a place for us, and then tell the mentor that I'm here for this and that, because when we go there by ourselves we can't just tell them that no, I'm not here for this, I wanted to do that […]. (S1:1:5)

Mentor 1 also expressed the need for more formalised arrangements between the university and the provincial Departement of Agriculture, as well as for greater standardisation within the provincial Departement of Agriculture, and believed that Unisa could bring this about:

Q: […] it's difficult for Unisa as well if there's no internal policy in the Department of Agriculture to actually make arrangements for students, there needs to be some sort of standardisation –
A: Yes, but it can be achieved. They need to do it. They can push it through the MECs, because I think our MEC is positive in that, so if we can push from the higher positions.
Q: So you are saying *we [Unisa]* should do the pushing?
A: Unisa should – Unisa can engage with our director, and our director can actually say whether she can take it from there – she takes it from her position, or higher up, because it will be relevant to our programme.
Q: Is this a provincial director?
A: Yes, our provincial director. (M1:3:3-4)

Mentor 3 also indicated that the provinces operated independently to a large extent (M3:1:6), suggesting that any agreements would have to be made at provincial level.

Other issues that emerged from the interviews and might merit further investigation were the points mentioned by some interviewees that there was currently an "oversupply" of animal health technicians, in the sense that there are more qualified people than the government is employing (M1:3:1-2; M3:1:7). (This was also mentioned by the Advisory Committee member with whom a discussion was held (Dis-ACM:1, Annexure 6)). Furthermore, Mentor 1 also mentioned that new specialist areas were developing within the job (M1:3:1). If true, these aspects might require a reconsideration of co-operative arrangements and the curriculum.

3.2.2 Scope and duration of the workplace component

Table 4.8 below shows how long the students in the interview sample had been registered for the workplace component (or how long they took to complete, in the case of Students 1 and 3).

Table 4.8: Completion times of interviewed students		
Student	**Time spent so far on workplace component**	**Time spent so far on Diploma as a whole**
1	5 years (completed)	6 years (completed)
2	5 years	7 years
3	9 months (completed)	6 years (completed)
4	6 years	10 years
5	6 years	7 years
6	6 years	7 years

The long duration of study times may in part be ascribed to the nature of distance education, which is known to have much longer completion times than contact education. The long times spent by some students on the workplace component seems to merit further investigation, though, particularly since one of the students, Student 3, was able to finish in a much shorter time, and the credit allocation for the workplace component (48) suggests that it should be possible to finish it in less than 6 months studying full-time, thus possibly a year studying part-time. Based on the interview data, the following factors seemed to be playing a role:

- Employment, as already suggested by the portfolio analysis. With the exception of student 1 all the students in the sample were employed most of the time during their studies.
- All three the private students interviewed gave the fact that they had to go to different organisations to complete the full range of tasks as one reason for their extended studies (S1:1:5 ; S2:1:4; S6:1:4,16).
- The private students also gave the number of logbook tasks that had to be completed as an element extending the component (S1:2:2; S2:1:18; S6:1:4.16). Mentor 1 agreed that in some cases the numbers were a problem: "I thought the numbers are huge, for us to attain that" (M1:2:2). Generally, the interviewees felt that the numbers for some activities were reasonable, but not for all (e.g. 20 sheath washes and 100 pregnancy tests seemed to create particular difficulties – S6:1:16; M1:2:2).
- Student 4, who was employed by the VS, gave lack of workplace incentive as a reason. Since the VS "student AHTs" were already paid the salary of AHTs, completing their studies would not result in a pay increase and therefore seemed irrelevant (S4:1:4,11). The lack of workplace incentive for these students was confirmed by student 3 (S3:2:1) and Mentor 1 (M1:3:2). However, the promotion of Student 3 to a higher level once he had completed his Diploma re-motivated his colleague Student 4 (S4:1:11; S4:2:1).
- Student 4 mentioned that, when initially registering for the Diploma in the first year, he did not know what would be involved in the workplace component (since students only

receive the material relating to this when they register for the component in their second or third year). Consequently he "lost" a year, because he was working at the time and could have started logging his practical workplace tasks in his first year already (S4:2:4).

- Student 6 mentioned a fact corroborated by Mentor 1, namely that the plant collection for the Pasture project could only be done in spring or early summer when many of the relevant plants grew (as many of them die off in winter); if one were not alert to this and started at another time of year (which did happen as students are not warned about this in the material), one discovered that one had to wait, sometimes for months, before this project could be completed (S4:1:3,13; M1:1:8).

3.2.3 Curriculum relevance

The students employed at the VS confirmed that all the logbook tasks were relevant to their work (S3:1:7; S4:2:1,5; S5:1:1). As already indicated above, the employed private students did however have difficulties in this regard. Some of the required tasks were not routinely done at their workplaces, while they also had to undertake some activities (e.g. identifying types of tissue, dental work).

Annexure 33 shows data on how the relevance of the six projects to the student's workplaces was perceived. In summary:

- Only the Communication project was perceived as relevant by *all* students.
- In the case of the *private* students, most of the projects were seen as *not* relevant.
- Among the VS students and mentors, apart from the Communication project only the Legislation project, the second part of the Pasture project, and the first part of the Epidemiology project were seen as unequivocally relevant. The rest was seen as useful background knowledge but not as actual, important components of the job of an animal health technician.

The last point above is quite a surprising finding since the Diploma is primarily aimed at animal health technicians.

3.2.4 Participation in authentic workplace activities

All interviewed students completed their workplace learning in an authentic workplace environment that involved all the various elements of that workplace. Frequent, active participation in activities in these workplaces was cited by most interviewees as one of the most significant elements facilitating their learning (S1:2:2,7; S2:1:10; S3:1:3; S4:1:5;

S6:2:1). In terms of the tasks conducted, the following elements were said to either facilitate (or hinder) learning:

- The nature of the task itself – some tasks like vaccination were in themselves simple (S1:1:2), while others were more demanding, for instance blood sampling (M1:1:3) and the interpretation of TB tests (M3:1:3).
- The frequency of the tasks conducted – the more frequent the task, the easier to master it (S1:2:7; S2:1:10; S3:3:3; S4:1:5; S6:2:1).
- The sequence in which tasks were learnt were mentioned as playing a role, with learning being facilitated when easier tasks were learnt first and then followed by more difficult tasks (S1:2:8; S2:1:10; S6:2:2; M:1:1:6; M3:1:4).
- Possible danger or distress to an animal was also given as very important, with potentially more hazardous tasks perceived to be more difficult, e.g. branding (S1:2:8), dehorning adult animals (S3:1:4; S5:1:5), and stomach tubing (S6:1:9).
- The prior knowledge of or experience with tasks that some students had was identified as very helpful, e.g. knowledge of disease conditions learnt as meat examiners (S3:2;2; S4:2:2), knowledge gained during previous studies (S2:1:8; S6:1:3), and knowledge gained through early exposure to animals (S2:1:1; S3:1:3; S6:3:3).

In general, the interview data thus suggests that involvement in a fully authentic workplace and participating actively in the tasks performed there plays a large role in supporting learning.

3.2.5 The role of learning mediators in the workplace

Three main groups of learning mediators in the workplace or related sites were identified, namely mentors, colleagues other than mentors, and fellow students.

3.2.5.1 Mentors

A summary of students' accounts of their mentors' involvement, together with that reported by mentors themselves, is shown in Annexure 34. As this data shows, the interviewed students' judgement about the degree to which their learning was facilitated by mentors was uneven. Four of the six students interviewed reported that at least one mentor played a significant part in their learning, serving as academic tutor, field coach as well as more broadly as a role model. However, they had not received the same degree of support from different mentors at different centres or sites; some mentors were involved essentially only as supervisors, academic tutors and/or assessors, while other colleagues then served as coaches in field

tasks. Two of the students reported that their mentors had had difficulties with the assessment process (S1:1:9; S4:1:2). Three of the students mentioned that they had a mentor who helped them develop generic skills (S1:1:13-14; S1:3:2; S4:2:5; S6:2:5,6,10), and Mentors 1 and 3 also reported developing their students' generic skills (M1:3:3; M3:1:9). Most of the mentors that were reported about or were themselves involved in the study seemed also to give general praise and encouragement to students. With the exception of Student 6's mentor, this did not however amount to a broader counselling role or personal involvement. The relationship between student and mentors thus seemed generally to remain formal and fairly distant (S1:1:10; S1:3:2; S2:1:9; S3:1:5; M1:1:6).

In terms of learning mediation, mentors were reported to apply, or reported that they applied, the following mediation strategies:

- Sequencing – organising the learning experience for students in such a way as to ensure that students would do simpler tasks first, and more difficult tasks later (S6:1:4; M1:1:3,6).
- Direct academic tutoring in "theoretical" aspects, in some cases less formally, in some cases in quite a formal lecturing situation using a whiteboard (e.g. S1:1:8; S3:1:4; S4:1:6; S6:1:10; M1:1:2-4; M3:1:1-4). This included direct verbal explanations (e.g. S1:1:13; S3:1:4) as well as drawing pictures (e.g S6:1:10; M3:1:2), and sometimes showing the students videos (e.g. M3:1:2).
- Modelling (demonstration) of field tasks, while explaining what they are doing (S1:1:7,8; S3:1:4; S4:1:6; S6:2:2; M1:1:4; M3:1:2).
- Coaching – that is, letting the student do a task by him- or herself while observing this, giving verbal guidance, and intervening to help where necessary (S1:1:10; S4:1:6; S6:2:6; M2:1:2; M3:1:2,4).
- In one case, using group dynamics – tutoring students in groups with a view to stimulating learning both through collaboration and informal competition between the group members (M1:1:5-6,11).

Mentors 1 and 3 reported that in some cases they talked to students after the students had performed a task to discuss their performance (M1:1:4; M3:1:2). There was, however, no mention of consistent reflection on or "debriefing" of student experiences.

One particular issue that emerged from the interviews related to the mentors' envisaged counselling role. It appeared that students sometimes found aspects of the veterinary work they had to do emotionally stressful or distressing, and that, in many cases, little direct

support was provided to help them cope with such stress. Student 1, for example, provides the following two accounts:

> A: […] I remember that cow, let's say it gave birth on Thursday, then when we go – that was Tuesday – we found that that cow it's got a hanging – the placenta is hanging out. Oh, that one – I also remember that one. We didn't know what to do because the placenta was still hanging out. We had to put the *[inaudible]* glove – then when you put that glove in you found it was already – I don't know how to put it in good English – it was rotten – it had the pus with blood, giving it the smell, you know. And then the mentor asked me to put my glove in and put my hand in and try to take all that material outside – oh that was very, oh, very terrible … (S1:2:5)
>
> Q: What else was difficult?
> A: *[Long pause]* Mmm … post mortem wasn't that difficult, but it was disgusting. […] It was disgusting – I mean – that that dog should be open. (S1:2:8-9)

Student 3 told of the first time he performed a dehorning procedure with his mentor:

> A: […] It was … it was something like … a bit strange to me, and an extremely painful procedure, but at the end of the day I had to accept that that was how it was done.
> Q: Why was it strange?
> A: Because you use a hot iron. And it's just an unpleasant time for the cows, when they are being dehorned. […]
> Q: Did you say to the mentor that you thought this was painful to the cow?
> A: Yes, I mentioned it. Because I was also afraid and a bit worried about the whole process. (S3:1:4-5)

Student 4 recounted how he had found drawing blood from pigs to be the most difficult procedure because the pigs were "making a lot of noise" and he felt "pity for them" (S4:1:7); similarly, when initially inspecting carcasses and doing tail dockings, he felt "uncomfortable": "I was so scared, even to touch the meat" (S4:1:7). Student 6 also reported a whole range of events she had found distressing, including having to hold a horse to be shot, having to stich up open wounds in fifteen sheep that had been deliberately slashed with a knife in an act of malice, having to euthanize a cat that had been run over and severely mauled, seeing the foot of a horse fall off after it had accidentally stepped into acid, and having to assist in euthanizing sixteen animals, all in a diseased condition due to their owner's neglect, in one afternoon (S6:1:5; S6:2:3,4,5).

When asked how they coped with this kind of stress, some interviewees expressed that they accepted it as "part of the job" and that repeated exposure helped by making them more accustomed to such situations (S3:1:6; S4:1:7; S6:2:4,5). What they generally did not report was any form of direct dialogue with them on the part of the mentor or others to assist them with coping, and some of them seemed to feel that expressing their emotions in these situations would be inappropriate or even be censured:

> Q: […] did you show that you didn't like *[the post mortem]*?

A: *[Laughs]* No, I didn't show, because *[inaudible]* the marks … I said no, that's fine …
Q: Did they give you marks for it?
A: No, it's that – whatever you do you must show the mentor that you really need to do it, with all of your heart. You musn't say "no, no, I can't to this", you know what I mean? Because I was there to learn.
Q: So you didn't show that you found it disgusting?
A: No, I didn't.
Q: Didn't you say anything?
A: No, I didn't say anything. (S1:2:9)

A: I was bit nervous, but I did not want the mentor to see that I was a bit afraid because if you are afraid then you can't come and do the job.
Q: So you think you can't show that you're afraid?
A: No.
Q: So you didn't tell the mentor?
A: No, I did.
Q: And what did he say?
A: He said 'no well, this is how it's done, you just have to learn it'. (S3:1:5)

Q: And did you tell *[your mentor]* you were uncomfortable?
A: No, no, no, no, no. *[Laughs]* Because I want to learn more, that's why I didn't say anything.
Q: And did he not say anything?
A: No, just 'OK, you are coming all right'. […]
Q: Do the people who work with you ever tell you that they are uncomfortable with, for example, dead animals or painful procedures?
A: No, they won't tell you. *[Laughs]*
Q: Why do you think it is that people don't talk about it?
A: If you talk about that, maybe you think, you will be disqualified.
Q: Why?
A: I was having that feeling.
Q: That you can't talk about it?
A: Yes. You know, I was having that feeling that maybe I'll be disqualified. (S4:1:7-8)

Both Mentors 1 and 3 corroborated that students did not talk to them about work-related distress (M1:2:5; M3:2:3), and seemed to consider this an inevitable “part of the job”. Mentor 1’s responses also suggested that he would associate such expression with lack of persistence or motivation (thus seeming to validate the fears of the students quoted above), and that he had not given conscious consideration to supporting students in this type of situation:

Q: […] something that some of the students I talked to have mentioned is that there were some things in the field that were quite hard for them […] from an emotional point of view, for example if they see animals badly injured or in pain, or if they've got to do something like dehorning where it's painful for the animal […] The students that you've mentored, have they ever told you that kind of thing, or don't they talk about it?
A: Well, others will say as we go on, you know, the first time, sometimes you can see that they feel that the animals feel more pain, but as they go on, they realise that there's basically no other way to do it. […]
Q: Right. But now, has a student ever told you "Oh I can't stand this", or "this is difficult for me", or something like that?
A: No, no. Those that actually come here never throw in the towel.

Q: No, but it's not throwing in the towel – they haven't *expressed* to you that it's hard for them?
A: No, they haven't. They do the session until they're finished.
Q: Why do you think they don't really say anything about it?
A: It actually has not come to my mind … (M1:2:5)

On the other hand, Mentor 1 did indicate that he recognised that some students were initially fearful of working with animals and that in such cases he encouraged them (M1:1:3,4).

Student 6 was an exception in this instance as she seemed to feel that there was sufficient support for her in the work situation to mitigate distress. She reports her mentor showing his own identification with animals or distress in certain situations (S6:2:4; S6:2:10), which created empathy between them; further, she could talk freely about stressful situations both with her mentor and with other colleagues at the practice (S6:2:4,5).

As discussed in section 4.1 above, the instructional system envisages the mentor as playing a wide-ranging role that involves not only being a supervisor and academic tutor, but also a role model, developer of generic skills, a counsellor and someone who takes a personal interest in students. The interview data suggests that, in the learning milieu, most mentors play a narrower role, emphasising their supervisory, academic and co-ordination roles and giving more limited attention (if any) to the personal development and counselling functions. Furthermore, most mentors seem to emphasise the tutoring or instructional role rather than the coaching role, leaving the latter to other colleagues. Only in the case of Student 6 was the mentor's role as extensive as that envisaged by the instructional system.

3.2.5.2 Colleagues other than mentors

The interview data showed that colleagues other than mentors, generally in the form of more experienced animal health technicians, played a significant role in the mediation of learning for the interviewed students in the workplace, even though they had not been officially designated as mentors. (This applied in all cases except for Student 6, who was working as the only assistant to a veterinarian and so did not have animal health colleagues.) It seemed that the animal health technicians would generally play less of a role in academic tutoring than mentors (although many did do this, as shown below), which is to be expected since most of the mentors were veterinarians with a broader academic background than the animal health technicians. However, when it came to field coaching in practical tasks as well as general induction into the occupation of animal health technician, it would appear that other colleagues generally played a larger role than mentors. Like the mentors, colleagues were also reported to apply the following mediation strategies:

- Direct academic tutoring in or explanations of “theoretical” aspects, which included direct verbal explanations (e.g. S1:1:5,7,10; S2:1:10; S3:1:3,8; S4:1:6,8; S5:1:4) as well as drawing pictures (e.g S1:2:6-7; S3:1:9; S4:1:6).
- Modelling of field tasks, while explaining what they were doing (S1:1:6; S2:1:7,8,10; S3:1:3,8; S4:1:6; S5:1:4).
- Coaching (S1:1:2,4,6,9; S2:1:10; S3:1:3,4; S4:1:8; S4:2:5; S5:1:4). The coaching role of animal health technicians was corroborated by Mentor 1 (M1:1:2,5) and Mentor 3 (M3:2:2).
- Informally assessing and helping students to assess and “debrief” their own performance (S1:1:10; S3:1:3,8).
- Helping with the projects (S1:3:4)
- Delimiting a task for a student to make it easier (S1:2:7,8).

In addition, colleagues (including the non-veterinary staff in Student 6’s workplace) provided support, praise or encouragement and took a personal interest in the students (S1:1:8; S1:3:2; S2:1:9; S1:3:2; S3:1:8; S4:1:5,8,9; S6:2:5). Unlike most of the mentors, colleagues also communicated with students more informally and sociably (S1:1:7,10; S2:1:9; S3:1:8; S4:1:9). Given that the literature proposes that students or novices are inducted into workplace roles and discourse through socialisation (cf. Chapter 2, section 1.3.1.2), this data would suggest that colleagues, more than mentors, provided the necessary mediation to induct students into their occupational roles in the workplace.

3.2.5.3 Fellow students

Student 1 reported that a group of fellow students significantly assisted her both with the theory as well as with the workplace learning in the sense of providing both explanations and encouragement (S1:1:12; S1:2:10). This was an unexpected finding since it was not foreseen that a private student would have easy access to other students, given the fact that the course is offered through distance education. Being unemployed, Student 1 reported going to the university library and study centre to study, where she and some other students doing the course discovered each other and “grouped themselves” (S1:1:12). (Possibly because they were both employed, the other two private students in the sample did not report similar contact with fellow students.) Interestingly, all the members of Student 1’s group were originally from the same province, remote from the province where the study was conducted, and she mentioned that they talked about their home and the time when they “were still young” (S1:2:11). This is reminiscent of the illuminative study by McKegg, mentioned in

Chapter 2 (section 2.3), in which it was found that the deliberate strategy of grouping together students from a the same cultural minority in a collaborative learning group provided significant support for the students.

The students employed at the Veterinary Services also reported that both fellow students and in particular recently graduated students, employed at the same centre as themselves as well as at other centres in the province, helped them significantly with the theory, general advice, and with the projects (S3:1:8,9; S4:1:9,10; S5:1:1,3). As already mentioned, Mentor 1 also stated that he preferred grouping private students who came to the site in order to tutor and coach them, as in his experience this was more effective (M1:1:5,6,11).

3.2.6 Assessment

Four of the students interviewed and one of the mentors had worked with the post-2002 assessment materials. In general terms, interviewees seemed to be clear about what they had to do in the projects, and understood the assessment criteria (S1:1:14; S2:1:14; S6:1:13,14; M1:8,9). Student 1 and Student 4 however reported that they had found some of the project instructions difficult to understand (S1:2:11; S4:1:9).

In terms of the assessment criteria, Student 4 did not see them as guidelines for undertaking the project, only for use as a checklist at the end (S4:1:10). The other students had however considered them. Neither Student 1 nor Student 6 saw the mentor's assessment criterion "planning of project" as relevant, since the mentor did not actually see them planning the projects – they merely gave the projects to their mentors once they had finished them (S1:1:14; S6:1:13). Although they were the only students stating this, it was clear from the accounts of some other students that this would apply to them as well, as their mentors were usually not actually involved during the planning stage (S2:1:3; S4:1:3).

With regard to their understanding of the criteria, most of the students gave explanations of the assessment criteria that corresponded with those provided by the Programme Co-ordinator during the analysis of the instructional system. Exceptions were that Student 1 did not seem to understand the criterion "acceptance of authority" (S1:1:15), and neither did Mentor 1, who seemed to see it as referring to *his* acceptance of authority over the students during their placements (M1:1:10). Further, while the lecturer had understood the criterion "personal appearance" as referring primarily to wearing neat and practicable clothes (Dis-PC:4), Student 1 seemed to understand this primarily as a gender issue, that is, as a

prohibition against provocative clothes, “because I work with men” (S1:1:14); this also formed part of Student 6’s understanding – “you don’t wear slutty clothes, that’s all” (S1:1:14).

Students reported an uneven degree of involvement and support by their mentors with regard to the projects. Student 1 received no real support because her mentor did not understand the project instructions:

> A: […] and then with the projects, because like "Oh, Magdalene, I love to help you, but I don't understand what do they want. Can you just go and do them by yourself, then maybe I'll have a light" – you know what I mean … (S1:1:9)

He did however mark some of the projects:

> Q: So [the mentor] also gave you marks for those projects where he didn't really understand?
> A: Yes, he did, because he said, "Magdalene, go and write that project, and then maybe if we have that information, then I'll understand what they do want".
> Q: And then if he looked at the project afterwards -?
> A: Then he goes, “no, now I've got a light. Now I've got a light, I can see what they want”.
> Q: Oh, and then he gave you a mark?
> A: Then he gave me a mark, yes. (S1:1:14)

Evidently, if the mentor could not interpret the instructions but instead relied on the student’s interpretation, it is possible that the student’s interpretation might be faulty and that the mentor would then be awarding marks on an invalid basis.

Student 3 also reported that one of his mentors was not clear about the project instructions, but in this case the mentor telephoned the lecturer to ask for an explanation (S3:1:6).

Student 4 told of four instances where mentors caused delays in his projects (S4:1:2-3; S4:3:1). He mentioned that some of the mentors were actually unwilling to award marks:

> A: […] Because it seems these mentors, they don't want to commit themselves … Because if you ask the mentor, he's going to tell you that 'I'm afraid if I give higher marks' – you know – 'then I'm going to be wrong … maybe I'm going to give you lower marks, then you're going to cry'. (S4:1:2).

This suggests that the mentor was unsure of the basis on which to award marks, in spite of the fact that there were assessment criteria. However, Student 4 did recount that he received useful feedback from mentors in two instances (S4:1:9; S4:2: 5).

It would thus seem that the lecturer’s intention to let the mentor be closely involved with the student while he or she works on the project, and to give formative feedback so that the student is eventually able to hand in a good project to the lecturer (Dis-PC:8), is not generally realised. Only Students 3 and 4 reported getting some formative feedback from mentors

(S3:1:7; S3:3:1; S4:3:2), although Mentors 1 and 2 also recounted that they provided feedback (M1:1:9; M2:1:4). None of the interviewees, however, reported mentors and students working closely together during the time the student carried out the projects, implying that mentors are in actuality not in a position to judge the students on the basis of many of the given assessment criteria, which assume that the mentor had observed the student carrying out the actual project tasks. In fact, Student 6 regarded the intended supportive role of the mentor with regard to the projects, and the mentor's marking role, as a contradiction in terms (S6:1:13).

There further seemed to be some confusion on the part of mentors about how to apply the assessment criteria and mark the projects. While Mentor 1 did seem to understand most of the assessment criteria and used them, he said that he also "marked" the project reports themselves, taking into account the written content as well as aspects such as presentation, spelling and grammar; he reported that sometimes he would deduct a few marks for incorrect spelling (M1:2:4). Mentor 3, in turn, said that he would find assessment criteria useful and use them, but that he would nevertheless use his discretion and take some other factors into account in marking:

> Q: Do you think it would have helped you if you had had very specific assessment criteria from [Unisa]?
> A: I think it would, but at the same time I would also still use my discretion […] a student in Johannesburg – I would expect that student to understand and know in detail the clinical signs of – brandsiekte in sheep – but when I'm going to mark this student, comparing the student with the very same – with a student from a different environment, who has grown up seeing those things on a daily basis, the extent of detail of those two students, their background will have an influence on my assessment. (M3:1:9)

Mentor 3's position thus differs from the idea (common in outcomes-based education) to have standardised, objective assessment criteria that are generally applied.

The issue of mentor marks generally being higher than lecturer marks, which emerged during the portfolio analysis, was confirmed by Students 1, 3 and 4 (S1:3:4; S3:3:2; S4:3:1). Student 1 said that the mentor gave her a high mark, and when she saw the lecturer's low mark she "didn't know what was going on" (S1:3:4), suggesting that she did not recognise the different bases of the mentor and lecturer marks. All three of the interviewed mentors said that they did not know how the marks they awarded compared with those of the lecturer, but that they would have liked to know, and that they would like some more guidance in marking (M1:1:10; M2:1:4; M3:1:10), and teaching in general (M3:1:10).

All the students who had submitted projects for marking (S1, 3 and 4) reported that the lecturer feedback they had received was frequently clear and helpful (S1:2:2; S3:1:7; S4:3:1,2). Student 1 mentioned, though, that at times she found the feedback cryptic and therefore unhelpful – for example, a comment would be "Why are you saying that?", but no guidance was given about what she actually *should* have said (S1:1:15-16). The students' accounts implied that the lecturer dealt with the assessment system flexibly, for example by allowing them to submit projects that had not been marked by mentors where this was difficult (S1:1:9; S4:1:3), to re-submit projects if their marks were very poor (S1:2:1; S3:1:7; S4:3:2), and to adapt logbook tasks to their circumstances (S2:1:3,4). Both Students 1 and 6, who were asked about this, were however unaware that it would be possible to submit a rough draft of projects or the portfolio for preliminary assessment to the lecturer before finally handing them in, and thus receive formative guidance from her (S1:1:15,16; S6:3:1). In addition, Student 6 was uncertain whether the logbook tasks or projects could potentially be adapted for her circumstances (S6:1:4), and unaware that the projects could also be adapted (S1:1:6).

In summary, the interview data suggests that there was no uniform understanding among students and mentors of which kind of support and feedback should be given by mentors, nor of how exactly mentors should apply the assessment criteria and grade the projects. Further, while the intention of the instructional system to provide continuous formative assessment in a flexible way seemed to be generally achieved, there were also some communication gaps between students and the lecturer about the potential flexibility in the assessment process.

3.2.7 The role of the university and related factors

Given that the Diploma is being offered by distance education, mechanisms of communication other than face-to-face interaction are important for the students' learning where they have uncertainties or need guidance. Students recounted instances both of helpful communication with the lecturer (S2:1:3; S3:3:1; S6:1:16), as well as difficulties with administrative staff members (S6:1:15,16).

Among the students interviewed, Student 6 had particular difficulties with the university administration. As a result of being "forgotten" by "the computer" (S6:1:6), she had received no recent tutorial letters, nor the *Learner's Guide*, and was working from the project instructions in the *Mentor's Guide* (S6:1:5). Student 6 was also not aware that there was a 5-year time frame for completing the workplace component, but thought that the required period

was 3 years (S6:1:5). Furthermore, a tutorial letter that was used across departments had created the impression for her that she should prepare project proposals before she started working on her projects. In fact, when this was informally raised with the Programme Co-ordinator, she stated that no Animal Health student had ever done this and it was also not expected of them. Student 6 had however spent a great deal of time preparing her six project proposals and at the time of the interview was still busy with this (S6:1:3).

The projects require students to collect information, and the university library should thus be able to assist them in this regard. Three of the interviewed students reported that they had had no problems with accessing information via libraries, whether at the Unisa campuses or other libraries closer to them (S1:3:2; S3:1:3; S4:1:11). Student 6, on the other hand, recounted that she had had major difficulties in obtaining information required for some of the projects; she had eventually bought the necessary sources at great cost to herself (S6:1:2,3). This might very well have been unnecessary if Student 6 had used the book mailing facility provided by the main Unisa campus, or the university's interlibrary loan service, but Student 6 seemed to be unaware of the existence of these services (S6:1:2-3).

The Programme Co-ordinator had indicated that some marks were awarded for the appearance of portfolios and that typing the portfolio content (which included the projects) would thus be an advantage for students (Dis-PC:7), though by itself this element would not make the difference between a pass or fail mark. Student 4 reported that the typing requirement – which he had wrongly assumed to be compulsory – had provided a major obstacle for him; he did not have personal access to a computer and could not afford to have all his projects printed at an Internet café (S4:1:1,4). Here again a student seemed to be unaware of services provided by the university, since Unisa has a "learning centre" close to Student 4's workplace where students can arrange to have sessions on a computer. In fact, Student 1 reported having used this service to type all her projects, and experienced no problems doing so (S1:3:2).

In short, one of the students only was significantly hampered by administrative problems, and while some experienced problems with library and computer access, these problems could have been mitigated if the students had been aware of the university's full range of support services. In general, most students seemed to communicate readily with the lecturer and received the support they required in this regard.

3.3 Summary of conclusions

Main findings of the interview analysis can be summarised as follows:

1. At present, the lack of a uniform policy in the various provincial departments of the government Veterinary Services creates difficulties for private students who wish to do their workplace learning in these departments, as well as difficulties for mentors who would like to accommodate these students.
2. Most of the interviewed students had spent a very long time on the workplace component. Elements contributing to this seemed to be lack of time while employed, the fact that the full range of required tasks was seldom available at one site, and the scope of required activities.
3. Most of the logbook tasks were relevant to students, but the workplace relevance of the projects for both private and VS-employed students seemed in doubt.
4. Immersion in an authentic workplace environment, particularly frequent opportunities to participate actively in workplace tasks, was one of the strongest elements supporting learning.
5. Learning mediators at work were another element providing possibly the strongest support for learning. The role that the instructional system intends mentors to play was however only unevenly realised and mentors did not play all the roles envisaged, also not the role of counsellor in times of stress. In certain respects, colleagues other than mentors played a stronger role.
6. In the case of the VS-employed students and the unemployed private student in the sample, fellow students contributed significantly to their learning.
7. In the assessment process, mentors did not uniformly understand or apply assessment criteria and grading and feedback procedures. Mentors also expressed a need for greater guidance in this regard. In general, however, the intention to provide continuous formative assessment as well as flexibility in assessment seemed to be realised.
8. Generally, the support provided to students by the university and the communication between them seemed satisfactory, although some administrative and communication gaps were reported which would need to be addressed.

In general, the interview data suggested that the intentions of the instructional system are realised in some respects but not in all.

4. ANALYSIS OF OBSERVATION NOTES

Observation was conducted over four days altogether, in two sessions of two days each: two days at the workplace of a private student, and two in the workplace of an animal health

technician (as explained in the introductions to the two sets of observation notes). The two sets of observation accounts are Annexure 35 and Annexure 36, respectively. (Annexure 35 is included in the print copy of this report and Annexure 36 appears on the accompanying compact disc.) The observation accounts were analysed with a view to identifying sources of support for learning, and barriers to learning, in the two actual learning milieux, and to see how these correlated with the intentions of the instructional system. Some of the main points emerging from the analysis related to the following issues:

- The relevance of the curriculum of the workplace component to the actual workplace
- Participation in an authentic workplace environment
- The role of the mentor and others as learning mediators
- The role of informal workplace assessment

These points are discussed in more detail below.

(Note: The observation accounts are referenced as O1 (Observation 1) for the first period of observation, and O2 for the second period. The number next to this reference refers to page numbers in the relevant observation accounts, i.e. in Annexures 35 and 36.)

4.1 Curriculum relevance

Most of the activities performed by practitioners in both workplaces had been explained in the Diploma's learning materials, and were required activities in terms of the curriculum of the workplace component. These included, among others, taking blood samples from animals (O1:7; O2:5,11), conducting or assisting with conducting tests for diseases on animals (O1:4; O2:5,11), and communicating with and advising "clients" (O1:5; O2:6,8). There were also some activities, or elements of activities, that were not present in the curriculum, for example aspects of animal handling like using the crush pen gate (O2:10), or administrative aspects such as filling in the specific forms needed by the veterinary laboratory (O2:7). Furthermore, certain activities that have to be performed in the workplace of the private student are not included in the curriculum at all, such as taking and developing X-rays (O1:5,11) and dental scaling (O1:12).

The academic curriculum ("theory") and the "practice" of the workplace were explicitly linked in both workplaces. Examples of this are, in the first workplace, the verbal explanation of the purpose and procedure of taking blood samples, immediately followed by actual sample-taking (O1:7), and in the second workplace, the animal health technician's explanations of

how an automatic syringe and a vacuum-tube sample bottle worked while he was actually working with these tools (O2:4,6). However, it also became apparent that the “theory” simply cannot convey the real physical experience of the practice situation. The hard physical nature of the job, complexities of interaction, and in the second workplace in particular, the sensory experience of heat, dust, farm smells, touching animals and so forth are all integral to the working experience, in some cases promoting learning (for example, for a student who really enjoys interaction with animals) and in others making it more difficult – intense heat and physical exhaustion, for instance, would both work against a student’s uninterrupted active learning.

All in all, based on the observations conducted, it would seem that the intention of the instructional system to have students “work-ready” when they have completed the workplace component might hold true for student animal health technicians, but not necessarily for a student in another veterinary workplace, who might have to learn skills in addition to the Animal Health curriculum.

4.2 Participation in an authentic workplace environment

Both workplace environments observed were completely authentic (i.e. involved real tasks rather than simulations). Both the student and the AHT carried out real work tasks throughout the period observed. The AHT worked completely independently, which was to be expected as he was fully qualified. The student worked in a variety of capacities, sometimes carrying out routine mechanical work (cleaning instruments, checking on ill dogs), sometimes *assisting* with specialised tasks (e.g assisting with a surgical procedure), and sometimes carrying out a specialised task by himself (e.g. taking and developing an X-ray). His tasks even extended to carrying out, independently and without supervision, a task that should in fact be done only under the supervision of a veterinarian, namely selecting a scheduled drug and then using it to anaesthetize an animal (O1:11-12) (though this was carried out with the knowledge and approval of his mentor, given that the student was already skilled in the task).

All the different elements of the workplace environment played a role in learning. Members of the workplace community facilitated the learning of workplace tasks (as described in more detail in 4.3 below); workplace tools and documents both facilitated work and learning (e.g. microscopes in O1:9, wall posters in O1:7,9, syringes in O2:4) and hindered it in certain cases when they failed (e.g. the "vet test" machine in O1:8); and technical workplace language supported the work in that all roleplayers knew exactly what was referred to, but also made learning more difficult when new terms had to be acquired, as noted by the student

in the first workplace (O1:11). In addition, workplace "rules" and division of labour seemed both to structure and demarcate the boundaries of the students' and AHT's workplace experience and thus of their learning. In the first workplace, for example, the student's work involved taking and developing X-rays, but did not extend to interpreting them, which was the domain of the veterinarian (O1:5-6); similarly, in the second workplace, the AHT himself demarcated his responsibilities by not getting involved with animals that might be ill or deformed but leaving their diagnosis and treatment (or even looking at them) to a veterinarian (O2:5,8).

4.3 The role of the mentor, and workplace mediation of learning

In the first workplace, during the two days of observation, the student had no interaction at all with his designated mentor (except for their brief conversation at the beginning of the first day). It is possible to identify at least two reasons for this, namely that the mentor was extremely busy with tasks in which the student was not involved, and also that the student seemed to be able to carry out most of the tasks he needed to do independently.

If the academic tutoring and coaching role of the mentor seemed to be absent, a similar observation could be made about the mentor's counselling role. Apparently as a result of what the mentor perceived as a lack of the curricular relevance of the student's studies to the workplace, there was tension between the student and the mentor and the student did not experience the mentor as supportive (O1:6). On the other hand, the mentor's approach of allowing the student to do important tasks independently suggests that he had faith in the student's ability; furthermore, he did grant the student time off to study for the internal course, suggesting a degree of support (O1:15).

Since the AHT in the second workplace was fully qualified, there was no mentor involved, and in fact the AHT himself would be serving as a mentor or coach if new students were to be placed at his workplace. His interactions with colleagues and the researcher suggested that mentoring by him in the workplace would in fact involve tutoring (O2:4,6,9), coaching (O2:3), counselling (O2:5) and support (O2:9,11).

If mentoring by the designated mentor was not apparent in the first workplace, this was compensated for by numerous mentoring or coaching instances on the part of other colleagues. These instances included direct instruction by a veterinarian (O1:7) as well as a veterinary nurse (O1:10) as part of an internal course; coaching in a workplace task (bandaging) and informal assessment of this by the veterinary nurse (O1:13); modelling of

techniques by a senior colleague (O1:7) as well as by peers (O1:9); and informal dialogue by both a senior colleague (O1:9) and peers (O1:9) which assisted the students in making smears, as well as serving as informal assessment of this activity and as encouragement (O1:9). Even colleagues ranked *lower* than the observed student assisted him, for example by providing him with learning material (O1:8), and reportedly by having "taught him most of what he knew" (O1:4). At the same time, the observed student also helped to coach other peers (O1:7,10).

The observation thus suggested that workplace colleagues other than the mentor were important sources of learning mediation and support in this workplace, more so than the mentor (at least on the days the observation took place).

4.4 Assessment

The observation provided no instances of formal assessment by a designated assessor such as a mentor in the workplace. However, in the first workplace there was evidence of informal assessment by senior colleagues (e.g. O1:9,13), as well as peer assessment of work (O1:9). In both workplaces, the observation also suggested that the student and AHT concerned engaged in self-assessment (O1:5,13; O2:10).

4.5 Conclusions

The main findings of the observation analysis can be summarised as follows:

- The curriculum of the workplace component (and the Diploma in general) was very relevant to the workplace in some ways, but not completely relevant in every way to the workplace of particularly the private student.
- Both work environments were completely authentic and offered multiple opportunities for participation in actual workplace tasks.
- The role of the mentor as the main learning mediator – as the instructional system intends – was *not* clearly evident. It seemed that, in the context of the first workplace, the mentor might be involved in assessment, overall delimitation of the students' work, and possibly general support, but did not play an active coaching or tutoring role. Mentoring functions were however often performed by colleagues or even peers who were not specifically designated as mentors.
- Formal assessment of the student and AHT was not observed in these contexts, but there was evidence of informal assessment by colleagues and peers as well as informal student self-assessment.

5. ANALYSIS OF QUESTIONNAIRE RESPONSES

In this section the general response to the questionnaire and the demographics of the respondents will first be described, after which the other data provided by the questionnaire responses will be discussed.

5.1 General response to the questionnaire

As detailed in Chapter 3, the questionnaire was mailed to a random sample of 200 current students and 50 past students in all regions of the country. The questionnaire was mailed after observation had been conducted and during the final round of interviewing. An initial draft of the questionnaire was amended by incorporating some further questions (question 4.11 to 4.16) on an aspect that had emerged during the interviews, namely that of work-related emotional stress. As it was felt that the other questions correlated well with the points raised during interviews and observed at the work sites, the rest of the questionnaire was left unchanged.

Unfortunately, the response to the questionnaire was poor. Seventeen responses were received initially and when it was clear that no more were forthcoming, e-mail messages were sent to students with computer access inviting them once again to respond. As a result of this attempt 3 more responses were received, bringing the total responses to 20. The response rate was thus 8%. Nevertheless, it is believed that information provided by 20 further students can play a valuable role by supplying a further source of data with which the portfolio, interview and observation data can be correlated.

Annexure 37 shows the numerical data provided by the questionnaire responses.
Seven past students (35%) responded to the questionnaire, and 13 current students (65%). One past student submitted a questionnaire from which the first page was missing. The demographic data pertaining to him or her could thus not be taken into account. As shown in Annexure 37, 8 men (40%) and 11 women (55%) responded. The majority of the respondents (13) were Afrikaans-speaking, and the rest of the sample was made up by 2 Northern Sotho speakers, 2 Southern Sotho speakers, 1 isiZulu speaker and 1 English speaker. Eight of the respondents (40%) were employed by the Veterinary Services while they were studying, while 11 (55%) were private students.

5.2 Findings emerging from the questionnaire data

Given that a number of distinct common themes emerged during the analysis of student portfolios and interview and observation data, and that all of the questions in the questionnaire related to one or more of these themes, these themes are used here as an organising framework for this analysis. The questions in the questionnaire have thus been clustered into thematic categories, as questions relating to the following:

- The issue of placement
- The duration and scope of the workplace component
- Nature of workplace tasks and other elements of the workplace that support or hinder learning
- Curriculum relevance
- Mentoring
- Learning mediation by colleagues other than mentors
- The role of fellow students
- Work-related stress
- Assessment
- The role of the university and lecturer
- The ranking of mediation sources

Data obtained by the questionnaire is discussed below with regard to each of these categories. The returned questionnaires were numbered and the abbreviations “Q-S1”, “Q-S2” and so forth are used to refer to specific questionnaires.

The responses to the open-ended questions at the end of the questionnaire were analysed and all the information these responses provided was found to fall within these categories. The analysis of these responses will thus be integrated into the discussion of the relevant categories. A brief summary of the responses to open-ended questions will however also be provided.

5.2.1 Questions relating to the issue of placement

While few of the questions in the questionnaire dealt with this issue, it was the matter most frequently commented on by respondents in the open-ended questions.

Question 2.7 dealt directly with the issue of placement. Sixteen respondents answered this question. Since 11 respondents had indicated that they were private students, one might have expected only 11 responses here. The additional 5 responses are most likely explained by the fact that some of the students who indicated that they worked for the Veterinary Services during the component might have started out as private students, and then joined the VS later. (The analysis of student portfolios showed this to happen in quite a few instances; see section 2 of this chapter above.) Whatever the case may be, it seems significant that 10 out of the 16 responses here – thus 63% of these respondents – experienced the issue of finding placement to be a hindering element.

The responses to question 3.3 identified another problem with placement: more than half of the respondents who had to find their own placement, 56%, perceived many of the tasks that they were given to do during the component as irrelevant to the learning outcomes – in other words, as an inappropriate use of their time during the component.

Seventeen of the twenty respondents provided some comments in response to the open-ended questions at the end of the questionnaire. Of these, eleven respondents commented on the issue of placement. Six said that it had been difficult to find a placement at all; in the words of three students:

> It was extremely difficult to find a suitable place to do my EL and also someone who was willing to be my mentor. It's very difficult if you're not employed, I finished my EL over 2 years and without any salary, I worked full time. (Q-S5)
>
> The fact that we have to find a place to do EL ourself is not good at all, because you can spend a year looking for a place and you cannot find one. … We have to depend on the mercy of the technicians to accommodate us in their schedules. (Q-S7)
>
> As an unemployed student, it was very difficult for me to find placement … where I stay there are private vets, whom I asked several times for placement but they refused, [and] there is no state vet, leading to a problem to finish this diploma. (Q-S10)

Comments by the other respondents implied that although the VS was willing to give them a temporary placement, the fact that not all logbook tasks are done there regularly was a problem:

> Some of the activities is difficult to do, because the AHTs in our area don't do it and the vets don't want to help us. (Q-S9)
>
> Some of the things you have to do doesn't get done so often, so some of them don't even get done *[at all]*. (Q-S12)

Six of the ten respondents who raised this point recommended that the university should negotiate with the VS to arrange a block of time or "course" during which the logbook activities could be done in a structured way:

> Unisa and the state should find a central place where [the EL] can be done, for example an experimental farm. (Q-S6, translated from Afrikaans)
>
> Since the course is structured in a government way, the university must make a point that they negotiate with the Department of Veterinary Services to accommodate us from the first year of registration till we finish the course. (Q-S7)
>
> I would have liked to do a kind of "course", to do some of the experiential learning and complete my logbook much faster. (Q-S12)

One respondent recounted that such a programme for students had in fact been organised by the VS in her area, and also recommended that this should be arranged more frequently:

> I attended a course in which we only went out to do activities in our logbook. This helped tremendously! … I strongly recommend courses that help students complete and fill out the logbook. I've learnt so much in those 2 weeks. AHTs from *[department name]* presented it. (Q-S3)

The responses relating to the issue of placement thus suggest that there is a real problem in this regard, and a need for communication between the co-operative partners with the a view to the possibility of making more structured and organised arrangements for students.

5.2.2 Questions relating to the duration and scope of the workplace component

The length of time that it takes students to complete the component is obviously an indication of whether its scope may be too broad or if there are other difficulties involved, for example the placement difficulties mentioned above. Data on this was provided by questions 1.3 – 1.5 in the first (demographics) section of the questionnaire.

With regard to this issue, it is necessary to distinguish between past students and current students, since past students had to complete double the number of projects than current students. Since employment factors also seem to play a role in completion time (as indicated in sections 2 and 3.2.2 above), the data on employment and duration of study was tabulated together. The tabulated data is shown in Annexure 38. The data indicates the following:

- Completion times (judged by the data on current students) are longer than six months for the whole sample. The *shortest* time that has so far been spent on the component by these students is 1 year, and one student has already spent four years on it.

- Employment at the VS, or in another job working with animals, does not correlate with shorter completion times (which might have been expected since these students will have frequent opportunities to do the logbook tasks). On the contrary, those who have been in these jobs the longest are also taking the longest times to complete the component. (This is in line with data obtained from the portfolio analysis and interviews which suggested that employment, in any job, extends completion time.)

Questions 2.2.2 to 2.2.4 of the questionnaire also related to the scope of the component. Here the majority of respondents (65%) indicated that the fact that the component could be completed over 5 years was helpful to them; this is understandable given the difficulties with regard to placement some of them identified. Surprisingly, 85% of respondents indicated that the *number* of logbook activities they had to complete (e.g. 100 inoculations) was also helpful or somewhat helpful to them, rather than a hindrance. Only 3 respondents (15%) identified this as a hindrance. Presumably, this response is related to the positive learning effect of repeating an activity, as identified during the course of the interviews where students reported that the more frequently an activity was performed, the easier it was to master it (see section 3.2.5 above). One would similarly have thought that respondents could have seen the *variety* of required tasks as a hindrance, since lack of task variety at the placement sites was identified as a problem. However, the response to this question (2.1.4) was similarly that the majority of respondents, 70%, found the variety very or somewhat helpful. One could surmise that this is for the same reason mentioned above, namely that the variety stimulates learning, and also that it prepares the students for the full range of tasks in the workplace.

Questions 2.3 to 2.6 directly asked the students about their opinions on the scope of the workplace component. Data on the responses is tabulated below:

Table 4.9: Opinions on the scope of the component	
Possible to complete in 6 months working full time:	50%
Possible to complete in a year working part time:	15%
Possible to complete in a year working full time:	30%
Will take longer than a full-time year:	5%

The 50% of the respondents who believed that it is possible to complete the component in 6 full-time months is perhaps surprising, given the fact that all the respondents themselves seemed to have taken much longer on the component. Here one could presume that the respondents interpreted “full time” to mean “at a site where all the required tasks are undertaken”.

Interestingly, in spite of the difficulties relating to scope and the fact that the students did not know exactly what the scope was when they started the Diploma, 80% of them answered question 2.6 affirmatively, stating that they would still have registered even if they had known about these difficulties; this suggests that the majority of the respondents had strong sources of motivation for completion. However, the fact that 20% indicated they would *not* have registered had they had more information about the scope should be a cause for concern.

Five students commented on the scope of the component in the open-ended questions. Of these two, one past and one current, said that they found the projects too extensive. The three others said that placement difficulties and lack of task variety at the VS extended the time they had to spend on the component.

5.2.3 Questions relating to the nature of workplace tasks and other elements of the workplace that support or hinder learning

This section will focus on responses relating to elements of the workplace that either support or hinder learning *apart from* mentoring and mediation of learning by colleagues, which are discussed below. The issue of work-related stress is also discussed separately further below.

In response to question 2.1.1, the majority of respondents (75%) said that they had found the number of opportunities to participate actively in routine workplace activities as very helpful (60%) or somewhat helpful (15%) in achieving the learning outcomes. This is in keeping with the interview data, which suggested that participation in authentic workplace tasks strongly supported learning (see section 3.2.5 above). The remaining 25% of respondents said that this aspect had hindered them. Possibly, these respondents were concerned about the *lack* of opportunity to participate in activities due to placement difficulties, a point that was discussed in section 5.2.1 above.

As also already discussed in section 5.2.1, frequent repetitions of workplace tasks and the variety of required workplace tasks were also generally viewed as supporting learning.

Questions 2.1.12 to 2.1.16 and 2.1.27 related to various aspects of the workplace environment.

When correlated with the respondents' first languages, the question on language (2.1.12) was answered as follows:

Helped a great deal	5 Afrikaans speakers; 1 English speaker; 1 Northern Sotho speaker; 1 South Sotho speaker; 1 isiZulu speaker; 1 unknown
Helped somewhat	1 Afrikaans speaker; 1 Northern Sotho speaker
Neither helped nor hindered	7 Afrikaans speakers
Hindered somewhat	1 South Sotho speaker

Given that Afrikaans and English are probably still widely spoken within government departments (which is supported by the observation data), it was to be expected that the Afrikaans and English speakers would generally find this aspect helpful. That at least 4 speakers of African languages also found this aspect very or somewhat helpful was not expected. However, this supports the interview data which suggested that many AHTs and also some state veterinarians are speakers of African languages and that they sometimes facilitate learning for students in African languages.

The majority of respondents indicated that workplace equipment as well as the facilities in their workplace environments were aspects that were either very or somewhat helpful (75% in the case of equipment, and 65% in the case of facilities). This implies that the majority of the respondents worked in areas where good equipment and facilities were available, and that these were appropriately used by workplace mediators to support their learning.

Both interview and observation data showed that workplace documents assisted students in their learning. This is confirmed by the questionnaire data, with 70% of respondents indicating that procedure manuals were very or somewhat helpful, and 75% responding similarly with regard to general workplace information documents.

70% of respondents indicated that their employers' attitude to their studies was very or somewhat helpful. It might have been assumed that the employers of private students who are studying part time would have a problem with their employees' studies, since many of them would have to take leave to complete the workplace component. The fact that this seems not to be the case is an encouraging sign that employers of private students might be positive towards the course.

Apart from the frequency of activities performed in the workplace, already discussed above, it was thought that the *sequence* in which activities were learnt might also play a role in either supporting or hindering learning. Section 3 of the questionnaire was aimed at investigating this issue.

The data provided by the ranking question in this section, question 3.1, is shown in Annexure 39. As the data shows, the sequence of activities undertaken by individual respondents varied considerably; however, there are some trends that can be discerned. Activities most commonly done initially included inoculations and sample-taking. The activities which were given as done last, in order of frequency, were evaluating pasture, regulatory procedures, border duty and emergency procedures.

Many students also indicated that there were activities that they had not done at all (in the case of past students) or had not yet done by the time they filled in the questionnaire. Activities that were most commonly *not* done were border duty, evaluating pasture, emergency procedures, regulatory procedures and fertility investigations.

During the interviews, inoculations and sample-taking were identified as some of the simplest required activities, and also the activities most frequently done by animal health technicians at the Veterinary Services (cf. section 3.2.5 above). Both these factors probably play a role in the fact that students generally seem to undertake these tasks first in the workplace. However, the data on this question would seem to suggest that, for students, the sequence of their workplace activities is not deliberately structured with a view to learning, but rather determined by the programme of activities at the VS or other employers when they are placed there, and by circumstance. For example, as more than one of the interviewees mentioned, emergencies occur only infrequently and unpredictably, which is probably why they appear later in many respondents' sequences. Similarly, regulatory procedures such as road blocks, as well as border duty, are only carried out at intervals by most AHTs (and sometimes not at all), and they are therefore also not likely to feature early in the list of activities of most students placed at the VS.

The majority of the nineteen respondents to question 3.2, on whether their sequence of activities helped or hindered them, stated that the sequence was irrelevant (42%). 37% of the respondents felt that the sequence had helped them, and 21% that it had hindered them. Since it is not specifically asked *why* respondents considered their sequence to be a help or hindrance, this is not straighforward to discern. Most of the respondents who stated that the sequence helped them, however, indicated that they had done the "easy" tasks like inoculations and sample-taking first, and the more involved or demanding tasks like VPH and border duty last, and this progression might thus offer the reason.

Finally, questions 2.1.28-29 related to the influence of external factors on the component ("my family's attitude to my studies" and "personal factors"). As might have been expected (and

also indicated by the interview data), the majority of respondents (80%) were assisted or motivated during their studies by family support. 30% indicated that they were negatively impacted by other personal factors such as health.

5.2.4 Questions relating to curriculum relevance

None of the questions in the questionnaire dealt directly with the relevance of the component's curriculum to the respondents' workplaces. However, certain conclusions about this can be drawn from the "sequence" question discussed above (question 3.1), while some of the answers to the open-ended questions also addressed this point.

As already mentioned above, respondents indicated that there were some logbook activities they had not carried out at all. Evaluating pasture, for example, was not done by 9 respondents, 4 of whom were past students and who thus had not conducted this activity as a workplace routine during the course. This confirms the observation by some interviewees that pasture evaluation does not form a routine part of AHT work. Similarly, the fact that border duty and other regulatory procedures were often not undertaken or undertaken last suggests that this was not relevant for some students, most likely private students.

In response to the final open-ended question, one respondent commented: "I feel that some of the projects that have to be done are not very applicable for animal health technicians" (Q-S8). Furthermore, another student commented that during her workplace component she was "given very significant tasks to do that have not been included in the list of logbook tasks" (Q-S13). This student indicated that she is a private student working with animals, thus probably working at a private veterinarian. This reinforces the interview and observation finding that students undertaking their placement or employed at sites other than VS have a spectrum of work activities that do not correspond exactly with the component's curriculum.

Questions 2.1.6 and 2.1.7 related to the relationship between the component and the rest of the programme. The large number of positive responses here (72% and 85% respectively), indicating that most of the respondents were helped very much or somewhat by both the "theory" modules and the practical sessions, would reinforce the interview findings that theoretical aspects learnt earlier facilitated the practical workplace activities.

An answer to an open-ended question also related to this issue. One respondent stated: "It will help a lot if one has to complete the projects with the *[relevant]* theoretical subject. Otherwise it's like a huge mountain that lies ahead" (Q-S14). This refers to the fact that all

the projects in the component are linked to a theory module, and the relevant module has to be completed before the project is attempted. The student is apparently suggesting that each project should be integrated with the assessment of the relevant module, or at least that it should be required to do the project *while* working on the module.

5.2.5 Questions relating to mentoring

In this section, the responses to relevant questions in section 4 of the questionnaire will be discussed.

The questions relating to the demographics of the mentors (4.3-4.5) indicated that the majority of students (70%) had mentors who had the same first language as themselves, or who understood their first language. This suggests that the majority of student-mentor pairs came from the same or similar cultural backgrounds. This is consistent with the results of the portfolio analysis, where 9 of the 15 student-mentor pairs concerned (thus 60%) were of the same racial group (as shown in Annexures 9 and 10).

One student, in answering the open-ended questions, indicated that having a mentor from a different background as one's own could be problematic: "If you work with a moody mentor who does not even understand your language it's difficult to do EL" (Q-S10). This particular student gave her first language as Southern Sotho, and indicated that neither her mentor's first nor second language was the same as her first language. As this suggests, the pairing of students and mentors from the same background which seemed to happen in the majority of cases might facilitate the situation for students.

The responses to the two questions on the frequency of interaction with the mentor (4.1-4.2) indicated that the majority of students (85%) had monthly or weekly contact with their mentors, rather than daily contact (with about half of these having monthly, and half daily, contact). In responding to the open-ended questions, one respondent noted "My mentor didn't really ever participate in any of my activities – only the other technicians" (Q-S5). Another respondent, a VS-employed student who started his studies only after being employed, commented as follows:

> After being employed I was given an area, and almost everything I have learned was assisted by the farmers, after three months of orientation demonstrated by a senior AHT. After that three months I was all by myself without a mentor to assist me with my studies. … I only had to work with a mentor during EL for the fact that my projects would not be accepted at TSA if not marked by the SV. (Q-S1)

This student, then, never received any field coaching from a mentor, only from an AHT, and his mentor apparently served as assessor only. The same student also recommends that mentors should be assessed by the university and rewarded for their mentoring efforts so that they will "spend enough time with their students" (Q-S1).

The data on these questions is thus consistent with the interview and observation data which suggested that mentors play a tutoring and assessment role but that most of the day-to-day field coaching is done by other colleagues.

Question 4.6 related to the roles played by the mentor in the workplace and the various types of interaction and mediation performed by the mentors. With very few exceptions, the majority of students indicated that their mentors performed all the activities identified.

65% and 70% of the students indicated that their mentors had played an orientating and co-ordinating role, respectively (questions 4.6.1-2). Responses to questions relating to the academic and tutoring role of the mentor (questions 4.6.5, 4.6.6, 4.6.10, 4.6.11-14 and 4.6.26) also showed that the majority of mentors played a strong role in this regard.
As this data shows, the majority of mentors seemed to have engaged in dialogue with the students with regard to the work activities specifically. Explanations of procedures and the reasons for doing them were also frequently given (in 80% of cases), along with establishing links between theory and practice (75%). Reflective conversations with the aim to assess and improve were also used in the majority of cases (70%). A slight majority of mentors also provided students with additional textual resources.

Surprisingly, a minority of mentors (35%) were said to explain study material to students, even though (as the interview data showed) this seemed to be understood within the VS as one of the main tasks of mentors. This might possibly be explained by the fact that many of the students might have completed their theory modules by the time they started the workplace component. Finally, only a minority of mentors (25%) used the strategy of drawing pictures to aid explanations.

Most students indicated that their mentors did play a role in facilitating the learning of field tasks. 85% of mentors apparently modelled tasks for the students (question 4.6.7), while 75% coached them and did practical tasks with them (questions 4.6.8-9). On the face of it, this seems not to correlate with the information provided by the interviews and also suggested by responses to questions 4.1 and 4.2, namely that mentors did not spend much time in the field with students. However, the relevant questions did not probe the *frequency* with which

mentors performed such coaching tasks; other data (e.g. the interview M1:1:1-2) suggests that mentors might do this once or a few times and then pass the coaching function on to other colleagues.

Questions 4.6.19-20 and 4.6.22-25 related to the mentor's role as developer of generic skills. The responses showed that a large percentage of mentors (75%-80%) assisted students to express their own opinions and develop argumentation skills. The development of problem-solving and self-organising skills was undertaken by fewer mentors, though the majority (55%) are still said to have done so. Feedback from others, which could enhance the students' self-assessment and performance (question 4.6.24), was given by 50% of the mentors, somewhat less than the 70% of the mentors who were said to give direct reflective feedback on the students' performance (in question 4.6.11). Finally, while the majority of mentors apparently assisted in the development of problem-solving skills, only a minority (30%) monitored and assessed the development of this skill in their students (question 4.6.22).

Questions 4.6.3-4, 4.6.17-18 and 4.6.27-28 related to the mentor as a source of support, guidance and counselling. Responses showed that praise, support and encouragement were provided by the majority of mentors (70% and above) and were identified by students as helpful. 55% of mentors also engaged in criticism of the students' performance, which the majority experienced as very or somewhat helpful but one as a hindering factor. Less than half of the mentors were seen as acting as "protectors" of the students, easing their relationships with either workplace or university staff. In the latter case, this might be a symptom of a lack of communication between workplace mentors and the university, which was an element identified during the interviews.

The generally positive view of the facilitating role of mentors by the respondents seems to be accompanied by a positive attitude to mentors in general. 90% of respondents felt that their mentors respected them as people (question 4.9) and 95% that their mentors were very knowledgeable (question 4.10). (The remaining responses were neutral, thus there were no negative responses in this regard.) However, as already indicated by the interview data, students' relationships with mentors remained at a fairly formal level: only 55% of the respondents characterised their interaction with their mentors as "informal" (question 4.7), and only 20% ever socialised with their mentors (question 4.8). As mentioned earlier, informal social interaction with others in the workplace is viewed in the literature as an important aspect that serves to induct students into their occupational roles. While the mentor thus clearly, in the view of the respondents, provided support and also played a strong

role in developing work-related as well as generic knowledge and skills, the data suggests that the habituation of students into the daily routine of the occupation took place by means other than student-mentor interaction.

In responding to the open-ended questions, two students remarked that their mentoring process had been good and that their mentors had been supportive. Two others, however, mentioned that their mentors either did not want to mark their projects or did not want to give them feedback.

Finally, the majority of the respondents (75%) felt that their relationship with their mentor in general had either helped them a great deal or somewhat (question 4.17). Only one respondent believed that it had hindered him somewhat. Overall, mentoring thus seemed to have contributed positively to the respondents' learning experience, as intended by the instructional system.

5.2.6 Questions relating to mediation by colleagues other than mentors

Questions 5.1-5.7 dealt with this issue. The various subquestions of question 5.1 sought to establish what kind of mediation activities were peformed by colleagues and how helpful this was for students. As the responses show, 17 students, i.e. 85% of students, or more, listened to colleagues talking about work, watched them work, and talked to them and asked them questions about work; they also let colleagues explain and demonstrate the work. In 70% of cases colleagues also performed some tasks with students (question 5.1.7). (In responses already quoted above, two students commented in the open-ended questions that all the activities listed in the mentoring section were performed by AHT colleagues rather than their mentors.) The majority found these interactions very helpful and most of the rest somewhat helpful. In addition, 70% of respondents indicated that colleagues assisted with reflective dialogue that would have helped the respondents to self-assess and improve their performance (question 5.1.10). This figure is the same as that for the corresponding question for mentors.

In a somewhat smaller percentage of cases colleagues assisted the students with understanding the study material (60%) and completing the projects (65%). Both these figures, however, were higher than those for corresponding questions with regard to mentors, where 35% said that mentors explained study material to them (question 4.6.12), and 45% that the mentors assisted them with the planning of their projects (question 4.6.15). It would

thus seem that colleagues provide as much or more modelling, coaching, explanations and assistance to students than mentors.

85% of the respondents indicated that they had an informal relationship with their colleagues, and 60% of students socialised with their colleagues either frequently or occasionally (questions 5.5-5.6). (The corresponding figures for mentors, as indicated above, are 55% and 20% respectively.) This all suggests that interaction with colleagues would contribute significantly to the students' induction into their work roles.

In the open-ended question relating to colleagues (question 6.3), five of the respondents indicated that their colleagues had been very helpful and that this had assisted them a great deal.

Generally, 80% of the respondents believed that their relationship with their colleagues had helped them in achieving the course outcomes (question 5.7).

5.2.7 Questions relating to the role of fellow students

Questions 2.1.25 and 2.1.26 dealt with this issue. The responses show that 50% or more of the students found the help of fellow students useful. 15% also indicated that this aspect had hindered them. Possibly, what is meant here is that the *absence* of such students might have hindered them; as the interview data indicated, employed private students generally do not have access to fellow students.

5.2.8 Questions relating to work-related stress

The issue of work-related stress and distress that was raised in the interviews was incorporated into the questionnaire (questions 4.11-4.16). Only 35% of students said that they had experienced feelings that were difficult to cope with during their work experience. Of these, 25% had talked to their mentors about their feelings and all of these had received a helpful response; 30% had talked to colleagues other than the mentor and 25% had received a helpful response. Only one student reported that she did not receive a helpful response, despite talking about the issue with others.

Two students (10%) responded that they did *not* talk about the issue; of these, one answered the open-ended question on the matter (question 4.14), commenting as follows: "Some things are worth mentioning and others are better not to mention" (Q-S14). This would seem

to suggest that the student considered the issue of experiencing feelings that are difficult to cope with as something that should not be mentioned, which is in line with the comments by some of the interviewees that they felt that it was inappropriate to talk about the issue.

The questionnaire data thus generally does not seem to support the interview finding that the matter of work-related stress is potentially problematic and that students have a need for it to be managed more effectively. Nevertheless, given the fact that stressful situations are naturally part of most veterinary work and that interviewees readily referred to difficulties they had had in this regard, but also mentioned that in many cases there seemed to be an "unwritten rule" not to talk about the issue, the fact that the majority of students stated that they had had no difficulties might be questioned. There might thus be a need for further research on this issue.

5.2.9 Questions relating to assessment

Questions 2.1.19-24, 2.1.30, 4.6.15-16, and 4.6.21 related to assessment. In Annexure 37, questions where figures are shown separately for current and past students are shaded. This is because the two different groups had to complete a different number of projects, and also because different assessment criteria were used for the two groups, and marking would thus also have been different.

Only two of the current students, 15%, felt that the number of projects that were to be completed, six in their case, were somewhat of a hindrance (question 2.1.19); eight respondents (62%) in fact considered it to a helpful element. (Predictably, the majority of the past students indicated that the 12 projects they had to complete was a hindrance.) By contrast, the current students were divided equally as to the degree in which the experiential learning report and other reports that make up the portfolio were helpful or a hindrance (question 2.1.30), with 5 (38%) selecting each of these categories; 3 (23%) felt this neither helped nor hindered them. Only a minority thus perceived the portfolio as supporting their learning.

A clear majority was of the opinion that the fact that the lecturer and mentor both marked the projects (question 2.1.20), and that projects could be resubmitted (question 2.1.24), were helpful, with 70% and 85% altogether selecting the "very helpful" and "somewhat helpful" options respectively. 62% of current students felt that the assessment criteria were helpful. (The higher number of past students answering this question negatively was expected, given that there were only a few sketchy criteria provided in the pre-2003 material.)

70% of all the students indicated that the way the mentor marked the projects was very or somewhat helpful; this figure was somewhat higher for the lecturer (75%). Only 10% of students indicated that marking by the mentor and lecturer was somewhat of a hindrance, and none that it was a great hindrance. In addition, 60% of students said that the mentor explained the marks he or she had assigned to projects, and 55% that this had been helpful. These findings suggest that, for most students, assessment and feedback on assessment do play a role in facilitating their learning, as intended by the instructional system.

It is significant that there were 7 current students, thus 54% of the current students, who indicated that mentors did **not** help them to decide on goals and methods in doing their projects. The mentors are specifically asked to do this in the *Mentor's Guide*. In addition, the student's planning and execution of the project are assessment criteria that the mentors have to use in grading some of the projects. If the mentor had not been involved in this process, it is not clear how he or she could have validly assessed this aspect. This finding supports the interview findings that many mentors did not seem to be involved in the students' project planning process.

Similarly, assessing whether students can perform the required logbook activities is something that is expected of all mentors. The fact that 30% of students indicated that this had *not* been done by their mentors is thus a matter of concern. Again, this supports the interview data which suggested that colleagues, rather than designated mentors, often assessed the field tasks.

Questions 2.8 and 2.9 dealt with the issue of difference between lecturer and mentor marks which had emerged from the portfolio analysis. Twelve students responded to this question, of which only 2 (17% of these respondents) indicated that there was a large difference. Only one provided a reason as asked in question 2.9, namely "My mentor was not sure on how to mark the projects and he got Mentor's manual after he marked a few of my projects" (Q-S1). As this student is a past student who would have used the earlier material in which specific assessment criteria were not provided for mentors, his interpretation that the difference in marks was due to lack of understanding on the part of the mentor may be accurate. All in all, therefore, for the sample of questionnaire respondents a difference between mentor and lecturer marks did not seem to be an important issue.

In responding to the open-ended questions, one current student commented: "Projects are so difficult and are dragging me down … because of them I will not finish my course on time"

(Q-S11). This particular respondent indicated in question 2.1.19 that the *number* or projects was neither a help nor a hindrance to her, thus one would have to conclude that the respondent's problem relates to the nature and level of difficulty of the project tasks.

Three other respondents commented on the assessment process, one saying "my mentor didn't know how to mark the projects" (Q-S1), one that his mentor had "refused" to mark the projects (Q-S15), and one that he needed more extensive feedback on the projects (though not specifying whether this is by the mentor, the lecturer, or both). This suggests that, as found by the interviews as well, some of the mentors had difficulties with assessing the projects.

In summary, the questions on assessment in the questionnaire indicated the following:

- Most respondents who were current students did not see themselves as being hindered by the number of projects they had to complete, but there were some respondents who were hindered by the projects' perceived level of difficulty.
- 50% of the respondents did not experience the experiential learning report and detailed reports in the portfolio as supporting learning.
- The assessment criteria, marking and feedback by the mentor and lecturer, and the possibility of resubmission were all seen as helpful elements.
- About half of the mentors of the students surveyed did not seem to be involved in the planning and execution of their projects, thus casting doubt on whether they could validly assess this aspect. In addition, some mentors seemed to have had difficulties with marking the projects.
- Around 30% of mentors did not themselves directly assess performance of the required logbook tasks.

5.2.10 Questions relating to the role of the university and lecturer

Questions 2.1.8-11 and 2.1.17-18 related to this issue. 30% of respondents found that the service by Unisa's lecturing staff was somewhat of a hindrance or a great hindrance, and 45% that it was helpful. Two students commented on this matter in the open-ended questions, with one past student saying that the lecturer had never returned his calls, and one current student noting the following: "Since I've registered with Unisa I haven't got even a phone call or letter from my lecturers just to remind me or encourage me!" (Q-S11). The fact that only a minority of all the respondents (45%) found the service by lecturing staff specifically helpful signals that the reasons for this might need to be further investigated, particularly given the importance of communication with the lecturer in distance education.

Even more respondents, 45%, felt that the service by Unisa's administrative staff was a hindrance, with 25% of these indicating that it was a great hindrance. This response is not surprising given that Unisa, as well as the specific department in question, has had known, identified service problems in the past few years, mostly due to understaffing and an incapacity of existing systems to cope with large student numbers.

By far the majority of respondents indicated that the language used in Unisa's study material as well as the language in which they had to write their projects was either helpful or irrelevant, with only 1 respondent (5%), who gave his first language as Afrikaans, identifying it as a hindrance. This is an unexpected finding in the light of the fact that English is the language used in the learning materials and most of the respondents had English as a second language; also, at least one of the interviewees, a Southern Sotho speaker, had perceived the language of project instructions as as a problem (S4:1:9). This issue might need further research, but this data suggests that the language used in the material is at least not a major hindrance to students.

Access to sources of information and access to computers were similary not seen as problematic by the majority of students. Only one student indicated that the latter had been a hindrance, while 20% indicated that obtaining access to information had been a difficulty. Given the fact that many students are working in remote areas, this is not unexpected, but it might also imply that there needs to be wider communication about the services offered by the Unisa library, which was suggested by some of the interview data.

In response to the question on possible visits to workplaces by Unisa staff (question 2.2), none of the students indicated that they had ever requested a lecturer to visit them, even though the fact that this can be done is clearly stated in the material. The reasons for this can only be speculated on. Workplace visits by lecturers are in fact not a general practice due to financial constraints (as stated explicitly in the course material).

In summary, the respondents did not seem to perceive either the university's language of tuition or access to information and communication technology as problematic, but a significant number (though not the majority) did have difficulties with Unisa's lecturer and administrative services.

5.2.11 Ranking of mediation sources

Question 5.8 asked students to give a ranking to various people and other aspects that could have served as a source of mediation in the workplace learning situation. The purpose of this was to form an impression of which sources of mediation the students perceived as most helpful.

Many respondents did not answer this in the way asked. Some respondents omitted some categories or gave them a zero, presumably where the element had not featured in their environment. Some students gave the same rating (e.g. a 1) to several categories. If the scores as given are added up, the data is as follows:

Table 4.10: Ranking of mediation sources

Mediation source	Rank							
	1	2	3	4	5	6	7	0
Taking part in workplace activities at the EL site	12	4	1	1	0	1	0	1
Your mentor	11	6	1	2	-	-	-	-
Your manager/supervisor where you are employed	5	5	1	2	1	2	1	3
Written material that explains what you must do	5	5	3	5	1	1	0	
The lecturer	5	3	3	1	2	1	2	3
Your colleagues during the EL (e.g. other AHTs)	6	5	3	1	2	1	0	
Fellow students, e.g. students in a study group	6	2	4	3	2	2	3	2

If the first three figures are considered to give a good indication of the activities or people considered most helpful and added, the mediation sources are ranked as follows:

1. Mentors (18)
2. Taking part in workplace activities (17)
3. Colleagues (14)
4. Written material (13)
5. Fellow students (12)
6. Managers (11) and the lecturer (11)

Mentors, the actual participation in workplace activities, and colleagues are thus seen as the most helpful sources of learning. This suggests that – as proposed by the literature (e.g. Billett 2000:272) – participation in authentic activities, socially mediated by others in the workplace, is the basis of effective workplace learning.

5.2.14 Responses to open-ended questions

Responses to the open-ended questions were integrated into the discussion above. These responses can however be summarised as follows:

- Eleven respondents noted that placements were difficult to find or problematic.
- Five referred to the duration of the component, saying that the time spent on it was extended by placement problems and/or projects; two mentioned that the projects should be done together *with* the theory modules, rather than later.
- Seven respondents commented on mentoring. Five reported difficulties with mentors, or that their mentors were not sufficiently involved. Two noted that their mentoring had been good.
- Five respondents said that their colleagues had been very helpful in teaching them workplace tasks.
- Three respondents noted that they had had administrative problems with the university.
- One respondent commented that she had found the projects very difficult, while one felt that some of the projects were not relevant to his job as AHT.

5.3 Summary of the questionnaire findings

The data from the analysis of questionnaire responses, as it pertains to elements that support and hinder learning, may be summarised as follows:

The following elements to be perceived as the greatest **hindrances** to the learning process:

- Problems with finding placements, and lack of task variety at placement sites
- The scope of the component, i.e. the difficulty of actually completing all required tasks in six months or less
- Infrequency of involvement with students by some mentors, both in terms of coaching in field tasks and planning of projects, and difficulties with assessment on the part of some mentors
- Workplace activities which were not always relevant to all workplaces, and whose sequence did not necessarily support learning
- Difficulties with the university's administrative services

On the other hand, the following elements were regarded as the most **helpful**:

- Opportunities to participate in authentic activities in a real workplace.
- Mentoring. Mentors were reported to play most of the roles expected of them: a co-ordinating role, an academic tutoring role, a developer of generic skills, and a provider of general support.

- Colleagues. Colleagues other than mentors were reported to perform many of the same functions as mentors, including providing academic assistance and help with projects. In addition, they seem to play a more significant role in the students' workplace socialisation.
- Assessment. The number of projects, assessment criteria, marking and feedback by the mentor and lecturer, and the possibility of resubmission were all generally seen as helpful elements.
- The theory modules and practical courses that form part of the Diploma were generally regarded as helpful in preparing students for the component.

In summary, the data collection process overall revealed a number of significant issues that threw light on the correspondence between the instructional system and the learning milieu. Firstly, while the co-operative relationship did work well in many regards, there were also a number of problems related to it, for example the problems of finding placements and of lack of task variety at placement sites. Related to this was the very long period it took many students to complete the component. In spite of these difficulties, most students ultimately did have sufficient opportunities to participate actively in real workplace activities, and did so in completely authentic workplace environments. In this environment, however, the required logbook activities and the six projects that had to be completed were not all equally relevant to the various workplaces. Further, while many students received effective guidance from committed mentors, some received less, and many were assisted to a similar or greater degree by other animal health colleagues. Even so, a number of students indicated that they had not received sufficient support in situations of work-related stress. Finally, while the system of continuous assessment was very helpful to most students, not all students and mentors had a uniform understanding of what was expected in terms of assessment, and the mentors' help to students in this regard was uneven.

In the final chapter that follows, these findings will be discussed in more detail, and based on the findings a number of recommendations for the improvement of the component will be offered.

CHAPTER 5: FINDINGS AND RECOMMENDATIONS

In this chapter the findings of this study will be summarised and, based on these findings, certain recommendations will be made for potentially improving the workplace component. The report will be concluded with a brief reflection on the experience of applying the illuminative evaluation methodology in this study.

1. FINDINGS OF THE STUDY

As explained in Chapter 1, this illuminative study set out to explore the following questions with regard to the workplace component of Unisa's Diploma in Animal Health:

- What is the nature of the component's instructional system, and how does it aim to facilitate learning?
- What is the nature of the component's learning milieu, and which aspects of it facilitate and hinder learning?
- What are the matches and mismatches between the instructional system and the learning milieu with regard to aspects that facilitate and hinder learning?

The research findings on each of these questions are discussed below.

1.1 Ways in which the instructional system aims to facilitate learning

The document analysis, which was discussed in the first section of Chapter 4, provided evidence that the instructional system aims to facilitate learning for students and to assist students in the following ways:

- By establishing a well-functioning **co-operative relationship** between the students, the workplace and the university so that, at the end of the workplace component, the students will be work-ready.
- By ensuring **curricular relevance** to the workplace.
- By immersing the students in an authentic **work environment** where they will participate in a large number and variety of authentic day-to-day **workplace activities**.
- By providing **mediation** of workplace learning by a number of people, but particularly the **mentor**, who has a wide-ranging developmental role.

- By providing continuous **formative assessment** opportunities, assessing all knowledge and skills learnt, until the students achieve the outcomes.

The investigation of the learning milieu made it possible to establish whether these aims are in fact realised. This is discussed below.

1.2 The realisation of the instructional system's aims in the learning milieu

Since the inquiry into the learning milieu was exploratory and open-ended, it raised a large number of issues from which themes nevertheless emerged that addressed the aims of the instructional system, detailed above. It is thus possible, based on the data collected about the learning milieu, to draw conclusions about how well these aims are being realised in the work environments that were studied. Below, the findings on each of the aims are outlined.

1.2.1 Establishing a well-functioning co-operative relationship leading to work-readiness

The data showed that there were many ways in which the co-operative relationship between student, university and employers was indeed functioning well. Most students were either employed in the field or did not, by and large, have too many difficulties in finding sites that would accept them as temporary student workers. Mentors generally read the *Mentor's Guide*, tutored students and assisted with their assessment. Further, one of the mentors at the government Veterinary Services went to great lengths to arrange learning opportunities for students to ensure that they would be able to do all the required logbook tasks. Students were either already employed by the time they completed the component, or were confident that they were indeed "work-ready".

There were, however, also a number of significant problems with regard to student placements, and the co-operative relationship generally:

- Some students (one of the three interviewed private students, 11 of the 20 questionnaire respondents) reported difficulties in finding placements.
- This situation was exacerbated by a lack of uniform policy on student placement and mentoring within the Veterinary Services. Differences existed with regard to the acceptance of students in the first instance, and then also with the specific ways in which students were granted learning opportunities and mentored.

- The majority of students, including those who were temporarily placed at the Veterinary Services, found no one placement site where they had the opportunity to carry out *all* the required logbook tasks, or even a variety of tasks that would give them a reasonable mark. For many private students, this extended the time frame over which the component was completed.
- Many mentors did not have up-to-date information about the arrangements pertaining to the Animal Health workplace component.
- A number of students felt that they wanted more or more regular communication from the university. In certain instances students also had not received information due to administrative problems. The majority of students felt free to contact the lecturing staff, however, and had received adequate support when doing so. Further, the materials used for the component were generally regarded as clear and adequate.
- Some students had difficulties with obtaining information and with computer access which could have been mitigated if they had been aware of the full range of support services offered by Unisa. This suggests that information pertaining to these services may not be sufficiently well communicated.

Mainly as a result of the lack of task variety mentioned above, as well as the fact that many students studied while employed, the majority of students took a year or longer to complete the component, with some of the students in the sample having been registered as long as 7 years. Many of the students did not believe that a period of six full-time months would be sufficient to complete an adequate number of logbook tasks together with all six projects. In any event, the data suggested that the 48 credits allocated to the component were unrealistic – that is, that it would be impossible to complete the component within 480 hours.

While most of the students may thus be work-ready on completion of the component, this might be achieved at the expense of a long completion time, longer than intended in the instructional system.

Another relevant point here is that even though the students involved in the study were generally motivated and confident, there were some situations which they could not possibly control. As such, it is difficult to see how the idea expressed in the course documentation that the *students* (rather than the mentor or the university) should "ensure that the experiential learning received is up to standard and complies with [Unisa's] guidelines" can be realised, no matter how self-directed the student is.

As the discussion has shown, the instructional system's intention to have a well-functioning co-operative relationship was realised in some ways but not in others. As such, the relationship between the instructional system and the learning milieu with regard to this aspect may be characterised as a "partial match".

1.2.2 Ensuring curriculum relevance

The data showed that many of the required logbook tasks were relevant to most workplaces. There was a minority of tasks, however, that were not relevant to students working at places other than the Veterinary Services – for example, regulatory tasks. In addition, some private students had to undertake tasks that were a significant part of their work routine and that were *not* included in the set of required tasks.

Only one of the six projects was regarded as relevant to all the students in the study, and only two as being relevant in their entirety to VS-employed students.

With regard to the aspect of curriculum relevance, the relationship between the instructional system and the learning milieu could thus again be described as a partial match.

1.2.3 Involving participation in authentic workplace activities

The data showed that the actual and frequent performance of workplace tasks was one of the factors that contributed most strongly to the students' learning. (The strong role of participation in activities as a factor that supported learning was consistent with the findings in the study by Billett (2000:272) discussed in the literature review). Certain tasks were inherently easier to perform than others; however, generally, the more frequently a task was performed, the better it was learnt. The fact that students benefited by repeating a task suggests that the high required number of some of the activities in the logbook is justified (e.g. 100 inoculations). Nevertheless, it was also pointed out that there were certain tasks where the numbers required were unrealistic because of lack of opportunities to perform such tasks (e.g. 100 pregnancy tests).

The students' work environments further involved all the various elements normally found in such an environment. They were assisted by others in the workplace "community", and their learning was supported by aspects like workplace documents, and workplace tools. The language used in the workplace posed no particular difficulties, with difficult terms usually being either explained or translated by colleagues.

The finding that these various workplace elements supported learning was similar to the finding in the study by Billett reviewed earlier (Billett 2000). Generally, also, the study's finding that frequent activity in an authentic workplace with all its constituent elements enhances learning is supportive of the contention in the constructivist approach that experience is an integral part of learning, and the idea in the situated approach that other community members and elements of the broader context mediate learning.

In general, the relationship between the instructional system and the learning milieu with regard to this aspect can be considered a match.

1.2.4 Providing effective mediation of workplace learning

In terms of the instructional system, the mentor is regarded as the main mediator of workplace learning. Annexure 40 shows the various roles that the mentor is expected to play, and the degree to which, according to the data collected, the role was actually played in the work environments studied. In summary, most mentors acted as supervisors, academic tutors, assessors, and professional role models. In these cases, their role was generally regarded as valuable by students, which is consistent with the findings in several other studies of workplace learning reviewed in Chapter 2 (Scribner & Wakelyn 1997; Billett 2000; Poon et al. 2003; Nikolou-Walker & Garnett 2004; Smith & Lev-Ari 2005). Some of the mentors, but not all, assisted with the development of students' generic skills and provided constructive feedback on projects. A minority of mentors were co-ordinators of learning opportunities and field coaches, treated the students as protégés, and provided nurturing guidance and counselling. It should also be noted that a number of students mentioned that they had experienced their mentors as unavailable or unhelpful (reminiscent of a similar finding in the study by Scribner and Wakelyn (1999)). The instructional system's intentions regarding the mentoring function were thus unevenly realised in the studied environments.

One specific aspect that emerged as possibly significant pertains specifically to the mentor's counselling role is the degree to which students' work-related stress or distress is managed. While most of the interviewees and one of the two students observed saw this as an important aspect, the majority of questionnaire respondents reported that it was not. Given that, logically, one would expect such stress to be an inherent part of veterinary work, and that it also emerged that the discussion of the issue was to some extent "taboo", the questionnaire responses might not be conclusive evidence. Generally, the interview and observation data (as well as a minority of questionnaire respondents) suggested that most

mentors do not take any direct steps to manage (or even recognise) students' work-related stress, as intended by the instructional system.

With regard to the mentors' tutoring role, they were found in fact to use a wide variety of mediation strategies, including progressive sequencing of tasks, direct explanations, and some initial modelling of and coaching in field tasks. Some mentors also reported, or were reported to, use reflective dialogue to assist students to assess and make meaning of their learning; however, there was no mention of consistent reflective practices or "debriefing" of student experiences. The variety of strategies used by mentors was similar to that reported in the study by Billett (2000).

Although most mentors seemed to provide examples of professional behaviour for students and thus served as "professional role models", this role did not generally seem to extend to socialising the students into the values and traditions of the animal health profession through regular interaction. This was possibly to be expected given that most mentors are veterinarians, rather than animal health technicians, and thus not members of the same occupation as the students. On the other hand, the data showed that more experienced colleagues other than designated mentors – generally, other animal health technicians – played as large or a larger role than mentors in most of the mentoring functions mentioned above. This finding was consistent across all the data sources. (It was also consistent with the findings of two studies reviewed earlier, namely Scribner and Wakelyn (1997) and Billett (2000).) Colleagues did of course not act as formal assessors, and would generally play a slightly smaller role in academic tutoring than mentors. However even here their role was significant, with them providing some tutoring and using a similar array of mediation strategies than the mentors (explanations, drawings etc.), assisting students with the projects, and helping them to develop self-assessment skills. In other aspects – field coaching, development of generic skills, counselling and support, and occupational socialisation – they generally played a stronger role than those people officially designated as mentors.

In terms of learning mediation, VS-employed students and unemployed private students were also significantly assisted by graduate and fellow students, who provided some tutoring and help with projects, encouraged the development of some generic skills (e.g. self-assessment), and gave general guidance and support.

The finding that other people – both mentors, other colleagues and peers – played a significant role to enhance learning supports the notion in situated learning theory that learning is rendered more effective when mediated in a social context.

On the whole, with regard to this aspect, the relationship between the instructional system and the learning milieu can be characterised as a partial match.

1.2.5 Providing effective, continuous formative assessment

The instructional system's intention that assessment should be largely formative and developmental rather than merely summative was generally achieved in the learning milieu. The variety of assessment methods used, and the fact that assessment decisions were based on the considered judgement of mentor and lecturer rather than on standardised measures of performance, suggested that the assessment approach is consonant with the constructivist-oriented approach outlined by Yorke (2005) in Chapter 2 (point 1.2.2.6).

The intended flexibility of assessment was further generally well realised in the learning milieu. While flexibility did exist, however, communication about this to students and mentors was not clear. Although students who had had the experience of being asked to re-submit their projects if these were not acceptable knew about this arrangement, many students seemed unaware that they could submit a draft of their projects and portfolio to the lecturer for feedback before these were officially marked. Also, not everyone was aware that logbook tasks and projects could be adapted to their circumstances.

Lecturer feedback on projects was generally perceived as helpful, although one interviewee mentioned an aspect supported by the portfolio analysis, namely that there were also instances where lecturer comments were too cryptic to be helpful.

Marking of projects by mentors, and the feedback provided by them, were elements that frequently supported learning. On the other hand, significant difficulties also emerged in this regard. These included the following:

- In some cases it was reported that mentors either did not want to mark projects, or could not, in the sense that they did not understand what was expected of them or did not understand the project instructions.
- Even though assessment criteria were provided, mentors did not apply these in a completely uniform way and thus graded projects on slightly different bases. There were also some instances where unfairness in grading was present when mentors used their own additional criteria in grading.
- Feedback provided by mentors was uneven, with some providing extensive, helpful feedback but others providing little or none.

- Not all the students or mentors understood all the assessment criteria in the same way, nor understood the function of the criteria as guidelines for undertaking the projects and for self-assessment before the projects were handed in.
- Some of the assessment criteria required mentors to observe the students' planning and execution of projects, but in many cases it was reported that mentors did not do this, and thus they could not have validly applied these particular criteria.
- Because some students did not understand the different bases of mentor and lecturer marks, they were confused by large differences in these two sets of marks.
- Finally, mentors did not have the opportunity to improve their marking and grading skills, as they reportedly received no feedback from the university on how appropriate their grades and feedback were.

The data also cast some doubt on the degree to which the logbook assessment of practical tasks was authentic in all cases. Generally, mentors who had not been present in the field signed the students' logbooks, while the technicians who had actually been present did not. Usually, the mentors did attempt to ensure a valid assessment in that they would ask the students questions about how the tasks had been performed before signing them off, or consulted with the animal health technicians who had been present. Nevertheless, it may be argued that assessment of a verbal report rather than the task itself does not constitute authentic assessment.

A further difficulty with the practical assessment is the logbook's vagueness on what exactly is expected of students with regard to all the tasks. The logbook states " You should either attend or observe these activities, or acquire the skill to complete these activities on your own" (LB:5). This vagueness results in a lack of uniformity in the way practical assessment is applied across sites.

The aim of the "experiential learning report" in the portfolio is to help students reflect on their experiences (Dis-PC:13). The data suggested that students generally did not understand, nor effectively use, the reflective function of the report to enhance the meaningfulness of their learning. This is possibly because the strategy and value of reflection are not directly explained or emphasised in the course material. (This is reminiscent of a finding in one of the reviewed studies of workplace learning (Dewar & Walker 1999:1463) where it was concluded that students are inadequately supported to apply reflective practices in their learning.)

Finally, the data showed that continuous informal assessment by more experienced colleagues, peers and the students themselves (i.e. self-assessment) was present in most

workplaces. This is a potential learning resource that could be used to enhance learning but which is not specifically mentioned in the description of the instructional system.

All in all, the relationship between the instructional system and the learning milieu with regard to the assessment aspect can be considered to be a partial match.

1.3 Matches and mismatches between the instructional system and the learning milieu

Based on the discussion above, the matches and mismatches between the instructional system and the learning milieu can be summarised as shown in table 5.1 below.

Table 5.1: Matches and mismatches

Aspect of the instructional system	**Correspondence with the learning milieu**
A well-functioning effective co-operative relationship	A partial match
Ensuring curriculum relevance	A partial match
Involving participation in authentic workplace activities	A match
Providing effective mediation of workplace learning	A partial match
Providing effective, continuous formative assessment	A partial match
Ensuring work readiness	A match

On the diagram that was used to illustrate the instructional system in section 1 of Chapter 4, the matches and mismatches can be indicated as shown below.

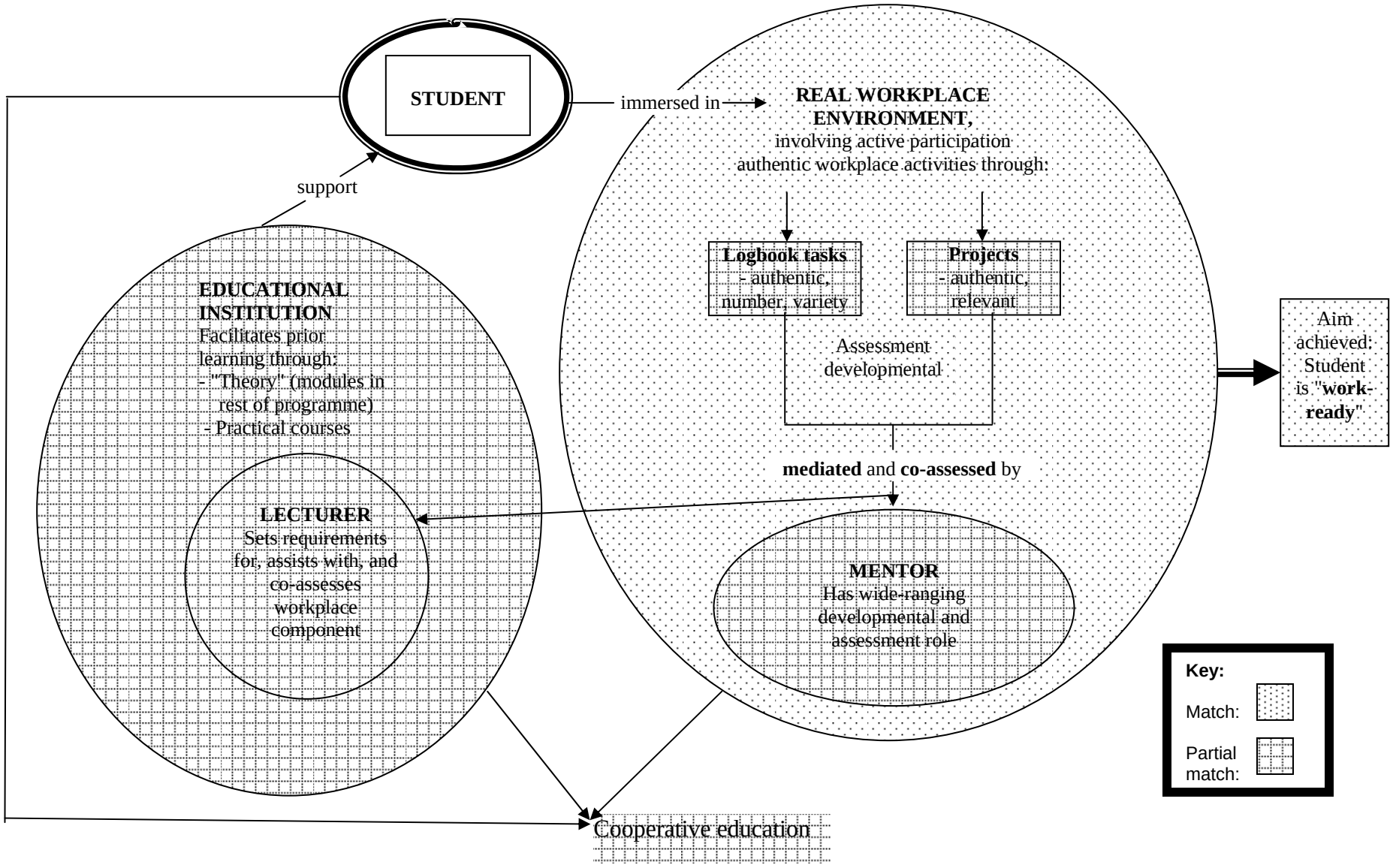

Figure 5.1: The instructional system of the workplace component of the Diploma in Animal Health, showing matches and partial matches with the learning milieu

2. RECOMMENDATIONS

Below are a number of recommendations based on the evaluation of the workplace component.

2.1 Recommendations relating to the co-operative relationship with employers

Given the fact that the student profile of the Diploma seems to be gradually changing from students who are already in full-time employment as animal health technicians with the Department of Agriculture, to "private" students who are unemployed, and given the problems expressed by these students who were involved in the study, it is recommended that a plan should be formulated to facilitate, for these students, both the finding of placements, and their participation in relevant activities during placements. This would also be in line with the indication, in the *Criteria for Programme Accreditation* of the Higher Education Quality Committee, that universities (rather than the students themselves) will be seen as responsible for finding student placements (CHE 2004:8).

Since the various provincial Departments of Agriculture are the main eventual employers of students, it makes sense that they should be requested to serve as the main placement provider for students. With this in mind it is suggested that Unisa's Department of Animal Health approach officials at high levels within the provincial Departments of Agriculture to negotiate more structured arrangements for private students. It is accepted that the fact that there are nine provinces may make this an onerous task, so it is recommended that initially three or four provinces with the largest concentration of students might be approached.

It is recommended that Unisa make the following proposals to the Departments of Agriculture:

- That each service centre within each provincial department accept a certain number of private animal health students for workplace learning for a certain period every year (for example, for a period of 12 weeks, or two different periods of six weeks). (The scope of the component is further discussed in section 2.2 below.) Students should attend the agreed-on period as a group; if individuals cannot do so in one particular year, they can do this in a following year.

- That at least one state veterinarian and at least one experienced animal health technician take collective responsibility for mentoring the group at each centre, and are internally recognised for doing so.
- That while the student group is present at the centre, they are given exposure to as wide a variety of tasks as possible. Where possible, tasks should be sequenced from simple, less hazardous, previously known tasks to more complicated, more hazardous and previously unknown tasks.
- Where some tasks are unlikely to be done at the service centre at all during the period (e.g. pregnancy testing, post mortems), that Unisa and the centre collectively arrange for students, during this period, to go to other institutions where they can take part in such activities (e.g. Onderstepoort Veterinary Institute). Who exactly liaises with such institutions and makes the necessary arrangements in every province can be a matter for negotiation.

Students who are employed in an animal health-related job while studying will obviously not need to attend the relevant placement periods at the VS. However, if they do not have sufficient task variety at their work sites to complete a required number of logbook tasks, they might be accommodated in the "educational excursions" mentioned above to regional laboratories and other institutions, on their prior request.

As the literature (e.g. Anderson et al. 1998, Groenewald 2004) indicated, it is good practice in workplace learning to have actual written contracts for every student between the student, the responsible university lecturer or lecturers, and the person who will be the student's mentor. It is recommended that the Animal Health department at Unisa introduce this practice.

When the more structured arrangements with employers recommended above have been initiated (or even if they are not), it is suggested that the university should communicate with "registered" mentors and employers more frequently by sending them information in the form of a letter or "newsletter" every year. At the very least, all mentors or employers should be informed that Unisa students are covered by accident insurance during their placements.

Finally, it should be noted that in terms of the current HEQC Criteria for Programme Accreditation, it is essentially the university (and not the students themselves) who is responsible for assuring the quality of the students' placement experiences (CHE 2004:21). The introduction of mechanisms to monitor the quality of student placements and improve these should thus be explored.

2.2 Recommendations relating to the scope of the workplace component

Above, it was suggested that the time students spend at the placement site is 12 weeks. This was based on the assumption that the current credit allocation of 48 credits to the workplace component is sufficient. (48 credits = 480 hours = 12 full-time weeks at 40 hours per week.) If it is envisaged that students should spend more time at an employer (e.g. 24 weeks or six months), then the credit allocation for the workplace learning should be increased (e.g. to 96 credits for 24 weeks), and the qualification should either be acknowledged to count more credits (e.g. 408 credits where the component is 96 credits), or else a corresponding number of credits should be removed from existing modules in the qualification.

Taking into account the number of logbook tasks that the students have to complete in order to pass this section, together with the work involved in completing the six projects, it has to be said that it appears very unlikely that any student could complete the work involved in 12 weeks. A realistic number of credits should be assigned to the component, and for ethical reasons the scope of the Diploma as a whole – i.e. that it will probably take the students longer than three full-time years – needs to be communicated to students before they register, in the Unisa Calendar and any other relevant marketing documents.

In the light of the above, it is recommended that ways should be considered of further reducing the scope or making it easier for students to complete in a shorter time. Examples of such ways (which were suggested by the data) are the following:

- Students should be sent the materials relating to the workplace component in their first year so that those who are working, or who might otherwise have the opportunity, can start logging workplace tasks from their first year already.

- The current six projects each relate individually to a module in the Diploma. It is suggested that the projects might be revised and reduced, for example to four or three, in such a way that they will nevertheless cover many of the aspects dealt with in many of the modules and integrate them.
- Ideally, a practical project relating to a particular module should be made part and parcel of the assessment of that module. If some of the projects relating to specific modules could be "moved" to the modules themselves and replace some of the current assessment of those modules, this would "free up" some credits for the workplace component. For the workplace component, the students could then still do one or two integrated projects. In fact, it would be possible to integrate the knowledge taught in all the various modules of the programme into two projects – one centering around selecting a farming operation with more than one animal species and making practical recommendations to the farmer about care, feeding, disease prevention and treatment, all in a financially viable way; and another centering around data collection on disease occurrence in a particular area, with sample-taking integrated into the process, and communication of results to stakeholders. (In this regard the researcher will be able to provide more specific suggested project questions on request.)
- The required numbers of some of the logbook activities should be reconsidered where activities occur only rarely or are difficult to access. The set of logbook tasks could be adapted to individual students' circumstances (without requiring them to sacrifice marks in the process).

2.3 Recommendations relating to the relevance of the curriculum to the workplace

The study showed that the Diploma's stated intention to produce "work-ready" graduates not only for jobs as government animal health technicians but also for jobs like assistants to private veterinarians, "feedlot managers" and "stock farm managers" is not very well realised. In view of this, the following is recommended:

- Conduct some research to (1) confirm exactly what is done by the majority of animal health technicians in the country as their routine or most important work, and (2) to

establish what the needs are of the other occupations at which the qualification is aimed in terms of animal health-related knowledge and skills.

- If possible, some time in the near future, redesign the curriculum of the Diploma on the basis of this research to involve more than one "track" that students could choose to ensure that the curriculum is maximally relevant to their particular or desired occupations. For instance, an assistant to a private veterinarian might then be given the opportunity to do an additional module in Animal Husbandry rather than Animal Health Legislation or Epidemiology.
- Changes to the programme should then be reflected in changes in the workplace component. For example, a number of possible projects and logbook activities might be given from which students could then elect those most relevant to them.

In addition, it is recommended that the logbook specifications be amended with a view to the document *Rules for Animal Health Technicians* that was recently issued by the Veterinary Council. On the basis of these rules, it should be specified which of the required tasks should (1) actually be done by the students themselves, albeit under supervision, and (2) which tasks they are allowed to observe only.

2.4 Recommendations relating to the university's relationship with students

The following is recommended in this regard:

- Registered students should be asked to send a report on their progress to the university at least once a year. This may serve as an incentive to those who have lost motivation. In addition, it is suggested that registered students be sent a short "newsletter" or "tutorial letter" annually, containing any new information about the programme and/or information aimed at motivating and encouraging them.
- The materials for the component should be edited for structure, clarity and recency of information. Given that some students and mentors have had problems understanding the project instructions, it should also be attempted to phrase these in a more explanatory way where possible. Finally, where resources are used across departments, it should be ensured that they do not contain contradictory information.
- It should be ensured that all the students receive information on Unisa's support services, including the various library services and services offered at learning centres.

2.5 Recommendations relating to facilitation of learning in the workplace

The data showed that a great deal of mentoring in the workplace was in fact undertaken by colleagues other than designated mentors, generally by other animal health technicians. With this in mind, it is recommended that there should be greater explicit recognition in the component of the valuable role played in learning facilitation by other animal health technicians or colleagues. At the same time, it is not denied that veterinarians have an important role to play in terms of the *academic guidance* that they can give to students, and since they have a broader academic background they may do this more expertly than other AHTs. It is therefore suggested that, in terms of mentoring, consideration be given to amending the concept "mentor" to the concept "**mentoring team**", with at least two people rather than one being designated to assist a student: a veterinarian to serve as "academic guide" or "academic tutor", and an animal health technician to fully play the role of "mentor", accepting many of the responsibilities currently assigned to mentors by the course, including assessor of field skills, developer of the student's generic skills, counsellor, and occupational role model. As far as the projects are concerned, the responsibilities of assisting the students with planning as well as the functions of marking, grading and feedback could then be allocated to either of these roleplayers in every case, depending on the circumstances: where an AHT has completed a similar course and has the necessary academic background, he/she might take this role, but otherwise the veterinarian might accept it (or the function might also be shared between them).

Furthermore, the potentially valuable role of fellow or graduate students in learning facilitation should also be recognised. Where such people are present in a student's workplace, one of them might also be asked to form part of the "mentoring team". In any case, students should be more explicitly encouraged to form or join learning groups, wherever this is possible.

In whatever way the mentoring situation is structured, mentors should receive more guidance on their roles than is currently the case. They should receive either training or additional resources on facilitation of the students' learning and the various strategies that they could apply to do this; assessment, including examples of how to use the assessment criteria and examples of good grading and feedback practices; and

effective student support, including the management of student distress where this occurs. In this context's, Billett's notion of "peer" or "team" mentoring – mentors mentoring each other to mentor more successfully – could also be useful (Billett 2000:281).

With regard to the last point above, the data suggested that this might be a particular need. For several students, work-related stress and distress seemed to be a difficult issue which was not well managed in the workplace (although this issue might have to be further researched to determine if there in fact is a difficulty and if so, what its causes are). Mentors could be alerted to this issue and given some guidelines on managing student distress. There is a literature in medical and social work education that could be drawn upon in this regard (two examples are Jones & Johnston (2000) and Collins & Foote (2005).)

The literature review showed that there is a strong emphasis on reflective strategies in learning facilitation (e.g. Boud et al. 1985, Schön 1987, Boud and Knights 1996, Boud 2006), and more reflective strategies could be incorporated into the course. Students could be encouraged to use reflection more constructively, either informally or formally (e.g. by being asked to keep a learning journal or to periodically complete reflective self-assessment instruments). Mentors would obviously also need some guidance in such strategies.

Finally, some mechanism should be applied to monitor whether mentors are providing an adequate service to students and if not, to improve the situation. (This would form part of a "quality assurance system" required by the HEQC). For instance, students might be asked to give feedback on their mentoring to the university after an initial period, e.g. through a standard questionnaire.

2.6 Recommendations relating to assessment

A number of recommendations have already been made in this regard, including the suggestion to revise the scope of the assessment and the themes of projects. The following are additional recommendations:

- The practice of allowing students to submit drafts of their projects for feedback before submitting the final project clearly has good results and should be continued. This arrangement should however be clearly communicated from the start.
- Assessment criteria, in some cases, should be phrased in more specific terms, and it should be explained to students and mentors how these are to be used and what functions they serve. Where relevant, it should be made clear to mentors and students that the lecturer and mentors assess the project on a different basis. At the same time, it should however also be made clear that the mentors are expected to provide initial formative feedback to the students on their project reports.
- Feedback from both lecturers and mentors should be consistently constructive and should not include cryptic or patronising comments.
- The data indicated that there is a great deal of informal peer assessment in the workplace. Such peer assessments, as well as students' self-assessments, could be involved more formally in the course to promote learning (cf. Boud 1995). For example, students could be given brief self-assessment or peer assessment instruments to be completed at certain intervals.

It is hoped that the recommendations above could assist in resolving difficulties that exist in the co-operative relationship between Unisa's Department of Animal Health, animal health employers and students, and in enhancing the students' learning in the workplace component. As the data showed, however, the component does provide a range of learning experiences that go a long way towards ensuring that students are "work-ready" on graduation, and thus towards achieving its aims.

3. A REFLECTION ON THE USE OF ILLUMINATIVE EVALUATION AS METHODOLOGY FOR THIS STUDY

To conclude this report, a brief reflection follows on the use of the methodology of illuminative evaluation in this study.

This study has been set in and built on the tradition of illuminative evaluation studies in education, as detailed in the literature review in Chapter 2. Like several of the studies described there, it used the illuminative methodology to make a close study of a particular educational programme within its particular context, thus in effect combining

the illuminative method with a case study approach (cf. Smith et al. 1995; Dewar & Walker 1999; Sloan & Watson 2001; Alcroft 2002; Ellis & Nolan 2005). It employed a literature review to generate anticipated issues and questions and thus to focus the inquiry to some extent, as was also done in several of these earlier studies (Hamilton 1975; Chambers 1988; Downs 1992; Smith et al. 1995; Basson & Nonyongo 1997; Sloan & Watson 2001). It used convenience sampling (as had Smith et al. 1995; Dewar & Walker 1999; Banning & Cortazzi 2004), and employed multiple sources of data of which some had been informally gathered (as in Smith et al. 1995).

This study has however been distinctive in terms of the context in which it has been applied. Two earlier illuminative studies were found that evaluated South African programmes (Basson & Nonyongo 1997; Netshandama & Basson 2004), of which one (Basson & Nonyongo 1997) examined distance education provision. While the current study also looked at a component of a programme offered via distance education, this component was different in the sense that it comprised workplace-based learning which also involved some face-to-face tuition by workplace mentors. No other South African study was found that applied illuminative evaluation to workplace learning, and no study that applied the approach in the veterinary education field. Using the illuminative methodology to evaluate the workplace component of the Diploma in Animal Health entailed studying multiple sites of learning – a variety of different workplaces as well as university sites and provision – and, as the data and findings showed, this was a highly fruitful way to gather data about a complex learning situation. Given this, the approach might be usefully applied to other work-based learning environments in South Africa.

By adopting the illuminative evaluation methodology, this study provided a rich and detailed description both of the instructional system of the component with its particular arrangements and intentions, and also of the events and conditions in the learning milieux of the various participants in the study. This made it possible to establish what the main aims of the instructional system are, and to gain insight on the degree to which these aims are being realised in the various learning environments involved. In particular, the study of the learning environments allowed certain issues to be identified that had not been taken into account in the instructional system. (Examples are the lack of task variety for students at many learning sites, and the degree to which other colleagues than designated mentors contributed to the students' learning.) It further

allowed one to identify various specific reasons for particular conditions (for example, reasons why students were not motivated, or why some of them had difficulties with the projects). If the evaluation had been approached using predetermined, standard evaluation criteria and instruments, it is doubtful whether many of these insights would have been gained. Such an evaluation could never have generated the same wealth and depth of information as the illuminative approach succeeded in doing.

Using the illuminative methodology thus had decided benefits in this study. On the other hand, however, it also involved a number of difficulties. The data that had to be gathered to generate an in-depth understanding of both the instructional system and in particular the various learning milieux was extensive, and this resulted in a very lengthy data-gathering period. The use of a variety of data-gathering methods and the fact that data had to be gathered at a number of different sites also had serious cost implications. It further also took a long time to analyse and process the data. In short, the greatest disadvantages of this methodology were that it was both time-consuming and relatively costly. With this in mind, it is suggested that fully-fledged illuminative studies should be restricted to research at doctoral level, and possibly to research for full Master's dissertations. Where research reports of this particular nature are concerned, however, the approach needs to be adapted to take cognisance of time and cost constraints. It is thus recommended that, for such studies, data sources should maximally be four (document analysis, observation, interviews, questionnaire), that a smaller sample of interviewees (e.g. four) should be used, and that two interviews with each should be sufficient, and that a shorter questionnaire should be distributed among a smaller sample of respondents (e.g. 100 maximum). Also, the research should, early in the process, identify a few issues only (e.g. three) that are the most significant, and that should then be singled out to be focused on for the rest of the process. This would also imply that the initial research question would have to be phrased in such a way that it would allow for a more specific, narrower focus than is the case with this study. Further, given the time and cost implications of fully-fledged illuminative evaluation studies, it would not be recommended it would not be recommended that this methodology be used as a *general* evaluation strategy for an educational institution to regularly evaluate *all* its programmes, since it is very unlikely that this would be cost-effective. However, given the depth of insight provided by the methodology, it might be very useful for an academic department to select, in a particular time period (every five

years, for instance), one module or project in one of its programmes to evaluate using this approach. If the module is carefully chosen, it might bring to light issues that are common across the programme or even more than one programme. This detailed evaluation can then serve as a "baseline", providing a rich set of information from which the most important issues can be selected for further attention and monitoring, and for examination in subsequent, less detailed evaluations. In other words, an illuminative study can form the basis for subsequent studies that could use more standardised methodologies and predetermined criteria (drawn from the illuminative study). After a certain time period, an illuminative study could then be undertaken again, and serve as a basis for an adapted or new series of subsequent less intensive evaluations.

The use of illuminative evaluation in a complementary fashion with other methodologies could thus offer an optimal strategy for obtaining both quantitative and qualitative information that could ultimately be applied to improve the educational quality of a programme. It is hoped that this particular study might serve as an example for the type of illuminative study that would form the core of such an evaluation approach.

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ANNEXURES TO:

AN ILLUMINATIVE EVALUATION OF THE WORKPLACE LEARNING COMPONENT OF UNISA'S DIPLOMA IN ANIMAL HEALTH

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Annexure 1

Structure of the Animal Health programme

<table>
<tr><th>First-level modules</th><th>Second-level modules</th><th>Third-level modules</th></tr>
<tr><td>Anatomy and Physiology</td><td>Non-controlled Animal Diseases II[2]</td><td>Non-controlled Animal Diseases III</td></tr>
<tr><td>Zootechnology</td><td>Occupational Communication II[1]</td><td>Occupational Communication III[1]</td></tr>
<tr><td>Pasture and Nutrition</td><td>Laboratory Diagnostics</td><td>Epidemiology</td></tr>
<tr><td rowspan="2">Management I[1]</td><td>Agricultural Economics[1]</td><td>Legal Aspects and Controlled Animal Diseases</td></tr>
<tr><td colspan="2">Animal Practice III: This is the workplace learning component. Students are advised to register for it in their second year to start working on the tasks involved (but may register in the third year as well). According to the calendar, they should spend a minimum of 6 months in service to complete this component. After registering for it once, they remain registered until they have completed it, which may be any period not exceeding five years.</td></tr>
<tr><td colspan="3">Additional practical courses[3]:</td></tr>
<tr><td rowspan="2">• Anatomy and Physiology practical course (5 days)</td><td>• Laboratory Diagnostics practical course (10 days)</td><td>• Tuberculosis and brucellosis practical course (10 days)</td></tr>
<tr><td colspan="2">• Meat hygiene practical course (2 days) – may be completed at second or third level
• Artificial insemination practical course (10 days) – may be completed at second or third level</td></tr>
</table>

[1]These modules are offered by other departments; the Animal Health students enrol for them together with students from other programmes. Management and Communication are offered by eponymous departments in other faculties, and Agricultural Economics by the Agricultural Management department in the same faculty.

[2]The number after the module name denotes the level it belongs to within the programme structure, and not that there is necessarily a lower or higher level of the particular module. Animal Practice III is so termed because it is formally regarded as part of the third level.

[3]With the exception of the Anatomy and Physiology course, all the practical courses are offered by external agencies with whom Unisa has agreements. For example, the meat hygiene course is offered by officials of the DoA at abattoirs in the various provinces. Generally the courses are not specific to Unisa students but are open to any interested party or to DoA employees, and Unisa students join in.

Annexure 2

Interview schedule – First interview with current students

1. Please provide the following personal details:

1.1 The year in which you first registered for the Diploma in Animal Health: _____

1.2 The year in which you first actively started doing the work activities involved in Animal Health Practice III (the experiential learning): _____

1.3 The year in which you first started working in the Animal Health field (whether as a trainee animal health technician or in another post): _____

1.4 Age: _____

1.5 First language: _____

1.6 Second language: _____

1.7 Third language (if any): _____

1.8 Previous qualifications (if any): _____

2. Here is a list of the main outcomes that you are working towards during your experiential learning. It's based on your logbook for EL and your learner's guide.

1. Perform practical Animal Health skills, including:	Doing inoculations; carrying out clinical procedures, including treatment of sick animals; fertility investigations	
	Taking samples and testing for diseases	
	Carrying out inspections (taking a census, checking remedies, checking stock sales)	
	Conducting regulatory procedures (manage road blocks, issue permits) and doing border duty	
	Doing VPH inspections (abattoir, ante-mortem)	
	Evaluating pasture and nutrition and give advice	
	Doing an epidemiological survey	
	Evaluating and adjudicating beef cattle breed stock	
2. Provide extension, advice and training, and liaise with all stakeholders	To achieve this outcome you have to, among other things, complete two public speaking assignments.	
3. Collect, process, analyse and utilise information effectively in the field of animal health	To achieve this outcome you have to, among other things, collect plants for your pasture project, collect information for an epidemiological survey, and study the literature on a breed of cattle. You also have to write a scientific report, in an appropriate format and language, and illustrate the report if necessary.	
4. Implement managerial and administrative procedures to function effectively as an AHT in the field	To achieve this outcome you have to, among other things, find your own placement opportunity (if you are not employed), find your own mentor, and show that you are a reliable and loyal employee.	
5. Develop "life skills" or general skills	This includes skills like working well as a member of a team, deciding on clear goals and methods for your projects, developing strategies for solving problems, managing and organising your time and your work responsibly, and negotiating with and influencing other people.	

3. Would you agree with this description of the main outcomes you are working on during your EL?
   Are there any other outcomes you would want to add, or any that you are not presently working on or have not worked on at all? (If so, let's either add them or cross them off the list.)

4. Could you please give me some specific examples of what you are doing in your EL to achieve outcomes 2, 4 and 5?

   *Supporting/probing questions
   - What forms do the extension/advice/training take in your situation and whom do you need to communicate with to achieve this?
   - What are the other stakeholders you need to "liaise" with – mentor, colleagues, other regulatory staff, farmers, members of the public? What does communication with them involve?

- What forms do the administrative and managerial tasks take in your situation – what are some examples?
- Can you give me some examples of how you have developed skills under outcome 5?

5. Altogether, there are 12 (or ..) outcomes and sub-outcomes on the list. Please rank them all, from 1 to 12, on the following basis: assign a "1" to the outcome that you think you are achieving (or have achieved) most successfully – the one you can do best. Assign a "12" to the outcome you have most difficulties in achieving.

6. Let's look at the outcomes you ranked as 1, 2 and 3.
Please tell me what happened, or is happening, during your EL that is helping you to achieve these outcomes.

*Possible supporting/probing questions:

- **Think about a time that you were carrying out the activities related to this outcome when *everything went very well* and you were very happy with your performance. Tell me exactly what happened – when, where, how did it happen, who was involved?**

- Did you have any **experience** with this before you had to do it for your EL? Do you think this might have helped – if so, how?

- How **many opportunities** have you had in the workplace to carry out the activities involving these outcomes? How do you think this might have influenced your learning?

- In what way is the **time period** that you have in which to achieve these outcomes helping you – for example, if you had a shorter or a longer time, do you think it would make a difference? If so, can you give me an example to illustrate how the time period is influencing your learning?

- Do you think the **number** (quantity) of repetitions of workplace activities you have to complete during the EL (that are entered into the logbook) has helped you? Can you give me an example?

- Do you think the **variety** of workplace activities you have to complete during the EL (that are entered into the logbook) has helped you? Can you give me an example?

- Do you think the **sequence** of workplace activities you have to complete during the EL (that are entered into the logbook) has helped you – what you did first, second and so on? Can you give me an example?

- Was there anything that your **mentor** said or did, or something he/she is saying or doing, that has helped you to achieve these outcomes? Can you give me examples of things that happened with your mentor to illustrate this?

    - How **frequently** has your mentor been interacting with you? How might that have helped?
    - Did your mentor give you some kind of **orientation** when you started? Can you describe what he/she did? How might that have helped?
    - Did your mentor **negotiate** with you about when and where your EL activities should take place?

- How would you **describe your relationship with your mentor**? For example is he/she a senior professional colleague/supervisor; friend; parent; older brother/sister etc.? How is he/she doing this – can you give examples?
- Is your mentor –
    - providing **support and encouragement** for your learning, and/or for you personally? Can you give examples? How might that have helped?
    - **teaching or showing** you how to do **practical tasks**? If so, can you describe how he/she has done this with you? (modelling; coaching; explanations – verbal and diagrams; dialogue, reflection)
    - helping you to **understand or learn more about your animal health work**, including the activities you have to do for the logbook? If so, can you describe how he/she has done this with you?
    - helping you with your **projects**? Can you describe how he/she is doing this?
    - helping you with the **theory** you have to learn? Can you describe how he/she is doing this?
    - helping you to develop **skills other than the specific practical and theoretical work skills**? Which skills (problem-solving, critical thinking, learning, thinking about thinking, research – finding information, analysing, making inferences; emotional, coping, resilience etc.; professionalism, ethics; time management)? Can you give examples of how she/he is doing this?
    - helping you with any **problems inside the organisation** or with the university? promoting your career?
    - helping you by **assessing** you effectively - giving you feedback on your projects and marks you agree with?

- Tell me about the **other colleagues** whom you mostly work with in the workplace. Are any of them fellow students? How would you describe your **relationship** with your colleagues? Was there anything that your supervisor or **other colleagues** said or did, or anything else in your **work environment**, that has helped you to achieve these outcomes? Can you give me an example of something that happened to illustrate this? (Refer back to mentor questions for supporting questions.)

- Is there anything about the **theoretical modules** you studied or are studying that is helping you to achieve these outcomes? Can you give me an example of something that happened to illustrate this? (Also: learning material)

- Are you particularly **interested** in these outcomes (more so than the others), or do you think they are more **important** than the others? Might this have helped you to achieve them well?

- Was there anything that the **Unisa lecturer** or other Unisa staff have done or said that is helping you to achieve these outcomes? Can you give me an example of something that happened to illustrate this?

- Is there anything about the **language** that your mentor and colleagues use, and the language of the Unisa lecturer and the learning resources for the EL (e.g. learner's guide, logbook) that is helping you to achieve these outcomes? By "language" I mean the particular language used – such as English or Afrikaans – but also the kind of language (e.g. formal/informal, everyday/technical). Can you give me an example to illustrate this?

- Is there anything about the **tools and equipment** at the workplace (including computers), or workplace documents (e.g. manuals, standards) that is helping you to

achieve these outcomes? Can you give me an example of something that happened to illustrate this?

- Is there anything about the way these outcomes are being **assessed** that is helping you to achieve them? For example:
  - Is there a way in which the **logbook** and its structure are helping you, or is the way your **mentor has to supervise** you and mark the logbook helping? Can you give me an example of something that happened to illustrate this?
  - Is there any way in which the **written projects** are helping you to achieve these outcomes? Can you give me an example?
  - Is there anything about the specified **assessment criteria** that is helping you? Can you give me an example?
  - Can you explain what you understand by the following assessment criteria:

    Assessment sheet AH2M (Nutrition):
    "Theoretical knowledge of how to do the project"
    "Self-improvement"
    "Success of project"
    "Personal appearance"
    "Acceptance of authority"

    Assessment sheet AH3T (Communication):
    "Notes, cue cards or copy of speech submitted: Effectiveness"
    "Structure/layout of the report"
    "Conclusion (concluding remarks) or recommendations"
    "Literature references in the bibliography"

    Assessment sheet AH3T (Communication):
    "Description of the study area"
    "Write more scientifically"

  - Is there something about the **experiential learning report and the detailed reports** that you have to write as part of the portfolio that is helping you? Can you give me an example?
  - Is there anything about the way in which your projects and portfolio are being **marked** that is helping you? Is mentor/lecturer **feedback** helping you? Can you give me an example?

7. Now let's look at the outcomes you ranked as the last three.
Please tell me what happened, or is happening, during your EL that is hindering you in your effort to achieve these outcomes.

*Possible supporting/probing questions:
Same as under 3 but where relevant amended to bring out aspects that are hindering, e.g.

- **Think about a time that you were carrying out the activities related to this outcome when everything did not go so well and you might have struggled. Tell me exactly what happened – when, where, how did it happen, who was involved?**

- Was there anything that your **mentor** said or did, or something he/she is saying or doing, that has hindered you in your effort to achieve these outcomes? Can you give me examples of things that happened with your mentor to illustrate this?

- Was there anything that your supervisor or other colleagues said or did, or anything else in your **work environment**, that has hindered you in achieving these outcomes? Can you give me an example of something that happened to illustrate this?

8. Is there anything more you would like to tell me about aspects of your EL that are either helping or hindering you to achieve the learning outcomes?

Annexure 4

EXPERIENTIAL LEARNING IN THE DIPLOMA: ANIMAL HEALTH QUESTIONNAIRE FOR STUDENTS

Dear Animal Health Student

One of the course developers at Unisa, Estelle van Rensburg, is currently doing research on experiential learning (EL). As part of this research, she is studying EL in the Diploma in Animal Health. She would like to learn more about which aspects in the EL are helping you to achieve the outcomes of the Diploma, and which aspects might be hindering your progress. The findings of this study will give us information that might help us to improve the EL in the National Diploma: Animal Health (that is, Animal Practice III).

As students registered for the module Animal Practice III, you are the only people who can provide the information we need. For this reason we would like to invite you to complete the attached questionnaire on your EL experience. Most of the questions require you only to tick a relevant block, so this should not take too much of your time. The information you give us in this way will be very valuable and will help us to eventually improve the module Animal Practice III.

If you have registered for Animal Practice III but have not started doing any of the tasks involved (neither the practical tasks nor the projects), this questionnaire **will not apply to you**. In that case, please **disregard** this letter and the questionnaire. However, if you *have* started working on any of the tasks or projects, we would like to hear from you.

Please note that the questionnaire is completely **anonymous**. In other words, you are not asked to put your name on the questionnaire, and I will also not see the individually completed questionnaires. I will only see the overall information provided by the questionnaires.

Once you have completed the questionnaire, I will appreciate it very much if you could return it to Estelle in the enclosed reply-paid envelope **by 31 October 2006**, or as close to this date as possible.

Thank you very much for your help!

Kind regards

Dr A Bartkowiak-Higgo
Programme co-ordinator: National Diploma in Animal Health

Should you wish to contact the developer of this questionnaire for any reason, her contact details are as follows: Estelle van Rensburg, Institute for Curriculum and Learning Development, Unisa's Florida Campus, Office 630 C Block, telephone number 011 471 2229, fax number 011 471 3018, e-mail address evanrens@unisa.ac.za, postal address PO Box 4532, Cresta, 2118.

INSTRUCTIONS

To answer most of the questions in the sections that follow, you have to tick a relevant block. A few questions require you to supply information directly. More specific instructions are given with each question.

Please answer all the questions honestly. The questionnaire is anonymous and there will be no attempt to link any responses provided with any particular individual.

Thank you very much for your willingness to complete this questionnaire!

SECTION 1: PERSONAL INFORMATION

1.1 Are you currently employed by the Department of Agriculture's Veterinary Services (at national or provincial level?) Please tick the appropriate block.

Yes	No

1.2 Please answer the following question **only** if you answered **no** to question 1.1 above. Please tick the appropriate block. Tick **one option** only.

Which of the following best describes your employment status?	I am employed in a job where I work with animals.	I am employed but I do not work with animals.	I am currently unemployed.

1.3 Please answer the following question **only** if you are employed.

How long have you been in your current job? _____ years

1.4 Please write down the year in which you first registered for the Diploma in Animal Health: _____

1.5 Please write down the year in which you first registered for Animal Health Practice III (the experiential learning): _____

1.6 Gender:

M	F

1.7 Age (please tick the appropriate block):

17-20	21-25	26-30	31-35	36-40
41-45	46-50	51-55	56-60	

1.8 First language: _____

1.9 Second language: _____

1.10 Third language (if any): _____

1.11 Previous qualifications (if any): _____

1.12 I have started doing the practical activities that I need to do for my EL as listed in the logbook (e.g. vaccinations, sample taking).

Yes	No

1.13 I have started working on the written projects (practical assignments) that I need to hand in for my EL.

Yes	No

1.14 Please answer the following question **only** if you answered **yes** to question 1.13 above.

Indicate how many projects you have already handed in. (If none, write "0".) ____ projects

SECTION 2: GENERAL ASPECTS OF THE EL COMPONENT IN THE DIPLOMA

2.1 On this page and the next, there is a list of aspects that might be playing a role in your experiential learning (EL).

How does each of the aspects mentioned below either help you or hinder you to achieve the learning outcomes of your EL?
In each case**, tick the appropriate block** to indicate this.

Aspect	How does this aspect help or hinder you to achieve the learning outcomes of the EL?				
	This aspect helps me a great deal	**This aspect helps me somewhat**	**This aspect neither helps nor hinders me**	**This aspect hinders me somewhat**	**This aspect hinders me a great deal**
2.1.1 The **number** (quantity) of opportunities that I have during the EL to participate actively in the normal, everyday workplace activities					
2.1.2 The fact that we are allowed up to five years to complete the EL					
2.1.3 The **number** (quantity) of repetitions of activities we have to complete during the EL (that are entered into the logbook)					
2.1.4 The **variety** of activities we have to complete during the EL (that are entered into the logbook)					
2.1.5 The printed material for the EL that was supplied by Unisa (e.g. tutorial letter, learner's manual)					
2.1.6 The theoretical subjects that I have completed or am still studying					
2.1.7 The practical courses, e.g. Anatomy and Physiology, TB/Brucellosis, Meat Hygiene					
2.1.8 The service provided by the Unisa lecturers					
2.1.9 The service provided by Unisa's administrative staff					
2.1.10 The language that is used in Unisa's printed material for the EL (e.g. tutorial letter, learner's manual)					
2.1.11 The language in which I have to write my projects					
2.1.12 The main language or languages that are used in the workplace					

(.../question continues)

Question 2.1, continued

Aspect	How does this aspect help or hinder you to achieve the learning outcomes of the EL?				
	This aspect helps me a great deal	**This aspect helps me somewhat**	**This aspect neither helps nor hinders me**	**This aspect hinders me somewhat**	**This aspect hinders me a great deal**
2.1.13 The tools and equipment that I have to use in the workplace					
2.1.14 The quality of the facilities in the area/s where I work (e.g. farm equipment)					
2.1.15 Workplace documents that set out work procedures and standards					
2.1.16 Workplace information documents like posters and pamphlets					
2.1.17 Access to sources of information and places where I can find information (e.g. a library)					
2.1.18 Access to a computer					
2.1.19 The number of projects we have to complete for the EL (i.e. twelve or six)					
2.1.20 The fact that the mentor and the lecturer both mark the projects					
2.1.21 The way the mentor marks the projects, and the feedback he/she gives me on the projects					
2.1.22 The way the lecturer marks the projects, and the feedback he/she gives me on the projects					
2.1.23 The assessment criteria used for the projects					
2.1.24 The fact that I can re-submit the projects if the first attempt or first draft is not satisfactory					
2.1.25 Communicating with fellow students or past students at the site/s where the EL is done					
2.1.26 Communicating with fellow students at a place other than the EL site (e.g. at the university)					
2.1.27 My employer's attitude to my studies					
2.1.28 My family's attitude to my studies					
2.1.29 Personal factors (e.g. family situation, health)					
Please answer the following **only** if you started your EL **in 2003 or later:**					
2.1.30 The experiential learning report and detailed reports I have to write as part of the portfolio					

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

2.2 Have you ever requested Unisa staff to visit you during your EL to discuss your workplace experience with your mentor or others at your organisation?

Yes	No

Answer question 2.2.1 below **only** if you ticked "**yes**" in question 2.2 above.

2.2.1 How did the workplace visit by Unisa staff help you or hinder you in your effort to achieve the outcomes of the EL?

It helped me a great deal	It helped me some-what	It neither helped nor hindered me	It hindered me some-what	It hindered me a great deal

2.3 In your opinion, is it possible to complete the EL within 6 months, if you work on it full time?

Yes	No

Answer question 2.4 below **only** if you ticked "**no**" in question 2.3 above.

2.4 In your opinion, is it possible to complete the EL within one year, if you work on it **part** time?

Yes	No

Answer question 2.5 below **only** if you ticked "**no**" in question 2.4 above.

2.5 In your opinion, is it possible to complete the EL within one year, if you work on it **full** time?

Yes	No

2.6 If, before you registered for the Diploma, you had seen the *Learner's Manual* for your EL (with the details of what you have to do during EL), would you still have registered?

Yes	No

Answer question 2.7 below **only** if you had to find your own placement for the EL.

2.7 How did the fact that you had to find your own placement for the EL help you or hinder you in achieving the outcomes of the EL?

It helped me a great deal	It helped me some-what	It neither helped nor hindered me	It hindered me some-what	It hindered me a great deal

Answer question 2.8 below **only** if you have submitted at least one project to **both** the lecturer and the mentor for marking.

2.8 The was a very large difference between the marks my mentor gave me for my project/s and the marks the lecturer gave me.

Yes	No

Answer question 2.9 below **only** if you answered "**yes**" to question 2.8 above.

State what you think the reason is for the difference in the two marks:

.....
.....
_____

SECTION 3: SEQUENCE OF ACTIVITIES UNDERTAKEN DURING THE EL

3.1 Below is a list of the types of activities that you have to complete and enter into your logbook during the EL.

In what *sequence* (order) have you been doing these activities during the course of your EL – in other words, what did you do first, what did you do second, and so on?

To indicate this, write "1" next to the type of activity you did first, "2" next to the type you did second, and so on.

If you did some of these these types of activities at the **same time**, please indicate this by giving them the **same number**. For example, if you immediately started doing inoculations, clinical procedures, and border duty all at the same time, give each of them a "1".

If there are some types of activities in the list that you have **not done at all**, then give those types a **zero** (0). For example, if you have not done any border duty, put an "0" next to "Border duty".

Type of activity	Number
Inoculations	
Fertility investigations	
Clinical procedures	
Emergency procedures	
Sample-taking	
Disease testing	
Inspecting livestock and granting permits	
Inspections (taking a census, checking remedies, checking stock sales)	
Regulatory procedures (managing road blocks, issuing permits)	
Border duty	
Veterinary Public Health inspections (abattoir and ante-mortem inspections)	
Evaluating a farmer's pasture and nutrition and giving him/her advice on this	

3.2 In the question below, tick the appropriate block. Tick **one option only**.

How does the sequence of activities that you indicated in response to question 3.1 above help or hinder you to achieve the learning outcomes of the EL?	The sequence helps me a great deal	The sequence helps me somewhat	The sequence neither helps me nor hinders me	The sequence hinders me some-what	The sequence hinders me a great deal

Answer question 3.3 below **only** if you had to find your own placement for the EL.

3.3 During my EL, I have been given many routine, insignificant tasks to do that are not included in the list of logbook tasks.	Yes	No

SECTION 4: MENTORING

Important note: The questions in this section ask you to supply information about "your mentor". If you have had more than one mentor, please answer the questions with regard to the mentor with whom you have worked **most frequently**.

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

4.1 At the beginning of your EL, how often did the mentor you had at that stage interact with you to help you with the activities or projects you had to complete for the EL?	Every day	Every week	Every month
4.2 At this point in your EL, how often is your mentor interacting with you to help you with the activities or projects you have to complete for the EL?	Every day	Every week	Every month
4.3 Is your mentor's **first** language the same as your first language?	Yes	No	Don't know
4.4 Is your mentor's **second** language the same as your **first** language?	Yes	No	Don't know

4.5 What is the gender of your mentor?	M	F

4.6 Below is a list of some of the things your mentor might be doing (or might have done) to help you do the tasks and the projects for your EL.

Which of these actions has your mentor performed, and how has the relevant action either helped you or hindered you to achieve the learning outcomes of your EL?

First select the items that are relevant to you by ticking either "yes" or "no" for each item. Then, for each item to which you replied "yes", tick the relevant block to indicate how the action helped or hindered you to achieve the learning outcomes.

Is your mentor doing (or has he/she done) the following?	YES	NO	If you ticked "yes", how has this action on the part of your mentor helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
4.6.1 Conducting an orientation at the beginning of my EL to make me familiar with the environment							
4.6.2 Negotiating with me about how, when and where my EL activities will take place							
4.6.3 Assuring me of his/her support							
4.6.4 Encouraging me to complete challenging tasks							
4.6.5 Explaining the reasons behind tasks that I have to do							
4.6.6 Explaining how I should do something before I do it							
4.6.7 Demonstrating what I have to do before I do it myself							
4.6.8 Watching while I am doing something and telling me what to do as I go along							
4.6.9 Doing practical tasks with me (for example by helping me to hold the syringe while injecting an animal)							
4.6.10 Asking me questions about my work activities and helping me to come up with the answers							
4.6.11 Discussing with me, after I have completed a task, what I did well and not so well and how I should improve							

(.../question continues)

Question 4.5, continued

Is your mentor doing (or has he/she done) the following?	YES	NO	If you ticked "yes", how has this action on the part of your mentor helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
4.6.12 Explaining some of Unisa's study material to me							
4.6.13 Drawing pictures or diagrams to explain things							
4.6.14 Giving me additional material (e.g. sections from a textbook) to explain things							
4.6.15 Helping me to decide on goals and methods in planning my EL projects							
4.6.16 Explaining why he/she gave me the marks he/she assigned to my projects							
4.6.17 Helping me to solve any problems with supervisors or other colleagues							
4.6.18 Helping me to solve any problems with the lecturer or university staff							
4.6.19 Training me to use problem-solving strategies such as getting the facts, defining the problem, and reviewing alternative solutions							
4.6.20 Helping me to develop time management skills and self-organising skills							
4.6.21 Testing my practical skills with regard to the activities we have to do for the logbook							
4.6.22 Finding out if my problem-solving skills have improved							
4.6.23 Challenging and confronting me so that I have to defend my views							
4.6.24 Giving me feedback on how others (colleagues, farmers and the community) see me and my work							
4.6.25 Encouraging me to express my views and to disagree							
4.6.26 Explaining to me how theory is linked to practice							
4.6.27 Rewarding me with praise or in another way when I've done well							
4.6.28 Criticising me when I haven't done well							

Please tick the appropriate blocks to answer the questions below. In each case, tick **one option only**.

4.7 How would you describe your interaction with your mentor?	Our interaction is very friendly and informal – we talk both about work and our personal lives.	Our interaction is friendly but formal – we talk mostly about work and little about our personal lives.	Our interaction is very formal – we talk about work only.
4.8 To what extent do you socialise with your mentor?	We socialise a great deal outside of work – that is, we often visit each other or go out together.	We socialise occasionally outside of work – we sometimes visit each other or go out together.	We never socialise outside of work – we never visit each other or go out together.
4.9 How does your mentor act towards you?	My mentor acts in a way that shows me that he/she respects me as a person.	My mentor acts in a way that shows me that he/she neither respects nor disrespects me as a person.	My mentor acts in a way that shows me that he/she disrespects me as a person.
4.10 How knowledgeable is your mentor with regard to the work of an animal health technician?	Very knowledgeable	Fairly knowledgeable	Not very knowledgeable

4.11 During your EL, was there ever a situation where you experienced feelings related to the work that were difficult for you to cope with (e.g. feeling frightened when having to approach an animal, feeling bad when having to perform a painful procedure on an animal)?	Yes	No

(.../section 4 questions continue)

Answer question 4.12 below only if you answered "**yes**" to question 4.11 above.

4.12 Did you talk to your mentor about these feelings?	Yes	No

Answer question 4.13 below only if you answered "**yes**" to question **4.12** above.

4.13 Did your mentor respond in a way that you found helpful?	Yes	No

Answer question 4.14 below only if you answered "**no**" to question **4.12** above.

4.14 Please give a reason why you did not talk to your mentor about your feelings.

.....

.....

Answer question 4.15 below only if you answered "**yes**" to question **4.11** above.

4.15 Did you talk to colleagues at the EL site about these feelings (e.g. to other animal health technicians)?	Yes	No

Answer question 4.16 below only if you answered "**yes**" to question **4.15** above.

4.16 Did your colleagues respond in a way that you found helpful?	Yes	No

4.17 In general, how has your relationship with your mentor helped you or hindered you in your effort to achieve the outcomes of the EL?	It has helped me a great deal	It has helped me somewhat	It has neither helped nor hindered me	It has hindered me some-what	It has hindered me a great deal

SECTION 5: INTERACTION WITH OTHER COLLEAGUES DURING THE EL

5.1 Below is a list of actions that you might have performed relating to your colleagues – that is, **fellow workers other than your mentor** – that might be playing a role in your EL. An example of such colleagues would be other animal health technicians (AHTs) at the EL site.

Which of these actions relating to your colleagues have you performed, and how has the relevant action either helped you or hindered you to achieve the learning outcomes of your EL?

First select the items that are relevant to you by ticking either "yes" or "no" for each item. Then, for each item to which you replied "yes", tick the relevant block to indicate how the action helped or hindered you to achieve the learning outcomes.

Are you doing, or have you done, the following with regard to your colleagues?	YES	NO	If you ticked "yes", how has this action helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
5.1.1 Listening to your colleagues while they are talking about the activities you have to do at work							
5.1.2 Watching your colleagues while they are performing the activities you have to do at work, or looking at what they have done							
5.1.3 Talking to your colleagues about work in general							
5.1.4 Asking your colleagues specific questions about the work activities you have to do							
5.1.5 Letting your colleagues **explain** the work activities you have to do							
5.1.6 Letting your colleagues **demonstrate** the work activities you have to do							
5.1.7 Letting your colleagues do some of the work activities you have to do **with** you							
5.1.8 Letting your colleagues explain some of Unisa's study material to you							
5.1.9 Letting your colleagues help with your Unisa projects for the EL							
5.1.10 Discussing with your colleagues, after you have completed an activity, what you did well and not so well and how you should improve							

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

5.2 What is the gender of most of your colleagues?

M	F

5.3 Do most of your colleagues have the same **first** language as your own first language?

Yes	No	Not sure

5.4 Do most of your colleagues have the same **second** language as your own **first** language?

Yes	No	Not sure

5.5 How would you describe your interaction with your colleagues generally?

Our interaction is very friendly and informal – we talk both about work and our personal lives.	Our interaction is friendly but formal – we talk mostly about work and little about our personal lives.	Our interaction is very formal – we talk about work only.

5.6 To what extent do you socialise with your colleagues?

We socialise a great deal outside of work – that is, we often visit each other or go out together	We socialise occasionally outside of work – we sometimes visit each other or go out together	We never socialise outside of work – we never visit each other or go out together

5.7 In general, how has your relationship with your colleagues helped you or hindered you in your effort to achieve the outcomes of the EL?

It has helped me a great deal	It has helped me some-what	It has neither helped nor hindered me	It has hindered me some-what	It has hindered me a great deal

5.8 Below is a list of people and other aspects (activities and materials) that might have helped you to achieve the outcomes of the EL.

Which of these people or other aspects were the most helpful, and which the least helpful?

To indicate this, write "1" next to the one you think is most helpful, a "2" next to the one that is the second most helpful, and so on.

	Number
Taking part in workplace activities at the EL site	
Your mentor	
Your manager/supervisor where you are employed	
Written material that explains what you must do	
The lecturer	
Your colleagues during the EL (e.g. other AHTs)	
Fellow students, e.g. students in a study group	

SECTION 6: OPEN QUESTIONS ON THE EL

6.1 Do you have any further comments about how the **sequence of work activities** you undertook during your EL has helped or hindered you in achieving the learning outcomes? If so, please write these down below.

.....

.....

.....

6.2 Do you have any further comments about how the **mentoring process** during the EL has helped or hindered you in achieving the learning outcomes? If so, please write these down below.

.....

.....

.....

6.3 Do you have any further comments about how **interaction with colleagues** you worked with at the EL site has helped or hindered you in achieving the learning outcomes of the EL? If so, please write these down below.

.....

.....

.....

6.4 Do you have any further comments about how **anything else** has helped or hindered you in achieving the outcomes of the EL? If so, please write these down below.

.....

.....

.....

.....

.....

.....

.....

.....

THANK YOU VERY MUCH FOR YOUR CO-OPERATION IN COMPLETING THIS QUESTIONNAIRE!

Annexure 7

Logbook activities to be completed

Activity	Pts	Nr	Activity	Pts	Nr
Inoculation of:			**Sample taking (part 2):**		
Small stock	25	100	Milk samples	25	20
Large stock	25	100	Post mortems	25	2 stock, 2 poultry
Pets	20	100	Brain samples	25	5
Poultry	15	10	**Disease testing:**		
Ostriches	5	10	TB tests	10	100
Equines	5	10	**Clinical, part 1:**		
Pigs	5	10	Dehorning of calves	25	10
Fertility investigations:			Dehorning of adults (observe only)	25	3
Sheath wash	25	20	Castration of lambs	25	10
Vaginal swab	20	5	Castration of calves	25	10
Draw semen	20	6	Castration of piglets	15	10
Pregnancy test	15	100	Tail docking of lambs, 3 methods	20	2 each
Livestock:			Branding of cattle	25	10
Inspections for granting red X permits	20	10	Lance abscesses	20	3
Inspections:			Insert stomach tube	15	2
Large stock (census)	20	500*	**Clinical, part 2:**		
Small stock (census)	20	200*	Take temperature	25	5
Remedies (distribution points)	5	3	Take pulse rate of pets	25	5
Stock sales	20	10	Take respiration rate of large ruminants	25	5
Regulatory tasks (where possible):			Take temperature of small ruminants	25	5
Participation in road blocks	10	3	Take temperature of equines	25	5
Stock sales	15	10	Intravenous injections	25	5
Permit control	25	10	Intramuscular injections	25	5
Sample taking (part 1):			Subcutaneous injections	25	5
Blood samples of cattle	25	100 cattle	**Clinical, part 3:**		
Blood samples of small stock	25	100	Treatment of large stock with report	20	5
Skin scrapings	25	10	Treatment of small stock with report	20	5
Blood smears	25	20	Treatment of pets with report	20	5
Brain smears	25	5			
Faecal samples	25	10 herds			
Feed samples	15	3			
Tick samples	15	5			

* Census to be taken among 500/200 stock.

Annexure 13

Interview 1 with Student 1

The taped interview session was preceded by an informal conversation with the student, here called Magdalene, in which the following information emerged that provides background to the Magdalene's situation:

- Magdalene is a female first-language speaker of Northern Sotho who grew up in a rural area of South Africa. She gave her second language as English.
- Magdalene had decided to study for the Diploma in Animal Health essentially because of a love of animals and a desire to work with animals. She had not grown up with livestock, but had had dogs and cats and had wanted to work with them, in her own words, "since I was a little girl". When I asked whether she had not found the livestock focus of the Diploma to be problematic if working with pets was her main aim, she said that she was also interested in farm animals, and was satisfied because with the Diploma as background she had in fact found employment in her main area of interest (at an animal welfare NGO).
- After Magdalene finished school she moved to the main urban area of the province where the study was conducted. Before she registered for the Diploma, she worked as a volunteer for the animal welfare NGO where she was later employed.
- She originally registered for the Diploma in 2001, and for the experiential learning in 2002. At the time of the interview she had completed all the theory modules as well as all the practical tasks involved in the experiential learning (the logbook). She still however had to finalise some of the required projects.
- She had done her experiential learning at three different sites: two sites of the government Veterinary Services (one of which she referred to as "home" as it is near her original home); and at the same NGO where she was later employed.
- At the time of the interview she was employed by the NGO as education officer. Her main function was to go out to schools, mainly primary schools, and provide information about the care of domestic animals. She expressed that she was extremely interested in and passionate about this job. She did however also still assist, on an informal basis, in directly treating and caring for the animals that are being held at or are brought to the NGO (thus performing veterinary nursing tasks).
- Magdalene was eager to make one specific point to me, which she did almost immediately after I met her and before the tape was switched on: the main point of difficulty in the experiential learning (in her view) was that there was no *one* site at which the experiential learning could be done that provided the opportunity for students to complete *all* the required tasks in the logbook and thus complete the experiential learning in a reasonable space of time, that is, within a year. The veterinarians and animal health technicians at the various sites to which students could go typically only performed some of these tasks, and performed them repeatedly. Students had to "beg" AHTs or veterinarians at these sites to teach them and give them opportunities to practise some of the less frequently performed procedures. Magdalene said she felt it should be the responsibility of the university to make arrangements directly with the sites of learning to ensure that students were given all the necessary opportunities, and that this should not be a responsibility of the students themselves.

Q:	Right – Magdalene, did you have a look at the outcomes that I gave you?
A:	Yes, I did, yes.
Q:	Would you say – I don't know if you remember them, perhaps let's just have a look – was there anything else that you did, that's not there, anything else important to you – anything else you learnt, that isn't in this list?
A:	*[Pause as she looks at list]* Checking remedies.
Q:	Checking remedies. Checking remedies, what does that mean?
A:	Checking remedies – oh – you go to the chemist, or wherever they sell the medicines, you go there and you check them and you see where they put the other ones they go inside the fridge, then the other ones they don't have to put them in the fridge.
Q:	So you see that they handle them correctly?
A:	Yes, that one, I haven't done it. And then regulatory, road blocks and border duty, I haven't done that.
Q:	Oh. You *didn't* do that. And they accepted that?
A:	Yes.
Q:	Okay, let me just cross that one out then, that's regulatory procedures.
A:	You see what I have here *[pointing to her filled-in log sheets]*, I marked each one that I did, I can explain to you how I did it.
Q:	Okay. What I want to ask you, what I just want to know, really, is of everything you did, which ones do you think you did the best – which ones do you feel most comfortable doing?
A:	*[pause]* Inoculations.
Q:	Inoculations.
A:	Yes.
Q:	Would that be your number one?
A:	Yes.
Q:	And if you can maybe pick two others that you think – that you're very comfortable with?
A:	Ah … inspections.
Q:	Inspections … and what else, Magdalene?
A:	Clinical.
Q:	Clinical procedures?
A:	*[Reading from the "clinical procedures" list in the logbook]* Treatment, temperature, pulse rate and injections.
Q:	Okay. And how about things like – the other main outcomes that we've got here?
A:	Yes, I've seen them, also this one, extension.
Q:	Extension.
A:	Yes, that's what I'm busy doing, I love it.
Q:	Okay. Which ones were the ones you had most difficulty with?
A:	*[Long pause]* You know … fertility investigations.
Q:	All right. And what else?
A:	Sample taking.
Q:	Sample taking.
A:	Yes. I do have a little bit knowledge about what to do – ah – but I wasn't *[inaudible]*.
Q:	All right. Anything else – that you're not so sure about, that you struggled with, maybe?
A:	*[Pause, looking at logbook]* Clinical part 1.
Q:	What did that involve?
A:	It involved – stomach tubes, it involved dehorning.
Q:	All the really hard things.
A:	Yes, yes. Because sometimes – those things, you can't do them alone. You need to get someone to help. But with inoculations and other things, you can do them alone, you see what I mean?
Q:	Okay.
A:	I can still do them but not alone. *[Inaudible]* someone showing me what to do. But you need someone, you need someone to do it, to help.
Q:	Okay. And then normally who would help you?
A:	Ah – I used to go with the technician, and then the farmer – also with the owner's help.
Q:	Other technicians?

A:	Yes, yes. Either I go with – it depends on with what type of, you're going to operate there – if it is difficult, then just to get three or more, two or more to help – like with the dehorning, it should be about four, five people, that one is difficult, you can't do it alone. And then also the castration – oh, that one is very difficult. But I could do it *[inaudible]* help.
Q:	But you have done it?
A:	Yes, I've done it. In most cases I used to say "*I* did", but it's not like I did it alone. I did it with the helpers. But with the inoculation – with the inspection, yes the inspection can still do it alone, there's no problem, these are the easiest ones. And then also the injections, it can be two or - taking the temperature, injections, yes.
Q:	So those were quite easy for you?
A:	Yes, they're quite easy, yes.
Q:	All right. Tell me a little more about your extension work, what did that involve? Give me some examples, during your experiential learning?
A:	Okay, with the extension, normally we used to group the farmers together, or they can also ask us if they've got a problem … At *[naming a regional office of the Veterinary Services]*, the farmers were complaining about mastitis, they didn't know whether it was mastitis or not, they say they've got a problem with their cows, the mother doesn't want the calves to suck, they didn't know what was the problem. And then we had to call them all into one place, and then explain what is mastitis. That when you see the cow *[inaudible]* then also advise them that if there are calves that are breast – on the udder – I don't know what to say – that are drinking from their mother, you can still milk the other cows and then give the milk to the calves that cannot drink from their mothers.
Q:	Okay. So in this case did you talk to the farmers?
A:	Yes, directly to the farmers.
Q:	A group of farmers?
A:	Yes, a group of farmers.
Q:	And how do you get them together?
A:	No, we can phone them. We know their numbers. It was there at S. The other thing, there were three farmers that were complaining about the same problem, and then we let them to go and organise the other farmers around. You know at home everyone's got cattle, they got a farm, it's not like here, you find there's not a lot of farmers here, at home everyone's got cattle, got goats, got sheep, there are those people we call them the farmers, they've got livestock.
Q:	All right. Any other examples of extension?
A:	Oh. And I *[inaudible]* the rabies also.
Q:	Did you give some advice on rabies?
A:	On rabies, yes. That one was at home. I remember – there was the housewives. And we were about to vaccinate for rabies. And we had to call them firstly and advise them about what is rabies, about what all does it mean, what are the symptoms of rabies … just to tell them the rabies can infect people, can infect all the livestock, all the animals, then we tell them to bring their animals for vaccination.
Q:	Okay. So it's like an information session?
A:	Yes, like an information day.
Q:	And did you prepare any material, like a brochure, or did you just talk to them?
A:	Yes, I remember I was having a rough work *[inaudible]*. But I was not doing that alone, I was also with the other technicians.
Q:	And usually, do you do that in English?
A:	No, at home, in our language. Because a lot of people they cannot understand English. But at schools, now I'm doing it in English.
Q:	Okay. And then, they also talked about the "managerial and administrative" tasks you had to do. Can you give me some examples of that?
A:	*[Looking puzzled]*
Q:	Number four here *[on the list of outcomes]*. That was one of the outcomes in your learning material. I suppose administrative tasks are things like filling in forms, but I'm not too sure, that's why I thought you could give me some examples.
A:	Forms for?
Q:	I don't know … during the day, when you're doing your experiential learning …
A:	No, there wasn't any.

Q:	No forms to fill in?
A:	No.
Q:	Records to keep, or something like that?
A:	No, normally we used to write in our logbooks. We had a logbook like this *[pointing to the one on the desk]*, and then I write down, and then the mentor should sign.
Q:	Okay. But there's no other administrative work?
A:	No.
Q:	And any managerial tasks? Did you supervise other people, maybe?
A:	No.
Q:	Not? So you didn't do any of that?
A:	No.
Q:	Okay. So, tell me a little bit about where you did your experiential learning.
A:	I did my experiential learning at different organisations. I first did it at – that was 2002, February – at the Department of Agriculture at *[centre B1]* and *[centre B2]*. They normally work together.
Q:	I see. And where did you work then? Where were you based – in *[centre B1]*?
A:	In *[centre B1]*, yes. But some days they used to [*exact words inaudible; essentially: she was picked up directly from her home, and went out to farms from there; or taken to centre B2 from there*]
Q:	And then, did you have an office there, or–?
A:	No, I didn't have an office.
Q:	So where – how did you spend your day?
A:	Normally we spent our day in the field. You don't stay in the office. You just go there, and then you sign whatever, and then you go out.
Q:	You go out to farms?
A:	For the permanent workers, not for us. The permanent workers.
Q:	So where did you go then? If you say you went to the field, what does that mean?
A:	Oh. To go to the field means working outside, if maybe you're going to vaccinate, then normally you go to the area, like I can say today I'm going to work mainly in *[area]*, to *[another nearby area]*, all around the area, then it maybe takes around three weeks to do.
Q:	Okay, and when you say you're going to *[centre B1]*, you're visiting farms?
A:	Yes, there's the farms, there's the plots, there's the farms.
Q:	But not houses.
A:	Not houses no, just the farms.
Q:	And then you work with the cows?
A:	With the cows, yes. That's an example. And then we do the vaccinations, for blackquarter, for anthrax, for brucellosis. That's what I was telling you about the EL – when you do the EL with them *[Veterinary Services]* they normally have a month, a three-month programme, that person who will be going with them out, maybe has that three-month programme … within these three months, I'll be going out and do the vaccinations, blackquarter and anthrax, and it takes them three months, the whole three months. So that is why I did it part time. Because I can't just go every day and do one thing with him. As soon as I could be able to do it by myself, then I said no, then I know how to vaccinate for anthrax, then I stopped going with him, and then I phoned them, I phoned Dr P and tell him no, I did it, I did my anthrax, and then he going to ask me how do you do it, and then I have to explain. Then he said no, you done it well, and then I'll have to wait again for the other-
Q:	Sorry, who asked you that question?
A:	Dr P, my mentor.
Q:	Oh, was he your mentor?
A:	Yes, he was my mentor. But I was not working with him full-time, because I was working with the technicians. Then thereafter when I'm back from the work, he normally used to ask me "What did you do?" You know? – and then I had to explain I did this, and this.
Q:	Okay. So normally you went out with an animal health technician?
A:	Technician, yes.
Q:	So it's a qualified animal health technician?
A:	No, they are not qualified. They are – what do you call them – they are still studying.

Q:	Oh, so they're also studying
A:	They are also studying, but they can do the job. And then with the techs there are other jobs they cannot do, only the vet can. So then they call the vet, they say, "we are going to do something like this, will you come and join us?"
Q:	I see. And did they show you what to do?
A:	Yes, they showed me what to do.
Q:	I see. So the animal health technicians were almost also a kind of mentor, because they showed you what to do?
A:	Yes, what to do, yes. But the person who had to sign the logbook was Dr P.
Q:	Okay. And did all your – you said you did experiential learning at different places?
A:	At different places.
Q:	And did it always work like that-
A:	Yes, it always worked like that, because I remember I was doing experiential learning for six months, I went home for six months, and they spent almost two months vaccinating for anthrax, and then other two months for *Brucella abortus*, you know, they take time, it's like – I think for experiential learning, it's better for school *[Unisa]* to find a place for us, and then tell the mentor that I'm here for this and that, because when we go there by ourselves we can't just tell them that no, I'm not here for this, I wanted to do that, you know, it was difficult for them. So that is why sometimes I think *[inaudible]* you can't just tell them what to do, you have to do what they are doing.
Q:	So it was difficult for you to cover all the tasks in one place?
A:	Yes, yes. Because they take time. They can spend like three months for rabies. And then spend another three months for anthrax. So you see the time just goes like that.
Q:	Yes. So all in all how long did it take you to finish your experiential learning?
A:	Oh, it takes me – from 2002. Then I was here again *[at the NGO]*, I was a volunteer again, for six months in 2004, February to July, something like that. Also to finish some of the tasks here, but it was also difficult to finish them.
Q:	Because – they didn't do everything?
A:	Yes, they didn't do everything here.
Q:	Okay. So – if you did them all one after the other, how long do you think it *could* take you?
A:	A year.
Q:	A year.
A:	Six months is too little. Impossible, really. To do them all here, you should have a year. Full-time experiential learning. And then they should know that you are expected to do this. They musn't just spend two months or three months doing one thing.
Q:	Yes. Okay … Magdalene, the activities that you said you were the most comfortable with, the inoculation, inspections and clinical procedures … what do you think- why did you learn them so well?
A:	*[Pause]* What did I learn?
Q:	When you- you said you could do inoculations very well.
A:	Yes.
Q:	What helped you to learn to do it so well?
A:	What helped me?
Q:	Yes.
A:	I think – the animal health technicians.
Q:	The animal health techicians?
A:	Yes.
Q:	That you went out with?
A:	Yes.
Q:	Okay. Can you tell me how they helped you?
A:	They must firstly start to explain. Because that was my first time, I didn't know the vaccines, I didn't know …
Q:	Tell me about that first time you went out. Was that on a farm?
A:	The first time when I went out with them – yes, that was on a farm. I remember – I didn't know *[inaudible]* that guy was going to draw the blood – the blood samples for brucellosis – *[inaudible]* with what do you call – a blood tube and I had to assist him.
Q:	What is a blood tube?

A:	A blood tube is something - I will draw for you *[draws diagram on piece of paper]*
Q:	It's a piece of equipment?
A:	Yes, a piece of equipment, and then you put the needle in here *[indicates on diagram where one structure goes into another structure]* and push it here … and before you *[inaudible]* the area you need to wipe it with *[inaudible few phrases]* and then the blood comes out and when the blood comes out you know you're in the right position, in the right vessels.
Q:	Okay. So this procedure is something that they taught you?
A:	Yes.
Q:	And how did they teach you? Did they show you how to do it first?
A:	Yes, they showed me how to do it first. They first – before you do anything you must examine the cattle – before you do everything. Examine for the sick ones, by checking the physical appearance, just check, because you can't just go all over and check-check, it will take time, but with the physical appearance the coat will tell you …
Q:	All right. But did they show you how to do this? How did you learn this?
A:	They showed me, yes. They firstly told me you must always make sure that your hands are clean, and then that you have a clean surface area, because they normally go with a folding table, and then make sure that they *[vaccines/medicines]* are not exposed to sunlight, and check the expiry date, and …
Q:	All right. And did they explain this to you, or did they show you?
A:	Yes, they showed it to me, and on the other hand they are explaining.
Q:	Okay.
A:	They are explaining and – maybe it will be easier, maybe let me talk about the anthrax, how to vaccinate for anthrax.
Q:	All right.
A:	They normally use the automatic syringe and they set it to 2 ml, when you go to inject it you take it up to 2 ml, yes, they show you how to assemble the syringe and how to collect it again …
Q:	So, if you're standing there and I'm standing here and I'm the technician, I will have that syringe…
A:	Yes…
Q:	and do I do it first, or do I give it to you-
A:	No, he did it first. And then I saw what he did. He did it, on the other hand explaining "you see what I'm doing, I'm taking out this, I'm taking out the needles, and now I'm putting in the vaccine, and when drawing the vaccine make sure you are not exposed to sunlight". Something like that. "Then now I'm going to the calf. Before injecting you must select for a place. Depends whether it is intravenous or intramuscular. You must go and check for injection site firstly before you go there …"
Q:	All right. And so did he do the injection then, and showed you?
A:	Yes, maybe with five or ten cows. And then he go and inject and then he told me "Did you see what I did? I don't just go like this, I go slower", or whatever …
Q:	So he showed you, and you watched.
A:	Yes, you watch. He explain everything and you watch. And then after, when you load the other cattle in the crushpen, he says "No, this is your chance. Go there and do it."
Q:	Okay. So you do it yourself the next time.
A:	Yes, I did it by myself the next time.
Q:	And then, was he also there, was he watching?
A:	No, for the first time he was watching and then he found out no, he saw that I could make it, and then the next time I was just doing it alone.
Q:	Okay. And did this mostly happen at all your experiential learning places, did they show you first -
A:	They show you first and then they *[inaudible]*. It depends on the trust of the animal health technicians. They show you first and they explain everything. Then she, or he will give you a chance to go and do it, and he's going to watch the way you're injecting, the way you're operating, the way you draw the vaccines. And then he go and watch, and if he sees no, you are doing well, then he can continue with the other stuff, and you go on.
Q:	Okay. So it really was the help of the animal health technicians -

A:	Yes, they were helping but there wasn't a lot of things to do, especially when it comes to my activities *[pointing to the list of required tasks in the logbook]*.
Q:	All right. And the animal health technicians, did they also discuss with you how you did, after you did it?
A:	After?
Q:	Yes, did they ask you questions-
A:	No, it depends, with the technicians. Some of them are clever, they can even help you with your studies. They will explain why – when you draw the blood, they will tell you, why you see a different colour, the colour of the blood is different because maybe now you've drawn the blood from the vein, and the other time you drew it from the artery. It depends on how clever he is, the technician. If he's clever enough, then he will tell you everything.
Q:	Okay. Magdalene, think about the animal technician that you learnt most from. Is there one that you learnt more from than the others?
A:	Yes.
Q:	Tell me about the person. Was it a man or a woman?
A:	That was a man.
Q:	A man. What was his name?
A:	B.
Q:	B.
A:	Anyway he was still studying, he finished the theory also, but he was still learning.
Q:	So in a way he was a fellow student?
A:	Yes, a fellow student, but he was clever enough because he'd worked there for a *long* time.
Q:	Okay. Do you know how many years' experience he'd had?
A:	No I don't know, but I know it's more than ten years.
Q:	Okay. And with the animal health technicians, were you friends with them?
A:	No, no, not really. Some of them, they are like – *[laughs]* – they are there with work, they are only there to help you, not be friends.
Q:	Okay.
A:	Some of them they were nice, they were …
Q:	They were friendly?
A:	Yes, friendly.
Q:	Okay.
A:	You find that those who are friendly, they don't know work. They don't know work.
Q:	Those who are friendly – know the work?
A:	They *don't* know the work.
Q:	Oh, they *don't* know the work?
A:	They don't know the work. No, they can still do the vaccination, but ah, when you ask them a lot of questions, they cannot tell you what … I always used to ask the technicians, but *[inaudible]* answers.
Q:	And the ones that were *not* so friendly, they could give you answers?
A:	Yes. You go to them, and then, when you go to them, you must like – think twice, you know, and they will give you what you want.
Q:	They will give you what they want, but they're not that friendly?
A:	They're not that friendly.
Q:	Now why do you think there is that difference?
A:	*[Laughs]* I don't know, I don't know. I just – there's a guy there, who just dropped it now. He just dropped it because of this new curriculum *[inaudible]* … finished seven subjects but he says no, he's leaving now. He said he's still a friend of mine, but I can't ask him, no, even if I have a problem with whatever, I can't ask him because I know he won't tell me … but he's still a friend.
Q:	All right. And the mentor then – because it sounds to me like most of the practical tasks you learnt from animal health technicians, so what then – did the mentor help you at all?
A:	Yes, the mentor they help, but sometimes you know – they are always busy. You find that they've got a lot of job to do. And they can't spend a lot of time with you. Only for that special time – I remember, with the temperature and the injections, the one was supposed to show me how do you take the temperature, how to inject the intravenous, because with the intravenous, that one you have to do with the mentor …

Q:	Oh, I see. Were there some things that only the mentor could show you?
A:	Yes.
Q:	Oh.
A:	So you can go and ask them – I did most of the things, but I do not know to do – I cannot take the temperature, how do you take it? And then they will explain to you, and then he will organise – because most of them they've got *[inaudible]* but then they'll organise to go with you to *[inaudible]* and then he'll show you how to do it.
Q:	Okay. And something like that, did he explain it to you first?
A:	Yes, they explain it first that when you take the temperature, you must first shake it, you must shake it, or whatever …
Q:	So he tells you what to do?
A:	Yes, he tells you what to do.
Q:	Oh. And then afterwards, you go with him and he shows you?
A:	Yes.
Q:	Okay. And do you think that the way that he showed you how to do things, and his explanations, did that help you?
A:	Yes, they do help. Especially when they show *and* explain. That helps a lot, more than if someone just shows you, then leave you like that.
Q:	Okay. Were there any other things that the mentor did that helped you?
A:	The mentor?
Q:	Yes. Tell me a little bit about – again, think of the best mentor that you had. Because I suppose you had more than one?
A:	Yes … I had – Dr T. That was the best mentor, I think. He was the one who *[inaudible]* would tell you what you want.
Q:	What do you mean, "what you want"?
A:	I mean, if you want to know more about – if you want to know how to take a blood smear, he had to ask you "why do you want to do a blood smear, what do you want to do, what do you want to attain", you know what I mean, then he would go "gghh" *[putting her head between her hands and making a sound that seems to express exasperation]*, and he would shout at you, but at the end of the day he would take you and show you how to do it. And then you mustn't go to him again and tell him I forget how …
Q:	What would he do if you did that?
A:	If you go there-? No, no, he'll shout at you, he'll say no, no, no, I can't show you twice, or something like that. I showed you, and then I asked you that you do understand, and you said yes, so *[inaudible]*.
Q:	Okay. Can you describe to me – if you think of a time that you talked to him, and he helped you a lot, can you describe to me what happened?
A:	And?
Q:	Any time – you must have had a lot of conversations with him. Was there one in which he helped you a lot?
A:	Yes, I think … yes, I think it was the one … no, even Dr P helped me a lot. But I think I was not working with him- with Dr T, I was working with him every day.
Q:	Okay …
A:	But with Dr M, I was not working with him every day. I was always with the technicians. But with Dr T, I was always with him.
Q:	Okay. Now can you tell me, did you go out with him to do something?
A:	T?
Q:	Yes.
A:	Yes, every day we used to go out and then whatever he do, I used to see that job with him.
Q:	Okay. And then can you think of one job like that and explain to me what happened?
A:	Mmm … I remember there was a … a cattle suffering from … a sheath wash … the penis … there was a problem with the penis …
Q:	Okay.
A:	And he showed to me … to give a sheath wash.
Q:	Okay.

A:	And then that was a bull. And he was fighting like hell. And then we had to put a rope around the bull to cast him down … so that we can give him a drug … just to put him for a while while we are going to operate …

[At this point, the tape stopped and a few minutes of the conversation were lost. The interviewee was asked to re-tell this part of the account in the following interview.]

Q:	So you had a lot of learning experiences with Dr T. But then you had other mentors as well. Did you have the same kind of experiences with them? Did they all teach in the same way, or not really?
A:	No, not really. Because here my mentor was just C., she was not working with animals, she was the manager. We had a doctor here, but he only comes here on Monday, Wednesday, Friday, just to do the ops, the operations, but all the time, *[inaudible]* he was a good guy.
Q:	And did you also learn from him?
A:	Yes, and he's also happy. Because even now I still ask like – do I go *[inaudible]*, and he says no, you musn't use this, you must use that …
Q:	Okay, so you're still learning from him?
A:	Yes, still learning from him, a lot, yes.
Q:	Okay. And then when your mentor is like – you said your mentor didn't know anything about animals?
A:	No – C., no. The mentor – he was the mentor; C. is the manager here.
Q:	Oh I see.
A:	Yes, Dr M was my mentor by then, *[inaudible]* but he can only be here Monday, Wednesday, Friday. And then he stays for the operations. I can only ask him a little bit questions in the morning while he's not yet started to work.
Q:	All right … Magdalene, you said extension was also something you did well. Did the mentor help you- was there anything the mentor did that maybe helped you with extension? Any of your mentors?
A:	With the extension – no. Here I was visiting the school with a video cassette, to show them the rabies, but I was with the technicians, not with the mentor. But at home when you go to explain to the farmers, I was always with the mentor, that's why I told you at home I was working with the mentor every day.
Q:	Okay. And they helped you – how did they help you with extension?
A:	No, you know, normally what he do, he go and introduces himself, he go and introduce ourselves, and then later he can talk a little bit about whatever, and then he says "Magdalene no, tell them about" – he normally tells me "you're going to tell them about this topic", and then you must prepare the topic.
Q:	Okay … And then in terms of the projects, was there any way in which the mentor helped you?
A:	With the projects? No, with the projects, they were difficult. I don't know – ah, I'm still struggling to complete two or three projects, ne. The mentor didn't have any idea about the projects …
Q:	None of your mentors?
A:	No, with the projects I was with Dr T by then, I was already finished with X, I was already finished – then when – because I registered for the second term, I told you. I registered for the first term with the old one, and then when they changed them, they changed the experiential learning, and then I go to the new one, and then I was with Dr P – *[correcting herself]* Dr T – and then with the projects, because like "Oh, Magdalene, I love to help you, but I don't understand what do they want. Can you just go and do them by yourself, then maybe I'll have a light" – you know what I mean …
Q:	Yes.
A:	And then I also explain to Dr I *[lecturer]*, I said "Doctor I've got a problem, my mentor doesn't understand the projects", she says "No, you know what you do, you just write them and then send all the projects to me, and then I'll give you a mark and then I'll make it easier for you to understand what do I want".
Q:	Okay. So that's how you did it?
A:	Yes, that's how I did it.
Q:	And was that the case with all your projects? You didn't do some of the projects with another mentor?

A:	No. The projects - I was doing the projects with myself, not with anyone's help. Because I remember there were six projects, and then I had to go all around and get the information and – go to the libraries and – try to get the information …
Q:	Okay … and you sent the projects then, off to the lecturer, and she – did she give you advice, and say you could try a second time?
A:	No, I'm still here, now I'm still trying. Now I'm writing, because she said I must give it to you when you come back, but I'm still busy, I can't.
Q:	Okay … Let me just check what else I wanted to ask you… And when the mentors or the animal health technicians, when they were helping you with the practical tasks, you said that some of them explained – did some of them explain *why* you had to do things?
A:	No, I also ask them, *why* are you doing this? If they don't explain you have to ask them, because it's like – I don't think it's important just to vaccinate, you have to know *why* are you vaccinating, and why – specifically – *that* injection site, not the other site … you have to ask.
Q:	Okay. So you asked them questions, and some of them could give you answers?
A:	Some of them can give you good answers, some of them they go like "gghh", no – you know – they are not clever, all of them, but there are clever ones.
Q:	All right. And did some of them – the mentors – did they have discussions with you like, saying, I think you did that very well, or I think you should do better in that, or …?
A:	Yes, they go like – as I told you that – before they explain it they give you a chance to do it by yourself, and then when you're doing it he goes like "no, no, no, not this side, I said that side, go a little bit down, go a little bit lower or higher". Then when you do that he says "Good. Now you must-" and then – you will understand what he wants …
Q:	Okay. And – but then, afterwards, did they talk about how you did … or not really?
A:	Not really. Afterwards, they – not really. Unless if you ask them that "I did well?" or something, because you need to ask them, so that you know that you did it well, or something, yes. But they normally don't ask. You have to ask them that "How was my – my …"
Q:	Performance?
A:	Performance, and then they go like "Yes, you are good."
Q:	Oh, okay. So *you* have to ask them?
A:	Yes, you have to ask them like "How was my performance?" Because most of them they won't. Some of them they just go with you but they are too less interested to help. They are not like – people they are not like the same. Some of them they want to help you a lot. You know what I mean, yes.
Q:	Yes … And then those ones who want to help you a lot, are they interested only in the work, or do they talk to you about other things as well?
A:	No, they're interested only in the work, but when we are not working can talk about other things around the world, you know.
Q:	Oh … so the *mentors* – some of them you have talked about things that don't relate to work?
A:	No, not with the mentors. Because they're always – unless we are taking shifts. Because the mentors they always serious, they want to ask you the questions. You don't have time to talk with them a lot of stuff …
Q:	Okay … just to be friendly …
A:	Yes, yes. Not with the mentors. But with the technicians after the work you can talk about anything, you know …
Q:	Okay.
A:	Yes. Because they're always like – watching to see if you are doing well or not.
Q:	All right. Umm … I'm just thinking again that you said it was quite easy to learn inoculations. The things you had to use – the equipment, and so on – was that easy to handle? Easier than, say, the equipment for difficult things, like dehorning and so?
A:	Yes, for vaccination, yes, they are easy, very easy.
Q:	Okay. So that might also have helped you to learn those things so well …
A:	So quickly, yes.
Q:	All right … You were saying that some of the animal health technicians talked to you a lot. When you had to – when you started working, did they have a kind of language there that is different from ordinary language? Like, I suppose they must have a language for … the diseases, for what to do with the animals … Was there a time that you needed to learn the language, was it a new language for you, or did you understand it?

A:	No … there are scientific names that they normally use when they – they've only got the scientific name for anatomy, things like that *[inaudible]* so sometimes when I *[inaudible]* ask what do you mean, you need to explain.
Q:	Okay. And they could explain?
A:	Yes.
Q:	But did they use a lot of scientific words?
A:	No, no they don't.
Q:	No, not really?
A:	No, but the mentor do.
Q:	Oh?
A:	Only the mentor, but the technicians not.
Q:	And did you understand the mentor?
A:	Yes.
Q:	You didn't have trouble understanding him?
A:	No. The thing is, I ask. Whenever I don't understand, I have to ask. I ask him and he explain.
Q:	Okay. And the English that the mentor used – did you have any difficulties with understanding that?
A:	No, no.
Q:	Not?
A:	No, because in most cases sometimes when they are black they can mix with our language, you know …
Q:	Oh, oh. And when they were white?
A:	Then English, one way.
Q:	Okay. And you understood those? That wasn't a problem for you?
A:	What, English?
Q:	Yes.
A:	Before – *[laughs]* before it was, but now I think I'm becoming better.
Q:	When you say "before" …?
A:	When I was – still in first year …
Q:	Okay?
A:	Yes, then I had a problem, but … *[shrugs]*
Q:	Tell me about that – give me an example of a problem you had?
A:	Ahh … you know what, I haven't done like, English at school … English was just a second language and we don't use it in most cases. For you to understand English you have to practise, you have to talk it every day so that you will know how to speak English. But if you – but during the first year, because I was still at home where there is no, like other languages, it was difficult for me to talk English.
Q:	Okay … But didn't that create a lot of difficulties for you in the work, did you understand the explanations, did you have to ask - ?
A:	Because of they were black, eh, they normally make it easier for me to understand. Sometimes they can even use my language *[inaudible]*, you see when you do this in my language and then …
Q:	Okay … So most of the animal health technicians that you worked with spoke your language?
A:	Yes, they spoke my language, and other languages, Zulu, I can understand Zulu.
Q:	Okay.
A:	Yes. So but now, I don't have any problems.
Q:	Okay … so you've learnt the language?
A:	Yes.
Q:	Oh. And then the other thing, the language in the study material, do you think this helped you, or-?
A:	Yes, it was easy to understand, the language, yes, it was easy to understand.
Q:	Really? The study material?
A:	The study material, yes.
Q:	For example, Anatomy and Physiology?
A:	*[Laughs]*
Q:	*[Laughs]* Was that – you didn't have a problem with that?

A:	'Cause with Anatomy sometimes they've got the pictures … they can even show you … maybe they say, they talk about the jugular, they talk about the thurl, they talk about the *[inaudible]*, they've got a picture of a horse or something, they show you where the jugular is situated, then you know, and when they talk about the *[inaudible]*, they talk about towards the tail, or towards the head, you know, then you know.
Q:	Okay, okay … so that – the pictures made it easier for you?
A:	Yes, the pictures, yes.
Q:	Yes, okay, that's interesting … Was there any way that the Unisa lecturer helped you … you know, with these things that you learnt so well?
A:	I don't remember *[inaudible]* … I don't remember … I was just – no, no, I didn't want …
Q:	You didn't phone the lecturer?
A:	No, you know what we normally do, we used to group ourselves. We used to group ourselves, and then we come out with the problem, all that group, there'd be one who'd understand it.
Q:	So you had a group of – fellow students?
A:	Fellow students, yes.
Q:	Okay … did you have fellow students usually, at the workplace where you worked?
A:	No, no.
Q:	So how did you get toge– how did you get to know about it?
A:	Because that wasn't a full-time experiential learning …
Q:	Yes?
A:	Normally – and if I was not – if I – today I don't feel like going for a work – going to do the experiential learning – I phone them and say "no, don't come and pick me up 'cause I'm going to school". So we are going to group ourselves, maybe, and then we talk about our problems.
Q:	Okay … and when you say "going to school"?
A:	Yes, we go to Unisa. But we don't go to the lectures.
Q:	Oh?
A:	Yes, we go to Unisa, there's a study centre, and then you go there, we meet there, and then come up with our problems, and help each other that way.
Q:	So how many were you in that group?
A:	We were about … five.
Q:	Okay …
A:	Yes, about five.
Q:	All from the area?
A:	They are all from *[area where she lives]*, all from *[area where she lives]*, but we are all, normally, born and bred in *[Province Y]*.
Q:	Oh I see, I see …
A:	Yes.
Q:	And how did you find out about each other?
A:	At school. When we are busy studying *[inaudible]* table you see someone with Animal Health and then you have to wait there until he comes back. Then the other one, who's the other one?, then it goes like, no, let's group ourselves, guys, and help each other.
Q:	Okay … and you thought that helped you a lot?
A:	And again, when we go to the practicals, we do have the practical sessions, then that's where you would meet all the students, and then you go like "don't you want to join us, we've got the group", or whatever.
Q:	Okay. And did you manage to help each other?
A:	We manage, because of – we manage to help each other and we finish it in the same year, at the same time. But no matter now they are graduating, they've graduated them all, I'm the only one who's not … *[laughs]* because of this thing …
Q:	Yes … the experiential learning …
A:	Yes.
Q:	So tell me, why didn't you – you didn't really go and see the lecturer, ever?
A:	Mm.
Q:	Why not?
A:	*[Pause]* Because of – I remember the first day, when I was still a first year, I had a problem with … *[pause]* Zootechnology.

Q:	Yes.
A:	And I had to visit – Dr V *[previous lecturer]*.
Q:	Yes.
A:	He was – that was a nice guy, and he tried to explain to me, "Magdalene …" – maybe – I had a problem, maybe, I had a problem with English by then, because I was still a first year, and I failed it, you know. And then he explained it to me, he explained long, lots of times, but I didn't understand, I said "ag no, I don't want to go to school", because of I don't understand their language. And then he explained to me, thinking that I do understand, but I was not understanding, you know, and then I go like "ag no, I have to get this …"
Q:	Did you tell him that you didn't understand?
A:	*[Laughs]* Nooo, it was like embarrassing, you know? Yes, I didn't, I didn't, but I had to learn English in a hard way, so that I'll pass my exam, and I failed the first year.
Q:	You say you had to learn English "in a hard way" – how did you – what is "a hard way"?
A:	I had to – I had to talk it every day, I had to at least try to get a new word every day, and then, have my dictionary with me to help me, you know what I mean?
Q:	So you put quite a lot of time into learning English?
A:	Yes, really. And then again with, *[inaudible]* to the experiential learning, with the mentors, normally you don't talk your language all the time, you must at least mix it. You can't just say – your language all the time, because they are talking English, they want you to learn English.
Q:	All right. So it sounds like you not only learnt Animal Health, you also learnt English?
A:	*[Laughs]* Yes, I also learnt English, that's true.
Q:	Was there any way in which Unisa admin staff helped you, I know there's some – some staff that deal with experiential learning -
A:	Yes, tutors, or -
Q:	Or tutors? Did they help you in any way?
A:	I don't even know them.
Q:	Okay. And you never telephoned them?
A:	No.
Q:	Didn't you need to telephone them?
A:	No.
Q:	Okay … With the theory that you studied, the learning guide, did that help you to do the practical work, like inoculations?
A:	Yes, yes, they do, they do, because of – like – *[pause]* – like – let's talk about the blood samples. They will write you, and then also have a picture of a cow, and then show you how to take the blood samples for brucellosis *[inaudible]* in the laboratory, and then also explain, why this way, why not this way, you know what I mean …
Q:	All right … so the learning materials helped you?
A:	Will help you, yes, especially if you forget what you did, then you go to them to remind you.
Q:	Okay … The way that your logbook was marked – I saw the mentor had to sign off everything you did -
A:	Every day, yes.
Q:	Was there anything about that that helped you?
A:	By?
Q:	Eh – did the mentor maybe give you any feedback …?
A:	No, you have to explain, he cannot just sign. Because you're the one who write there, I did that smear, or *[inaudible]* there was a cow that *[inaudible]*, and then I did the blood smear, but because the space is too short, you can just say *[inaudible]* the cow or something, then he could ask you, "You say you did that smear. Tell me how you did it". Then you have to explain, I did it – like, first you prickle the ear, then take out a drop of blood to the microscope glass, and then …*[pause]*
Q:	Okay, so you explain the whole procedure?
A:	You explain the whole procedure, yes. And then he'll go like "okay, yes", and then if he wants to add, he will also add.
Q:	Do you mean that he'll add to the explanation?

A:	To the explanation, yes. That you can also do it like this, and if there's the other option of obtaining the blood smear, or something, then you add.
Q:	Okay, so did he talk to you about it, usually, after you finished?
A:	After you finished, yes, you have to explain what have you done, and then if he wants to add or help you or whatever, then he does help. Then he signed the form.
Q:	And did you find that helpful?
A:	Yes it is, it is, because sometimes you can just write things by yourself and then let him to sign, when he's not working with you, so he was not doing that.
Q:	Yes, I see. And the mentors you said didn't really help you with the projects?
A:	Yes, they didn't, really. Because I'm still doing it now. I had to do the Zootechnology project, this one – ah – evaluating and adjudicating beef – I have to do it now.
Q:	Oh, you're still busy with it?
A:	Yes.
Q:	Tell me, I remember there were those marking sheets in the learner guide and then the assessment criteria … Shall we have a look at them – do you remember what I'm talking about? Ah – let me just find it … You have, for example, things like this -
A:	Ah-hah?
Q:	Assessment of projects – you know, these things – "planning of projects", "theoretical knowledge", "personal appearance", that kind of thing …Umm – did you have a look at these, you know, while you were doing your projects? Did they help you in any way, or didn't they?
A:	No, because of – sometimes they didn't help me – let's see – "planning of projects" – maybe because I'm the one who planned it, I'm the one who was – trying to find out the researches, and – he can just put whatever he wants to put, the marker.
Q:	So, are you saying – he didn't actually *know* whether you planned it properly or not?
A:	Yes. Because of – he's not helping … I used to go to him – the problem is, he explained to me "Magdalene, I can see your project, but I don't understand everything", and I told the lecturer, my mentor doesn't understand everything …
Q:	Okay …
A:	He says, "I want to help, but the thing is, I don't understand everything, go and write, go and find out the researches and write and bring it to me, maybe I'll understand better if you show me everything you've done".
Q:	Okay.
A:	Yes.
Q:	And – but then, did he give you a mark?
A:	*[Pause]* He?
Q:	Because some of them, the mentor had to mark. Did he give you a mark?
A:	I remember – some of them, he did. Especially with the one of communication, because I had to – I had to – go there, with, I think – with the communication, yes, I had to present a talk in front of him about rabies so that he can give me a mark.
Q:	Oh.
A:	Yes.
Q:	So – he also gave you marks for those projects where he didn't really understand?
A:	Yes, he did, because he said, "Magdalene, go and write that project, and then maybe if we have that information, then I'll understand what they do want".
Q:	And then if he looked at the project afterwards -?
A:	Then he goes, “no, now I've got a light. Now I've got a light, I can see what they want”.
Q:	Oh, and then he gave you a mark?
A:	Then he gave me a mark, yes.
Q:	Okay, okay, I see … And then do you think like – I was wondering about this one … *[pointing to the criterion "personal appearance"]*
A:	Personal appearance, yes.
Q:	What does that mean?
A:	Oh, personal appearance – I think – personal appearance – mmm – the way I look when I go to work, when I go to experiential learning.
Q:	And how should you look?
A:	No, I have to wear like – because I work with men, anyway – I have to be – I have to wear like a long shirt, whatever – I can't just wear the stomach out, or whatever – I have to – I have to be acceptable to them, you know what? Because I work with men.

Q:	Yes.
A:	Yes, I think you need that, yes.
Q:	Okay. Umm - and then, yes -
A:	Or otherwise you can't wear the mini skirt when going to work *[laughs]* – I don't know, I think ..
Q:	Yes. I suppose you have to wear something that's comfortable?
A:	Comfortable, you feel comfortable, because you're going to work with – cattle, and sometimes you find that you have to climb over the crushpen …
Q:	Oh …
A:	If you cannot get the cattle in the right position, then you have to climb over the crushpen – if you have a mini skirt or short top, I don't know how are you going to look like. *[laughs]*
Q:	Okay. [L*aughs]* And this – "acceptance of authority" – what does that mean?
A:	*[Looking puzzled]* That one – "authority" – no, I can see it, but really – *[long pause]* – no, let me do this later. *[laughs]*
Q:	*[Laughs]* That's fine, that's fine. Umm – "punctuality"? I suppose that means that you had to be on time?
A:	I think so, I think so, yes.
Q:	So these things that you had to do *[pointing to assessment criteria on mark sheets in student guide]*, did they help you when you were doing your projects, to tell you "Oh, this is what I've got to do"?
A:	Yes, because I used to – yes, whenever I got any information I used to go to him to show him that "now I've got this and this and this" – yes, I think – it sounds – what can I say – when show him I've got – I have to write something and he read it, he said "no, it sounds very nicely … but go and do the other thing and when you're finished maybe I could understand it better". Because sometimes when I have to get information I have to show "do you understand this?" and then he have to explain to me and then I said "Okay, I think of including this information to the other project of mine" – you see what I mean?
Q:	All right … and then you said that sometimes – it sounded to me like you said you sent the projects in to Dr I, the lecturer, and they marked it -
A:	No. Because of Dr T, I don't know whether he was still working there, because he was saying he was going to work in Venda, and then I said no, doctor, because if you are leaving, resigning to Venda now, I think it's better for you to read my project and give me the mark, because when I take it to school it will take time, they will take three months to come back, then by the time you are gone I won't get another mentor.
Q:	Okay … so do they normally take three months?
A:	They take time, they even take more than that. But Dr I had to explain to me that R *[name of Unisa administration officer]* was not sending them back to us. He finished them, but he had no time to send them back. Some of them got lost – you know what I mean? – so that's why they were taking time because R had a lot of job to do. But the time it would take more than three months, waiting for them to -
Q:	And then they say in here *[pointing to stack of learning material]* that if you want to you can make a rough draft of your project, send it in and they will give you some feedback, and then you can improve it after that. Did you ever do that?
A:	No, I haven't.
Q:	You haven't. You just sent the final ones?
A:	The final ones. And then it comes back and it says no, you have to redo it, then I don't have a choice, I have to redo it.
Q:	Oh, you had to redo the projects?
A:	Yes.
Q:	And when you have to redo it, do they tell you why the first one – what was wrong with the first one?
A:	No, they don't.
Q:	Don't they?
A:	No, no.
Q:	Don't they write something on the project?

A:	I think the writing – sometimes he ask you "why are you saying that?" – he just asks you – maybe the question goes like this – "What is this? Why are you saying this?" You know what I mean? But they don't give you a guide. Even the projects, there's no mentor, there's no lecturer for the projects, you must do them by your own. The book – it says there – that there is no lecturer for these projects.
Q:	Yes … but you can phone the lecturer, I think.
A:	You think I can? *[Laughs]* No, I didn't know.
Q:	Oh sure, you can definitely phone Dr I.
A:	Phone Dr I and ask – what – they …
Q:	Yes, if you're battling with the projects.
A:	No, I mean I'll phone him like just – maybe tomorrow – yes, Monday, because I'm still struggling with the other projects and people they are graduating and I'm left – left alone.
Q:	Yes … and then maybe that's something you can think of as well, to send her the rough draft first, get comments from her, and after you get the comments then you can refine it -
A:	I think I'll do that, yes.
Q:	Yes – because in this learning guide, or somewhere in the tutorial letter, they say that you can do that … but then I just hope it doesn't take too long …
A:	No I don't think – because, really – next year they say the curriculum is changing – if I could not finish – because I've done almost everything, anyway – I have to do this before the end of this year, otherwise they'll – put me with the other group – no, I don't want that, you know! Because I'm already tired, since from 99 …
Q:	Yes.
A:	I'm already tired, and I'm becoming less interested, 'cause of – it's been long now, waiting for the Diploma, and I'm not sure that I'm getting better, or something.
Q:	Why did it take so long – ?
A:	The experiential learning. Yes, that's what I did, it takes time to do one thing. I think with the experiential learning, when you do the experiential learning, I think the school *[Unisa]* should be responsible for the students *[inaudible]* so that they can expect the organisation – "I want the student to do this, and this" – you know what I mean – because you go there, you get by yourself, it's not easy to tell them to do what you want.
Q:	Maybe if you go there with - other students?
A:	With other students?
Q:	Yes.
A:	No, it's still the same, they've already planned their programme, you know what I mean …
Q:	Yes.
A:	You can't change the programme, you have to follow the programme. Unless, otherwise, if there are emergency cases, those ones you can attend, you can do them, *[inaudible]* then you are lucky because then you can see - they do the temperature, they do everything. But if you don't have emergency problems, then you won't have blood smears, you won't have brain smears, you won't have anything – you'll only vaccinate.
Q:	Okay, so you have to adapt to their programme?
A:	Yes.
Q:	It sounds like it's a big problem.
A:	Yes, yes.
Q:	Magdalene, at this stage, is there anything more that you would like to tell me about anything – anything that specifically helped you, or anything that specifically was difficult for you?
A:	Ah … I think the experiential learning helped me because I went there with an empty head, without knowing the medicines, without knowing the injections, how do you put things together, how do they work – I mean, it helped me a lot.
Q:	So generally you felt it was valuable?
A:	Yes … because now I've got information.
Q:	All right.

Annexure 18: Interview 1 with Student 6

Student 6 (here called Jennifer) is a white English-speaking female student who is not employed by the Veterinary Services. She worked for a private veterinarian for six years and did much of her experiential learning there. At the time of the interview she was not working, but studying full-time.

Q:	Thanks for talking to me. Can you tell me when you first registered for the Diploma in Animal Health?
A:	2000. *[Jennifer went on to provide an overview of all the various subjects she did in various years, including the practical courses, with the marks she received for them, most of which were between 50 and 70 per cent. She has finished all the "theory" modules and only has to complete the EL. In talking about Epidemiology she mentioned the following:]* I did Epidemiology … and that was a 62 … *but* they marked me down, and I still went and – it was *[previous lecturer's name]*, and it was a black marker, and you know that subject, they gave you *nothing* in that book – I mean my dad is a Maths and Science teacher at like, university level, and he could hardly even figure out what they were trying to say in that book. And we actually went – I mean I got 42 per cent for my assignment, my dad re-marked it, we went there, and *[the previous lecturer]* re-marked it – 74 per cent. Then he said, you know, he can't change my assignment. So this is what I've got in my file, 62, Epidemiology … but if anything they can separate it into two subjects, because it's a *hectic* subject – to catch it on like this, when I didn't do Maths at school, and most people didn't do Maths at school, you know the blacks and that – to cut that subject in half, maybe in year 2 and 3 – that's *my* opinion.
Q:	Well, in the new curriculum it's over three years.
A:	Over three years? Well, I did it in one year, and it was a *hectic* subject. Okay, that's nice to know … *[Jennifer went on to give the rest of her subjects with her marks]*
Q:	When did you register for the experiential learning module?
A:	I think I did register in my first year, but obviously … you're so busy studying the first three years, not physically – no, you're writing in your logbook and stuff like that, hey, that's for sure, but I mean we were seeing so many clients per day, I mean working for a private vet, you're seeing from horses to dogs to birds – and you're working full-time, I mean I was working, I was doing ops, I was assisting, I was doing reception – so you can't just sit down and now write a full report about what that animal's sick of. Because the job is so quick, sometimes you *[inaudible]*. So yes, the logbook is there, but – yes. Another question?
Q:	*[Laughs]* All right, but so that was 2000 as well?
A:	Yes, and then, obviously after I – I went back when I'd finished all my theory, and I re-registered – I think it was – I've got all the papers here …
Q:	Oh, so you re-registered?
A:	I had to re-register, because the first time, they had something ridiculous like sixteen assignments to do. I mean the one, I spent doing five times, and I worked it out, it was 85 hours and each time it failed, we had to build that model of a leg.*
Q:	Oh, yes.
A:	Where – who told you – where do you get that information how to get the meat off, number one, to harden the bone, number two, and to put it together?
Q:	So you didn't have enough information for that?
A:	I didn't have enough information, I couldn't find it on the Internet, I didn't have books, I even asked my vet, he just looked at me and he said "Boil it". So I boiled it, but you can't even find a pot big enough to boil it. And then it stinks like haggis, the whole house – it was terrible.
Q:	Which animal's bone was this?
A:	It said "any domesticated animal".
Q:	And which one did you use?

*This was one of the practical projects before 2003. The new programme co-ordinator omitted it from the course in 2003.

A:	I used sheep at first because, across the road was a big sheep farm that I used to go to every day – checked out the lambing, do your routine work there – so when things died, he didn't mind … Imagine now you go to a farmer and you say "Can I please chop its leg off so I can do my assignment?" So every time I did it, it almost failed, because I didn't know what I was doing, you see, you lose all the little bones in the knee, in the boiling process, because they boil away. So now to get the consent of a farmer, to give you a leg, number one, is … the guy's crying, now you're saying, "Can I cut its leg off?" Because *[inaudible – something like "it's a small farm, so"]* it's their pets … So, on my fifth time, I thought "bugger this", and there was somebody's cow that – he was there and he wanted to start farming, he was a youngster, his cow had died, so I said – it was maybe a seven-month-old heifer – I said "Can I have its leg?" … Do you know, that took me a year, to get the meat off, and to not lose a bone – and now it's sitting there and I don't have to do it. But I put it together sometimes and I play around. I will put it, I will take a photo and I'll say "I did it".
Q:	But now with the new projects you don't have to do it any more.
A:	No, I don't have to do it any more, thank goodness, but you know they've actually turned harder. They've kept the one that actually, thank goodness, I've almost completed – the one with the grass specimens. Now this, I can say to you, shame I do feel sorry for the little bit underprivileged people because – this is what they say – *[paging in her Mentor's Guide and finding the place]*: "Collect, identify and submit fifteen grass species or edible shrubs and five poisonous plants. Provide the following information about each specimen, and this must be submitted" – bla bla bla, okay – "name, locality", bla bla bla – *Where* do you get a book that has grass species of South Africa? Okay? I, from the first time I enrolled, was looking for a grass book, I finally got it when I'd finished already, it's *Guide to Grasses of Southern Africa* … Now what I did is I didn't have the book, I didn't have the information, so I went to Friends of *[place name]*, which is a wetland nature reserve, it's got a lot of grass, and I picked just whatever – my mom helped me – whatever looked different, pressed them, pressed them, pressed them … *Finally* I came across a book, now *you* try and identify a pressed grass against these pictures – *very* difficult …
Q:	I can imagine.
A:	Yes, and then some of the other people on the courses, which I became friends with because they had, since Anatomy *[practical course]*, been coming on the courses, they say to me "Can I lend your book? Can I lend your book?" When I paid here, *four* hundred and sixty rand for the book!
Q:	So they're making use of you, really?
A:	No, I'm not going to lend them my book, I just said I don't have it here, forget it! And I'm *still* working on it. Because what I actually did the first time – it's how they wrote this in the book itself, this textbook – then you go back and you read how they want it done, it's totally different from how they do the book, meaning – italics, or first letter must be a capital, and thereafter not, that you can't use – here, in the scientific report *[Tutorial letter giving guidelines for scientific reports]* they say you can't use the common name, so every time you write it out you have to say *Eragrostis curvulas* and this and that – and it becomes a pain! But these people that live in townships, and there are some of them – where do they get four hundred and sixty rand to buy this book?
Q:	Isn't it something that you could find in a library?
A:	I looked in libraries.
Q:	Did you? Which libraries did you use?
A:	The *[name of a medium-sized town]* library, I went to the Florida one once and they didn't even have the book, and the *[name of another medium-sized town]* library, because that's where I live.
Q:	Perhaps now it's something you could order from Unisa–

A:	No, you can't. Then, the other one, which I managed to buy, which we don't get information – yes, in first year you do Nutrition, okay, and they do give you two books that they actually say that you should get that we managed to get, the *Declared Weeds or Alien Invader Plants of Southern Africa*, and the other book, *Plant Invaders of Transvaal*. But they don't give – theoretically – the poisonous plants in the *[inaudible]*. So I did manage – because we are book lovers – a beautiful book – it's called *Poisonous Plants of Southern Africa*, by *[naming four authors]*. And this book cost me three hundred rands.
Q:	So you spent quite a bit on books?
A:	And these are books that you need just for this one project. *One* project. Because I can do, say, the locality, or the scientific names, common names, okay – habitat, main features and characteristics, and economic value – these books do go into. So you can't do this project unless you have these books.
Q:	And then also collecting the grasses-?
A:	The grasses, I did that in the springtime. Now, when I read here and I get to the back of the book, it says I have to do a project proposal. Now what they actually state is that you can't start your projects – okay – "submit … your project proposal … at least one month *before* you" – *even* – "want to *start* on the project" … Okay, now I've already collected it, so I have to lie about it, because, when I collected it, it was – three years ago, and it was in springtime, and it was after a good rain – I've got – from the nature conservationists – rainfall, how they do controlled grazing, fire, how many wild game they got, all those details put into what type of grasses you find, soils, so you can't do this project in – no, you can't even start it in winter, you can't. So I – but I've already done my project proposal. But then they want to know – and this is ridiculous – "when are you planning to start it, and when will you finish it?"
Q:	I see … You know, I wonder – I've looked at a number of students' portfolios and I didn't see that any of them submitted a project proposal. Perhaps you should just phone the lecturer and discuss this because I'm not sure if a project proposal is strictly necessary.
A:	You musn't tell me that, because I've already written all of them, all I have to do is type them.
Q:	Just check with the lecturer, just make sure.
A:	All right.
Q:	I'd like to ask you, when you registered for the EL, for Animal Practice III, were you already working with animals at that time, or did that come after you registered?
A:	I'm twenty-eight on Friday – and I've been riding since I've been in standard one. So horses were my big love.
Q:	Is that why you decided to do the Diploma?
A:	I basically had my own horses since standard 3, my grandparents farmed *[inaudible]* and maize, so I spent all my holidays there … Thereafter I left and did first-aid courses and stuff like that, stupid things, and that's when I did my South African National Horse Federation Certificate.
Q:	What did that teach you?
A:	It was basically stable management, horse management, reproduction management, everything, riding instruction … And while I was doing that I was teaching, at the local stables here … and he's the South African eventing champion, so it's a very, very well-run yard … and I was doing *[inaudible]* there … Then my dad said, Dr P, he often takes around students, so he said "Well, why don't you just go around there for a month?" And it was after a month that he offered me a job, okay, it was a minimum salary …
Q:	That's great … when was that?
A:	It was – at the end of '97. And then he actually offered me a job, but then I also did reception work, I did his reception, I did – I learnt the drugs that *[inaudible]* alongside, did stock controlling, I was his assistant in all the operations, I even did simple operations, all the castrations … going out to vaccinate sheep, you know, pulpy kidney, or just dewormer – you know, it doesn't take a vet to do that work. So the only thing that we didn't do a lot of, that I will never be able to finish – I mean, even G *[=Dr P]* said in his – just in ten years of practising we don't do TB and CA that often, because the state does it for nothing, whereas he has to charge for his time. So I'm up to a record –

	oh – and I've got all the results and stuff – I mean I must have done, maybe 50, but then the big bonus was when I was retrenched, my parents have a house in *[area]*, up in *[area]*, that Dr R, which is *[inaudible]*, he does wildlife, and his house is next to my parent's house, so they met, and they said I'd worked for Dr P, and it turned out they went to school together! So I got to go ride with him, and I've injected – I *[inaudible]* the other day – over 150 buffalo. But then you dart, you only do 5 and 5, and you work with three vets, two state vets, a private vet, and two handlers, which was usually me and his assistant. And then you do – you probably – sometimes I'd give three injections at once, like maybe a vaccine, you know, anthrax, and antibiotics because you're darting them, and usually maybe a *[sounds like]* Betamax dewormer, or - because these cattle are in a TB/CA-free breeding programme of the buffalo, just off the Kruger Park, so I got to work with wildlife on top of that, and I'm *sure* that would count for something …
Q:	Yes. I understand you can exchange buffalo for cattle, for instance. You just have to discuss it with the lecturer ... Let's just get back to when you started. So, when you decided to do the Diploma, you were working at the vet?
A:	Yes, that was while I was doing the horse diploma. And then G said to me – or no, my dad actually said to me – "you do love the cattle, and you do love the sheep, why don't you think of doing something like that?"
Q:	So how did you hear about the Diploma?
A:	Well, my dad is very big in *[inaudible]*. He's a lecturer.
Q:	I see.
A:	And he runs the *[name]* College, and he does moderating, and stuff like that for Pretoria University, plus he's *[inaudible]* now, his courses that he started ten years ago, in the pulp and paper *[= for the pulp and paper industry]*, he's now also going to Unisa …
Q:	Oh yes, I heard about that.
A:	My dad started that.
Q:	Oh … And I suppose you started also because you were so interested in animals?
A:	Yes, of course. You think I'd like dropping around in manure if I didn't enjoy it? *[Laughs]*
Q:	*[Laughs]* So when you started, what did you think your career would be when you completed the Diploma?
A:	Just – working with animals.
Q:	Just working with animals – it didn't matter what the context was?
A:	As long as it was enjoyable. No, because I think – my grandfather was a farmer – working for a vet – having my own farm would be fantastic – marrying a rich farmer, even better …
Q:	*[Laughs]* Sounds like a good ideal.
A:	No, I don't know – you know – I finished my horse diploma, and then I just thought to myself, you know, there's no really big career in horses, if you think about it … why not broaden the span?
Q:	Yes … The Diploma prepares you to be an animal health technician. Did you have a clear idea of what that actually involved before you started?
A:	No, my dad just said I must study it. *[Laughs]*
Q:	I see ... I was just wondering, because it's geared a lot towards people who actually work for the government Veterinary Services–
A:	Yes, I know that. But you know, sometimes a private vet that does large animals needs help – in the field – I mean we did caesars, when, if it wasn't for me – or stitching horses, you need a handler – you go to these people's plots, they don't have *[inaudible]*, you've got to go catch the horse, somebody's got to hold the horse, somebody's got to help you stitch it … And there is, with the private vets, there is space for people like me. Not just nurses, because that's spays and stuff – but a technician knows – the nurses do small animals. It doesn't mean that they're going to be able to catch a wild Brahman.
Q:	So you think there are definitely opportunities?
A:	Yes, and going, and working as farm assistant. Running their dairy herd …
Q:	And did you find that the vets that you worked with … what was their attitude towards this Diploma?

A:	No! Everybody liked me, and they thought it was a good idea, and I know all the vets that I've worked with, and I've worked with a lot, they know I've got a lot of knowledge …
Q:	So they thought that doing the Diploma was a good idea for you?
A:	Yes, because I've got knowledge. So you're not just taking somebody who's been at Onderstepoort, and studied, and not actually really been out in the field, working with things that are maybe sometimes horrible – I mean who can actually stand here and hold a horse to be shot, that kind of thing?
Q:	Is that something that you've done?
A:	Oh, of course.
Q:	It sounds like you've got to have a lot of guts to do this.
A:	Yes.
Q:	It doesn't sound easy.
A:	No, it's not. Getting choked by ostriches is the worst. *[Laughs]*
Q:	*[Laughs]* Have you ever been injured or kicked by something?
A:	I've been bitten by a dog … but you know what, I've had horses since I was very young. And with the Brahman, they are not tame animals, so there's always a very – I respect, I respect those animals, that's the difference …
Q:	Okay … What I would like to ask you is, if you look at the list of outcomes in your *Learner Manual* – have you got that with you?
A:	*[It turned out that Jennifer had the Mentor's Guide but not the newer Learner Manual]* No, I don't have it, because when I applied again – I thought it was only three years that you had to do it – which was – 2004 –
Q:	Was that the second time you registered?
A:	Yes.
Q:	So you actually still have quite a bit of time.
A:	No, I thought it was three years, that's the end of next year.
Q:	No, it's actually five years, you've got five years to do it.
A:	Okay.
Q:	Well then, let me ask you about the Mentor's Guide – if you could look at page 34 – the activities required for the job log sheets.
A:	Ag ja, these bloody log sheets …
Q:	In the new material, there are several outcomes that they give that you have to achieve. One of them is these practical tasks. Then they also have the outcome that you should give extension, advice and training to farmers–
A:	Where's that?
Q:	It's not in the material you have, it's in the newer Learner Manual–
A:	No, well that's fine. I've already done more than that. Under equine – we injected – sometimes up to 25 horses a day. And they only ask for 10 – I mean, hello-o!
Q:	Okay … but in terms of what they call "extension", you know, giving advice and training to farmers, for example giving them more information–
A:	Yes, I do do that, because that's my job. You know, when people phone in – because I did reception work in the morning for three hours – people would phone in and then, you know, "there's a lump underneath my sheep's jaw" – you know, then you know it's wireworm – because you *have* to give advice! – I mean it's not just the vet's job to do that, and then you'd say "you can get it at the co-op, or you can get at us", and then they'd say how do you dose it, and then you'd say "in the mouth, it's easy with a syringe", so you're talking with them constantly, and you teach them constantly. Should I put that in?
Q:	Sorry?
A:	Should I put that in my logsheets?
Q:	I think you should put that in your experiential learning report that goes into your portfolio. That would be very good.
A:	Okay …

Q:	One of the other outcomes is communication. Maybe you'll remember that one of the projects is about communication, where you've got to prepare a talk on any animal health topic–
A:	Yes. But you know, it's so easy – what about it?
Q:	Is that something you've done?
A:	I've done lots, because I've done lots of talks for the horses, *lots* – but they say here – yes, "on any animal health topic" – so I can go into tetanus, African horse sickness, the new flu virus, worms … I can do that perfectly … What I was actually thinking, to make it even more difficult, is doing a talk on ticks and the diseases that they cause - tick bite fever, gall sickness, heartwater, biliary …
Q:	So have you done something like that before?
A:	No, but I've got all the information.
Q:	Right … then another outcome they have here is collecting, processing and analysing information. You've told me about how you obtained information for your project on the plants, but apart from that, generally if you need information, what are your sources of information?
A:	Well, the books themselves. If I didn't have the books I don't think I would have finished the project.
Q:	Okay. And then let's say you need a new book, where would you go?
A:	I got these at *[name of shopping centre]* Mall.
Q:	And have you ever tried to use the Unisa library?
A:	It's too far for me to drive. I live in *[name of town about 50 km from Pretoria]*.
Q:	But you can order books from them by post …
A:	Yes, you know … since I finished my theory, apparently I've got a new student number, which I've never been informed of, I haven't received another – because this was Technikon SA – student card, I haven't received one piece of post, which they used to send me every month, not one! So they've forgotten me, on the computer. So no, I don't even know where to go – I wouldn't even know. And then when I phone, it's like – "Eh – well, if you can't give me your student number, I can't help you" – I said I don't know it, because it changed!
Q:	That's terrible … But still, if you have a postal address, Unisa could sent you books by post.
A:	I don't need them any more. And now – the next one, Zootechnology – I mean, send me a book and I'll just copy straight out of it *[laughs]* … but I mean we didn't work with *[inaudible]* that's got diseases, we just knew, okay, lumpy skin disease is in the area, so we'd go out there, you've got people that only have five cows, and you see it's lumpy skin, you know what drugs to give, then you go to the next one – it's not like it's an *epidemic*, you know! So it's difficult for me to write something on that.
Q:	I see … but I'm just saying that if you have projects coming up and you need information, that's one way you could go about it.
A:	Wel, I've got Farmer's Weekly's dating back to 1969.
Q:	Good … And what about information on the Internet, do you have computer access?
A:	I have a computer but not Internet. I mean I do, but through my dad, he brings it home … and then, this assignment on Epidemiology, "write a scientific report", including testing of samples, I mean we did do that, but it all got sent off to OP and stuff like that, I mean we didn't really …you have to actually, when you send off your brucellosis samples and that, you actually have to physically have the thing back from OP – so I've done photocops, because the vet needs the originals – and they say certified copies, they must be stamped by the police, so I've *done* that – but – it's not the physical results per se, that they want – it's very difficult …
Q:	If you have a problem with that perhaps you should call the lecturer and tell her about it, because I've also heard that sometimes she can adapt projects to suit a particular student's work situation …
A:	Okay.

Q:	Another outcome that they say they want students to achieve is to "implement managerial and administrative procedures". Administrative procedures might be something like you were just talking about, those forms that you have to fill in and send off to OP–
A:	Yes, I used to fill those in, everything that went to *[name of private lab]*, Dr P would say he wants this and that done, and then I'd fill in all the information, vet's name, owner's name, what kind of sample, I put the sample in the fridge, phoned *[lab]*, told them their samples were – I mean I did all that.
Q:	So you did quite a lot of administration.
A:	Yes, and I used to write all his invoices and do all his stock control. And his banking. *[Laughs]*
Q:	*[Laughs]* That sounds like more than you're actually supposed to do … And I was wondering about this "managerial procedures".
A:	Well, I had three staff working for me … Well, I didn't really clean the cages – there were two people cleaning the cages, and doing some of the washing up, I just did the sterilising. And then the other guy that used to come out with us when we did big herds and needed help to catch, and to chase, so we would do the injecting and he'd be – you know – sloshing around in the mud …
Q:	So you were supervising them?
A:	Of course I had to supervise them.
Q:	All right … and things like organising and planning your own schedule … I suppose you were dependent on the vet's schedule?
A:	No, not always, because he went on a lot of Mauritius trips, with the horses, flying, and I went on a couple too … so he'd be away for a week and a bit, and then I basically had to run the show – I had clients where I'd say "Well, G's not here," and they'd say "no but I know it's biliary", and they're quite happy for me to inject the dog with *[sounds like]* Foray or Trypan Blue or something – so basically – and then sometimes even just general work, where I had to go out on my own, just to do pulpy kidney or whatever. I mean, to do thirty sheep in a big pen takes a bit of time so I went out and did it … and then for instance bandaging horses with injuries, because you know they're very prone – lower legs – and sometimes they had to be kept bandaged for a long time – like I had organised that I'd leave at three o'clock, and then on my way home I knew I had to drop by this client, that client, that client, to do a re-bandaging. So I had to put that into my day and my schedule, the next three days or whatever. So yes, there was quite a lot of work that I did on my own. He'd just say "Jennifer, sort it out. Take out the stitches when they need to be taken out", that sort of work. Because it's stuff that's wasting his time and petrol. It's just a bandage, and the owner's at work, and they don't know what they're doing.
Q:	Right … now, there were three main things I mentioned: providing advice and training, collecting information, and the administration and management. In addition to that there is the whole list of practical tasks. If you had to say, of all these things, which things were the easiest for you to learn – which did you learn the fastest and involved the least difficulty, and–
A:	Just drawing blood and – say for instance there was a dog that had come in – G wouldn't even – I wouldn't say "bother" – but just drawing blood to send off to *[private lab]*, because the animal is staying thin, or G would say "that horse has come out of biliary but is not coming lekker. Go draw blood, Jennifer". So, for me to go to a client, draw blood, take it back for them, little things like that … collecting – they think, "these horses have got strangles" – so he wouldn't go out, because he'd know *[inaudible]*, so he'd send me, I'd go out to the farm, you know, fill in the forms, send them off to OP or wherever. So those kind of things – sample-taking.
Q:	Right. Anything else that was quite easy for you to learn?
A:	Stitching. Castration.
Q:	Castration? That sounds difficult.

A:	No, I first learnt – my first castration was a lamb, then I did the calf, then I learnt the burdizzo, which is either the crunching or the cord, and I've even done those on my own, with my black guy… I ended up doing the dog castrations, and the cat castrations, that was easy to learn, stitching, removing of growths – oh, I've done a lot – as I say, teeth scaling …
Q:	Okay, so those were the easy ones. So which things did you find most difficult?
A:	Most difficult? … *[Long pause]* I think standing in the field and the farmer's there, and now you've got to estimate that cow's weight for the amount of drugs, and you don't have a calculator. Not that I don't know which drugs to use, I'm just saying I can't work it out without a pen and paper and a calculator. But I always just used to tell them "You know, my maths is terrible", and then they would laugh and they'd say "My maths is also terrible" – and you know, I had good relationships with these people, so it didn't really matter … *[pause]* I can't really think of anything else.
Q:	It sounded to me like you had a lot of difficulties collecting information?
A:	No, getting information for my assignments and the work during the course itself was easy because, working for a vet, he's got – and my dad bought me a beautiful – "Merck's Veterinary" large animal book, and that's got every disease under the sun of large animals – going all the way up to *[inaudible]* – G even said "that's a better book than mine". And Anatomy, he had all those books, but all I'm just saying is – just maybe the Epidemiology, because that is something more practical that you had to … I don't know …
Q:	You said you might have difficulties with the Epidemiology project …?
A:	Because we didn't really go out – like what would happen if, especially African horse sickness or maybe bluetongue, you know the ones that you – fill in the form and you send it to the state vet, and you say – and they say, "what proof have you got?" You say "we saw the animal, it had bluetongue, definitely, with all the little sores and its teeth, we treated it, and it was too late when they called us, and it died". Now you send it off to OP, you're wasting your money, because you can't pick up the virus in the blood, and the people on the plots don't want you to send – you *know* it's African horse sickness, especially if it's dikkop, if it's thin kop, they *[inaudible]* and they're dead before you know it, you can *see* it's got African horse sickness, so but then the state vets moan and they say "Ja, but where's the proof? Where's the proof?" I mean like, go and *look* at the horse! Now, what they're trying to say in this assignment is that we must do this huge *plague* – but we just used to go out – we *know* there's African horse sickness, and we just used to report it, and the state vet was very good – what was his name, P, I think – he was very good, and he used to come visit us, and then he used to get my originals, and he used to go visit these places. *He* wasn't the one that was hounding us to say "Where's the proof?", I mean the proof is in the pudding, you just have to *look* at it. So to me, that's going to be very difficult. The next two, Epidemiology and – what was it – Zootechnology *[looking at the Zootechnology project in the Mentor's Guide]* – oh no, I've already done this one. That was easy. I just phoned the Breeder's Society, in Bloem, and there's a nice Nguni herd, I wouldn't say very big, it's more than ten animals, and I've got *everything* on how they class them, how they judge them, what their characteristics are … that's the Zootech … and they sent me a nice pamphlet, they sent me *everything*, and I've still got the Farmer's Weekly's to fall back on. And that information you don't get from – you actually have to physically get it, so I mean I've got all the Farmer's Weekly's, all the Ngunis, I've decided to do Ngunis because I love them. And I can take nice photos of them, and they're nice and tame, and I've got all the info, so that … so the only one is the Epidemiology, I don't know how I'm going to do that.
Q:	Yes … well, I'd say you should speak to the lecturer about that … Just getting back to the practical tasks, was there anything else there that you found quite difficult to learn?
A:	Okay, for me, *[looking at list of logbook tasks]* we didn't do a lot of sheath washes … vaginal swabs we did – but you know what, they always say that they want the paperwork, I can't take the paperwork, because the paperwork is all going to the clients, on their files … draw semen … okay, I did a few pregnancy tests but they say they want a hundred. Most days, nowadays, big farmers can do their own. They've all gone on the AI courses, they can do pregnancy tests. *I* can do pregnancy tests – but I wouldn't say that I've done more than a hundred in six

	years.
Q:	Okay … And was there anything that was actually difficult for you, that took you a long time to learn?
A:	Okay, let me just go through what I've got here now. I'll *never* do road blocks, or stock sales, or permit control – never, ever. Okay *[looking at list of tasks]* … bla bla bla … skin scrapings – you know we did do those, that was my job. Do a skin scraping, check it up under the microscope, and I did actually, when I left G, I worked for *[company name]*, and we used to catch fish and test for skin parasites under the microscope – so I've done hundreds. So that was easy … blood smears, ag biliary, that was easy … the ticks – they say feed and ticks *[samples]* – any thin horse – you know they say they feed this horse hey, 10 kilos a day, you go look at the food, it's mouldy – you just *smell* it. Or it's urea poisoning, and the urine – the block is sitting with rainwater in it – I mean I think that's "feed". Tick is the same thing, you just tell your guy "listen, you're moving your cattle up north, you're going to have to do heartwater, bla bla bla". The milk testing – bulk – we didn't have to do because most of your dairy farmers would be doing that themselves, and if they're selling to Clover or whatever they send it to them anyway … But then doing courses for mastitis, we always checked there … Post mortems I loved–
Q:	You *loved*?
A:	*[Laughs]*
Q:	So you didn't find them difficult to do?
A:	At first I did. Because you don't know what you're looking at. At first it's like – "What's that? what's that? what's that?" And then G would say, "no, this is where the problem is because of this and this" and I'd be looking, but I don't even know what I'm looking at! *[Laughs]* So at first, that was difficult, because you've never seen it before … The brain samples, I only did one, and that was down in the lab, down in *[name of town where Lab Diagnostics practical course was offered]*, we cut up and did brain smears, it's pretty easy – we didn't do that because of rabies, we just removed the whole carcass, and sent it off to OP, if it was a rabies suspicion, so we didn't actually go hack up brains, because we didn't have time to do that, so … dehorning, castration, tail docking, branding, I never did branding because my vet doesn't believe in branding, and usually your farmers will do that anyway. Lancing abscesses, I did them all.
Q:	And you didn't find that difficult?
A:	No! It was messy and stinky but it was easy. Stomach tubing … I've only done a couple of horses … I've found that very difficult, on the horses … because you have to go through the nose, whereas with everything else you can go through the mouth, and that's easy – I've even done ostriches, but I've only done a few horses – I wouldn't take the risk, especially on my own horse … Temperature, *[dismissively]* ag! … Treatment reports – yes, the reports to be submitted was usually writing what you'd dosed the dog in the clinic that day – especially if G's away …

[At this point the tape stopped and a minute or so of the conversation was not recorded. During this time I asked Jennifer if, at their practice, they had any written documents such as a manual or notes at the practice which could give guidelines for procedures like the stomach tube and she said that they didn't – if anyone was learning something it would be under supervision.]

Q:	I suppose you must also work with so many tools – things like syringes–
A:	Oh yes, that was my job. Cleaning syringes, yes. I did all the sterilising. We had a boy there that would, say for instance we'd go and put out a calf, just the calving stuff he would rinse and wash first and then when we had to use it again, it's a matter of just sterilising it, which I did. That sort of thing, basically the stock and all that, was my responsibility – my responsibility was the drug cabinet – inside the operating theatre, the drug hazards – where we put our needles and syringes, making sure that when we'd finished with something sharp it would go into the sharp box, and stuff like that, general – the clinic, the theatre was mine, I cleaned that – because sometimes their hands were dirtier than – dirtier than I don't know what – than what I was trying to clean!

Q:	I see … Did you have a microscope there?
A:	Yes.
Q:	And did you ever use the microscope to identify something?
A:	Well basically, what I generally did, was – when we got in a dog suspected of biliary, I had to bleed it, take its temperature, taking a blood smear, staining it, putting it under the microscope and usually I would go and quickly have a check, then we'd just come in with the client and say "Look, the dog has got biliary", or we'd even do it with cattle, because you can *perfectly* see the stained biliary, see the extent of how bad it is, what drug we must use … *[here Jennifer named the different drugs that are used for more and for less serious infections]*. The other thing that I did was, we would take scrapings, especially when a dog's got a bit of a skin condition; and sheep, we also used to do the sheep, take a scraping, take it back to the microscope and check …
Q:	How difficult did you find it do distinguish between these different things under the microscope?
A:	Well at first, obviously it's a bit scary, you don't know, really, what you're looking at, but then G just drew it on the blackboard – on his whiteboard – "look at the cells" – but then I looked at blood under the microscope at school already, in Biology, I remember doing that. But – look, look, focus – I think learning to focus is probably the hardest thing – everybody's eyes are different, so G and my eyes were different, so we had to focus differently … so once you know what the biliary looks like, or the little mite that you're looking at – just to focus it, that's the hardest.
Q:	So it's not so hard to learn what the shape is of the thing you're looking for?
A:	No, no. You know what we also saw down in *[name of town where they did the lab diagnostics course]*, it's basically – a sexually transmitted disease that you get in cattle, that you find in the bulls, that you can only see under the fluorescent microscope – that was also quite interesting – and once you know what you're looking at and you draw it and you see it in your *book*, then it's lekker. And what we also did down there was doing sperm counts under the microscope, semen counts, I've also done that.
Q:	Are there any things or tools that you use that are really problematic, difficult to learn to use, or that break a lot-?
A:	Well, basically what we've got is a microscope … the computer, I'm still almost useless on.
Q:	Why?
A:	Because I've never done a computer course. I only learnt how to use a computer three years ago.
Q:	So you don't type things on the computer?
A:	No, I do, I can do that. Because now all our assignments and things have to be done on the computer … No, we've only got a steriliser there, and obviously G's equipment, like his – the horse castration machine, that we'd take apart and clean properly … They don't really have machinery there …
Q:	Okay … Did you say you've completed two projects? The one on the plants, and – ?
A:	That's done … let me just have a look … I've sort of started Nutrition … Communication … I've got an idea of what I want to talk about – I've got my stuff, I just have to put it together … Zootechnology, I've got all the information, I just have to do it … Epidemiology, I don't know if I'll be able to do it … and then the last one, the legal … I've already got all the maps and stuff of farms in that area because my parents have a house down there … oh, and then I've got to go to the police station for that SAP 4 form – which I *have* done before, and – I lost it!
Q:	What a pity!
A:	Ag, it's just popping down to the local police station.
Q:	Tell me, so far – G is your mentor, is that right? So he'll be your mentor on these projects as well?
A:	That's right.
Q:	Has he helped you in any way with the projects so far?

A:	Well, he'd just say "it would be interesting to visit those people" – I wouldn't say he – no – when I say "he's helped", I would ask him for something … like when I originally asked him about the grasses – as I say it was difficult to get hold of that book – I know more than he does!
Q:	About that particular topic?
A:	About identifying different grasses. But he's very good with *Eragrostis*. Feeding material. He's very good at that. But in general – for him to understand – soil versus this plant, and that plant – he didn't really – he did it I think in his first year and he showed me some of his scribbled work and I'm like – "Okay, take it back then" *[laughs]* – trying to help me …
Q:	And the poisonous plants, doesn't he know about that?
A:	Yes, he knows the poisonous plants very well. We'd be walking through and – what he would say is poisonous, he'd say actually in the long term it causes liver damage, when you go look up in the poisonous plants book it actually doesn't show that it's poisonous – but then he said, in the long term it causes liver problems. So obviously he knows a lot about poisonous plants in general, because sometimes we'd go out and we had to deal with animals that had been poisoned.
Q:	So he could give you some information about that?
A:	He could help me a lot on that one. He *taught* me a lot, put it that way.
Q:	And has he helped you with any of the other projects you've started working on?
A:	Mmm …G likes me to get on and do things. Then, in the end, if I ask him "What do you think?" he will say this and that. But he's not one to just step in and give it all to you – you see what I'm saying?
Q:	So he wants you to work independently?
A:	Yes, if you've got a problem he'll help you, if you go up to him afterwards and say what do you think? – and even when we were working together, he wouldn't tell me "Do it like this, Jennifer, you're doing it wrong", he would just say "No, that'll work, that'll work", he'll say "yes, OK, try that" and then he'll say "now just hang on, think about that, if you do that, what's going to happen?" So he doesn't *tell* you what to do. He'll show you, he'll teach you, and then you must try to learn it on your own. Because he says everybody's got their own technique. Everybody does actually do things differently. And now I've noticed that, in one of our stitching – he taught me one way, but I thought another way was better, and he says "Well, there is no one correct, exactly right way of doing it", so …
Q:	So you can improvise as well.
A:	Yes. He won't just sit down there and say "Now with your Pasture and Nutrition, what have you done about it", this and this and that, he doesn't actually … But he does say "How're doing with that? How's it going?" and then I'll tell him I've got a problem with this and this and then he'll help me out. But I wouldn't say that he's sitting there on my back, hovering.
Q:	It sounds to me as if you discussed some of the projects with him, and he maybe gave you some ideas on how to approach them?
A:	Yes. No, he has given me ideas.
Q:	So it's in the planning of the project, he's talked to you about that?
A:	Well, I've asked him, I've said, "what do you think about doing that?" And then he'd go "Oh, mmm. Yeah. Mmm. Well, you can *do* it, if you want to" – because, the original plan was, with my one, to go out to this one dairy herd, and it's the only big dairy herd in our area, and I said to him "What about it?" and he says "Yeah, maybe you can if you *want* to", and I could just see from his attitude that he didn't think it was a good idea – especially with that client. And then I did mention something to him the other day, I said "Well I've decided to actually do this", he says *[inaudible]* and then he was quite happy about that – so he says yes, if he wants to, it's just he was a little bit off about the idea, but he didn't say "no, don't do it" …
Q:	So he basically dissuaded you from the first idea?

A:	In a way .. he didn't say "don't do it", and he didn't say – he just said "yes, if you want to", he said "but it will be quite hard to get all that information out of that farmer, and if so, you're going be lying about half of the things – you're going to be having to suck things out of your thumb and it's not going to be a true reflection, and then it's going to become *[inaudible]* for that farmer" …
Q:	I see …I was wondering … When I read the first few pages of the mentor's guide, where they describe what kind of person a mentor should be and what he or she should do, the picture I get in my mind is that of a person who's almost like a father, or a good friend, to the student, and someone who helps the student not only with the academic work and the practical skills, but also with things like thinking skills, problem-solving skills, showing them what's good behaviour in the workplace and what's not, somebody who shares ideas and even feelings, and so on … Is that-?
A:	Well, I can tell you that I've spent more time with G than his own wife … and in the end, well I often called G "Dad".
Q:	Really? So you would say that you actually do have that kind of relationship?
A:	We do. And it wasn't just all always about work. We got on so well, it was "What did you do this weekend?", and this and this, I'd even go and meet his friends for lunch and go over there on the weekends and I used to housesit his house, and his children … I think I was more family, than anything else. Yes – and sometimes I would give G ideas and stuff because sometimes he wouldn't – like we had – the one time there was a foal and a mare and we had to put the mare down because she had very bad colic, and he – there were other horses in the paddock, and there was this foal, and I said "well you can't just put the mare down with the foal here, you've got to remove the foal first", and he didn't *think* about that sort of thing, so sometimes I had to think *for* him in that – he also didn't *[inaudible]* sometimes, sometimes – in his work he was very good but in general farming ideas sometimes he wasn't that good. Like I'd go to a farm and I'd say "Listen, your dogs are going to bug us, could you please lock them away?" – but he wouldn't *think* of that, then he'd be trying to work and there's dogs licking his feet – you know – the blood off his feet, and things like that. And yet, he was very much a father figure in my eyes. Because I spent so much time with him and his family, he was basically – like we'd even sit down and cook lunch, and eat lunch together …
Q:	Okay … and you're not working there any more now?
A:	No, not at the moment. He couldn't afford to pay me – but, as I say – I still go around there …
Q:	All right … So, those projects that you have to do, they have to be assessed by the mentor and the lecturer. But you're not at the point yet where you've submitted them for assessment?
A:	No, not even by him yet.
Q:	How do you foresee that going – will he–
A:	No, listen, he knows about it, when I hand it to him, he won't just read through it like that, he'll have them for a week, I'm telling you now … he will sit down and he'll actually think about it and he will read what I've got … when I say he's like that, he – I can ask him something but he's not just going to read through something and say "Oh, okay, fine," this and that, he'll actually sit down and take a long and good hard look at it.
Q:	Okay … and he's got those assessment criteria in the Mentor's Guide–
A:	No, what I've done, I've already photostated them, he's got a copy of them.
Q:	So he'll use that when he marks it.
A:	Yes, well, he will write into the original one in my book, but I'm saying he's got a copy of that already.
Q:	All right, and he'll use those criteria when he marks it – like "planning of project", "initiative shown", "punctuality" …
A:	Well – considering he's always late, I've got a very good chance on that one!

Q:	So he'll use those specific criteria only? I'm just wondering because I've seen that sometimes mentors give marks for those specific criteria but they also look at the content of the project and say things like "you should have added more information here" and so on. It's a bit difficult here because you haven't had any of the projects marked yet – some of the other students can tell me whether they are happy with the feedback of the mentor or not–
A:	But now you see that's why I think G doesn't want to help me too much with these projects because he now has to go back and mark them – so if he's now giving me all the information prior to him marking it, is that fair?
Q:	Yes, I see what you mean.
A:	So I think that's why I'll ask him about something and he'll say yes or no or this or that, but he's not telling me – well, I'm not showing him my ideas on a regular basis, because you know he has to mark it at the end of the day, and if he knows that it's his work at the end of the day, is it really fair?
Q:	So you're saying that he's deliberately keeping a distance from it?
A:	I think so. Because he has to mark it in the end, and then yes, maybe in the end he will say "you should have added this, you should not have said that", or whatever, and then "this is your mark". I think personally he's not interested in it because he has to mark it – you know what I'm saying, it's like my mom doing my homework for me, and then the teacher still asks my mother to mark the homework! No, it's, I think it's ridiculous – and I think that's why G has backed off a bit. Because it's *my* projects, and *he* has to mark it. But yes, I can ask him for ideas, and is this correct, and is that correct, like a student in class, when he's getting lectured, he can ask questions, but you're not going to ask what's in the exam, are you? *[Laughs]*
Q:	*[Laughs]* Okay … Tell me, the assessment criteria – can we have a look at those? On page 13, in those blocks, "planning of project", "theoretical knowledge of how to do the project", and so on. Do you find them clear?
A:	Well – this one, "planning of project" – who is this for, is this for the mentor – and this is what I want to ask – how does he know how I planned this project? How does he know? He must obviously then ask me, how did I plan the project? I don't know …
Q:	Okay … and what do you understand by "theoretical knowledge of how to do the project"?
A:	That is if you've gone out and pressed your plants correctly, number one, it's going back and reading how you're supposed to do your scientific reports – the use of italics in the name of the plant or the species or whatever – eh – also I suppose how much information have you written and do you understand it?
Q:	And in terms of this particular project that we're looking at, Nutrition, what would it mean?
A:	Well – this is a bit of a stupid one – I don't actually – "evaluate the pasture" – which means – look – how many species of grass do you think there are there, the quality of the grass, is it nutritious enough …
Q:	Right, but then, if you do that, and you see the criterion "theoretical knowledge of how to do the project", what would that mean to you in terms of this project?
A:	Well … what I've decided to do – is a very poor pasture, and the cows are very very thin *[laughs]*. So I've a lot of knowledge in there – well, you've got knowledge in that you know this pasture is not good enough, and they're milking cows, they're owned by a black, he's not giving enough food, the cows are – you give a rating of one to five on a scale of *[inaudible]*, and on the scale it's something like two – it's almost SPCA – I can take lots of photos, I mean I know it's not good enough, and you see this is the perfect time of the year, they've gone through the whole winter – I don't know …
Q:	Yes, it sounds like there's a lot you can do.
A:	No, you can't do brilliant pastures, because there are none! – this time of the year – we haven't had our first rains yet …
Q:	So that constrains you?
A:	Yes.

Q:	All right … and then, that last criterion in the block, "success of project" – say you were a mentor marking this project, what would you look at to see if the project was successful or not?
A:	Well – did the project work? Did it show something? Have you proven the point that nutrition and grass are very important in the keeping of your animals?
Q:	So it's like the results, and the conclusion that you came to-?
A:	–that you came to, with having this pasture and this herd and your first *[inaudible]* – now if you studied *this*, now what are the consequences of *that*? I think that's how somebody should look at it.
Q:	I see … and then the criterion in the next block, "personal appearance"?
A:	I'm always neat.
Q:	So it's about neatness?
A:	Oh, I think so.
Q:	Anything else?
A:	About personal appearance?
Q:	Yes.
A:	Well – I think it's how you act, you act towards a client, I mean there's no point me going outside and having a big fat cigarette and a cup of tea while there's clients walking into your clinic – I mean that – that you don't do.
Q:	You should look presentable?
A:	Of course. That you're not standing there with a cigarette in your hand. You've got to look professional, I think – your clothes must be clean. If you do get a blood spot or stain or something – you're meant to have a coat, or change it. I wouldn't arrive at somebody else's farm dirty – that's why we have overalls. You know, you've just got to look neat and tidy and professional. And whenever you get there, after you've – well, when we'd finished working with the animals, G would always end up chatting or writing an invoice, I'd take whatever we'd used and go wash it there and then, dry it there and then, pack up there and then, that when you get to the next call, your instruments are clean, your bakkie's neat, everything's tidy, and you've got everything ready, you just take it out and you start working. So I think that's just general – business practice.
Q:	Okay–
A:	You don't wear slutty clothes, that's all *[laughs]* … Because I just took up, at the general practice – it was never that I was told to do that, but it was always either a blue, a black or a white golf shirt with our logo, with jeans, neat jeans, in winter it was either black slacks or something, and it was usually my hiking boots … I used to buy those just-above-your-knee khaki shorts, you know, like you would wear in the Bushveld, that was acceptable ..
Q:	So you even had a logo?
A:	Yes, we had a logo, and we had jackets printed with our logo on it –
Q:	So it was really like a uniform?
A:	It was like a uniform, but you didn't *have* to wear it, as long as you took your colour T-shirt or whatever – it was usually a golf shirt, I wore golf shirts – and you just, you pay R10 at the local – one of our clients has a machine that just sews the logo on, so – people knew you were working for him because you had a logo T-shirt on.
Q:	Right … And then this other criterion, "acceptance of authority". What does that mean?
A:	Well, of course I know what that means. It's when my boss tells me to do something, I do it. *[Laughs]* And I had two bosses, so you must understand …!
Q:	Which was your other boss?

A:	No, it was his wife, who did admin, and I actually basically worked for her from eight until eleven, that was in the office. And then whatever she needed to do – and then that's when I did stock ordering, phoning clients, letting clients know about this and that, sometimes credit control … so I had a boss that side, and then a boss this side, the vet. Sometimes they clashed, because I knew that we had to go out at eleven o'clock and do something, and I had sterilised something, and then T *[the vet's wife]* is now saying she wants this done – so now you're sort of torn between the two – who pays your salary and who's your real boss! … No, I think that was hard, having two bosses.
Q:	Yes, that sounds difficult … So generally, the assessment criteria are clear to you?
A:	Yes.
Q:	Okay. Tell me, have you every phoned the Unisa lecturer with queries about the experiential learning?
A:	Well, the one time I did, and there was a Mr S working there *[administrative assistant for EL, no longer employed by the department]* … I actually arranged to go and see him … I arranged it for some morning, I can't remember, I think it was a Tuesday or a Wednesday or a Monday morning … at ten o'clock, and I said I'm coming through from *[name of town relatively far away from Florida]*, so are you sure it's OK? He says ja, if it's not OK the day before he'll phone me … I drove all the way to Florida, which is an hour and a half in the traffic, I got there, I waited for an hour and a half, he didn't pitch. I told the ladies there at reception … I had Dr I *[lecturer]* phoning me the very next day, apologising … because for me to travel through to ask and to speak to them, it's a far way for me to drive – so when I actually did make an appointment and travelled there, I didn't get seen to … and that was a little bit off-putting, so … so when I actually go through, it's going to be when I hand in all my projects … and I'll hand them directly to Dr I.
Q:	So you plan to do all of them, and then hand them in – don't you think it might be better to hand one of them in, and then get some feedback, and that could give you an idea about the next project?
A:	I don't have the *time* to do one, and then give it to G and then wait for it to come back, and then drive all the way to Florida, give it in, wait for it to come back – you know, I've already started *all* of them, I can't do one thing at a time. I get bored on one thing, so – I'm working on this one today, then tomorrow I'm doing something else, and then I go back and I improve on this one, and then I start another one – that's me, I can't now just do *this*, just this one.
Q:	I see. So you do a little bit of one and then a little bit of another.
A:	And then you always – when you go back to the other one, there's always something to improve, and then you say "oh but in the first one, I did the same mistake", and then you're improving them anyway. And I end up doing these things five or six times before I'm happy.
Q:	So you make quite a lot of changes before you hand them in.
A:	Yes, of course. I was like that with my assignments. My assignments I would probably do four or five times – and then I'd leave it, and then I'd start on another project – but usually they had to be handed in within a week within each other so you had to start them close to the time anyway. And then you go back, and you say "hang on", but you know I just learnt this or I just finished reading this, so you need to add it in, so you've got *[inaudible]* of scrap and when you finally write it down, it's all these different answers that – you thought you had one answer, but you actually need to add this and this, and when you actually finally written it down, you've got it. But I can't just do one at a time. I get bored. And then I do half a job.
Q:	I see. Are you in contact with any fellow students?
A:	Well, I've got a few friends, the one is called D …
Q:	Are they also doing their experiential learning?
A:	Yes, D, she's a very nice girl. Then there's – I can't remember – H …
Q:	Do they live close to you?
A:	No. I've just gone on all my experiential learning with them, from Anatomy, I've attended the same courses as them. So – we've been friends that way. We just SMS each other, really. We wouldn't really discuss anything.
Q:	So you wouldn't call them to help with an assignment, or something like that?

A:	No.
Q:	And do you think you'll see them again?
A:	No, I think I will, we still keep in contact, D and I especially, she also likes the horses and stuff like that, so we will.
Q:	That's good ... I know you said Mr S wasn't available when you went ot Florida, but did you ever call the lecturer with queries?
A:	I have, but you know what, it seems like I can never get through to her. Actually, to use the phone is a little bit of a hassle because it does get expensive to phone through … You know, I must actually make a plan to go and visit Dr I before the end of the year and to speak to her about the projects and to see if I am going right or wrong. I think it's better to speak to her than my mentor because he doesn't really know what *they* are expecting.
Q:	Yes, talking to her might give you more clarity … Jennifer, I'd like to thank you for talking to me today and giving so much information, you really have been very helpful. Would it be OK if I called you again sometime with a few more questions?
A:	Sure … I suppose I'm very different from the state people, because it's two totally different scenarios?
Q:	Yes, I think there are many differences … perhaps the biggest one is with regard to the mentors, I don't think they generally have the same kind of relationship that you have with your mentor.
A:	What, calling him "Dad"?! *[Laughs]*
Q:	*[Laughs]* No, definitely not.
A:	Yes, but you know I've even – when G's been studying for something, because he's part of the International Equestrian Federation, and he has to be the vet and I've often been with him, vetting the horses during international – and he's flown – and I've even flown with him to Mauritius as a handler, on planes and that, where he has to do exams for that, and then I'd be sitting from call to call asking *him* questions – but he *wants* me to do that. So we had a very good relationship. I suppose if you work with somebody you have to get on with them.
Q:	I suppose you do … oh, there was something I forgot to ask you. You know in the logbook there are these numbers – like you've got to do 100 inoculations and so–
A:	Yes. There are a few things that no ways – not even G has done them and – like nowadays, the pregnancy test, your big commercial farmers are doing it themselves. You know, yes we'd go out, and do – "little Daisy, can you please do a pregnancy test on my pet cow?" – no … And then TB/CA, as I say, the state does it for nothing, whereas here you've got to actually physically got to pay a vet – so that is not relevant in a private practice … look, we've done our odd ones in the past, I'm up to about 60, but the 100, I don't think so …
Q:	And would you say it's actually necessary to do 100 to be able to do it?
A:	No.
Q:	How many, would you say?
A:	What I've done.
Q:	Sixty?
A:	Sixty and then – well, even just going on that course. On that two-week course.
Q:	And then you're good enough at it?
A:	Well, I wouldn't say "good" and I wouldn't say "brilliant", as they say everybody can make mistakes, and then that animal might have to be retested … but then, *those* guys can't exactly put animals on drips or something like that … I don't know …
Q:	Yes, there are some things that you might have had the opportunity to do and they not, but generally they seem to have the opportunity to do most of the tasks in the logbook …
A:	Well, look I've done most of them as well.
Q:	Yes, you have.
A:	Except the road blocks, and the border patrol and those things …
Q:	Yes … but I don't think those things are compulsory because they say "where possible" …
A:	Yes.

Q:	So … do you think you'll start working at a vet full-time again after you've finished your qualification?
A:	Yes, once I've finished my qualification, because it's quite difficult to get something when you're not qualified … and I've been looking in the newspapers, but … also being stuck out in *[name of area]*, I'm a little bit isolated.
Q:	Don't you have opportunities in the area?
A:	I've been looking, I've been looking … look, G and I get on well and when he goes out and he needs help he just pays me for that day, for big jobs, you know ..
Q:	So it's like a part-time job.
A:	Yes, it's almost like that – when there is work then he will call me up and I'll go and help him. Because some things he can't always do on his own, like the big herd work, I mean, that stuff I was doing anyway, and then sometimes he'll phone me up and say "well, won't you help?" But during winter it's very quiet, because there's no diseases out at the moment and stuff like that. Winter's always quiet, with spring it's going to pick up now – now it's time for pulpy kidney and all those things …
Q:	So for the moment you're really concentrating on your studies?
A:	Yes.
Q:	Well good luck with all the projects, I hope you finish them soon.
A:	Thanks.

Annexure 19: Interview 1 with Mentor 1

Mentor 1 is a male isiZulu speaker who is employed by Office A of the government Veterinary Services.

Q:	Could you please give me an overview of your mentoring – how long have you been mentoring, how many students have you mentored?
A:	I started from 2000. That's when I started mentoring both technical students and also our own students – in-house training.
Q:	What do you mean by "technical" students?
A:	Students from Technikon SA and Unisa, and also students from North-West University who have completed their Diploma who'll come for practicals. They've completed but, you know, they need more practicals. So it will be more on TB, brucellosis, rabies. They actually have not been to the field, so we'll expose them to all those – even import/export, something that is not catered there, so we'll expose them to those, because with import/export, there's a section where we export animals and animal-related products, so we'll take them to facilities like Masterfood or Clover, you know, and expose them to the biosecurity of what we actually check, when we go there.
Q:	These students come for practicals for a few days?
A:	Yes.
Q:	But then our private students have to complete a large number of tasks and fill these in in a logbook that they have to complete – I'm not sure if you're familiar with our logbook -
A:	Yes. So what I actually do with those logbooks, I sit down with a student, and then we highlight those sections that our department covers. So I will sit down with them and say, 'Some of the sections, we actually don't do them', but then we work with *[name of experimental dairy farm]* who told us that – but to do bull semen evaluation, and they – they actually sell semen, so all those parts like sheath wash is done by Irene. So I have a working relationship with the Irene station.
Q:	So you can refer students there?
A:	Yes. I can phone my colleague there to say 'I have so many students, when are you drawing the semen, I want them to come and have look'. So then we arrange and tell the students, they normally start early, so they'd better be there in time. So those that we don't do, I refer them there, that is, I link up with them. The same applies to Onderstepoort, OVI *[Onderstepoort Veterinary Institute]* … you know, like rabies, we don't do the rabies test ourselves, but when there's a case, we cut the head, because they need the brain, they don't need the whole dog, so we send it to the rabies lab, so I also have a link with the vet there, so I arrange with them and say 'There are students who'd like exposure to how you actually do the test', so then I tell them, check on the record how many times they actually need to be exposed, and then they go there and do that. So we sort of 'outsource' what we don't do.
Q:	It sounds like you do quite a lot to actually administrate things for students and put them in contact with other people to help them to find placements for practical work?
A:	Yes, it all boils down to a long-time working relationship with the other institutions, because you know, if we don't have that, it's going to be difficult for us, because it's voluntary work – it's something that takes your time outside your normal work, but you know, my motto is, if I don't help them, while I'm in a position of helping them, who's going to come and fill up the gap? Because we don't want to be here for life, I may decide to go into private practice, you know, but while I'm here I need to ensure that more students get exposure to some of the facilities.
Q:	Relating to the practical tasks that they do in the field, do they sometimes accompany you for certain clinical procedures that they have to do?
A:	What actually happens, let's say that they have to do a TB or brucellosis test, so on that day when I know how many people there are I spread them equally between the number of officials. As a supervisor of a particular technician or chief technician, I'll be informing the technician to say 'there are three students coming, or four students coming. Choose the biggest herd, because we need them to get more exposure. It's not going to be easy to just go and draw blood from the tail, we need larger herds so that, you know, as they start, they

	should be able to do that. So in the process I'm actually supervising the chief to be able to demonstrate to the new guys. Because the more he or she can be able to demonstrate to the new guys, then the more, you know, it's an ongoing evaluation. We don't leave our technicians and say no, we know what they're doing, you know, but we are expected to be there to see, so that's when I come in and check and say 'OK, when you do TB, remember, there are many types of methods to do it', you know …
Q:	So who would you be telling this to?
A:	Both. The technician has to start, and then as I correct the technician, I also inform them … the technician may not be wrong in what he's doing, what I'll do is that there are other methods … at the end we want blood, but you have to develop your own method. This is how I was taught, and this is how I realised I can work quicker. So at the end you choose which one is the best one. So I'll expose them to more than one type of collecting blood, for example, or doing TB. For example, when you do TB, someone will say you do it in front and at the back. Others will say no, you do it top and bottom. As long as there is a nice *[inaudible]* and when you do it, it should be *[inaudible]* that someone else is going to read it, not that 'I'm doing it this way because I'm going to read it myself'. It should be done in a uniform way.
Q:	So it sounds like usually, when you do fieldwork, there's a group of people – there are some technicians and you might be there as well, but it seems to me that the students are in fact taught by the technicians?
A:	Yes. Because a technician will do it quicker. Let's say, drawing blood. Because that's their daily bread and butter job. They'll actually be doing that practical part more easily. The vet will more be coming and saying 'Why are you doing that?' – more like a bird's eye-view – to say *why* he's actually doing that test. The main aim is to keep the herd clean. So the more practical work is done by the technician, 80% of the time. The vet will be coming there to ensure that you're filled in on the disease aspect, because the main aim will be that.
Q:	Are there any clinical procedures that only vets are allowed to do, that animal health technicians have to learn to assist with?
A:	Yes. For example, let's say ruminal tube, or a case of dystocia, when the calf cannot go out. Those cases require a vet to do that, because of the clinical aspect that is there. But the technician can see how it is done, with the dystocia a technician can see how it will be done, like, try and pull out the calf, but when you have to do a caesarian, because in the event that it doesn't come out you do a caesarian, that's when the vet will be required to do it, because that is an operation that is done in the field, it is not in a theatre. So those are other things … and artificial insemination, for example, unless a technician has done that course, he or she cannot do it legally. You have to go and get a diploma, and Pretoria University's doing that. It's been three years now, I've been their external invigilator, so it's done for that diploma – so they have to have that certificate for them to do it. So those are other things that technicians have to have documentation for them to do it. Like now, they have to register with the Council to actually be technicians, like vets, who have to register annually. Because there are other things that they can do, like vaccinations and all that, but in the past they wouldn't *[inaudible]* certificate, because they were supposed to do it under the supervision of the vet.
Q:	Have there been instances where you've done fieldwork with one of our students, whether private or someone employed here, where you actually showed them how to do something?
A:	I'll go out with them 80% of the time when they work with technicians. When they do specialised work like sheath washing, drawing of the semen, those that we don't do it, like it's done by T *[naming private company]*, there I actually go with them because they cannot go with the technician, because of the contact – the link – that we have with that area. Because it's a quarantine area, you know, you don't want to send a technician who is not exposed to that area to go with the students. So, in those specialised areas there is – I cannot delegate it to them. But in the field like they do every day, there I can send them with the technician and join them the following time. The thing is before I actually sign on a particular project, I must have gone once and see that, at least, they are able to do it and how many times they must do it, and which way do I see that can help them to do it easier.
Q:	How would you teach a person in the field?

A:	What I normally do is, for example, let's start with brucellosis and then go to rabies. Before we go I try and make copies of the anatomy of the tail of a cow, so that they know exactly where they are going to –
Q:	Copies of a picture?
A:	Yes. So that they can see exactly where they are going to draw the blood. And then, from there, they go with that, so that when they come back they already have an idea which part of the animal they are going to work on. Because they're going to work in the dark, they must just imagine that that's where the artery's going to be running, and the vein, and where to collect the blood, and how to collect it … plus safety. Because at the end of the day they must know that they'll be working on a crushpen, so they shouldn't put their hand before the pole – the cow will be standing facing that side, they need to be working behind the pole, because the cow is going to go back. So it's more on coaching before actually going to the place. And also build their confidence, and say 'you may do the first eight animals and not get the blood, that's where somebody started', because – if you don't let them know, they'll see a technician who's doing that all the time, he just puts the needle there and then he collects the blood, so – let me just show you what – *[starts to draw a picture on a piece of paper]*
Q:	So would you also make a drawing like this to explain things to the students?
A:	Yes. You see, this is the bottle that they do it with, then there's the cover, and the needle on top, so they actually need to know how the two move, because it's a vacuum, so if they put the needle in, then the vacuum is gone, so … it's more on trick – holding the tail that the cow's moving *[=does not move]*, putting the needle first, and putting the bottle. So that process must happen while they're also checking their safety. So it's basically – the first time it's to build their confidence, to say 'it's not going to be easy the first time, you'll see the guy doing it, it looks easy, but you know, it's because there are other things and experience, once you do it over and over you'll eventually see it. So the other thing is to try and get, you know, docile animals, not expose them to Brahmans the first time, give them confidence, then later, they will be doing other herds, you know, where there are no proper facilities, but at the end of the day we need the blood, so …
Q:	Do you watch while they are doing this in the field?
A:	Yes, on the first session I'll be watching and telling the technician to be mentoring them to ensure that they do that. Because if he's doing three hundred herds, and the guys are able to do it, it's actually saving his time, while they are actually learning … another thing is to also inform the owner of the animals, to say, 'these are students', first of all, and then 'they are here so they may not be able to get blood the first time. But if they fail to get blood three times on one animal the technician takes over', because we don't want them to be pricking the animal, because the owner is concerned with his animal, but we ensure that he should know that there's no other way in which these guys can learn, they have to learn on the animals, and these are the future generation that will fill up the gap to help these animals.
Q:	If you are there in the field and you see that the student is having difficulties, what would you do?
A:	As I say, it's understandable. There are those that are still afraid of animals, especially cattle. So at the end of the day, they must know that they shouldn't lose hope. They will get to know it. That is 80% of their job, you need to tell them that, 'That is 80% of you job, once you're qualified, that is what you're going to do'. So they eventually get into tune. And those that actually come here, I've noticed that they're actually eager to want to know, and – there's no alternative. We tell them all the time that, you know, we're taking time off to ensure that we are helping, so they must use that available time. So most of them, they actually tune in and – you know, as long as you tell them beforehand that we may not have enough time, so they must use the time that we have to ensure that we do it.
Q:	So do you see it as part of your job as mentor to build their confidence and encourage them?
A:	Yes. The introduction, that is the part – because they may go once, and not get blood, and get frustrated, so if I don't tell them about the – disappointment or – challenges that they will get on the first day, they'll never come the following day ... because … they may decide to go somewhere else, and feel that they're failures, and stuff like that. But I've noticed that when

	I've told them about it they've always come and finished their project. The same applies to, let's say, when we go on a rabies campaign. I'll go with them, also to ensure that my officials keep the vaccines in the fridge, and they keep the record, you know, you don't want to leave them in *[inaudible]*, so when you go there you go there and explain to them, 'This is how it's done. The vaccines should be in the fridge with the ice packs, and when you vaccinate, ensure that the owner is holding the pet. Don't just rush there, because it may bite you. You know, we've been bitten ourselves, so it's not that when they are bitten it's because they're not professionals, you know, every vet has been kicked by a cow, a horse, there's always that thing. So then you show them how it is done, where you need to do it, what to do, under the skin, behind the neck, but you can also do it on the bum, but it's only when that dog is vicious, and the owner cannot hold it, that you can go – that is the last resort, we don't want to go there, but … these are the areas where we can do it … Then from there, with cases like that, it becomes easier, you know, you go once and then they can continue doing – maybe the campaign is for two weeks or three weeks, then they can continue doing that. But you like – go – another time, just to ensure that things are right and also, you know, congratulate them, even after they've done a simple part of the vaccination.
Q:	So you discuss with them afterwards how they've done?
A:	Yes, I'll discuss with them before, during and after. And then those that are – showing that willingness, and also eager and active – you let them know, because they build their confidence.
Q:	And those who are struggling?
A:	You give them courage, and also tell them that they also need to interact with the client, so – we are not in a campaign just to vaccinate and go, you need to find out other things on the pet, and talk to owners. That helps. That is one way of them presenting, because the other section is where they present on a farmer's day, so when we go out to study groups where I present, or in a capacity-building workshop where I talk to councillors in the areas on what our department is doing, I call them there to see how I present, and then later, when we are in a small group, I'll give small tasks, you know, like – demonstrating on how to vaccinate with blanthrax or *[inaudible]*, then tell them that – you need to explain to them, because most of these farmers are not – some didn't go to school – so the knowledge that they have is more superior, to give them the confidence to communicate with the farmers. And when you go there with some of the farmers you don't necessarily tell them that they are students, you tell them – they come wearing uniforms, like we are wearing, white coats – so that they perceive them as either vets or technicians. You also want to build that after some time. They'll be students this time, but as they go on, you don't want to downgrade them, you know, you want the farmer to be confident. And they also get into tune there. So it's something that's not uniform, you know, it's something that I'll be doing but somebody else might be not be doing that, you know. It comes with time, and the fact that I like addressing the public, and also on other topics, they send me to the radio, local community radio, and also to – I've been to Noeleen, on this animal abuse, so – some of those things you build them with time.
Q:	I see, so you must have a great deal of confidence by now when it comes to public speaking.
A:	Yes, yes. You need to find a way of presenting what you know, and when you don't know something, I always tell them, don't lie to the farmer. When you don't know something, you'll come back to the farmer and give the farmer the right information. There are other things like – our departmental policies – so you cannot come and say 'no, we'll come and vaccinate against foot and mouth' – it's a *national* policy, it's not done by us, so – you only say what you know, what you don't know, you tell them that you'll come back to them, and farmers like people who are honest.
Q:	In the case of Unisa students who have been employed here, how frequently would you have this kind of interaction with them – once a week, once a month, or how often?

A:	No, the guys who are actually working here, those ones, we told them over and over as a department that the department is paying for them, they must actually ensure that they complete because, in a way, they are not completely technicians, because there are a few courses outstanding, so they are actually doing a disservice to students who have completed but who cannot go into the system. So they have all the opportunities, they have no excuse, because the department is saying, 'we are paying for your fees, so don't drag your feet, complete'. Because even the student outside can come and say 'no, hey – I have a driver's licence, and I want to drive that car. You're having someone who has a learner's licence who has to be with the driver. I'm a complete person' - you know – so it's still a battle that we're trying to tell our officials to do – some feel, you know, that they're just too old to go to school, because they're left with three years, and so …
Q:	And if there were to be a new one, coming in – or let's say, a private student, coming from outside – how often would you be teaching them and talking to them?
A:	Okay, let's say a new technician joined the field. So it will be the responsibility of the supervisor to ensure that he or she goes with that student, introduce that student to the farm and the area, and –
Q:	And would you do that? Have you done that with our students?
A:	Unfortunately, the guys that are here, I found them here. There has not been a new one coming directly to my field, they've already been there. The new ones that came were in another field like Import/Export, which is not related to ours. But I would say it's a blessing because – there were those that have been there and there were others that came, but they were not in our area – they were transferred from other provinces, so they were already in the field … But you'll want to go out and see how that person is doing, and then assist if there is a need to assist.
Q:	And the kind of activity where you prepare them for presentations beforehand, and encourage them when you see they're struggling, how often would you do that?
A:	It would be the first time when they are going to do that particular thing, and then after that other technicians would take over. So if we go and do pregnancy diagnosis, for example, I'll let them know that 'we are going to do this procedure, but it's done by the vet, it has not been given to technicians, but you need to know how it is done, because once you know you'll be able to help the farmer', they are not directly involved, they are not expected to do pregnancy diagnosis, but they need to see how it is done, and stuff like that – it's not within their scope, but they can do it to ensure that it's positive or negative – whether the cow is pregnant or not pregnant, because that's what the farmer wants to hear, but as to the duration that is outside their scope.
Q:	So it's not a question of your seeing the student every single day, and asking him or her questions every single day? It's a one-off thing?
A:	Yes, it's a one-off thing. … The problem is that we actually don't know when we are expecting the next batch of students. That's the first thing, if we can know it will help us plan better.
Q:	So you find that Unisa students just come here at any time?
A:	Yes.
Q:	And they've got to quite a lot of different kinds of tasks according to their logbooks – vaccinations, and then clinical procedures like dehorning and castration – and I don't suppose you do those full-time, you only do some of them at some times?
A:	At some times, yes. For example, because we have the emerging farmers, so we'll check how many students are there – because if there's one student, again, it's sort of – it's not – I would prefer to have them in a group, because if it's one student, and then that student is battling, then sometimes I tell them to at least wait a week, maybe there'll be another student coming, because – you want them to compare amongst themselves, because someone will be alone and thinking it's impossible to do this, whereas if they are two and you are teaching them at the same time, they sort of have that competition, and then it works better.
Q:	Is it competition or co-operation?

A:	I would say it's a positive competition. For example, someone would want to make sure that he or she is the first to draw the blood. Or if they are able to compare amongst themselves, to say, you know, 'at least today I did well, yesterday I did bad,' you know, if they can have that – against – because they cannot compare themselves with the technician. Much as they will want to aspire to be closer to the technician, but they will start together, going up.
Q:	Of the different tasks that the students have to do in the field, which ones generally would you say they learn the best?
A:	OK, we start with the easy ones. The vaccination, that's easy ...
Q:	Do you think they do well at that because it's easy to do?
A:	Yes, it's easy, because you don't have to aim for a particular area to do it. And I'll say that the extreme is that one of collecting blood from the tail. That one's a battle because some of the animals are wild, and some – you know – the structure is not proper.
Q:	The crush pen?
A:	The crush pen, yes. So what I actually encourage is for them to start at the prisons, because the prison structures are good, and there are handlers who are there to actually hold the tail for them, and the some of the animals are used to being handled, so they stand there, and – there's manpower. I'll want them to start there. So, after that – they'll gain confidence, they can collect blood. Then they can go to the Brahmans.
Q:	So you actually sequence the tasks from easy to difficult?
A:	Yes. Because you want them to start with the easy ones, then they know that they are now in the field, you know … but if you start with the difficult ones – well, tough luck. Maybe the problem was not a problem. For the past two weeks you had a set of students and the other one just came in. So you are already going on, so the other guy will come at the end, you know, so as I say, it's a problem of time.
Q:	And which tasks would you say are the most difficult ones?
A:	Those are the ones – the brucellosis, the collecting of the blood. The other ones –
Q:	But surely there are other things that they need to do here, like dehorning, that are more difficult?
A:	No, this one – dehorning is more on calves. With adults – we demonstrate, but we discourage doing adults. We'll show them how it's actually done. Let's say it's a horn here *[starts drawing a picture on paper]*, with a pointed area – I'm just drawing a straight horn – we explain to the farmer to actually dehorn the animals when they're young – because when they're old, there is a hole that communicates with the inside *[explains using the drawing]*, to there, so we'll actually cut this sharp point, so, and we'll not do a lot of them, because if they cut here, they open a hole, to go in, and others use grease or tar to close it, which goes and infects it, but with a small animal it's a small butt that we cut with a knife, then we use an iron to do that. The young ones are small, they are handled by people lying on top of them. And then tail docking, that one is more on – I'll show them on small animals, like puppies – yes, that's where I'll show them. I'll take some to my practice or to my colleague's practice in *[area ± 10 km away]*. Some, I even took them to *[another area ± 35 km away]*, last year, to a colleague of mine who has a busy practice, because mine is after hours, so if I don't have those cases, I'll refer them to a busy practice. But it has been more on dogs, because with the lambs, you find that we don't get the farmers who have the lambs, and when you get there sometimes they've done it, a long time ago. But when they're at Onderstepoort, they'll be able to maybe come up with some of those ones that are doing that one. And branding – oh, it's easy, that one. We get to do it on farmer's days, when we have a farmer's day we call guys who come and brand, with the iron and with the ice, so different types of branding.
Q:	Do students find the branding easy, do you think?
A:	With the branding, most of the time we'll be demonstrating to them, we'll be doing it just for them to observe.
Q:	So they don't do it themselves?
A:	Yes, they actually haven't done it so far.
Q:	And the same with the tail docking – they will watch?

A:	They'll be assisting, yes. They'll be holding, like, you know, the puppy and see how it's done. If it's a bigger animal I'll show them how to do anaesthetic first, to let it calm, and then it lies down, do the shaving – they'll basically be assisting, because you are doing somebody else's pet, it's not like – if we are doing charity work, like with the SPCA, doing a massive sterilisation campaign, we will want them to do it, because there's no monetary involvement there, but with the practice, you wouldn't do that, because the owner can actually sue you for doing that, because they expect the vet to be doing that. Even the handler cannot do that, even though she or he can see how you actually do it, you cannot allow your assistant to actually do it. So those are some of the things that they can actually watch. Like castration, they can only watch.
Q:	The qualified animal health technicians, can they do some of these things, like castration?
A:	Yes, they can, like castration, doing a burdizzo. So what we'll do, we'll do one and put the burdizzo on one – one area – push it down so that it hooks, and let them finish.
Q:	So you almost do it together, because you do part of it and they –
A:	Then they do the other one, yes. And show them where it is done. *[At this point there was a brief interruption during which the mentor took out some letters from students to show me]* … This is one of the letters sent – here's another one. There's a group of students who are currently here, they're at Onderstepoort now.
Q:	For a practical?
A:	Yes, we're doing – like – rabies, taking samples, and also the lab, to check the blood that we send there – they'll go through that. Onderstepoort has made a "package" to cover that, so it's actually taking I would say 50% of our work, you know, so it's done there because it's an institution that has all these because they are teaching students … The other thing is, this one, for example, on a problem like that – *[points to the summary of practical logbook tasks in the Mentor's Guide]*, you see like, when we start, I'll explain to the students which one's we're going to do, and then those ones, as I say, *[points to heading "fertility investigations"]* Irene, all these will be done there, "permit control" we'll do it, this one *[points to "taking samples"]* is easy, but I told you it's difficult when you start, but we do it all the time, then it's easy, it's the daily bread of the … skin scrapings , that we'll do in a small private practice. Otherwise, at Onderstepoort, we'll do it … these ones, post mortems, brain samples, OP, OP, that's Onderstepoort …
Q:	So you've never done a post mortem with a student?
A:	Yes, I've never done it with them myself. But because they are doing it every day at Onderstepoort and Prof D is my mentor, I just simply send them there. Brain samples, rabies, how the animal is and how they're going to cut it, to check it, you know, just to demonstrate … TB test, easy, we do it, and then, temperature, pulse, when we have an animal we just show them how it's done, so those ones are easy, we'll do it both in large and small animals. And we also have this one, VPH, abattoir inspections – our guys are checking the abattoirs, and they're willing to go with them, so they just organise gumboots, and clothing, to go there with them. So there are those that we will do – external parasites – I have a chart there *[pointing to the wall where there is a poster showing characteristics of different species of ticks and other parasites]* – I give them a bottle – I give them a bottle like this *[takes out and shows sample bottle with cap]* – to carry all the time, and I say 'once we are there and you see an animal, just take a tick and put it inside there, so that you'll see it and you'll see that type' ..
Q:	So that's how they learn to identify them?
A:	The ticks, yes. So those are some of the things. It's a pity, it's not uniform in our department. But I just wish it could spread to the other side. And so far it's been our office, and *[Centre B2]*, that's where students go, you know, for that. But the majority of them have actually been coming this side, and sometimes I feel the pinch, the workload, as I say, I must plan beforehand, and then while they are there, you think everything is fine, and then comes one student … It's only when it's one student that I actually sort of get discouraged, especially when we go to Irene, it's a quarantine area, and you are requesting to bring at least more than one student.
Q:	Have you ever helped any of them with the projects?

A:	The most famous one is the one in Kruger National Park. So I'll actually give them the disease, for example foot and mouth, how is it spread, how does it link with the buffaloes and all that … give them more information, in the end they have to do it themselves. I feel I cannot do – like Pasture Science, I'll take them to Onderstepoort, show them where they've put the grass, because they have a nice laboratory where they've mounted the grass, show them this is how it looks like, this is how it's been put … When you're going to do blood collection, you need to know which time of the year you must go, because if you go in winter, they're dry, so once you've missed that time, you've missed time … but I'll take them first to see where they've mounted them, and then from there, they have to be the ones to do it. Like if they're to do, let's say, a project that involves pasture management, I'll tell them, you know, 'it's one field that I'm not strong at, I'll take you to Onderstepoort, for example, to go to that unit, you'll be the one to interact, they will tell you where to get the material, like in the library, in the end I cannot rewrite your task, because I do not have the time to do that, it's not my job.
Q:	But it sounds like you give them quite a bit of background, and preparation?
A:	Yes, as I say, with some of the tasks, the institution is there, and we have a good working relationship … every time you phone them and say we have students the guys are willing to help, they jump into the opportunity, so … I'll say, for me to find it easy for me, is to have more links, like if, for example if I have to take them to show them how to do permit control and quarantine and stuff like that, I phone my colleagues and say I'm bringing the students.
Q:	Many students seem to find the Epidemiology project difficult. Have you helped them with this?
A:	Yes, that has been common, yes. I've actually never sat done with them and did it, for example Dr P *[naming other veterinary staff member]* is the person who is doing, indirectly, that. But I'll only explain to them why Epidemiology is important – it's that actually its main part is that we are able to control the diseases, you know, it gives you the prevalence of the disease, how the disease started, where is it likely to happen, and why you need to do surveys, to know the number of animals in a particular area. For disease control, if you know there are so many cattle in a particular area, and there's an outbreak of foot and mouth, you know which farms to go, I think that's the message that they actually don't get, why you have to do it. So I think some of them get discouraged because they don't know why one has to do it, Epidemiology. And most of them have been stuck between Epidemiology and Pasture Science.
Q:	So you think those are the two most difficult ones?
A:	Yes, those are the two common ones that I've noticed with the students, you know … but once you explain to them why they have to do it, and what is the aim of that – actually I would say it's the most important project in disease control, because then you know when and where you expect an outbreak to happen. Of course with avian influenza it's difficult, unless you put a net, and make sure the birds don't migrate past – through – the area, but … they will need to know how many chickens, or ostriches, are there in a particular area. But I'll at the same time refer them back to Onderstepoort, or to other guys who can do it, because … at the end they'll have to go to the library and swot. Some will request you to do an assignment for them, and I don't have the time, and I cannot do it, because no one did it for me, when I was a student.
Q:	Do you think the instructions that they give for the projects are clear to the students – do they generally understand that?
A:	Yes, I think it's clear, it's outlined thoroughly. In my experience students haven't had a problem with it. What is needed is very clear.
Q:	How do you find the assessment sheets?
A:	They are clear on the scope, the scale that I must use, and to me they are very clear. It makes marking easier than it would have been if these sheets were not provided. The range of marks is clear, for example, if you think a student has done excellent work, you know you must give him or her a mark in a range from 80 to 90 per cent. At the end of the day it actually allows the students to still do their part … otherwise, if it was only 100% here and they didn't have to

	write the test, it was not going to be fair on the students, you know, they still have to do the other parts of going out to do field work. We can be doing brucellosis, collecting blood, doing TB, but when they have to do an assignment, they will have to read, and check why – you know – which factors will affect an animal who has TB, and – you go into depth, unlike the practical part. Because you'll be assessing the guy again on how he or she handles himself on that, whether the guy is also co-operating, coming on time, and whether he's *interested*, you know, or he just wants to do the assignment. So it also gives you an idea, and they also have to do their part.
Q:	When you mark the assignment, do you give them feedback on how they've done?
A:	Yes. Once they've handed in the assignment I'll keep it, make a copy, and critique on what they wrote … maybe you find that they were not sequential on writing both the scientific and the common name. So they'll write the scientific name, and then write the common name, "gifblaar", and when they come to *Lantana camara* they'll only write *Lantana camara* and not the common name. So I'll critique, mark it, and then send it for them to correct, because they have the information there, it's just that didn't follow the sequence. I think it's more – mentoring, to say, 'if you make a certain pattern, you need to follow it up'. And also grammar, if they made an error of grammar, I'll mark it with a red pen and then tell them to go and correct it, not to rewrite everything, but just to – what they wrote, to make sure that the grammar is fine, that it is how it is supposed to be, and then they will have to rewrite, and then I'll mark it.
Q:	And do you discuss it with them, or write on the assignment, or both?
A:	I'll write comments on the assignment, and then call the particular student and then explain and discuss his comments. I'll say 'this is how it's supposed to be, if you do this you must make a follow-up, or otherwise you don't have to do it that way, or this is a repetition of the one you said', you know, stuff like that. So I'll mark it then call the student, to say why I had to do it, unlike marking it and sending it back, the guy will not understand, as far as I'm concerned. I think you need to sit down and and say 'no, that part is that way, and that one is OK', and you check on the – like one guy who was doing research on sand tampans in C and R *[two areas]*, you know, it was so detailed that as you read you could see the guy going over and over, doing that, because it's a project that we're doing within the department, so it's not something that the other guy from the outside would have had the opportunity to have done, because it was done by the department, so it went well, and I told him that we could actually be writing this in our internal brief, the way he has actually wrote it, so there are those who go the extra mile to go and check… *[The mentor explained that the same student also had some weak points in his assignment, for example once again that he did not use the correct sequence of scientific and common name, and he said to the student that the projects should be written as if they are intended for a lay person, not a professional.]*
Q:	Do you use the assessment criteria on the assessment sheets when you give feedback?
A:	In some areas they have not requested them, but otherwise I've used them.
Q:	How have you found them?
A:	*[The mentor said that in some of the projects, for example the one on Communication where they had to do a presentation on a farmer's day or as part of a rabies campaign, he'd sit down with the student beforehand and tell them that when they do the project, this is how they should go about it.]* So it's more on evaluating what we do before we actually do it.
Q:	What does the criterion "personal appearance" mean to you?
A:	It's how a person projects him- or herself. If you're going to be a public speaker, representing the department, you should wear the uniform of the department. It doesn't help going there with an Amabokoboko T-shirt, you know – you're giving a bad impression. So how you actually present yourself, it says much to the farmer. Like if you go there with gumboots and clothing ready to bleed, then the farmer also sees that you're coming there to bleed. But if you're wearing a suit, you're not going to do a pregnancy test, because when you put your hand there then the animal starts poohing the dung, you are actually going to be soiled. That's actually how I saw it.
Q:	And you would take that into account when you mark?

A:	Yes. I'd normally tell the students "tomorrow we are going for a rabies campaign", so they must wear their white coats, and if they don't have one, "let's arrange so that we get it". So the students are also aware that they have to be presentable. They're actually more presentable than the technicians that are there, in most cases, because the technicians will be wearing the uniform when they're actually supposed to be wearing white coats. As a supervisor I'll be wearing my white coat, and the students will also wear white coats. It's sort of – it will gel on them, you know, once people reach a comfort zone, they tend to leave other things but it's our task to ensure that when we go to that particular area, this is how we dress. When you are going to talk to the community in a hall, you either wear your deparmental uniform or – be presentable.
Q:	What does the criterion "acceptance of authority" mean to you?
A:	My understanding would be, for example, if a student comes here, does our department accept him to be mentored? Or if you go to an area, are you allowed to go there with students? – you know, that's how I see it.
Q:	So you see it as accepting the authority – or the responsibility – to actually mentor these students?
A:	Yes. Like when they say they need to sign an indemnity form, it's the agreement that the department wants to protect themselves to say that they will not be liable in the event that the student is kicked by a horse, you know … or when you're travelling with them, they will say maybe you're driving a government vehicle and if there's an accident then the student cannot sue the department … but I went further to check with the other guys, and they said no, when you are involved in an accident, it's the MVA – the third party – it has nothing to do with the department – the third party has to pay the people, because the disc covers the third party. But those are legal things, we sign the indemnity, and the students don't have any problem with that. Because they feel, you know, that it's a favour that the department is doing for them, so they easily sign it, but I – one legal guy told me that that paper doesn't *[inaudible]*, but I don't want to go into it, you know, because if you're involved in an accident then the third party is supposed to cover that.
Q:	After you've marked the projects, they are sent to Unisa and then the lecturer also marks it. Do you see the marks the lecturer has given, and the comments he or she makes?
A:	No. I think it goes back to the same thing of not – not – proper communication. I don't get to see the end. And I think I need to get that. All I see is those students who'll come back and say "I'm employed somewhere", you know, and "thank you for the time that we had". But I don't get to see how the final product ended up. And I think I would like to see the final product and the comments so that it can correct one.
Q:	So even with the students who are employed here, you haven't seen the marks that the lecturer gave?
A:	No, I haven't seen them. I actually saw – I saw the certificates – they came back to me – one who is at *[Centre B2]*, and the other one who is here with us. He's completed it, and now he's a chief animal health technician – he completed, and he was a technician, and he applied for the job, so now he's a chief. He came back with his certificate, you know. So all I saw was the certificate showing that he has completed. I didn't get to see those projects that we did. So it's one part that I maybe didn't get time to do it because it's more of admin, you know, I didn't get time to see it, but … it will help me, because you may think you are in this path, whereas you are in another path.
Q:	Are there any particular difficulties that you've got with mentoring where you think Unisa can do something to help you with?
A:	Beside knowing when they come *[when the students will start]*, so far, with the link that I have with Onderstepoort, I can only do those *[tasks]* that I said the Department can provide, and those that I said I can reach out *[give out]* to private institutions … it's … artificial insemination, you know, because I'm an external examiner with the University of Pretoria, I actually don't know how it can be incorporated with those students who are doing that, because they are doing it at a certain time, I think it's for two weeks doing practicals, so I – it's difficult for me to put them in there because there might be monetary benefits attached,

	but I'd love to get them in there … and the other drawback is actually CA *[brucellosis]* and TB practical exam. Because most students have to go to E *[naming a town about 200 km away]* for example, because it's not provided nearby – there's a group of students who are going in September to E, so have to find accommodation, bla bla bla … I wish, you know, something can be done to ensure that those students write the practical. We do the theory, and the practical, but we are not accredited to do it for them. So one can only do up to that, but … I feel pity for the students because they have to now go as far as that, and some of them are not working … so if they can be groomed, and then it is done in our area …
Q:	So it's a question of organisation and planning ahead?
A:	Yes, and to say "we have so many students", so if we have a number of students, then we can – it can be provided around. Like I say, it's done by the University of Pretoria, and me being external, we can sit down with Prof E, and see what we can do – what is required by Unisa for those students to do AI. And then after that particular theory and practical, then they will have certificiates as inseminators, and that can really help. Because it's nearby. So it's something that I actually have been – have to make time, to see Dr I *[lecturer]*, to talk about it …as I say, it has not been on my line, it has been on Dr P's *[naming other state veterinarian responsible for organising training]* but – … those are the two concerns that I have … because we are not accredited to do that.
Q:	And the general communication with Unisa – is that efficient? You showed me letters from Unisa concerning permission for specific students to come here – is there regular communication then?
A:	Actually, it's more like there's a middleman. The students come and I request them to get that letter from there. So they are the ones having to go there and get it. I know they will get the letter from there. So when they come it's fine. What should actually happen is we should sit together *[they and Unisa]*, maybe we do a project, if you find we get all the facts in time, probably we might mediate *[negotiate]* after getting other responses, you know, where we can sit and say what will be the way forward to do that. As I say, some students were left behind in terms of practicals. Because I can only go a certain time to T, for example *[naming private company involved in AI]* to do those specialised types of tests. And you'll find that if there's one student who comes late, you know, that student is outside the scope, you know, so if it's well planned ahead, so that it's assembled and said 'these guys need to do it for 6 months or at a particular time', let's get them at a particular time – when do they think they will be ready to start? It should not be left to individual students to decide when they are going to start. It will be 6 months in a whole year – they will find for themselves, as I say some will go to other provinces and – it – it goes – deals with connections – if someone knows a particular guy somewhere, you know – some vets – some doctors – will phone from *[province A]* and say please there's someone who wants to do this, may you please help, and they give me the number and I say no, that person can come. So all I need, I need to see that they have the *[learning]* material, once I see that then I'll need the letter of confirmation. Not that I don't trust them, but I'll need to see that this student is attached to that institution, and these are the things that they have to do. Start planning with the other officials, like abattoirs, it's not in my line, it's done by my colleagues, go there and say 'there's this number of students', they should be able to plan and do it. We do it the whole year in other areas, so – but – if one knows when they're coming, as I say … preferably, from my side, if there is more than one person – if there are two, to me, it gives them that – you know – competition, morale, and not feel they are left out, so they know they are two. Because we might be all vets, just one student, maybe two vets and technicians, and we start talking at a higher level and the poor guy is in the corner. So those are some of the things … as I say, it's my perception, and I found that it works better when there is somebody else. Like someone in a foreign land and they start talking Greek and they laugh and you know, you're isolated. But when you are with someone, then you're sort of covered there.
Q:	Are the technical terms you use, the kind of language you use, difficult for the students?
A:	Not really … actually I haven't noticed it because – when I talk about dystocia, I'll explain to them that's it a difficult birth, because it's caused by a farmer – in most cases it will be a farmer breeding with a bigger bull and a small cow. So you sort of explain what is dystocia. So I quickly translate what it is, I don't just leave it there.

Q:	So you haven't noticed whether that is a big problem?
A:	No, I haven't noticed, and maybe it's because I immediately explain, as if I'm talking to the farmers. But actually I haven't noticed. Because even to the technicians, when I say this, I explain to them what it is.
Q:	Is there anything that you, personally as a mentor, would like Unisa to help you with more? Are you happy that you get enough support from Unisa?
A:	The other thing is that it's something one does – it's more of a passion – to realise that you have to help the students, to fill up the gap for the next generation of vets, so you see – to me – it hasn't come to me as a problem at this stage, unless we sit down and talk, because so far, I'd say, it's still working well, because those that we cannot help we refer them to the other areas. So as a distance learning – you know, it's still open to me – maybe I need another forum to see – maybe I'll look into that and check what one can do to ensure, you know, that one can do. But this is distance learning, you know, that's the area – so I don't know if they are attending sessions on a regular basis, if they go to their mentors, to Unisa, to really find out. I know that there are those that are going there but I don't know if they are going to the lab, or to meet the lecturers concerned … so that's the thing. The other thing is that – preferably – if for example they were coming to do a particular thing, like before they come for their practicals, if they could get a lecture on a particular disease of the project, for example – they can pick one, or whatever task they have to do – if they can have the theory of whatever diseases they are going to do … if they can get the theory, then by the time they arrive they only need the practicals. Something that I actually noticed that those that were qualified, for example from the University of the North-West already have done those things, they need the practicals. So if they can get the theory, of what is it – what is a sheath wash, why do you have to do a sheath wash, and which animals do you do, and stuff like that … then by the time they arrrive at least it will be easier. Because it's more of a cut and paste, I have to go get the relevant textbook, make copies for them, and then give it – you know – like I use the Bible *[pointing to Merck's Veterinary Manual]* – so if it's going to be on sheath wash I'll make a copy and give them that, so – I wish one could develop a manual …
Q:	I think they do have some of those things in the theory modules that they do. But you find they come here and they don't know?
A:	Yes, I notice that some of them – you know – actually have not gone through that, yes.
Q:	So you think more can be done to prepare them for the practical procedures?
A:	Yes, if they could have a simple manual, with pictures, to prepare them specifically for the practical procedures, for example like some information brochures prepared by the NDA *[National Department of Agriculture]*.
Q:	Is there anything more you would like to tell me about your mentoring?
A:	The mentoring is a pleasure for me … to help students feels good, I'm always very glad when students who have done their practicals here phone me later to tell me that they've found a job.

Annexure 34

Interview data: Mentors' degree of involvement with students

Student/ mentor	Mentor's degree of involvement
S1	Had three different mentors; one fully involved and spent time with her continuously doing field tasks (S1:1:8). Although never communicating with her at a personal or informal level, he did give her praise and encouragement (S1:2:6). However, he was unable to assist her with the projects, as he did not understand the project instructions (S1:1:9,14). The other two mentors spent limited time with her, mostly in supervisory role (S1:1:4,8,9), for example by asking her questions about the procedures she had done while out with others before signing her logbook (S1:1:4,13). She reported that the mentors are "always busy. You find that they've got a lot of job to do. And they can't spend a lot of time with you" (S1:1:7).
S2	Had a designated mentor but he had no direct involvement with her up to time of interview (S2:1:9).
S3	Had different mentors for different subjects and for field tasks. Reported different degrees of support by different mentors: some were "extremely dedicated", some others you "had to push to help you" (S3:1:4). His mentors served as "direct supervisor" (S3:1:5), academic tutors and assessors (S3:1:5,7,8). One mentor was a strong influence: "he made things possible for me" (S3:1:5).
S4	Had different mentors for different subjects and for field tasks. Judged one mentor (a senior AHT interviewed as mentor 2, also student 3's supervisor) to have been most influential in his learning (S4:2:5), also giving him encouragement with his studies (S4:2:5); but also reported that he learnt most of the field tasks from another colleague, a veterinarian who was not a designated mentor, and who served as his role model (S4:1:6). One mentor held him back considerably by losing a project he had submitted to the mentor, so that he had to start from the beginning (S4:1:2).
S5	Had different mentors for different subjects and for field tasks (S5:1:3-4); at the time of the interview lack of support was a difficulty as there was no one mentor working consistently at his service centre (S5:1:4).
S6	Extensive, continuous involvement in every sphere, as supervisor (S6:1:9), academic tutor (S6:1:9,10,11), field coach (S6:2:2,6), provider of guidance, counselling and support (S6:2:4,5,10), peer learner (S6:1:11,12) and close friend (S6:1:12); saw mentor as "dad" (S6:1:12).
M1	Seemed to see his role mainly as co-ordinator of learning opportunities (which he did extensively) (M1:1:1; M1:1:7), supervisor (M1:1:2,4) and assessor (M1:1:9). Gave initial instruction to novices, thereafter sent them out into the field with other animal health technicians (M1:1:1-2). However, he also reported that he encouraged and praised students (M1:1:3,4), and provided personal help in some situations (M1:3:3).
M2	Saw his role mainly as academic tutor and assessor of one project (M2:1:5), with some limited coaching in field tasks (M2:1:2).
M3	From his description it seemed that he saw his role mainly as supervisor, academic tutor and assessor (M3:1:2-4,8; M3:2:2); gave initial instruction to novices, thereafter sent them out into the field with other animal health technicians (M3:1:3). However, he also mentioned that he gave general guidance and career advice, and that a mentor should be a role model (M3:1:9; M3:2:1).

Annexure 35: Notes on Observation 1

31 August and 4 September 2006

Introduction

On the two abovementioned dates I went to conduct observation at the workplace of a student in the Diploma of Animal Health who is not employed by the government Veterinary Services (i.e. a "private" student). The student is working for another government department in which dogs and horses are used. This government department has a large farm where kennels and stables are maintained and dogs and horses are both bred and trained. The student is employed at a veterinary hospital that forms part of the site. In telephone conversations with both the student and his mentor, the chief veterinarian at the hospital, I had learned that the student was carrying out some veterinary nursing tasks and had therefore assumed that he was essentially a veterinary nurse. As the observation proceeded, however, I discovered that his designation was not that of a veterinary nurse but rather what is called there a "veterinary orderly". (The meaning of this is described in the observation notes.)

I did not do the observation on consecutive days because the dates were selected by the mentor as dates that he considered suitable. He specifically asked me to attend on 31 August because, at the time of the observation, the student and some other employees at the site were involved in an in-house training course run in between the normal daily activities, and he thought that this would make the observation particularly informative for me.

I had initially contacted the student, a white Afrikaans male, and he had been very friendly and willing to let me conduct the observation. When I mentioned that I would need his mentor's permission as well, however, it seemed to me that his attitude changed. He became more distant and asked me to make all the arrangements with his mentor rather than with him. When the mentor had specified times for the visit and I asked the student whether the times would suit him as well, he answered something to the effect of (in Afrikaans) "Well, if that's what he says, that's the way it'll be".

The observation site was situated 89 km from my home. I arrived there on 31 August at 08:00, as the daily activities started. The site consisted of widely spaced clusters of small buildings, all connected by tarred roads. Surrounding the buildings was open natural veld, on which I saw a few zebras wandering around. In driving to the hospital I could see a row of large kennels in which dogs, mainly German shepherds and border collies, were either sitting or running around barking. From other directions one could also hear the sound of dogs barking. There were no clear directions to the hospital on the site and I got lost and had to ask for directions from someone standing by the roadside, but I managed to arrive on time.

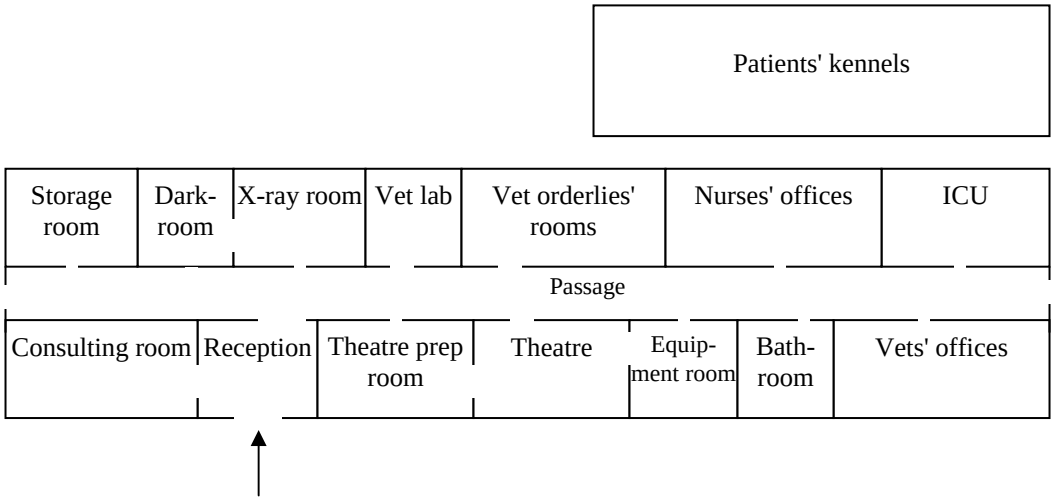
Note: All the people's names used in the notes are fictitious.

Notes

31 August

Time	Notes
08:00-09:00	• A lady was staffing the reception desk. I asked for Frans, the student whom I had come to observe, and she called to someone in a back office to call him. • Dr Smith, the mentor whom I had spoken to on the telephone earlier, arrived and introduced himself to me. He said that Frans was busy doing his "morning rounds" but would join me shortly; until then, I could wait in his office. He offered me a cup of coffee and I waited in his office while he made the coffee. • Almost as soon as Dr Smith arrived with the coffee, Frans also made an appearance, and Dr Smith introduced us. Frans was quite a tall man, sturdy but not overweight, with straight short grey hair, and looked much older than I had expected. (He told me later that he was 39.) He was wearing the uniform that is worn by someone of his rank in the relevant government service, with his rank insignia on his shoulders and a firearm at his side. (This made me realise that Dr Smith was also wearing standard issue clothes, though these were much less conspicuous, consisting simply of navy trousers, a light blue shirt and a navy windbreaker.) Frans was out of breath and seemed hurried (and, I thought, stressed and worried.) • I thanked Frans for being willing to have me there and said I appreciated it particularly as I knew he must be under pressure, since he was doing an internal training course as well as our Diploma's experiential learning. I mentioned that I thought the EL involved a great deal of work and had to pose difficulties for him because it involved various tasks, with cattle for example, that he couldn't do at this site. I had meant to be sympathetic but Frans seemed unsettled at this remark. Before he could respond, though, Dr Smith commented that he completely agreed with me. He said, with a smile in Frans's direction, that this was something he and Frans "disagreed about to some extent", but he thought that the course was not all that suitable for the work Frans was doing there. At this Frans seemed to me to be irritated but responded in a restrained way, saying that in his view everything in the course was functional for his work: although there were some other animals involved, the techniques learnt could be applied here as well. • Frans then excused himself, saying that he had a number of things to do and that I could join him when I was ready. • While we finished our coffee, Dr Smith explained the staff structure at the hospital. He was the chief veterinarian, and there was another veterinarian as well, Dr Miller. In addition, there were two veterinary nurses; a veterinary technician, Henry, who staffed the laboratory; Frans, the chief veterinary orderly; three veterinary orderlies reporting to Frans; and a group of other workers who did basic tasks such as cleaning cages and giving the animals their food and water. The veterinary orderlies, Dr Smith explained, were responsible for a variety of tasks that supported the veterinarians and the veterinary nurses in the hospital. These included things like regularly checking on the animals in the hospital and seeing that the workers had given them the correct amount of food and water and had cleaned their cages properly; administering medicine to the animals and taking the dogs for walks; taking samples from the animals if necessary; assisting during consultations and surgery; and assisting in the vet lab. • Dr Smith said that while Frans had done a number of internal courses at previous jobs, and was studying towards the Unisa diploma, he did not actually have the official internal certificate required of veterinary orderlies in their specific service. It was this certificate course that was currently being run internally and that Frans was working on. He would be in a better position once he had completed this course, which was being offered daily over six weeks.

	• Dr Smith again said, with a smile, that he and Frans had had "somewhat of a disagreement" about the Diploma of Animal Health for which Frans is studying. According to Dr Smith, the Diploma is not really suitable for someone in Frans's position. It had obviously (he said) been compiled for government animal health technicians who worked mainly with farm animals rather than with companion animals, and it included many aspects (meat inspection, for example) that were not relevant to Frans's job. In his opinion, Frans should rather have done the course for veterinary nurses at Onderstepoort. I asked whether this was not a full-time course and he conceded that it was, and that it would therefore be difficult for Frans to do this two-year course. I asked whether he knew of any other course that would be suitable and that Frans could do on a part-time basis, and he said he didn't. • I asked whether Frans and the veterinary orderlies reporting to him had a career path at the hospital if they did not have an official veterinary nursing qualification. He said that they could not move up into a higher post; however, salary structures were currently being adapted and they would be able to receive increases within the band in which they were placed, even though they wouldn't be able to move to a higher band. • I expressed the thought that Unisa's AH experiential learning involved a great deal of work and I thought students may experience a great deal of pressure doing it. At this Dr Smith smiled and said something to the effect that it is actually good for students to experience pressure, as it helped them to achieve more, and that it was necessary for them to learn to cope with tough circumstances. • We also talked about the current position of and issues surrounding Unisa's Diploma in Animal Health.
9:00-9:15	• Dr Smith took me back to the reception desk and introduced me to Dr Miller and Henry. Dr Miller, a woman wearing plain blue overalls, took me on a brief tour of the hospital. It was essentially a rectangular building with a central passage along its length, and a row of rooms on each side of the passage. A map of the facility is shown below.



	• The consulting room, theatre prep room and theatre were large, with shelves around the walls, and seemed well equipped. • The "ICU" was a smallish room with about 8 cages for dogs who needed particular attention, on the left-hand side of the room. There was also an operating table in the middle of the room, and around the other walls, a washbasin, counters and various pieces of equipment. On the day I visited the ICU contained only one patient, German shepherd Rex, who (Dr Miller explained) had had surgical correction of hip dysplasia the day before, but seemed in fairly good condition. • I was struck by the smallness of the vet lab, which I would estimate was about 15 m^2. • Most of the walls were painted green. • Most of the rooms had colourful posters and pictures up on the walls, displaying information on animal anatomy and various diseases and conditions. Basic information (schedules etc.) was also displayed on the walls.
9:15 – 10:00	• I joined Frans on his routine tasks. First, he took me to the theatre where he and the three orderlies reporting to him were cleaning surgical equipment. He introduced me to them. The orderlies, all middle-aged black men, were wearing plain blue overalls without rank insignia. Frans said that one of them, Tom, had been working there long before him and had taught him most of what he knew; Tom was especially knowledgeable about horses and had taught Frans how to take blood samples from horses. (Tom seemed shy and would not make eye contact with me.) Another one of the orderlies, Richard, said he was planning to register for Unisa's Diploma in AH next year, and asked me some questions about the course while they were working. They had pails of water with disinfectant and used cloths dipped in this to methodically clean scalpels, clamps and other instruments which were lying on a trolley. • One cupboard contained packs of white paper bags and Frans showed me how, after the equipment was clean, they would pack a set systematically into such a bag, and seal it with a special type of tape. Then they would pack a number of bags into a particular type of machine in the equipment room, which Frans told me was called an autoclave. The autoclave sterilised the equipment packs by means of steam. The tape on the packs, which started out yellow, developed blue stains after having being sterilised, so that they knew which packs had already been sterilised. He showed me packs with the blue-stained tape. • Frans took me along on his rounds of the patients' kennels. These consisted of about 20 large cages, each containing a large dog, mostly German shepherds. Every dog had its name and condition written on a slate attached to its cage. Frans briefly checked whether every dog's cage was clean, whether it had food and water, and whether it seemed to be in a reasonable condition. He addressed the dogs by name and held his hand against the cage so that they could sniff at it. Of the 20 dogs there, 17 had had surgery for hip dysplasia or vertebra dislocation, very common in ageing dogs of this breed. I was surprised to hear Frans tell me that the remaining three dogs were there due to malnutrition. He said that even though the government service provided training to the dog handlers as well as the necessary food, some handlers did not take care of their dogs. He made it clear that this upset him. He said that educating these handlers was one of their great challenges. • Frans also checked on Rex in the ICU. While we were still there, one of the nurses called to Frans to go help in the vet lab. When we got there we saw that a litter of 8 six-week-old puppies had been brought in by handlers involved with the breeding programme. The puppies had to be tested for a bacterial condition causing diarrhoea. Frans explained that it was only necessary to test one of them, as the condition was so contagious that if one had it, the others would have it as well. Frans assisted Henry, the vet tech, by holding a puppy while Henry took a rectal sample from one unfortunate pup, who wailed loudly. The other puppies scampered around on the

10:00-10:45	floor of the vet lab, whining and yapping and making several messes on the floor which the staff then cleaned up. • While we had been in the lab, two handlers had brought in their dogs, border collies, who both had to have routine X-rays. Frans explained that every dog in the service from a certain age was X-rayed annually to check their hips and elbows. • One of the veterinary nurses injected each of the dogs with a sedative that would make them sleep. • By this time two people, Jan and Elmarie, who would go on the internal course with Frans, had arrived at the hospital and they started helping with the work. They were "control officers" who, amongst other duties (Frans told me) were responsible for regularly going around to various offices of the service to check on the condition of the dogs there; it was this monitoring that would identify the dogs like those currently at the hospital who were malnourished. • Frans and Jan started preparing the X-ray machine by adjusting its settings. The first dog who had to be X-rayed was sitting next to its handler near the X-ray table and clearly growing sleepier. Frans told the handler (who was not looking at the dog or interacting with it) to kneel next to the dog, talk to it and hold it, as it would soon fall. The handler did not do this immediately and Frans told him to do this a second time, at which he started holding the dog, but not talking to it. The dog was soon asleep. Frans and Richard put on protective jackets (which had been hanging on hooks on the wall) and put the dog on the X-ray bed on its back. Frans explained that the legs had to be held at a certain angle so that the hip joints would be clearly visible on the X-ray, and that the abdomen and the tail had to be in a completely straight line. He and Richard spent some time making adjustments to the dog's position, with Frans giving Richard instructions. Eventually the position was to their satisfaction and Frans called out to Jan, who pressed the activation button on the X-ray machine. • Two more X-rays were taken, one each of the dog's "elbows". This time Richard did the positioning alone – this was simpler, Frans explained – and Frans made the necessary settings on the machine. (Above the machine, on the wall, was a chart showing which settings applied to which type of X-ray. Frans consulted this before doing the settings.) He then also pressed the button to take the X-rays. • Next to the X-ray machine was a table with a book into which the details were entered of every dog that was X-rayed. While Richard had been doing the the positioning of the dog, Frans, Jan, Elmarie, myself and the dog handler had been standing around talking in the X-ray room. One of the veterinary nurses came in, looked at the book and said in a loud, scolding voice – but only half-seriously - "So *all* of you are just standing around here chatting and not a *single* one of you has thought of making the entry into the book, have you?!" Frans rolled his eyes. The handler whispered to me "Sy's 'n kwaai vrou". • Jan went to the darkroom to develop the X-rays, a process with which Frans also seemed to be familiar, since he explained it to me. When the hip X-ray was developed Jan placed it on the lightbox and Frans groaned when he saw it. "I think it's too skew," he said, "we're going to have to do it again. It's much too skew," he repeated to me, "I'm usually better at it than that". In the meantime the nurse had called Dr Miller, and everyone waited on her to say whether the X-ray was usable and to interpret it. She duly arrived, said the X-ray was all right and plotted measurements on it which Frans then entered into the book next to the dog's name. The hips as well as the elbows were completely normal. • Richard lifted the dog off the X-ray table and carried it to the stoep in front of reception, putting it down to lie in the sun. It was still fast asleep. • The entire process was repeated with the second dog.

	• When the second dog's X-rays had been developed, I asked Frans if he could see on them whether the dog's hips were normal and how the plotting process that Dr Miller had used on the first set worked. He looked at it for a bit, then shook his head and said "Let's rather ask Dr Miller." He called Dr Miller and asked her to explain the process to me, which she then did. • By this time both the two dogs were lying on the stoep sleeping. Frans went to fetch the antidote to the sedative with which the dogs had been injected from the drug cupboard and prepared two syringes. In turn, he carefully felt the hip muscle of each dog and then gave each an intramuscular injection there. We watched as the dogs came to; it took about ten minutes for them to wake up completely.
10:45-11:15	• Frans took a tea break and chatted to me in the vet orderlies' room. • Frans said that he was currently working on the internal course, for which there would be an internal examination – written and oral – at the end of October. Immediately after that he would be writing Unisa's exam in two modules. Then he also had to work on Unisa's EL tasks and projects. He studied at home in the evenings and over weekends, but also had to come in over weekends to check on the dogs. At home he had a family – a wife and a five-year-old daughter who was very lively and demanded his attention. With all this, he said, he was having a hard time keeping up and did not get enough sleep. • Frans said that he had had "a blow-up" with Dr Smith a few weeks earlier. Dr Smith had said that he thought the Unisa course was very inappropriate for Frans's work and that Frans should rather have taken time off to do the veterinary nursing course at Onderstepoort. Frans had defended the course, arguing that in one way or another everything in it was relevant to his work. He now expressed frustration at Dr Smith's attitude and particularly at what he called the "monopoly" of veterinarians over the veterinary profession - it was ridiculous, for example (he said) that in terms of legislation (which had been recommended by the Veterinary Council) almost every task, even the most basic ones such as injections, either had to be done or supervised by a veterinarian and could not be left to paraveterinary staff. In actual fact, he mentioned, most of these tasks *are* done without a veterinarian being present, particularly by AHTs – there are simply not enough veterinarians to go around. However, due to the protectionism of the Vet Council (he said), paraveterinary staff like him could never get more responsibility officially and could therefore never advance. "I'm so tired," he said, "of hearing the vets tell me 'but you know, we did study for *seven* years at Onderstepoort …'". Altogether, he said, he'd been studying for as long as that and once he'd completed all the courses he intended to do, he would have studied for longer than that plus have many years of practical experience – but he'd still not be supposed even to do a simple task such as independently selecting and using a specific vaccine for a specific condition. • Frans also expressed concern at the situation of people like Richard and Tom (the veterinary orderlies reporting to him). They had done Matric years ago, but not a very good Matric, and as a result they would not easily gain access even to paraveterinary courses such as the vet nursing course at Onderstepoort; they might also have language difficulties in studying seeing that English was their third language. And yet they had each had more than ten years' practical experience in the field and could do many veterinary nursing tasks expertly, in fact teaching other s like himself who were then promoted above them. What good, then (he asked), were their expertise and their learning to them? • Frans showed me the course notes for his internal course and told me more about what was expected of him. He also took out Onderstepoort's calendar and showed me the description of the veterinary nursing course. He said he had inquired if he could do this course and given evidence of what he has learnt so far. They said they would accept him but on condition that he got Matric Maths first, which he didn't

	have. He said he might register for the course in 2008, after completing the DAH in 2007 as well as Matric Maths. On the other hand, he was also interested in Unisa's BTech in Agricultural Management. • He showed me his Unisa logbook with the tasks he had completed so far. He told me that he'd done the artificial insemination practical course but afterwards learnt that the people offering the course (an agency external to Unisa) had lost his mark sheets and therefore would not issue a certificate. He would therefore have to do the practical course again. (He laughed about this, but was clearly feeling frustrated.) • We talked a little more about the job. Frans again said he thought one of their greatest challenges was to educate certain handlers who did not have a personal bond with their dogs. He said that some people had grown up without animals and seemed to view the dogs simply "as instruments, as tools", rather than as living beings. He has seen cases of neglect or even bad treatment of dogs by handlers which had made him very angry and it is something he often feels very upset about.
11:15-12:00	• Jan came to call Frans; their internal course was starting. I went with Frans to the consulting room where the first part of the course would take place. The students were Frans, Jan, Elmarie and Richard, and Dr Miller and Henry would give the lecture. We all stood around the consulting table as Dr Miller first gave a short talk on what they were dealing with that day – blood samples, blood smears, skin scrapings, and ear swabs. Dr Miller talked about how each of these should be taken and what could be learnt from them, with Henry adding some more detail. To explain the different uses of different blood collection tubes, she handed the actual tubes around for everyone to look at. She also had a file, a "handbook of dermatological conditions", which was highly illustrated in colour and she showed the students photographs of the various skin conditions and parasites she had referred to in her talk. • Richard then brought in a patient at the hospital, German shepherd Shadow, who was due to have blood tests on that day. He was in poor condition and the vet suspected a pancreatic disorder, and wanted to get "bloods" to confirm this and to see how Shadow was doing (he had also been tested a few days before). Frans and Richard picked Shadow up onto the consulting table. The vet asked for two volunteers to draw blood samples. Frans was the first volunteer and while he was working, Dr Miller explained what he was doing at every step. Frans completed the task expertly and was clearly very much at ease doing so; I asked him whether he had done it before and he said yes, many times. • The nurse came in to call Dr Miller, saying that a new patient had arrived at the hospital – a large, aggressive dog with a haematoma on its ear. The students continued on their own. Elmarie was the second volunteer and drew blood from Shadow's other leg. She struggled in little in doing so and Frans helped her. • Dr Miller returned and under her guidance, with the others watching, Richard took a skin scraping from Shadow's back. • Elmarie took an ear swab from Shadow. This seemed easy (merely swiping an ear bud in the inside of the ear) and she did not need any specific guidance.
12:00-13:00	• With the blood and other samples, we went to the vet lab. There Henry demonstrated the use of the "Vet Test" machine. First, he took some blood from the samples that had been taken and put it into a small pipette which he then rotated in a centrifuge. This separated out the various components of the blood into separate areas within the pipette: first, there were red blood cells (the lightest of the components), then immature red blood cells (larger and thus heavier than the mature ones), white blood cells, serum and so on. Henry handed around the pipette so that everybody could see what this looked like, and also referred to a large poster on the wall, which showed a large colour sketch of the same components in the pipette, with each type labelled. The students studied this.

	• The pipette was then inserted into the Vet Test machine. The next step was for Henry to insert slides into the machine (it was not clear to me what the function was of these, but I assumed some of the contents of the pipette would be dropped onto each slide within the machine for "reading"). Here we ran into a problem. Henry had no new slides – he said that he had ordered some but there had been a delay in their delivery. Slides could be re-used but only if they were scanned and approved by the machine. Henry put in the required number of slides, twelve, and the machine kept rejecting some of them; if even one is rejected all the slides are ejected and the insertion process has to start again until all the slides inside the machine have been accepted by it. Henry had to re-insert the slides five times before they were all accepted, which took a lot of time. The students all expressed sympathy with Henry for this situation. Frans said something to the effect of "Henry, if it was me working with this machine I would have slashed my wrists by now". Henry just smiled. He did not seem particularly stressed himself. • While we were waiting for Henry to prepare the machine, Richard went out briefly and came back with two books that he showed to Frans. One was on animal nutrition, published by a pet food company, and the other was a textbook on parasites (e.g. ticks). They both seemed very accessible, setting out facts in a step-by-step way and richly illustrated in colour. Frans looked at them eagerly and asked Richard if he could borrow them; they would be useful for one of their upcoming tests. Richard agreed. • Once Henry's slides had been accepted, the Vet Test machine very quickly tested the samples and displayed all the readings on a small screen. There were about ten different results, of different substances and enzyme counts in the blood. Henry took out Shadow's previous test results from a file and the students then compared these to the latest readings. Henry smiled widely when it became clear that all Shadow's various counts had improved. There was also no evidence, he said, that Shadow had serious pancreatic problems – all the pancreatic enzyme counts were within a normal range (though low). He showed this to us on a graph, a printout that the Vet Test machine had made. He said that Shadow seemed to be responding to the treatment he had been receiving.
13:00-13:30	Lunch break. Frans went off in his car to buy himself and some of the others sandwiches at a nearby shop while I reviewed and added to my notes.
13:30-14:30	• Back in the lab, the students started making blood smears with one of the blood samples that had been taken from Shadow. Their work, however, was very soon interrupted when Dr Miller asked for assistance in the theatre prep room (used, it seems, as an auxiliary theatre), and Frans went to help her and the veterinary nurse there. • They were working on the dog that had been brought in earlier by two officers from a different but related government service. These two now stood around, waiting for the operation to be completed. The dog had been sedated and Dr Miller had started working on the haematoma or "blood blister" on its ear. The dog was huge and apparently, the waiting handlers said, very aggressive. The nurse asked what breed it was and they said that it was a bull mastiff cross. "Crossed with what?" the nurse asked. "A cow?" Dr Miller asked Frans to get a bowl and he held it as she lanced the haematoma and a great deal of blood spurted out into it. "Oh look, it's got crunchy bits in it too", the vet said, at which the nurse laughed a great deal. These "crunchy bits", the vet explained, must be bits of cartilage which had been inside the haematoma.

	• Frans asked the handlers some questions about the dog and its routine and they told how it worked as a guard dog in a correctional services facility. It had been donated to them after it had bitten someone to death and was too aggressive to handle directly; they had developed a special kind of handling stick, with a metal noose that could hook around its collar, to handle it. The nurse said that she had seen them using this when they brought the dog in and it was very impressive; Frans undertook to go and have a look at it after the operation, as it could be an idea that he might be able to use himself in future if he had to handle aggressive dogs. • Dr Miller finished cleaning the ear and then started stitching it, with the nurse holding the ear in position and now and then adapting the position to make it easier for the vet to reach. Frans cleared the surrounding equipment away and then quickly went with the handlers to look at their device, after which we returned to the lab where the study session resumed.
14:30-15:00	• The students continued to practise making blood smears. Henry looked at what they were doing and commented where necessary. Frans made one and gave it to Henry to have a look at; Henry said it was "perfect". Both Richard and Elmarie were having more difficulties. Richard put slightly too big a drop of blood on a slide – an extremely small one is needed, it appeared – and Jan asked him "What have you slaughtered there, Richard?" Richard laughed and said he would try again with another slide, but Jan said that he would show him what to do in such a case. He took the slide from Richard, and drew the smear slide over the base slide in such a way that it left a great deal of blood on the right-hand side where the smear began, but thinned out the blood towards the other side of the slide. Jan explained that Richard would still be able to usefully view the thinner section of the smear under the microscope. • In the meantime Elmarie was struggling to make a proper smear. Her first try was apparently completely wrong and she said, in an exasperated way, "I can never get this right. I am never going to get this right". Jan said that he would show her how to do it, prepared a new slide and very slowly demonstrated the technique again. She then tried a second time by herself and this time had better results. • While this work was underway Dr Miller came into the lab with a slide that she gave to Henry. She explained that it was an ear swab she had taken from the bull mastiff; a swab from its right ear on the right, and from its left ear on the left of the slide. Henry should please examine it immediately and tell her which micro-organisms were present, if any, so that she could prescribe an appropriate treatment. • While Henry carried on with this, Frans was viewing the blood smear he had made under the microscope. He called me and told me to have a look. He showed me red blood cells, small round red bodies, and said that other bodies that were visible, which were larger and had stained a darker purple colour, were white blood cells. He tried to identify the type of white blood cells present, first hazarding a guess at what they were. He took a poster off the wall that had photographs of the various types of white blood cells and then compared them, but the poster was very technical and he wasn't sure if he had been right. There were quite a few white blood cells among the red blood cells, and I asked Frans if this was normal. He said he didn't think so, there were more than there should be and this indicated the presence of an infection. Frans asked Henry to look at the smear as well and Henry immediately identified the various types of white blood cells; Frans had been correct on some types, and incorrect on others. Henry also said that the number of white blood cells visible was normal, at which Frans looked disconcerted.

	• Henry invited us all to look at the ear swab slide and asked the students to see if they could identify what was present. Frans immediately said that there were bacteria visible on the swab from one ear, but wasn't sure about the swab from the other ear. Henry confirmed the presence of bacteria and said the other swab showed the presence of a specific type of fungal infection. I had a look and was thrilled to see bacteria under the microscope for the first time – simple little brown oval shapes, but neverthless quite distinct. On the other swab, however, I could see nothing definitive. There were various small purple irregular shapes but nothing stood out for me. Frans tried to explain that they looked like wheat kernels but I couldn't see anything like that. • Dr Miller looked in to hear what Henry's verdict was on the ear swabs and he told her what he had found. Before she left Frans quickly asked her what she was going to give to treat the fungal infection and she told gave him the name of a brand of veterinary ear drops, which he repeated to himself.
15:00-15:30	• It was time for the next session in the internal course, which Frans told me would be on equipment. We went to the theatre where the nurse had prepared a trolley on which were set out an example of each of the different types of equipment used – clamps, scissors, scalpels and so on. The nurse (whom everybody called "sister") sat on a stool next to the trolley and gave a lecture on the equipment. The students had all found stools or chairs except for Jan, who simply leaned against the operating table. I wanted to stand but Richard insisted that I take one of the chairs. • All the students had a document of a few pages, from their file on the course, which apparently essentially contained all the facts they were about to be lectured on, along with some photographs. Some of them looked at these while the nurse was talking. • For close to half an hour the nurse then went through the row of equipment, naming each one and explaining its use. Usually, she would first ask "Does anybody know what this is?" Sometimes the students readily answered this question as most of them seemed to know the term, but in some cases they had no answers. She also asked a few questions on the functions of the equipment, for example why certain of the clamps had grooves, a question Jan answered (to improve the strength of the grip). Several times during her talk she would refer to how or how often they had used this equipment at "OP" (Onderstepoort). • The nurse went on to explain how the equipment should be taken care of. She mentioned that the practice at their clinic to leave equipment that had been used during the day in disinfectant overnight was actually unsound, because equipment should not be left in disinfectant too long. She said that certain substances could also corrode the instruments. She asked Richard, "Richard, what does corrosion mean?" Richard remained quiet, apparently not being able to answer. She then asked if anyone else knew and Elmarie readily explained this. I wondered how Richard and Frans felt about what had essentially been criticism of their work on her part, and whether Richard had been embarrassed at not being able to answer her question, and whether he really did not know what corrosion meant (after years of working with instruments) or whether he was perhaps just at a loss when it came to phrasing an answer in English. Both of them remained impassive through her lecture, though. After going through the whole row of equipment, the nurse then went back and repeated the name of each type. • Finally the nurse took us to the equipment room to show us how the autoclave worked. She said that autoclaves were used in small organisations like their clinic but that in really large organisations, like Onderstepoort, there were entire steam rooms that were used for the sterilisation process. She asked Frans to explain to the others how the autoclave worked, as these were his responsibility. He did so quite easily.

15:30	• At the end of the lecture I said goodbye to everyone and Frans walked with me to my car. (I could not greet Dr Smith as he was busy with surgery.) Frans said that he had been lost during the nurse's lecture on the surgical equipment. He said many of the technical names for the instruments had been unfamiliar to him, and he had trouble remembering them; however, he would go through his course notes again that night and hoped that that would help. • I thanked him for accommodating me on the day, said goodbye and had to pull away very carefully since a zebra was partially blocking the driveway.

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08:30 – 9:30	• On this day I arrived somewhat later, when work had already started. Frans had done his initial rounds and was now making entries in a file. He showed me what he was doing, explaining that every morning he had to enter some information into the file for every dog in the hospital. The dogs were listed by name, and next to each name he indicated what food and medication the dog had had, if it had had a walk, and also what the dog's general condition was. To indicate the latter, a standard set of abbreviations were used that were explained at the bottom of the page (L = lively and alert, D = depressed and so on). • Frans and I chatted briefly about how his studies were going and he said that he was quite nervous as they were writing a test at three o'clock that afternoon on the work they had done in the previous week. • A handler arrived with his border collie and told us that his dog had been limping. Dr Miller first had a brief look at the dog in the consulting room and then called to Frans to X-ray the dog's foot. Frans in turn called Richard and we went to the X-ray room. Frans said they would first try to X-ray the dog without giving him a sedative, as X-raying the foot was easier than the hips. Richard and the handler lifted the dog onto the X-ray table. Frans adjusted some settings on the X-ray machine and then put the button, which was attached to the machine via a cable, in my hand, telling me to press it when he called that they were ready. They then spent some time getting the dog in the right position, after which Frans called to me and I pressed the button. • Frans said he would quickly develop the photograph. He took me along to the darkroom and closed the door. I then had to stand perfectly still because the darkness was absolute – it was completely impossible to see anything at all. In this Frans made several movements to do whatever was necessary to develop the photograph. I asked him how he could possibly do it in that darkness and he laughed, saying it had been difficult to learn, but it was completely automatic now. One had to be very careful, though, because one couldn't afford to make a mistake, or else the X-ray process would have to be repeated. When he'd finished he switched on the light. Only then did I see that one of the walls was completely covered by many rows of shelves containing files. Here a record is kept of all the X-rays that are taken regularly of every dog in the government service, Frans explained. • Frans called Dr Miller to interpret the X-ray. She said it was clear and that they should also X-ray the sides of the foot. Frans grimaced and said to me this would be more difficult, as dogs did not naturally hold their paws in that particular position and didn't like it. They might have to sedate the dog, but would first try it without a sedative. Frans, Richard and the handler then lifted the dog onto the X-ray table again and set about trying to get him in the right position. This was clearly difficult: the dog struggled and yelped. After about five minutes of this Dr Miller looked in and said "Never mind, rather leave it". She then went back with the dog and the handler into the consulting room. We did not get to hear what her diagnosis and treatment were.

09:30 – 10:30	• Mondays were always "dental day", Frans said, and now it was time to start the dentals. I went along as he started collecting equipment. First he went to the theatre prep room, where on a counter there was a locked glass cabinet containing veterinary drugs. He unlocked the cabinet, and took out a bottle containing a clear liquid, which he told me was an anaesthetic drug. From a cupboard he took a syringe which he then filled with the liquid. He returned the bottle to the cabinet and locked it again. He then took a number of other things from the cupboards in the room: rolls of gauze, cotton wool, a bottle of disinfectant, a number of small blue containers, a pair of rubber gloves, a clamp, and so on. He talked himself through this process, saying things like "There's this and this, now what's the next thing we will need? And then what'll we need after that?" • We then proceeded to the ICU, where Frans said the dentals would be done. There were two patients there, a border collie named Sparky and a German shepherd named Toska. I spoke to them and patted them through the bars of their cages but neither responded much. Frans said that both dogs had already been given "pre-meds", sedatives that would make them easier to handle and more responsive to the anaesthetic, so they were essentially half asleep. • Frans methodically put the various things he had brought along around the room: the cotton wool, bottle of disinfectant and the gauze went onto the counter in a specific order, along with the small blue containers; one of the pieces of equipment was pulled up close to the operating table, and the syringe with the anaesthetic put down on that. Again, he talked himself through the process. Then he said "Let me double check if I have everything", and one by one named everything in a specific order again. • Frans put on the rubber gloves. He called Richard to help him, and together they lifted Sparky onto the operating table. Richard held him and petted him as Frans quickly shaved a patch of Sparky's leg. He wiped the area with cotton wool dipped in the disinfectant. Then he felt around for a blood vessel and, using the filled syringe, carefully injected 5 ml of the anaesthetic. This had an absolutely immediate effect, with Sparky sinking down even before Frans had finished injecting. He then withdrew the syringe and put gauze on the injection wound, which was bleeding slightly. • Frans's next step was to open the dog's mouth and keep it open using a speculum. He then started using the equipment that he had pulled up to the operating table, which I then understood to be dental equipment, with drilling, scaling and polishing attachments. Up to this point, I had thought that Frans was doing all of this in preparation for a vet who would do the actual procedure. I asked him about this and he said no, he does the routine dentals himself; he had had a lot of experience with this. • As soon as he started using the scaling equipment, though, he saw that something was wrong. Instead of water being sprayed our regularly into all directions around the scaling head, most of it was squirted out to one side. Frans went to call the nurse and showed her this. She said that, indeed, there seemed to be a problem, but for the moment they should just try to carry on as best they could. Frans then continued. First, he systematically drew the scaling head over each of Sparky's teeth. It was interesting to see how this transformed yellow patches on the teeth into a clear white surface again. With the equipment not working properly, Frans complained that he was getting very wet. He also said that he had selected a pair of gloves that were too small, and and joked that his hands were aching as a result of their blood supply being cut off.

	• After the scaling, it was time to polish the teeth. Here it became clear that the small blue containers contained dental polish. Frans removed a lid from one of them, rotated a polishing head around in one to cover it in polish, and then polished Sparky's teeth one by one. • While Frans was busy doing this, Jan and Elmarie arrived and watched what he was doing. Frans said that they could each take a turn with a dog today. • During the polishing procedure Sparky's body started making twitching motions, which Frans said was a sign that he was regaining consciousness. Frans injected him with 5 more ml of the anaesthetic which immediately put him to sleep again. • Once Sparky's teeth were done, Richard pushed a trolley up against the operating table. Frans put a sheepskin on it (several sheepskins had been lying on the counter) and he and Richard lifted Sparky onto this. Richard wanted to push this to Sparky's cage, but Frans said he first wanted to do something else with Sparky, and pushed the trolley up against the far wall of the ICU, out of the way. • The students all helped to tidy everything up and to set out the necessary equipment for the next procedure.
10:30 – 11:30	• Now the students all helped to anaesthetize the next dog, Toska. Elmarie would be responsible for the procedure and she administered the anaesthetic. She had a harder time doing this than Frans had had, and there was quite a bit of bleeding from Toska's leg. • While Elmarie proceeded, Frans went to fetch a book and also asked the nurse if she would help him. First, he asked her to sign the book, which appeared to be some kind of logbook. I asked him about this and he said that it was a logbook for their internal course, and any activities that they had done had to be signed off. The nurse signed off that he had performed the dental procedures of scaling and polishing. • He then asked the nurse if she would watch him bandage a dog's leg for a particular type of fracture and sign that particular activity off as well. She agreed and we watched as the unconscious Sparky was used as a "dummy". First, slowly and carefully, Frans covered the whole leg in cotton wool, from the paw right up to the hip. He then pushed this into a particular shape. After this he covered the cotton wool with a bandage. While he was doing this the nurse asked him a number of questions, for example, how would this be different if he were doing this for a puppy rather than an adult dog? If an owner brought in a dog with this injury, which instructions should the owner be given in order to take care of the dog properly? Frans answered most of the questions correctly but got one wrong, which the nurse corrected. When he had completed the bandaging she said that he had done it correctly, but that he had forgotten the first step in the procedure, namely to put plaster strips lengthwise onto the leg which would hold the cotton wool in place. Frans was a bit exasperated with himself for having forgotten this and he said that he would re-do the procedure some other time, and then do it correctly, before asking the nurse to sign it off. • Frans removed Sparky's bandage and he and Richard put Sparky back into his cage.

	• In the meantime Elmarie was having trouble with Toska's teeth. She called to the nurse and showed her and us that Toska's mouth was of an unusual shape. "Haai, dis 'n papegaaibek," the nurse said. They explained that this meant that the dog had an extremely large overbite and indeed, one could see that the upper jaw extended a long way over the lower jaw, leaving the front teeth in the upper jaw exposed when the mouth was closed. Elmarie said the dog had been a donation to the department but should never have been accepted, since a dog with this characteristic cannot function normally. In fact, she said, it was a genetic defect and puppies that are born like this in their breeding programme are usually euthanized. In the meantime, probably because this condition made it difficult for the dog to eat, her teeth were in an extremely poor condition. We watched as Elmarie struggled to de-scale the teeth and removed large pieces of a calcified layer from the teeth. • In his cage Sparky starting twitching, shaking and drooling. Frans said this was normal when a dog was coming round. He opened the cage and put a sheepskin under Sparky's head and also covered him with one, but Sparky's shaking continued. • When Elmarie had finished with Toska Frans and Richard once again put Toska back into her cage and prepared the room for the third case of the day.
11:30 – 13:30	• The third case was a dog that had not been in ICU earlier but had been brought in a short while before, and Dr Miller brought it to the ICU after having pre-medicated it in the consulting room. This was a special case, Frans explained, as the dog had an infected tooth and Dr Miller would be giving it a root canal. • This time it was Jan's turn to do the "dental", descaling and polishing the dog's teeth. Frans, Richard and Elmarie helped. After Jan had completed this, they wheeled the unconscious dog to the theatre prep room where Dr Miller was getting ready to perform the procedure on the dog. Richard assisted her. • Two more dogs had been brought in and Frans, with the assistance of the other students, performed essentially the same procedure on them. • While Frans was working we talked a little more about his studies. He said he was keen to do Unisa's new module in Veterinary Pharmacology and would try to do that next year. He asked me how extensive the course was, whether it gave all the various trade names of different kinds of drugs. I said that while the course did give some examples of trade names, this was not its main focus. Rather, it looked at various categories of drugs and explained how they were absorbed by and functioned in the body. He asked if all categories of drugs were dealt with and I confirmed this. He then asked why they, as paraveterinary staff, should learn about the mechanisms of drugs which by law they could never administer, which only veterinarians could prescribe and administer. I did not have a good answer for him but said I would ask the lecturer. • During a break in between cases Frans suddenly wondered when his Unisa exam dates were and took out his cell phone. I was surprised to see that the phone was a high-tech device from which he could access the Internet. He said that it was extremely useful but unfortunately very expensive, and his wife had a heart attack every month when the phone bill arrived. He connected to the Unisa website and tried to find a page with exam dates, but couldn't find this for his subjects on the site and eventually gave up, saying he would rather call the exam department directly.

13:30 – 14:00	• Lunch break. Frans was getting increasingly nervous about the test and he had the idea of asking Dr Smith's permission for them to take off the hour from 14:00 to 15:00 and spend it studying, before their test at 15:00. Dr Smith agreed. I then decided to leave as I did not want to be in Frans's way while he was studying and in any case, with the students studying and then writing a test after that, there would be no more specific veterinary work for me to observe on that day. • Frans again walked with me to my car. I promised to e-mail him some notes on the pharmacology course and wished him good luck with his studies.

Annexure 37: Questionnaire Responses

Note:

- *The abbreviation "na" (not answered) has been used to indicate instances where a response was not provided.*
- *Questions where numbers are given separately for current students and past students have been shaded (2.1.5, 2.1.10, 2.1.19, 2.1.21, 2.1.23, 2.3-2.6, 2.8)*

SECTION 1: PERSONAL INFORMATION

[Data not shown on this page is discussed in the research report itself.]

1.1 Are you currently employed by the Department of Agriculture's Veterinary Services (at national or provincial level?) Please tick the appropriate block.

Yes **8**	No **11**	**Na 1**

1.2 Please answer the following question **only** if you answered **no** to question 1.1 above. Please tick the appropriate block. Tick **one option** only.

Which of the following best describes your employment status?	I am employed in a job where I work with animals. **3**	I am employed but I do not work with animals. **3**	I am currently unemployed. **5**

1.3 Please answer the following question **only** if you are employed.

How long have you been in your current job? _____ years

1.4 Please write down the year in which you first registered for the Diploma in Animal Health: _____

1.5 Please write down the year in which you first registered for Animal Health Practice III (the experiential learning): _____

1.6 Gender:

M **8**	F **11**

1.7 Age (please tick the appropriate block):

17-20	21-25 **9**	26-30 **7**	31-35 **3**	36-40
41-45	46-50	51-55	56-60	**Na 1**

1.8 First language: **Afr 13; N Sotho 2; S Sotho 2; isiZulu 1; Eng 1; Na 1**

1.9 Second language: **18 respondents gave 2nd lang as English; 1 S Sotho; na 1**

1.10 Third language (if any): **Afr 3; isiZulu 2; Eng 1; Setswana 1; German 1; 11 none; na 1**

1.11 Previous qualifications (if any): **5 had other Nat Dips; 14 only Matric; na 1**

1.12 I have started doing the practical activities that I need to do for my EL as listed in the logbook (e.g. vaccinations, sample taking).

Yes **18**	No **1**	**Na 1**

1.13 I have started working on the written projects (practical assignments) that I need to hand in for my EL.

Yes **17**	No **2**	**Na 1**

1.14 Please answer the following question **only** if you answered **yes** to question 1.13 above.

Indicate how many projects you have already handed in. (If none, write "0".) **Range 2 to all**

SECTION 2: GENERAL ASPECTS OF THE EL COMPONENT IN THE DIPLOMA

2.1 On this page and the next, there is a list of aspects that might be playing a role in your experiential learning (EL).

How does each of the aspects mentioned below either help you or hinder you to achieve the learning outcomes of your EL?
In each case**, tick the appropriate block** to indicate this.

Aspect	How does this aspect help or hinder you to achieve the learning outcomes of the EL?				
	This aspect helps me a great deal	**This aspect helps me somewhat**	**This aspect neither helps nor hinders me**	**This aspect hinders me somewhat**	**This aspect hinders me a great deal**
2.1.1 The **number** (quantity) of opportunities that I have during the EL to participate actively in the normal, everyday workplace activities	**12**	**3**		**3**	**2**
2.1.2 The fact that we are allowed up to five years to complete the EL **na 1**	**13**	**1**	**4**		**1**
2.1.3 The **number** (quantity) of repetitions of activities we have to complete during the EL (that are entered into the logbook)	**13**	**4**		**2**	**1**
2.1.4 The **variety** of activities we have to complete during the EL (that are entered into the logbook)	**8**	**6**	**3**	**2**	**1**
2.1.5 The printed material for the EL that was supplied by Unisa (e.g. tutorial letter, learner's manual)	**8 + P2 = 10**	**3 + P4 = 7**	**1**	**1**	
2.1.6 The theoretical subjects that I have completed or am still studying **na 2**	**13**	**4**	**1**		
2.1.7 The practical courses, e.g. Anatomy and Physiology, TB/Brucellosis, Meat Hygiene	**17**	**2**		**1**	
2.1.8 The service provided by the Unisa lecturers **na 1**	**5**	**4**	**4**	**3**	**3**
2.1.9 The service provided by Unisa's administrative staff	**4**	**4**	**3**	**4**	**5**
2.1.10 The language that is used in Unisa's printed material for the EL (e.g. tutorial letter, learner's manual) **na 2**	**7 + P3 = 10**	**P1**	**4 + P3 = 7**		
2.1.11 The language in which I have to write my projects	**12**	**2**	**5**		**1**
2.1.12 The main language or languages that are used in the workplace	**10**	**2**	**7**	**1**	

(.../question continues)

Question 2.1, continued

Aspect	How does this aspect help or hinder you to achieve the learning outcomes of the EL?				
	This aspect helps me a great deal	**This aspect helps me somewhat**	**This aspect neither helps nor hinders me**	**This aspect hinders me somewhat**	**This aspect hinders me a great deal**
2.1.13 The tools and equipment that I have to use in the workplace	**11**	**4**	**2**	**3**	
2.1.14 The quality of the facilities in the area/s where I work (e.g. farm equipment)	**9**	**4**	**5**		**1**
2.1.15 Workplace documents that set out work procedures and standards **na 1**	**13**	**1**	**5**		
2.1.16 Workplace information documents like posters and pamphlets **na 1**	**10**	**5**	**4**		
2.1.17 Access to sources of information and places where I can find information (e.g. a library)	**11**	**3**	**2**	**3**	**1**
2.1.18 Access to a computer	**17**	**1**	**1**		**1**
2.1.19 The number of projects we have to complete for the EL (i.e. twelve or six)	**7+ P2 =9**	**1**	**3 + P1 = 4**	**2 + P4 = 6**	
2.1.20 The fact that the mentor and the lecturer both mark the projects	**12**	**2**	**7**	**1**	
2.1.21 The way the mentor marks the projects, and the feedback he/she gives me on the projects **na 2**	**6 + P5 =11**	**2 +P1 = 3**	**2**	**1 + P1 = 2**	
2.1.22 The way the lecturer marks the projects, and the feedback he/she gives me on the projects **na 1**	**6 + P5=11**	**3 + P1 = 4**	**2**	**1 + P1 = 2**	
2.1.23 The assessment criteria used for the projects **na 2**	**7 + P4 = 11**	**1 + P1 = 2**	**2**	**2+ P1 = 3**	
2.1.24 The fact that I can re-submit the projects if the first attempt or first draft is not satisfactory **na 3**	**13**	**4**			
2.1.25 Communicating with fellow students or past students at the site/s where the EL is done **na 1**	**11**	**1**	**4**	**1**	**2**
2.1.26 Communicating with fellow students at a place other than the EL site (e.g. at the university) **na 1**	**8**	**2**	**6**	**1**	**2**
2.1.27 My employer's attitude to my studies **na 2**	**10**	**4**	**4**		
2.1.28 My family's attitude to my studies	**14**	**2**	**3**	**1**	
2.1.29 Personal factors (e.g. family situation, health)	**8**	**1**	**5**	**2**	**4**
Please answer the following **only** if you started your EL **in 2003 or later: (Total 13)**					
2.1.30 The experiential learning report and detailed reports I have to write as part of the portfolio	**4**	**1**	**3**	**4**	**1**

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

2.2 Have you ever requested Unisa staff to visit you during your EL to discuss your workplace experience with your mentor or others at your organisation?	Yes	No **19**	**Na 1**

Answer question 2.2.1 below **only** if you ticked "**yes**" in question 2.2 above.

2.2.1 How did the workplace visit by Unisa staff help you or hinder you in your effort to achieve the outcomes of the EL?	It helped me a great deal	It helped me some-what	It neither helped nor hindered me	It hindered me some-what	It hindered me a great deal

2.3 In your opinion, is it possible to complete the EL within 6 months, if you work on it full time?	Yes **5+P5=10**	No **8+P2=10**

Answer question 2.4 below **only** if you ticked "**no**" in question 2.3 above.

2.4 In your opinion, is it possible to complete the EL within one year, if you work on it **part** time?	Yes **2+P1=3**	No **6+P1=7**

Answer question 2.5 below **only** if you ticked "**no**" in question 2.4 above.

2.5 In your opinion, is it possible to complete the EL within one year, if you work on it **full** time?	Yes **5+P1=6**	No **1**

2.6 If, before you registered for the Diploma, you had seen the *Learner's Manual* for your EL (with the details of what you have to do during EL), would you still have registered?	Yes **9+P7=16**	No **4**

Answer question 2.7 below **only** if you had to find your own placement for the EL.

2.7 How did the fact that you had to find your own placement for the EL help you or hinder you in achieving the outcomes of the EL?	It helped me a great deal **2**	It helped me some-what **2**	It neither helped nor hindered me **2**	It hindered me some-what **4**	It hindered me a great deal **6**

Answer question 2.8 below **only** if you have submitted at least one project to **both** the lecturer and the mentor for marking.

2.8 The was a very large difference between the marks my mentor gave me for my project/s and the marks the lecturer gave me.	Yes **P2**	No **6+P4 =10**	**Na 8**

Answer question 2.9 below **only** if you answered "**yes**" to question 2.8 above.

State what you think the reason is for the difference in the two marks:
[Discussed in body of report]

_____

SECTION 3: SEQUENCE OF ACTIVITIES UNDERTAKEN DURING THE EL

3.1 Below is a list of the types of activities that you have to complete and enter into your logbook during the EL.

In what *sequence* (order) have you been doing these activities during the course of your EL – in other words, what did you do first, what did you do second, and so on?

To indicate this, write "1" next to the type of activity you did first, "2" next to the type you did second, and so on.

If you did some of these these types of activities at the **same time**, please indicate this by giving them the **same number**. For example, if you immediately started doing inoculations, clinical procedures, and border duty all at the same time, give each of them a "1".

If there are some types of activities in the list that you have **not done at all**, then give those types a **zero** (0). For example, if you have not done any border duty, put an "0" next to "Border duty".

Type of activity	Number
Inoculations	
Fertility investigations	
Clinical procedures	
Emergency procedures	
Sample-taking	
Disease testing	
Inspecting livestock and granting permits	
Inspections (taking a census, checking remedies, checking stock sales)	
Regulatory procedures (managing road blocks, issuing permits)	
Border duty	
Veterinary Public Health inspections (abattoir and ante-mortem inspections)	
Evaluating a farmer's pasture and nutrition and giving him/her advice on this	

[This data is given separately in annexure x.]

3.2 In the question below, tick the appropriate block. Tick **one option only**.

How does the sequence of activities that you indicated in response to question 3.1 above help or hinder you to achieve the learning outcomes of the EL?	The sequence helps me a great deal **3**	The sequence helps me somewhat **4**	The sequence neither helps me nor hinders me **8**	The sequence hinders me some-what **3**	The sequence hinders me a great deal **1**	**Na 1**

Answer question 3.3 below **only** if you had to find your own placement for the EL.

3.3 During my EL, I have been given many routine, insignificant tasks to do that are not included in the list of logbook tasks.	Yes **9**	No **5**

SECTION 4: MENTORING

Important note: The questions in this section ask you to supply information about "your mentor". If you have had more than one mentor, please answer the questions with regard to the mentor with whom you have worked **most frequently**.

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

4.1 At the beginning of your EL, how often did the mentor you had at that stage interact with you to help you with the activities or projects you had to complete for the EL?

Every day **3**	Every week **5**	Every month **8**	**Na 4**

4.2 At this point in your EL, how often is your mentor interacting with you to help you with the activities or projects you have to complete for the EL?

Every day **3**	Every week **6**	Every month **7**	**Na 4**

4.3 Is your mentor's **first** language the same as your first language?

Yes **14**	No **6**	Don't know

4.4 Is your mentor's **second** language the same as your **first** language?

Yes **7**	No **11**	Don't know	**Na 2**

4.5 What is the gender of your mentor?

M **16**	F **4**

4.6 Below is a list of some of the things your mentor might be doing (or might have done) to help you do the tasks and the projects for your EL.

Which of these actions has your mentor performed, and how has the relevant action either helped you or hindered you to achieve the learning outcomes of your EL?

First select the items that are relevant to you by ticking either "yes" or "no" for each item. Then, for each item to which you replied "yes", tick the relevant block to indicate how the action helped or hindered you to achieve the learning outcomes.

Is your mentor doing (or has he/she done) the following?	YES	NO	If you ticked "yes", how has this action on the part of your mentor helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
4.6.1 Conducting an orientation at the beginning of my EL to make me familiar with the environment	13	7	10	2	1		
4.6.2 Negotiating with me about how, when and where my EL activities will take place	14	6	11	2	1		
4.6.3 Assuring me of his/her support	15	5	12	3			
4.6.4 Encouraging me to complete challenging tasks	14	6	11	2	1		
4.6.5 Explaining the reasons behind tasks that I have to do	14	6	11	3			
4.6.6 Explaining how I should do something before I do it	16	4	14	2			
4.6.7 Demonstrating what I have to do before I do it myself	17	3	15	2			
4.6.8 Watching while I am doing something and telling me what to do as I go along	15	5	13	2			
4.6.9 Doing practical tasks with me (for example by helping me to hold the syringe while injecting an animal)	15	5	12	2	1		
4.6.10 Asking me questions about my work activities and helping me to come up with the answers	17	3	13	3	1		
4.6.11 Discussing with me, after I have completed a task, what I did well and not so well and how I should improve	14	6	12	1	1		

(.../question continues)

Question 4.5, continued

Is your mentor doing (or has he/she done) the following?	YES	NO	If you ticked "yes", how has this action on the part of your mentor helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
4.6.12 Explaining some of Unisa's study material to me	7	13	6	1			
4.6.13 Drawing pictures or diagrams to explain things **Na 1**	5	14	4	1			
4.6.14 Giving me additional material (e.g. sections from a textbook) to explain things	11	9	10	1			
4.6.15 Helping me to decide on goals and methods in planning my EL projects	6 + P3=9	7 +P4 =11	5 + P3 =8	1			
4.6.16 Explaining why he/she gave me the marks he/she assigned to my projects	12	8	10	1	1		
4.6.17 Helping me to solve any problems with supervisors or other colleagues	9	11	6	3			
4.6.18 Helping me to solve any problems with the lecturer or university staff	4	16	2	2			
4.6.19 Training me to use problem-solving strategies such as getting the facts, defining the problem, and reviewing alternative solutions	11	9	9	2			
4.6.20 Helping me to develop time management skills and self-organising skills	11	9	9	2			
4.6.21 Testing my practical skills with regard to the activities we have to do for the logbook	14	6	12	1	1		
4.6.22 Finding out if my problem-solving skills have improved	6	14	6				
4.6.23 Challenging and confronting me so that I have to defend my views	15	5	13	2			
4.6.24 Giving me feedback on how others (colleagues, farmers and the community) see me and my work	10	10	9	1			
4.6.25 Encouraging me to express my views and to disagree	16	4	13	2	1		
4.6.26 Explaining to me how theory is linked to practice	15	5	12	2		1	
4.6.27 Rewarding me with praise or in another way when I've done well	16	4	11	3	2		
4.6.28 Criticising me when I haven't done well	11	9	8	2			1

Please tick the appropriate blocks to answer the questions below. In each case, tick **one option only**.

4.7 How would you describe your interaction with your mentor?

Our interaction is very friendly and informal – we talk both about work and our personal lives. **11**	Our interaction is friendly but formal – we talk mostly about work and little about our personal lives. **7**	Our interaction is very formal – we talk about work only. **2**

4.8 To what extent do you socialise with your mentor?

We socialise a great deal outside of work – that is, we often visit each other or go out together. **1**	We socialise occasionally outside of work – we sometimes visit each other or go out together. **3**	We never socialise outside of work – we never visit each other or go out together. **16**

4.9 How does your mentor act towards you?

My mentor acts in a way that shows me that he/she respects me as a person. **18**	My mentor acts in a way that shows me that he/she neither respects nor disrespects me as a person. **2**	My mentor acts in a way that shows me that he/she disrespects me as a person.

4.10 How knowledgeable is your mentor with regard to the work of an animal health technician?

Very knowledgeable **19**	Fairly knowledgeable **1**	Not very knowledgeable

4.11 During your EL, was there ever a situation where you experienced feelings related to the work that were difficult for you to cope with (e.g. feeling frightened when having to approach an animal, feeling bad when having to perform a painful procedure on an animal)?

Yes **7**	No **13**

(.../section 4 questions continue)

Answer question 4.12 below only if you answered "**yes**" to question 4.11 above.

4.12 Did you talk to your mentor about these feelings?	Yes **5**	No **2**

Answer question 4.13 below only if you answered "**yes**" to question **4.12** above.

4.13 Did your mentor respond in a way that you found helpful?	Yes **5**	No

Answer question 4.14 below only if you answered "**no**" to question **4.12** above.

4.14 Please give a reason why you did not talk to your mentor about your feelings.
[This is dealt with in the research report]
.....

Answer question 4.15 below only if you answered "**yes**" to question **4.11** above.

4.15 Did you talk to colleagues at the EL site about these feelings (e.g. to other animal health technicians)?	Yes **6**	No	**Na 1**

Answer question 4.16 below only if you answered "**yes**" to question **4.15** above.

4.16 Did your colleagues respond in a way that you found helpful?	Yes **5**	No **1**	**Na 1**

4.17 In general, how has your relationship with your mentor helped you or hindered you in your effort to achieve the outcomes of the EL?	It has helped me a great deal **12**	It has helped me somewhat **3**	It has neither helped nor hindered me **3**	It has hindered me some-what **1**	It has hindered me a great deal	**Na 1**

SECTION 5: INTERACTION WITH OTHER COLLEAGUES DURING THE EL

5.1 Below is a list of actions that you might have performed relating to your colleagues – that is, **fellow workers other than your mentor** – that might be playing a role in your EL. An example of such colleagues would be other animal health technicians (AHTs) at the EL site.

Which of these actions relating to your colleagues have you performed, and how has the relevant action either helped you or hindered you to achieve the learning outcomes of your EL?

First select the items that are relevant to you by ticking either "yes" or "no" for each item. Then, for each item to which you replied "yes", tick the relevant block to indicate how the action helped or hindered you to achieve the learning outcomes.

Are you doing, or have you done, the following with regard to your colleagues?	YES	NO	If you ticked "yes", how has this action helped or hindered you to achieve the learning outcomes of the EL?				
			This action has helped me a great deal	This action has helped me somewhat	This action has neither helped nor hindered me	This action has hindered me somewhat	This action has hindered me a great deal
5.1.1 Listening to your colleagues while they are talking about the activities you have to do at work	19	1	12	4	3		
5.1.2 Watching your colleagues while they are performing the activities you have to do at work, or looking at what they have done	18	2	12	6			
5.1.3 Talking to your colleagues about work in general	19	1	11	6	2		
5.1.4 Asking your colleagues specific questions about the work activities you have to do	18	2	13	5			
5.1.5 Letting your colleagues **explain** the work activities you have to do	17	3	12	4	1		
5.1.6 Letting your colleagues **demonstrate** the work activities you have to do	18	2	13	4	1		
5.1.7 Letting your colleagues do some of the work activities you have to do **with** you	14	6	10	4			
5.1.8 Letting your colleagues explain some of Unisa's study material to you	12	8	10	2			
5.1.9 Letting your colleagues help with your Unisa projects for the EL	13	7	10	3			
5.1.10 Discussing with your colleagues, after you have completed an activity, what you did well and not so well and how you should improve	14	6	11	3			

Please tick the appropriate blocks to answer the questions on this page. In each case, tick **one option only**.

5.2 What is the gender of most of your colleagues?

M **16**	F **4**

5.3 Do most of your colleagues have the same **first** language as your own first language?

Yes **17**	No **3**	Not sure

5.4 Do most of your colleagues have the same **second** language as your own **first** language?

Yes **13**	No **6**	Not sure	**Na 1**

5.5 How would you describe your interaction with your colleagues generally?

Our interaction is very friendly and informal – we talk both about work and our personal lives. **17**	Our interaction is friendly but formal – we talk mostly about work and little about our personal lives. **3**	Our interaction is very formal – we talk about work only.

5.6 To what extent do you socialise with your colleagues?

We socialise a great deal outside of work – that is, we often visit each other or go out together **4**	We socialise occasionally outside of work – we sometimes visit each other or go out together **8**	We never socialise outside of work – we never visit each other or go out together **8**

5.7 In general, how has your relationship with your colleagues helped you or hindered you in your effort to achieve the outcomes of the EL?

It has helped me a great deal **12**	It has helped me some-what **4**	It has neither helped nor hindered me **3**	It has hindered me some-what **1**	It has hindered me a great deal

5.8 Below is a list of people and other aspects (activities and materials) that might have helped you to achieve the outcomes of the EL.

[This data is given in the text of the report itself.]

Which of these people or other aspects were the most helpful, and which the least helpful?

To indicate this, write "1" next to the one you think is most helpful, a "2" next to the one that is the second most helpful, and so on.

	Number
Taking part in workplace activities at the EL site	
Your mentor	
Your manager/supervisor where you are employed	
Written material that explains what you must do	
The lecturer	
Your colleagues during the EL (e.g. other AHTs)	
Fellow students, e.g. students in a study group	

SECTION 6: OPEN QUESTIONS ON THE EL

[This section is discussed in the research report itself.]

Annexure 38

Questionnaire data: Completion times of respondents

Current students		
Employment status	**How long employed**	**Years already registered for workplace component (at end 06)**
Employed at VS	4 months	2
	1 year six months	2
	1 year	1
	11 years	3
Employed in job with animals	6 years	4
	4 years	3
	2 years	3
Employed in non-animal related job	8 years	3
	1 year six months	3
	(No answer)	2
Unemployed	-	3
	-	2
	-	1
Past students		
Employment status during studies	**Year started on workplace component**	**If graduated in 2005*, maximum time it could have taken**
Employed at VS	1998	8
	1999	7
	2001	5
Unemployed	2001	5
	2002	4
	2003	3

*Unfortunately, a flaw in the questionnaire was that past students were not asked to indicate in what year they had graduated. It is thus not possible to ascertain the exact number of years they spent on the component, only the maximum period they could have spent.

Annexure 40

Findings: Roles of the mentor and the degree to which they were realised

Expected role	Realisation of role in the environments studied	Summary – this role played by:
Workplace supervisor	Most mentors acted as the students' supervisors, and the students also saw them in this light.	Majority of mentors
To some extent: field coach	Where mentors did act as field coaches, they generally only did so for brief or intermittent periods. Most of the coaching was done by other colleagues.	Minority of mentors
Co-ordinator of workplace learning experiences	One of the mentors involved in the study played a strong role as co-ordinator and saw this as his main function. Other mentors did not play a large role in this regard.	Minority of mentors
Academic tutor	This was seen by most students as the main role of the mentor, and in the VS this was also seen as the main, official role of the mentor.	Majority of mentors
Developer of the students' generic skills	Some students and mentors reported that this was realised, but some mentors did not see this as their role.	Some mentors, others not (uneven)
Assessor and provider of feedback	All the mentors served as assessors and this was also viewed as one of their main roles by students. The degree to which constructive feedback was given varied, however.	• All mentors assessed • Some mentors gave constructive feedback (uneven)
"Protector" of the student (treating the student as protégé in the organisation)	One of the students interviewed and one of the mentors mentioned this role. It did not seem to feature strongly with the others involved in the study.	Minority of mentors
Professional role model	Four of the six students interviewed, who told of good relationships with at least one mentor, gave evidence that this role was realised in the sense that the mentor provided an example of professonial behaviour. The majority of the questionnaire respondents also indicated that they respected the professionalism of their mentors.	Majority of mentors
Nurturing guide and counsellor	Only with one student in the interview sample was this role fully realised. Questionnaire responses showed that while many mentors provided general praise and encouragement, most students interacted with mentors on a monthly basis only and had a formal relationship with mentors.	Minority of mentors