AN ETHNOGRAPHIC STUDY OF THE STUDENT EXPERIENCE OF MAKING MEANING AND IDENTITY THROUGH A NEW VETERINARY CURRICULUM

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1   CONTENTS

1.1   Abstract

In 2007 the first brand new Vet School built in over fifty years in the UK, opened at the University of Nottingham. Innovative evidence-based approaches were taken to each aspect of the new Vet School from the ICT infrastructure, staff recruitment through to curriculum design. This is a relatively rare scenario which offers a unique opportunity for research into this set of innovations and their cumulative effect on the student experience.

Research into the student experience is timely and relevant. The world knowledge base is rapidly expanding, in part due to digitality, especially in relation to medical and professional learning. This, with the accompanying disappearance of the 'job for life', has led to increased emphasis within education to develop transferable skills and lifelong learning. As the Higher Education (HE) market becomes more competitive, the student role in the market develops towards consumerism. These factors give impetus for studies into new and developing student learning experiences.

The author is an educationalist with no veterinary expertise. Due to this outsider perspective, an emergent ethnographic approach was taken to the research.

Data sources are wide ranging from participation observation and field notes to recurring interviews with ten key informant students. Analysis was undertaken through thematising data and iterative ethnographic writing, simultaneously with literature review. Data is presented firstly in a series of descriptive vignettes which highlight key findings. Further to this, analysis is presented and underpinned by examples from primary and secondary data. Key issues are described from a majority rule position but also highlighting negative cases. This approach is useful to represent experiences of a community from a combination of participant perspectives.

The research is undertaken in the socio-cultural paradigm where learning is not an individual pursuit but one undertaken in a social context. Wenger's (1999) 'Communities of practice' model describes learning as activity through participation in a community during which individuals construct meaning and identity. This model is most often reported in the literature in relation to informal work-based learning as it is argued that distance between context and classroom creates an artificial learning environment. This thesis takes a novel approach to apply the "Communities of Practice" model to a formal learning environment and considers Higher Education to operate at the 'legitimate periphery of participation' of workplace professionalism. By using Wenger's model as a broad framework, the research highlights the importance of both curriculum and relationships to the student learning experience.

Evidence-based educational approaches such as integrated curriculum and early reflective learning were shown to be beneficial to student learning, although the student understanding of the benefits of these approaches on their learning developed longitudinally across the early part of the course. Students participate in learning through the important relationships which exist between peers, students and teachers, and those within the experienced veterinary community of practice.

Data showed that talk in both formal and informal relationships is a method used by students in constructing conceptual meaning, and is one way that learners understand their construction of a professional identity during the early part of the course. Cognitive, social and experiential congruence between students and others is shown to have impact on the student learning experience. Specific case examples show that the student experience of a wide range of relationships covering each type of congruence has maximum benefit. Peer learning has significant benefits, and talk and discussion are key to developing both meaning and identity. Professional identity is constructed during both formal and informal, planned and emergent contexts. Significant others act as role models or anti-role models in the student learning journey. SVMS learners develop a professional learning identity related to the nature of knowledge and lifelong learning.

A brief summary of the most recent British Veterinary Association (BVA) and Association of Veterinary Students (AVS) student satisfaction survey (2008) concludes that Nottingham has the highest levels of satisfaction and perceived readiness for practice amongst its students of any UK Vet School. This research shows the way that students in the new Vet School learn to both 'talk the walk' and 'walk the walk'.

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1.3   List of figures

1.4   List of abbreviations

Abbreviation	Full meaning
AJMS	The American Journal of the Medical Sciences
ARS	Automated Response Systems
AVS	Association of Veterinary Students
BERA	British Educational Research Association
BVA	British Veterinary Association
CLA	Co-operative Learning Approach
CoP	"Communities of Practice"
EAEVE	European Association of Establishments for Veterinary Education
EMS	Extra Mural Studies
FYE	First Year Experience
HE	Higher Education
HEA	Higher Education Academy
HEFCs	Higher Education Funding Councils
HEFCE	Higher Education Funding Council for England
HEI	Higher Education Institution
HESA	Higher Education Statistics Agency
JVME	Journal of Veterinary Medical Education
LPP	Legitimate peripheral participation *or* Legitimate periphery of participation
MSK	Muscoskeletal *(teaching module)*
NCIHE	National Committee of Inquiry into Higher Education
NSS	National Student Survey
PCK	Pedagogic Content Knowledge
PPCK	Professional and Pedagogic Content Knowledge
RCVS	Royal College of Veterinary Surgeons
RVC	Royal Veterinary College
SLC	Student Loans Company
SRHE	Society for Research into Higher Education

Abbreviation	Full meaning
SB	Sutton Bonington *(Vet School campus)*
SVMS	School of Veterinary and Medical Science *(University of Nottingham)*
THES	Times Higher Educational Supplement
WP	Widening Participation

2   IMPETUS FOR THE STUDY

2.1   Introduction and context

In 2007 a brand new Vet School opened at the University of Nottingham Sutton Bonington campus. This was the first time in over fifty years that new Vet School had opened in the UK. The building and curriculum were created from scratch and staff recruited nationally and internationally. This scenario offered a unique opportunity for both existing and new University staff to create new and innovative learning experiences. Innovative approaches were taken to each aspect of the new Vet School from the ICT infrastructure, staff recruitment through to curriculum design.

This offered a unique opportunity to research the newly created environment. This was the initial impetus for my study, which aimed to capture, represent and explore 'the student experience' of learning within the new School of Veterinary and Medical Science (SVMS) at the University of Nottingham.

In a study of this nature it is vital to outline the background of the researcher. My background is as an adult educator, specialising in IT, with a wide experience of teaching in the community and in the private sector, as well as in Higher Education (HE) and Further Education. I returned to University as a student to complete an MA in Educational Research Methods and developed an interest in new ways of teaching and learning and the potential benefits for students. This led to a desire to study a context in learning which was both innovative and embedded, and hence my involvement in this study.

> "When am I going to get the chance to look at something brand new where they can be innovative like this, maybe not for fifty years!"
>
> Fieldnote (10/10/07) Context: Reading the promotional literature and making notes while waiting for my PhD interview, after a tour of the Vet school.

The quotation above is a fieldnote taken before the study, and is contextualised; a key theme of this thesis is context and illustrative data is offered throughout. I am not a Vet and had never worked in the field of Veterinary or Medical Education, and so came to the research as an outsider with limited expectations of arising issues. This naturally led to an initially inductive, emergent and theory-generating approach. The choice of methodology used in the study is reviewed in chapter 3.

2.2   Impetus for research in Higher Education

This study is located in the wider context of Higher Education where changes have been rapid and increasing over the last fifty years. This section touches on some of those to provide a wider contextual setting for this study in (Higher) Veterinary Education. Despite the study being focused on the narrow field of Veterinary Education, the issues and implications make this research transferable across Higher Education.

Firstly the numbers of students at University have increased rapidly. HESA (Higher Education Statistics Agency) was formed in 1994 and their statistics show the exponential growth in student numbers over the last fifteen years. In the most recent 2010 published statistics (data from 2007-8) there was an increase of 8% in student numbers overall on the previous year taking the total number of students in the UK to 2.24million.

Furthermore the types of students in UK HE has diversified enormously. Globalisation has contributed to a massive increase in international students. HESA (2010) reports a 14% increase in non-EU students in the year 2007-8. Whilst this generates increased revenue for the UK HE economy, it equally places changing demands on the nature of the education provided.

An additional change within the student body is that HE in the UK is more accessible through equal opportunities and widening participation agendas. In 1987 the government published a White Paper which defined and recognised alternative entry routes into Higher Education. Where students historically needed A levels for University entry, this paper recommended wider routes to entry including from vocational programmes and access courses. In 1992 after the Further and Higher Education Act, former polytechnics were converted to Universities and removed from local government control. The funding of HE came under the HEFCs (Higher Education Funding Councils) which led to increased competition for funding. The line between academic and vocational studies became less distinct as both old and new universities began to offer both types of courses and attract cohorts from more diverse backgrounds than even before. The National Committee of Inquiry into Higher Education (NCIHE 1997) 'Dearing' Report (and following reports by Kennedy 1997 and Fryer 1997) were pivotal to the widening participation agenda by emphasizing the need for Higher Education to work in partnerships to close the 'educational divide'. The government has responded to these and other reports by bringing in a range of widening participation (WP) initiatives and targets for HE.

As we undertake an ongoing period of economic downturn including a tough job market there is significant emphasis on being able to deliver employable graduates. The introduction of obligatory tuition fees for all UK University courses in 2008 led to further competitiveness in the

sector. As active consumers with a wide range of choice, the value of the 'product' offered becomes of increasing significance. To underpin this market freedom, in 1995 the Higher Education Funding Council of England HEFCE started to fund the National Student Survey which all students at all Higher Education Institutions (HEIs) are invited to participate. The survey collects the student voice on their course and University.

HEFCE (2010) describe that the student feedback data collected is published with a dual aim – to help prospective students to make informed choices and to help institutions to facilitate best practice. The website Unistats.com provides ratings of this data for students to support their course choice and reports the percentage of satisfied students by either course or institution. This has further impacted on HEIs who must now strive to maintain high levels of satisfaction amongst the student body in order to attract more high quality student applicants.

The Dearing Report (1997) also reported on changes in pedagogy required to meet the changing and increasing demands of the diverse student population. This report emphasizes the importance of the move from transmissive teacher-centred delivery to interactive methods and student-centred learning approaches. There are explored in more detail in the next chapter, reviewing the literature in the field of Higher Education pedagogies.

The final significant change in the sector to impact on this study is from the wider economic context. The UK has seen significant changes in the labour market with the decline of the manufacturing industry and rise of the 'knowledge' sector. As well as changes in the types of jobs available, there is a significant change in the length of time in which people stay in one role or with one company. Gilbert & Reynolds (1998) calls this a change from the 'job-for-life' to a 'life-of-jobs'. Whilst Universities were typically training people for a job, they are now required to deliver more transferable skills to last through an entire career. Fryer (1997:27) succinctly summarises these demands for, and of, lifelong learning

> 'There is a need to rethink and broaden the notion of lifelong education. Not only must it adapt to changes in the nature of work, but it must also constitute a continuous process of forming whole human beings - their knowledge and aptitudes, as well as the critical faculty and ability to act. It should enable people to develop awareness of themselves and their environment and encourage them to play their social role at work and in the community.'

The NCIHE (1997) Dearing report's recommendation for the development of transferable skills and the Fryer (1997) report's demand for lifelong learning in the current climate of 'student as

consumer' place increasing pressure on Universities to deliver added value on top of subject based courses. The Labour government of 1992 onwards were committed to 'education, education, education' with a target of 50% of population into Higher Education (Labour Party 1997). Whilst the new coalition government is yet to establish and commit to a firm position on all areas of HE in the dangerous economic climate, it is evident that they share and maintain, to some extent, both the commitments of widening participation and lifelong learning in Higher Education. However, reductions in Higher Education funding accompanied by higher targets shows that the government is also driving massification. Massification is an efficiency drive where there is efforts to serve larger numbers of consumers at lower costs. Several authors debate the risks to the quality of education caused by this massification (Teichler 2003, Hayes and Wynyard 2006, Altbach, Resiberg and Rumbley 2009).

Over the last ten years, the student-centred focus in HE has driven the emergence of research into the 'student experience'. Many 'student experience' surveys are undertaken, often in relation to ranking of Universities (HEFCE 2012, Times Higher Education Supplement 2012). This student-centred focus is embodied into the national educational research agenda with a student experience strand to the work of the Society for Research into Higher Education (SRHE) as well as to every subject specific educational research group.

The 1994 group was established in response to this changing environment and in 2006 published a report 'Enhancing the Student Experience'.

> *'In response to the changing environment of student experiences and expectations, 1994 Group institutions are redefining the roles of students and setting themselves up to give the best support possible as they live out these various roles at university. In summary, the roles of the modern student include: Learner, Citizen, Colleague, Consumer, Scholar, Ambassador; but perhaps the most important role of all is Partner.' (1994 Group 2006:3)*

This research group established that the role of student was significant to the success of the University. This partnership approach between the University and Student identified at the start of the report is reflected throughout as the report recommends not only practice with the learner at the heart, but the research of this practice with the learner at the heart.

> *'must proceed with practical steps to fully promote the student voice and implement a partnership approach to the student experience.' (1994 Group 2006:6)*

This work is undertaken in this climate and builds on the need for research into the student experience.

Therefore over the last fifty years (when no new Vet Schools have been established), the Higher Education context has changed significantly. The numbers and types of students entering the context have changed and grown. The sector is competitive and treats students as consumers. The teacher-centric transmissive mode of education across all sectors has changed to a student-centred focus. The disappearance of the 'job for life' has led to increased emphasis on education to develop transferable skills and lifelong learning. Universities are expected to help to develop students with a set of personal and professional skills as well as specific subject knowledge. These are important characteristics of the wider HE context which have created the impetus for a study which focuses on the student experience.

The following section of this chapter considers associated changes in the Veterinary Education context in order to further ground the following research.

2.3   Veterinary Education

The field of Veterinary Education is small in relation to the wider Higher Education context. There are seven UK Vet Schools, and as veterinary medicine is considered a 'profession' these courses are delivered in 'redbrick' Universities. The Royal College of Veterinary Surgeons (RCVS) are the overarching body regulating the education and employment of Vets and overseeing the work of the UK Vet Schools. All UK veterinary schools are subject to periodic visits from the (RCVS) for accreditation, without which veterinary graduates are not allowed to practice veterinary medicine. Across these seven schools are 4039 students and many thousands of staff (BVA/AVS 2008). Courses offered at Vet Schools are typically a three year Science degree (usually BVS, BVMS or BSc) which with a further two years of study to Masters level accredits the student to practice as a Veterinarian.

As well as changes in the focus of the curriculum, the cohort of veterinary students has undergone significant change in membership and characteristics. One significant change is in that of gender – from the 'old boy's school' to a now predominantly female environment. Veterinary students are high achievers and there are high entry requirements for all UK veterinary school courses. However there is a swing in widening participation which ensures opportunities exist for students to access Veterinary Education from non-standard routes, for example those changing from another degree or achieving A levels in non-science based subjects. These changes mean there is a more diverse cohort than even before.

Whilst the field of Veterinary Education is relatively small and specialised, it can draw parallels with the wider field of Medical Education. Typically innovations are led from the Medical Education sector and follow in Veterinary Education a few years later. Whilst there are similarities in the clinical and diagnostic skills of both professions, it is also significant to highlight differences between them. There are two significant differences between the Medical and Veterinary professions which may impact on their education. The most significant difference is that the Veterinary profession itself is a private and non-regulated industry by comparison with the Medical profession based in a National Health Service provided, funded and regulated by government. This has implications for funding and for the significance of lifelong learning. The second significant difference is that the Medical profession tends to deal directly with human patients whereas the Veterinary profession deals with the more complex relationships between themselves, the animal patient and human client. These differences are highlighted here for their contextual relevance and explored further in the following chapter relating to the literature in the field.

Paralleling the changes described in the previous section relating to Higher Education, are similar changes in the Veterinary and Medical Education sectors. The 1998 Pew report (Prichard 1998:1) examined Veterinary Education institutions across the US and identified directions for change needed 'to equip the profession to serve the needs of society in the 21st century'. This preceded some of the changes described in the previous section which were recommended in both the Dearing (1997) and Fryer (1997) reports. In 1990, the European Association of Establishments for Veterinary Education (EAEVE) was developed in to promote equality in the standard of veterinary undergraduate education and training throughout Europe. Despite the significance of these changes neither EAEVE nor the RCVS has prescribed how improvements in Veterinary Education in terms of widening participation or lifelong learning and transferable skills may be achieved. The RCVS encourages professional development, however further training is difficult to regulate in what is actually private professional practice. A recent development is the establishment by the RCVS (2009) of 'day one competencies' which aims to list the practical and professional skills that veterinarians should have on completion of studies and develop over their first year in practice. This provides a useful benchmark for Vet Schools to consider the 'type' of graduate they should be producing (Bok *et al* 2011).

Sir Lance Lanyon is a previous head of the Royal Veterinary College (RVC) and plays a significant role at the RCVS. He reports in a reflection on Veterinary Education,

'What no modern veterinary course can be expected to do is provide sufficient information, or even sufficient understanding of biological mechanisms, to last anyone through their professional careers'. (Lanyon 1991:94)

Therefore the transmission and acquisition of knowledge in this area is becoming less important than the ability to apply general knowledge to specialised scenarios. As well as providing a basic wide ranging scientific education, equally important is the need to learn the ability to apply clinical skills and knowledge to a wide range of settings. Furthermore the need to 'learn to learn' sets the path for lifelong learning which is essential in the sector. The result of this is the emergence of a broader Veterinary Education where the range of knowledge required is more focused on science than species, and learning to learn and apply knowledge. The impetus for this research is to consider changes in teaching approaches in Veterinary Education and new models of knowledge.

Typical models of Veterinary Education offer separate and distinct 'modules' related to distinct broad biological areas such as anatomy and physiology and delivered by specialists in their field. Whilst Nottingham uses specialists to deliver teaching (including clinical associates who spend the majority of their time in practice), the modules are distinctly related through a vertically integrated curriculum. One of the staff, Neil Foster explains this approach succinctly in his thesis (2009),

"Systems-based (rather than discipline based) modules have also been developed and interwoven within these systems-based modules are integrated modules, consisting of scientific disciplines that may occur in any module. The rationale for module integration is that learning in context should promote a deeper understanding of these modules, for example rather than a block immunology module in year one which encapsulates all immunology teaching and learning, immunology appears throughout the 4 years of the academic course in relevant places. In the musculo-skeletal modules in years one and four, immunology teaching occurs when students learn about joint disease or sole penetration wounds, while in cardio-respiratory modules students learn immunology as a consequence of infectious diseases which affect the functioning of the cardio-respiratory system. This format of teaching represents a major shift from the traditional teaching philosophy of established UK veterinary schools which were built on signposting lectures and practical classes. " (Foster 2009:10)

The final way in which Nottingham offers a distinct approach to Veterinary Education is its approach to transferable skills and lifelong learning. Alongside the typical lectures and seminars, a problem based and self-directed learning culture is encouraged. This has been designed to encourage students to 'learn to learn' and take responsibility for their own learning. Furthermore a module runs throughout each year which is dedicated to honing 'personal and professional skills' (PPS).

These new initiatives at Nottingham reflect trends in the published literature on Medical Education. Firstly, there is a change from a clinical model of teaching and learning where knowledge is learned for several years before being applied to a pre-clinical model, allowing the early application of knowledge. Secondly, a problem based learning culture is developing in clinical education, to allow students to develop their problem-solving and diagnostic skills during their course (Walton & Matthews 1989, Barrows 1996, Davis and Harden 1999, Dangerfield 2006).

The Journal of Veterinary Medical Education (JVME) is the only journal specifically dedicated to Veterinary Education. Whilst this is clearly a specialised field with a limited audience, it has strong parallels to the wider Medical Education field and therefore where relevant, this wider research is drawn upon. Dale, Pierce and May's (2010) paper makes recommendations for changes to the field to facilitate day one competencies, and suggests a need for teaching strategies to facilitate deep learning. They suggests problem based learning and professional skills training are essential additions to the traditional curriculum. Dale, Sullivan and May's (2008) paper in JVME considers models of adult learning in HE and determines we need to rethink Veterinary Education starting with a blank white sheet. Nottingham had this opportunity and it is vital that we research the impact of the new approaches to learning to ensure they result in the anticipated outcomes.

There are some significant differences between broader educational research and that published relating to Veterinary Education. The background, training and epistemology of scientists and clinicians are such that they often pursue quantitative research or mixed methods as a preferred choice. There is a lower proportion of purely qualitative clinical educational research published, especially for example in JVME. Qualitative papers in these fields can be subject to critiques of rigour more relative to scientific studies (Barbour 2001). These issues are considered further in the literature review and methodology chapters, but are introduced here to give further background to this research; there is impetus for a study into the Nottingham approach to Veterinary Education, and also is a clear gap for rigorous qualitative research in this field.

As mentioned earlier, important characteristics of the wider HE context have created the impetus for a study which focuses on the student experience. The British Veterinary Association (BVA) and Association of Veterinary Students (AVS) conducts a tri-annual student survey of all students in UK Veterinary Education which gives an interesting picture of veterinary students. Results from the 2008 survey show responses from 1833 participants (45.4% of veterinary students), although the Nottingham response rate is higher at over 95% of the first two years of students. As suggested in the introduction, the report demonstrates the continuing increase in the number of female students (increasing by 3.4% to 78.8% overall since 2005) and overseas students (increasing by 3.5% to 11.8% - nearly 50% of these from the USA).

The focus of the report is on highlighting the financial and mental health pressures on veterinary students. The report highlights that respondents who graduate in 2011 expect their debt on graduation to reach £29,400 and yet due to course demands, over two thirds (66.8%) of students feel unable to work to supplement their income. It is well known that they have fewer opportunities to earn money during holidays because of compulsory extra mural studies (EMS), amounting to the equivalent of three additional terms. This has a 'triple-whammy-effect' for veterinary students since they are unable to get a paying job during their holidays, EMS incurs additional expenses for travel/accommodation, and it is not taken into consideration by the Student Loan Company (SLC) for loans. The report emphasizes the potential danger of the profession being limited to those who have family support to afford the 'long-term costs'.

Whilst these statistics provide interesting contextual background, more significant to this study is the course information collected. This data relates to student satisfaction with course content, style of teaching, EMS and preparation for life as a vet. A brief summary of the most recently published student survey by the British Veterinary Association and Association of Veterinary Students (BVA/AVS 2008) concludes that Nottingham has the highest levels of satisfaction and perceived readiness for practice amongst its students of any UK Vet School. Whilst the data reported is all positive it is possible that it is skewed simply by the fact that this is a new course and the first cohorts of students feel a sense of ownership and pride in the course. It will be interesting to see if this trend continues over time, although currently data is consistent. In 2011 Nottingham received RCVS approval and was ranked best Veterinary School for overall student satisfaction in the National Student Surveys of both 2011 and 2012 (HEFCE 2012).

At Nottingham 96.9% of students believe the course to be taught 'Well' or 'Very Well' and not a single respondent voiced a negative opinion. The BVA/AVS (2008) survey seems to suggest this may be swayed by the numbers of students 'It will be very interesting to see if such a high

approval rating continues once the University has a full quotient of students.' The two years of Nottingham students rated their course higher on every category (including relevance and interest) than all other vet schools. In this study 92.6% of respondents considered the quality of their lecturing to be 'Good' or 'Very Good' against an overall average of 68.5%. 97.9% rated the lecture/ practical balance as 'Good' or 'Very Good' against the overall average, 48.7%.

In questions asking students to rate the best and worst subjects taught at their Vet School, Nottingham students listed different subjects to others indicative of the different approach taken. Where the majority of students listed 'anatomy' or 'physiology' Nottingham students related individual module area such as 'Musculoskeletal' and 'Endocrine'.

When asked why they chose to study at Nottingham, 45.1% of students at Nottingham said that they chose to study there because of the course structure and content. This was more than 6 times higher than the next placed university in this category (Cambridge 6.9%).

Of all Nottingham students, 86% feel the course prepares them for lifelong learning and 55% think helps to prepare for a healthy work life balance after their course. 32% of Nottingham students, a far higher percentage than any other institution, are aware of the self-assessment requirements in the first year post-qualifying. Nottingham is the only university where more than half (51.5%) believe the introduction of PDP is a good thing for them. At every school apart from Nottingham and RVC more than half of respondents are unsure about whether PDP is a good thing or not. Respondents from RVC are twice as likely as those from other universities to think that PDP is not a good thing (22.9% against an overall average of 11.9%).

At SVMS, 59.8% of respondents indicate that mental health and wellbeing is included on the course which is much greater than any other University – at Glasgow it is a mere 4%.

Whilst this information is useful and paints a picture of what is happening in institutions, it cannot explain why. It can be suggested that the new innovations at Nottingham are responsible for their impressive outcomes in the BVA/AVS (2008) survey, but this data alone does not explain in any detail how the new innovations lead to well prepared and satisfied students. In the survey, students respond to pre-determined questions about their characteristics and lifestyles. Whilst this gives useful insight into trends amongst the cohort, it fails to build a picture about the individual student experience, each of which will be markedly different even in the same institution. The BVA/AVS (2008) survey presents valuable data to understand the impact of the University of Nottingham innovations. However further research is clearly needed to understand what is working well at Nottingham and why, and to also appreciate any exceptions. There is little

other published research which can give this insight. Therefore whilst, as identified, there is impetus for a qualitative research into the Nottingham approach to Veterinary Education there also an impetus to fill this 'blind spot' in this field on understanding the student experience.

2.4   *Impetus Conclusion*

This chapter has briefly outlined the impetus for a research question 'What is the student experience of the new learning environment at SMVS?'

The numbers and types of students entering the Veterinary Education have grown and diversified. The HE sector is competitive and treats students as consumers. The teacher-centric transmissive mode of education across all sectors has changed to a student-centred focus. Universities are expected to deliver satisfied students with a set of transferable skills as well as specific subject knowledge. SMVS has responded to these demands by creating a unique curriculum and context to develop future veterinarians. There is little published qualitative research in this field, and none on the student experience of learning to be a vet. The BVA/AVS (2008) survey report suggests that, so far, SMVS is producing some satisfied, stimulated and well-prepared students. The student is clearly at the centre of the Higher Education learning experience and the new Vet School at the University of Nottingham offers a brand new and therefore unique context in which to understand the student experience. This is the impetus for my research.

The next chapter is an introductory data vignette, a common method used in research which involves participant observation (Becker 1956, Wenger 1999). The inclusion of this vignette, following the impetus for the research, is to set the scene for the reader before they are introduced to the literature and methodology chosen for the study.

3 A BIRD'S EYE VIEW OF SVMS

3.1 Introduction

The research took an ethnographic approach which is outlined in depth in the methods and methodology chapter but this section explains why this approach was selected.

As an outsider looking in to the veterinary community there was need for an immediate process of enculturation. In the process of 'going native' I followed the 08/09 cohort around for the first three months of their course in some depth. Following this, I took a period to reflect on the data gathered and the literature in the field. Further data collection, and ongoing analysis, was undertaken in this iterative way over the next three years. The detail of the data collected is outlined in the methods chapter. In this study, the literature review, data collection and analysis were iterative, implicitly bound and simultaneous. It is impossible to report the work in this way, but in ethnographic work different devices are often used in writing to help the reader appreciate the data from the researcher position. One of these devices is the use of data vignettes. This is a popular device used in a range of studies and featuring prominently in the work of both Becker (1956) in Medical Education and Wenger (1999) in "Communities of Practice", both of which are texts which, over the course of this study, emerged as significant to both the research area and approach. Data vignettes have a range of applications. (This is debated further in the methodology chapter.) In this study, I had two different approaches to using data vignettes as a device to help the reader to make sense of the data analysis presented. The first vignette is presented in the next chapter. This vignette was written at the end of the first year of the study, as I struggled to make sense of the focus of the work and volume of emerging data. Towards the end of the first year, I had started to analyse against key themes from the literature and summarised the data from my personal perspective. Although my perspective changed with further data collection and analysis, it remains a relevant piece of writing as it represents my observations as an outsider to the community after an initial period of immersion. The writing was also a strategy of data analysis, as I was able to reflect on the data and focus more specifically on areas of interest and significance. For this reason, some of the early data presented in this first vignettes, such as the theme of IT, does not feature in later work.

Troman (2002) writes a chapter reflecting on the messiness of conducting educational ethnography. I found the process complex, overlapping and cyclical in nature and wanted to represent this in some way in the thesis. Through the use of vignettes both here and later, I give the reader an early insight into the perspective of the researcher both towards the research and the data at various stages of the research, and an impression of the volume and complexity of the emergent data.

Humphreys and Watson (2009) use vignettes in reporting their research in organisational culture in Business Studies and suggest that this technique is 'more than just reporting an event, for the sake of reporting an event. It is simultaneously setting up the rest of the ethnographic writing which is to follow.' Although their writing is a 'plain-sounding accessible narrative of events' they believe a vignette can play a more important role in research than reporting data. Watson (1995:301) claims that in an introductory vignette

> *'the rhetorical work I am doing here is an attempt to persuade the readers that the whole study is one worth reading. The promise of 'a good story-to-come' is one of the most important things that any writer needs to establish, as early as possible in the 'pitch' they are putting to their readers.'* Watson (1995:301)

The following vignette is my introductory pitch to the research story which follows in this thesis.

3.2   A Bird's Eye View of Campus

The first thing that struck me on going to the Vet School was the 15 miles drive from main campus, down typical beautiful winding English country lanes; to a City girl like me, Vet School seemed 'in the middle of nowhere'. On driving through the barriers for the first time there were horses in the field and a brand new shiny building and it 'seemed' like a Vet School right away.

I was also struck, from when I visited the Vet School, by the 'small campus' feel. My experience of the University of Nottingham prior to this was the huge sprawling campus and slightly impersonal feel. I often walked for up to an hour round the main campus without seeing a single person I knew. That's not going to happen out at Sutton Bonington (SB) campus, or even in the village – it's simply too small. (SB village population is about 1,600, not including the students at the university campus who bring the total to over 2,200 in term time.) It takes a grand total of 20 minutes to walk from one end of the campus to the other... slowly! (It takes longer than this to walk around the Lakeside on the main campus!) And from the first time I did walk around it, on the day of my interview, it was obvious that this is one of those places where everyone knows everyone; everyone smiles and nods at everyone else as they pass in the street. As everyone is friendly and greets each other on first name basis it's not immediately obvious who are lecturers and who are students. This is also hindered by the youth of many of the teaching staff! There are adequate but minimal provisions – less than one minute's walk from the main Vet School building is a small shop and cafe serving hot and cold snacks. These are next to a large restaurant for catered students joined to the pub and bar, with a small outside patio area used for BBQs and outdoor events in better weather. Literally next door to the restaurant are the library, and also the main block which links the Vet School to the other faculties and offers further recreational facilities such as a small theatre area and Student Union and Guild rooms. Also in the main block are a bank (which I originally wrote was rarely open then discovered had actually closed during my period of research leaving only a cash point) and a small bookshop – rarely open and since closed.

The SB campus is 15 miles away from the main campus and is nestled in a small village backing onto fields and farmland. The Vet School was built on land on this site in 2007 sharing a campus with existing buildings housing associated studies in Biological Sciences and Food Sciences. The Vet School is the young rich cousin of the older departments and this is physically visible in the infrastructure of the site. The shiny brand new Vet School building sits dichotomously amongst a range of older character buildings reminiscent of the grammar school era. The university campus was originally the Midland Agricultural and Dairy College, formed in the first decades of the 20th

century. The site was also used as a prison of war camp during the First World War. Just after the Second World War, in 1948, the college became part of the University of Nottingham.

The Vet School building is modern and as you enter, you walk into a vast light atrium area which is populated with tables and chairs as well as more comfortable sofas. Despite its large professional feel, it also feels homely and the atrium area is rarely empty and quiet (except during exams!). From the atrium are the main entrances to the large lecture hall, smaller lecture hall, computer room and reception linking to the small group teaching rooms (hereafter referred to as SGTRs). During the changeover period between classes or during breaks, there can be several hundred students in the area. It is also populated at other times with students revising, working on projects or just waiting, having lunch and chatting. Informal meetings often take place around the tables and chairs between academics and students, and it is the ideal place for a quick catch up. In a high pressured hectic schedule at the Vet School it is not unusual for a student asking a detailed question to hear a lecturer to say 'I have ten minutes between the lecture and a meeting, I will catch up with you in the atrium'. I have myself undertaken several debriefing sessions, informal meetings and discussions 'in the atrium' and many of the field notes in the data were recorded in this context. There are regular stalls housing charity cake sales or visiting information stands. The atrium is both the entrance to and the hub of the Vet School.

Most first year students, and some later years also, live in Halls of Residence on campus. These are either on a site directly opposite the Vet School, or between the School and main block, and all are less than two minutes' walk away from the Vet School. Students spend long hours at the school and upon returning to the Vet School late one evening to collect a book I needed and had left behind, I was not surprised to see groups of students dressed in their nightwear and dressing gowns revising together, and taking full advantage of the atrium with its wireless internet and heated flooring!

3.3   A Bird's Eye View of the Curriculum

The Vet School curriculum is driven by various outside criteria which the school must meet in order to become accredited. Accreditation allows the Vet School to offer successful graduates membership of the RCVS (Royal College of Veterinary Surgeons) and therefore the right to practice. This runs parallels with the more familiar model of the General Medical Council (GMC) in accrediting the qualifications and licensing of practising UK doctors.

The RCVS is responsible for inspecting and assessing the course offered by SVMS in the initial years, in order to offer full accreditation of the first cohort prior to their graduation. They also conduct regular visits to ensure the School meet standards and has continual approval. This has two interesting implications. The first is that the SVMS students undertook the course *in the good faith* that the course would be accredited but without a guarantee. As a result, it is likely that early intakes of students are, at some level, willing to balance risk with merit for their perceived benefits of the course. This is underpinned by data which suggests that an unusually high proportion of first year students at SVMS display risk-taking characteristics (Hudson *et al* 2009). This is not unusual and has been observed in other situations with 'pioneer' cohorts. The second interesting point is that during the accreditation process through which SVMS have to justify every decision they make about curriculum *to a panel of established veterinary educators.* The implication of this is that curriculum design is subject to a process of validation by those already involved in this system in some way. Although Nottingham starts with a blank white sheet it is with understanding, reference and respect to the systems which pre-exist in Veterinary Education.

The Vet School took an 'outcomes-based' approach to curriculum design. In practice, this meant SMVS had to decide on the kind of graduate veterinarian they wanted to produce and then work out ways to meet those outcomes. From observations and conversations, it is clear to me that most SVMS staff have an overwhelming desire to improve on their own educational experiences. An extended period of consultation was undertaken with key stakeholders (e.g. Veterinary Associations / Divisions of the BVA, Government Vets, and Veterinary Students). The School held several focus groups and workshops to discuss the proposed curriculum with interested parties. Surveys were conducted of BVA Divisions to elucidate specific areas of potential deficiency in current curricula, and to identify species and caseload importance. There is new emphasis in the curriculum on learning - how to learn to keep knowledge and skills updated throughout an individual's working life.

UK Vet School courses, as with human medical training, are taken over five or six years. This is two years longer than traditional undergraduate degree courses. In traditional courses there is an intensive three years of scientific training with the additional two years spent applying the new knowledge in clinical practice training. Nottingham differs from the other older Vet Schools in several ways. Firstly, at SVMS, clinical training is integrated within the course from the first day and not delivered in isolation after three years. Each of the older Vet Schools houses a Veterinary hospital where students undertake the majority of their clinical training. At Nottingham clinical training is undertaken through a series of associate practices. Within the five year multiple degree

program at Nottingham, all subjects are delivered an in integrated curriculum throughout the course which differs significantly from other programs where isolated and often unrelated modules are taught. And at Nottingham there is an emphasis on Personal and Professional skills from the start and throughout the entire course. Students talk regularly and openly about these advantages, which they believe that the Nottingham course offers them over other schools, often where friends are studying.

Typical entry requirements to a Veterinary degree are 3 science A levels at the highest grades (AAA/AAB in 2009/2010). A level of commitment through work experience and interactions are also sought from applicants to demonstrate their commitment to pursuing a veterinary career. An additional preliminary year of study is available at Nottingham to enable entry to the course for those without 3 science A levels. This foundation year is a method of widening participation and takes students through the fundamental science knowledge base required to join the five year degree. This is a unique approach not yet undertaken by any other UK Vet School. The preliminary year undoubtedly gives students an advantage over traditional A level entry students as they are introduced to the 'landscape' and associated cultures, knowledge and behaviours which define the SVMS degree course. As a result of the widening participation agenda, the student population is interestingly diverse and includes graduates, veterinary nurses and mature students; nonetheless the predominant characteristics of the student body are those with a history and background of high achievement. This has serious implications in consideration of the Bell Curve of normal distribution which applies to the spread of educational abilities within a group. Clearly not all the students can be the highest achievers, even if overall achievement is at a generally high level, and this means that within Vet School, it is likely that some students are likely to feel their previous academic status is challenged.

The intensity of the Vet School schedule is another difference between this and many of the courses offered at the University main campus. Vet School students are timetabled to attend classes every day from 9am to 5pm with the exception of Wednesday afternoons which is free due to a University policy for enrichment time. In the first few years, students have on average around ten hours of lectures per week, as well as seven hours of practicals. Three hours are given to clinical relevance sessions, two to Personal and Professional, three hours to animal health and welfare and six hours to directed learning. By comparison, in my final year of my first degree, in Business Studies, I attended for never more than ten hours a week (admittedly at another institution). A student that I worked with on an intern project was a final year History graduate (at Nottingham); her attendance was even less, six to eight hours contact time a week. She did, admittedly, spend almost every other waking hour reading or in the library so her self-directed

learning was high. At the Vet School self-directed learning is timetabled so that students can attend a group and although some people do opt out, attendance is still high. Lectures, practicals and clinical relevance sessions are all compulsory at the Vet School and policed so that if attendance drops below a certain percentage, it is immediately flagged and followed up through the pastoral system. There is also pastoral time on the timetable with regular allocated tutor times, where students meet with tutors both in a group and on a one-to-one basis.

On top of the time spent in attending classes, students are also required to complete EMS (extra-mural studies). Each student has to complete a list of work placements in dairy, equine, farm, and small animal practice as well as making up hours with their choice of additional work. Each Easter holiday, from their first year, the students go on a lambing placement. For many students, these practical experiences are their first hands-on opportunities with the client base with which they wish to work. There is a reflective culture in the Vet School, facilitated by an online e-portfolio system which students are expected to use to record their practical experiences. As well as being a simple record of experiences, students are required to reflect on their learning and are required to submit at least ten reflective pieces of writing in the first year. This follows the external veterinary culture being set up by the RCVS, who will introduce an online portfolio system for practising vets and their continuing professional development.

This intensive demand of the course does not seem to reflect negatively on attendance in the Vet School which is, mostly, high. As mentioned earlier, there are pastoral systems in place to ensure that non-attendance is reported and sorted from an early stage. From my experiences it seems that students rarely choose not to attend, and even when ill or faced with crisis are keen to return to their classes and keep up with the heavy workload. The intensity of the course begins from the induction week. Despite arriving looking like typical bewildered unsure Fresher's, the look disappears very quickly at Vet School where the first week of the course is as intensive as those that follow. The first week is also very practical, requiring students to don their full range of vet clothing from casual attire in the lecture hall, to the clinical robes and wellies for the lab and practical sessions. By the end of the first week, students are well exposed to the intensity of what follows, but equally to the culture of the types of sessions and work required. Furthermore, they appear more aware of each other and overall more comfortable and well-adjusted to the new environment. The combination of the high achieving students in a highly competitive atmosphere and a heavy workload results in an intensive first year. During this first year, many students are also adjusting to living away from home, and managing an active social life, with a regular routine, for the first time. The course increases in intensity over the first two years.

The first year focuses on developing learning skills in the veterinary context, and the second year builds on this. In the first semester of the third year, students undertake a research project of their choice allowing a short-term break from the usual timetable. The exams undertaken at the end of the third year qualify and grade the student for their first degree. In the fourth year the focus is on clinical problem solving and practical skills and this is the last year the cohort is taught as a whole group on campus. The fifth year is spent entirely on rotations, both University and student organised, based on campus and at local associate practices as well as up and down the country and sometimes overseas.

3.4   A Bird's Eye View of ICT

ICT is a strong component of the course and this is visible in both the physical and resource infrastructure of the building. Laptops are central to the ethos of the 'paperless' Vet School environment and are central to delivery of the course. They are therefore visible in every day interactions with students. Each student is given a Vet School laptop at the start of the course and it is rare to see students in Vet School without their trusty digital learning aid under their arm.

Older University departments, including those on main campus, often look as though technology is a 'bolt-on' to the original university layout and buildings. The technology is seamlessly integrated into the new Vet School build. All lecture halls are fitted with digitised lectures allowing electronic display of all materials. Each small group teaching room has an interactive whiteboard fitted. On first appearance these could be mistaken for screens, however there is evidence that there is regular interaction with the screens. There are stools next to the screens because they have clearly been fitted too high on the wall for the average student to reach the top and therefore stools are used. There is no OHP in sight!

These are fairly standard digital educational devices which may be witnessed in modern learning institutions. However, the Vet School also has a range of additional digital provisions which are more specialist than the standard ICT you might expect to see in HE. These include Qwizdom ARS (audience response system) handsets which are used to engage individual students with presentations – usually in a lecture scenario. There are also a range of digital video provisions such as a range of cameras available to loan to staff and students and a digital editing suite.

In practical rooms, such as the dissection room there are many large high-definition screens. This ensures that through the use of a digital high definition camera, each student in the room can see clearly the practical demonstration offered by the lecturer at the front of the room. It is not

unusual to see practical sessions broken into small groups concentrating on one large screen with supporting material provided on local laptops. Students often use personal cameras or phones to capture their learning in visual format.

The Vet School has developed a unique repository for video resources called 'MooTube'. Research published on students' usage and perception of video teaching resources (Roshier, Foster, and Jones 2011) suggest that the students benefit enormously from using ubiquitous video resources to support their learning, especially as a revision aid prior to examinations. High definition recording equipment across the school means that any formal learning opportunity can be recorded. High definition cameras are based both within the classroom environment but are also being implemented in clinical associate practices to provide opportunities for video-conference learning activities.

The Vet School VLE (was WebCT, now Moodle) is also central to Vet School learning as a repository for all student learning resources. Staff are all expected to submit teaching resources to the repository at least a week in advance of teaching, although this does not always transpire, the aim seems to inspire most staff to make their resources available in advance for students to prepare. All resources are time released ensuring students are able to access material far enough in advance to prepare, but not so far in advance that they are not helpful. It is a two way repository where students are also expected to upload assignments. Students become familiar with the VLE and the use of it is embedded in their everyday life very quickly.

The Vet School building has a stable wireless network, although the strength is literally within the building. Students in their halls of residence often fall outside the wireless network area and have to connect to the LAN through a hard wired line. The strength of the Vet School signal and comparative weakness of outside signals gives a reason why it is not unusual to see groups of students or individuals engaged in informal online learning within various areas of the Vet School – the atrium, small group teaching rooms or even in the museum!

The TLA office is a department central to supporting teaching, learning and assessment in the school. Their responsibilities extend into ICT as far as it supports learning. Therefore this team is responsible for the provision of student laptops and booking of other digital equipment such as ARS. They are also responsible for organising the repository of resources and their time releases as well as organising and policing examinations.

3.5   A Bird's Eye View of Lectures at SVMS

Before I started my research I had to stand in front of the first year cohort to explain myself and my research and win their participation. The lecture hall at SB is a grand affair. It seems daunting to stand at the front, addressing the crowds, yet when I participated in observations, often sitting right at the back of the hall, I felt strangely close to the lecturer and material. This was probably because of the enormous screen at the front of the room.

The most striking thing from the front of the room was the sheer number of open laptops on the benches in front of the students. My first observation recorded 95% or more students with laptops and although this dipped over the years, it rarely fell below 50%. Facing a room where half of the audience can and are likely to be distracted was scary. Although this approach encourages students to make electronic notes and save paper, it also inevitably offers opportunity for distraction, and therefore lecturers are battling for student's attention within the learning space.

The lecture hall is so big that it comfortably holds two year groups (I saw a mixed first and fourth year wrap up / revision session). When only one year group occupies the room there are typically half up at the front and half around the back and sides. On occasions where only half or less of the year group turns up to a lecture, they often gather more closely together, more towards the middle and back. Occasionally, the first year lectures are held in a smaller lecture hall which is filled to capacity when the whole year group attends.

Lecture materials also widely vary in content. PowerPoint is clearly the lecturer's tool of choice to organise lecture material – indeed I did not witness a single lecture that used any alternative approach, although other approaches were combined. For example, some PowerPoint presentations linked to web pages which were demonstrated, or videos which were shown. Embedded within presentations is often data from other sources such as photographs, charts from Excel or diagrams from Word or other packages. There is great variance between the depths of lecture material offered – some lecturers can speak for an hour with 5 slides to support their delivery, others have presentations which contain 100 or more slides which cannot possibly be covered in the lecture. Neither of these approaches is ideal but each represent opposite ends of the spectrum and most lecturers fall within these widest ranges of approaches.

Student approaches to note taking vary immensely. Here are some examples..(fictional characters but based on field notes)

1. When Jim attends lectures he has the printout in front of him and is writing on it by hand, he is looking at the notes on the screen. He has his laptop open in front of him and has Facebook open.

2. Jodie has her laptop open and is making notes in text boxes on the pdf notes. She also has her email account open on a different tab and flicks between the two.

3. Jill has her laptop open and is flicking between the notes on the screen and a Word document where she is making notes on the lecture.

4. Jack has his laptop open and is looking at Facebook, his email and BBC news. I cannot see his lecture notes anywhere.

5. Jane has only the printed notes and a notebook in front of her. She is making written notes on both.

All of the above scenarios have been witnessed in lectures to varying degrees. Not all students maintain the same approach in each lecture.

Lectures are normally delivered to the entire year by one or two academic staff. Obviously in observation, the format and standard of lectures varies significantly between practitioners. The member of staff delivering the lectures significantly affects the learning. It is not unusual for students to favour one lecturer over another and on occasion this is reflected in attendance levels. I observed one lecture where as few as a quarter of the year group were in attendance; it was delivered by a lecturer whose language was not English and yet he proceeded to read each slide as it came on the screen. When I asked one student later why they had not attended that lecture - they said there seemed little point as that particular lecturer added little value to the material they could download and consider in their own time. I am happy to say however this was not typical of the lectures I witnessed, which were usually very well attended and often interactive and highly engaging. Lectures are clinically informed and where possible include interactive participation, for example by questioning either directly or using Automatic Response Systems (ARS).

Students seem most engaged when offered material which is not in the lecturers voice. In year one, I witnessed one lecture on cell formation in which the material was dry. The lecturer had tried to didactically explain the concept he was illustrating. I noted students' dissipating engagement as their screens changed from lecture notes to Facebook and their eyes moved from

the front of the room to each other and their screens. I felt my own eyelids starting to feel heavy, and any understanding of the subject I had gained, started to vanish into thin air along with my will to live. However towards the end of the lecture a YouTube video was played. It was not in the least bit clinical and was actually an advertisement for a bank which was shown on TV some years ago. The clip demonstrated the concept of cells in practice – by showing people dressed in different colours working together to build up a picture of a house. I noted that every student in the room stopped their off-task activity, many closed their laptops and all engaged with the material on the screen, as did I. Furthermore it was a brilliant example of a concept applied in practice in a simple form which even those struggling with the scientific concepts (me!) could understand!

The most interactive lectures I observed, involved lecturers asking questions of the group and not moving on through material until students, either voluntarily or otherwise, attempted to answer the questions. One lecturer asks a question and simply remains silent until someone offers an answer. Another lecturer picks out individuals and asks them specific questions- if they don't know he moves to choose another student until the problem is sufficiently resolved. In contrast, there are lecturers who are also failing to use the questioning technique. They may ask a question which is not clearly framed or understood and for that or another reason, students may not offer responses. Where lecturers move on in this scenario, students become accustomed that their silence will move the teaching forward and they are not forthcoming with interaction.

Qwizdom is often used to test understanding and is a strong source of interaction. It is most often used towards the end of a module to check understanding, although can be seen in use in a variety of scenarios. Students are both engaged and interacting when participating in Qwizdom quizzes. The first time I witnessed ARS in use in a lecture I participated in the quiz myself, purely because it was anonymous and I could assess my own learning, but no-one else would know.

Repetition is a technique frequently employed within and between lectures which reinforces learning objectives and, in the first year in particular, helps students to become familiar with new terminology. Material is integrated, - repeated, and prior knowledge built upon, throughout modules delivered throughout the first few years. This is a feature of the vertically integrated curriculum which positively reinforces learning. With a massive ten hours of lectures each week, students have a vast amount of material to learn and their approach to engaging in lectures and actively learning lecture material will significantly contribute to their success on the course.

3.6   A Bird's Eye View of Small group and independent learning at SVMS

Self-directed and directed learning are integral to the SVMS course and culture. Timetabled sessions are given for directed learning where learning tasks are provided for students to undertake in groups. This work is integrated to the curriculum and students are aware that it needs to be completed in order for them to maintain their continued understanding of a subject. Self-directed learning is undertaken by students after lectures, and less often after practical and clinical relevance sessions, to review their notes and prepare them as revision aids. Students have a range of individual approaches to this and many falter in their first year approach which encourages them to develop new and more positive approaches in later years.

Clinical relevance sessions are held each week and are designed to be an opportunity to apply the new scientific knowledge from lectures in application to an authentic clinical case. Task material is designed both to be integrated to modular material and to reflect authentic real-life learning scenarios. Sessions take place in small groups, in small group teaching rooms, which house a range of resources including interactive whiteboards, skeletons, books and journals.

Students work in small groups of 6-8 with their peers, and groups are changed with each module. Over the course of the first year students have usually worked with a large proportion of the other students within their year group. Working in groups is a significant issue related to both clinical relevance and also self-directed learning. Groups are a source of both strength and conflict. It is usually obvious within the first session of a group meeting, how well that group will work together. Some groups work well, have interesting discussions, divide the tasks in a way which suit all members of the group and share the learning experience. However in other groups, a range of conflict scenarios can occur – in one group I saw a splinter group of three girls doing the work while another couple 'went to the library' and one blatantly read the newspaper. A common coping strategy of groups in self-directed learning tasks is to divide up work which individuals then go away to complete and share at a distance.

Clinical relevance sessions are facilitated by a member of staff. The requirement to provide trained facilitators to small groups over five cohorts of the course is a heavy requirement for the Vet School. Although some academic teaching staff undertake facilitation, they do not comprise a large proportion of the overall facilitators, who instead come from a range of backgrounds including current postgraduate students. I observed some facilitator training and found it to be comprehensive, however I observed in practice a wide range of facilitation skills. Academic staff were the best at guiding students to find answers, although I also witnessed both academic staff

and postgraduate students taking shortcuts and giving students answers in order to speed up the session. I was offered the opportunity to become a facilitator and although I initially refused on grounds of not interfering with my research, after the first year of observations I also felt too scared by my lack of clinical knowledge to feel I could help students. After later discussions with students and staff, I changed position and realised that good facilitation skills were as important as clinical knowledge, if not more so, and although I feel I could never be the best facilitator due to my lack of clinical experience, I could be as good if not better facilitator than some of the ones I observed and heard about! I might just give it a try but that's a whole other study.

Personal and professional skills are taught in the PPS module. If you ask any student what they think about PPS you can guarantee a snigger. It is not well-liked or respected among students. In an intensive clinical and scientific course it stands as the obvious 'black sheep' on the timetable, aptly or otherwise, at first thing on a Monday morning throughout the entire first year. Material is varied and wide ranging and themed by year; in the first year, the focus is on skills for learning including group work, communication and IT. In the second year, material includes scientific writing and ethics, and by the third year the focus is on skills for research.

Although PPS sessions are not favoured, they remain well attended. Sessions which offer the most authentic learning experiences, such as communication sessions which offer the chance to directly practice skills, create a visible buzz amongst the cohort and are always praised by students. Within the first year, I observed a session where students practice taking notes from a telephone conversation in an authentic scenario. Later in the course, I observed students practising taking history notes from actors posing as clients. Both sessions were amongst the best I observed and ones which students repeatedly reflect on as beneficial to their learning.

3.7   A Bird's Eye View of Relationships at SVMS

Relationships are a significant part of the student experience and contribute in a wide range of ways to the approach students take in their learning.

Relationships between staff and students are clearly key to learning. The relationships I witnessed, whilst being respectful of the difference in experience, are somewhat informal. Students and staff are on first name terms, and informal learning and questioning are common and encouraged. Close relationships are often built in tutor groups, and also where students develop interests in fields of specialism of individual staff.

Staff are also actively involved in enrichment and there are many examples of staff enjoying extra-curricular time with students from football matches to marathons. The Vet School revue which takes place at the end of each year is ideal opportunity to witness both the extracurricular culture of the school but also the closeness of relationships between staff and students. Students prepare a mock piece of acting in which they play the key staff members of the Vet School, using the opportunity to caricature their personal qualities. The close and personal relationships between staff and students remind me of those I might perceive to exist in a boarding school situation, reflective of the nature of the small campus and its homely feel.

Relationships between students are close-knit and most students agree that they are on first-name terms with most Vet School peers in their year group as well as others in other year groups and on other courses. Friends are made easily and relationships frequently develop; it is my perception that this is reflective of the wider veterinary profession. As with many other professions, it is not unusual for relationships to develop between those with shared interests, with similar experiences and in the Vet School there are several married and dating couples working alongside one another amongst staff and students (although staff-staff and student-student NOT staff-student!).

Students develop friendships in wide circles but seem to socialise in the long term with others they perceive to have similar learning approaches or attitudes to study. Students also develop a wide range of other relationships during their time on the course. The way they learn to relate to farming and other animal professionals, as well as clients, is integral to the course and a significant part of the learning experience.

Finally students find that their relationship with themselves and their self-perception and self-esteem can change. This can have a profound effect on the course and their approach to learning.

3.8   A Bird's Eye View - Conclusion

Painting this picture of the SVMS cultural landscape has outlined ethnographically my perception of the culture and key activities which contribute to the student learning experience. This opening vignette is a bird's eye view of the context for the study which follows.

The following chapter reviews the literature related to the student experience of learning to be Vet. This gives further context and groundings upon which to build my research.

4 LITERATURE REVIEW

4.1 Introduction

This chapter will review the literature pertinent to the context of the field of study. This review follows on from and links naturally to the impetus introduced in the first chapter and the issues highlighted in the descriptive context of the second chapter.

The review focuses on each aspect of the broad research question 'What is the student learning experience in the context of a new veterinary curriculum?'. The review begins with a brief overview of historical developments in learning theories. This is to locate this study in the socio-cultural context and to provide the overarching theme of learning, to the perspective of student experience and context of the vet school. The heart of this review focuses on the literature relating to the student learning experience in three key contexts. Firstly there is a broad review of literature on the student learning experience of Higher Education. It is important to begin with this broad focus to locate the study in its broadest context and give potential for transferability of findings to a wide context. The review then focuses on research into medical, clinical and Veterinary Education. Finally, the review considers groups of literature relating to emerging themes. These themes are group work, learning with and from peers, problem based learning and placements. These themes are originally derived broadly from the Higher Education Academy (HEA) Student Experience literature review (Ertl *et al* 2008) section on teaching, learning and curriculum. The themes match, very closely, the evidence based pedagogic approaches intended in the new Vet School, and the categories that emerged as significant at the end of the first year. A review of literature relating to each of these themes provides a background for the data collected over two years, and informs later discussion of the data.

4.2 Setting the context

Any research study needs to begin by defining the terms of the study and the component parts (Bryman 2004). This is a piece of educational research with a focus on learning. Learning is based on ideas of what knowledge is and how it is constructed, defined as epistemology (Lincoln and Guba 1985). The debate about how to conceptualise 'learning' has raged for centuries and the chosen view of learning in any research study affects the epistemological position taken. In this first section I seek to establish my epistemological position in relation to this research, and to define learning for this study.

Traditional historic studies of learning began from a basis within the behaviourist orientation to learning, and in this field learning is defined as 'a change in behaviour'. The greatest example of this is Pavlov's dog (Pavlov 1927, Boakes 1984) where a dog was trained through rewarding good behaviour and punishing bad to alter its behaviour. Behaviourist learning theories are built on scientific approaches which were based in experimentative research. There are several problems with this definition, which led to the formation of subsequent theories and definitions. Smith (2009) suggests that this approach raises more questions than answers including

- Does a person need to perform in order for learning to have happened?
- Are there other factors that may cause behaviour to change?
- Can the change involved include the potential for change?

To answer these questions raised by the behaviourist movement, new definitions of learning emerged. Developments were less concerned with overt behaviour and more concerned with changes in the ways in which people 'understand, or experience, or conceptualize the world around them.' (Ramsden 1992:4) The focus for learners in this domain is on knowledge or ability, and its acquisition through experience.

The cognitivist approach to learning concentrates on the internal processing of information. Theorists such as Piaget (1926), Bruner (1977) and Gagne (1985) conducted research based on internal memory processes such as insight, information processing, memory, perception. Smith (2009) suggests that in cognitivism, the educational aim is cognitive development - to develop the capacity and skills to learn better. The shortcomings with this model are that learning is defined as a solitary action performed internally and there is little regard for context.

As well as considering learning in terms of knowledge and behaviour, a third domain emerged as significant. Learning in the affective domain is concerned with values and ranges from mere awareness through to being able to distinguish implicit values through analysis (Krathwohl, Bloom and Masia 1964).

In each domain theorists have developed hierarchies of learning suggesting a scale of progression from basic to higher levels. As demonstrated in figure 1 below Bloom's (1984) taxonomy of the cognitive domain shows progression from knowledge application through comprehension to a mid-point at which learners can apply new knowledge. Beyond this lie skills in analysis, synthesis and evaluation.

Figure 1: Bloom's (1984) Taxonomy of the cognitive domain in Atherton J S (2011) *Learning and Teaching; Bloom's taxonomy* [On-line: UK] retrieved 11 March 2013 from http://www.learningandteaching.info/learning/bloomtax.htm
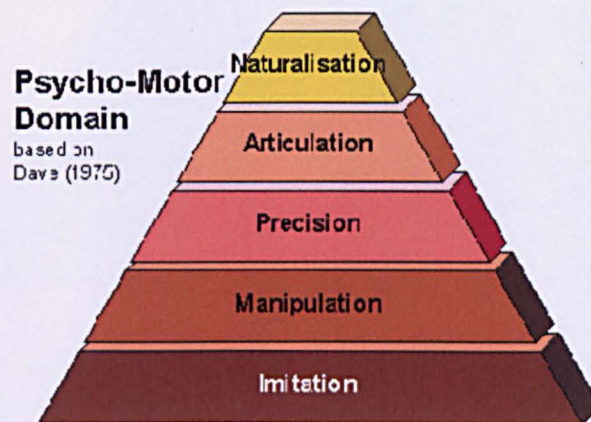
Figure 2: Dave's (1975) Taxonomy of the psychomotor domain in Atherton J S (2011) *Learning and Teaching; Bloom's taxonomy* [On-line: UK] retrieved 11 March 2013 from http://www.learningandteaching.info/learning/bloomtax.htm

An acknowledged taxonomy of psychomotor skills represented in figure 2 (Dave 1975) begins with imitation and ends with naturalization – a state at which skills are so ingrained that they are 'second nature'. Linked to this is Reynolds' idea (1965:72) of the popular "*progression of competence*" model from unconscious incompetence, through conscious incompetence, to conscious competence, and unconscious competence. The limitations of this model are that there comes a point at which learning a skill ends. Blackmore (1999) suggests that instead at this highest level is the ability to teach the skill to others and reflect on one's own skills for personal development.

A taxonomy exists for the affective domain, shown below in figure 3, which shows a hierarchy from receiving and responding to changing values from reconceptualising (Kratwohl, Bloom and Masia (1964).

Affective domain

Characterising by Value or Value Concept

Organising and Conceptualising
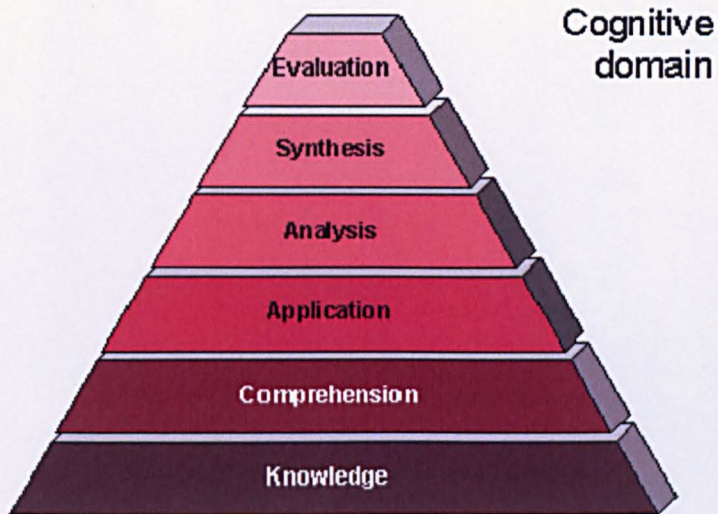
Valuing

Responding

Receiving
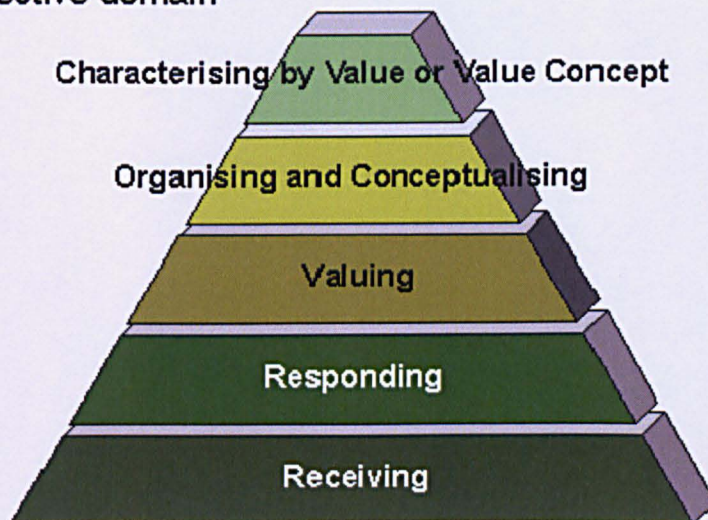
Figure 3: Kratwohl, Bloom and Masia (1964) Taxonomy of the affective domain in Atherton J S (2011) *Learning and Teaching; Bloom's taxonomy* [On-line: UK] retrieved 11 March 2013 from http://www.learningandteaching.info/learning/bloomtax.htm

Each of these hierarchical taxonomies has a serial structure which suggests that students cannot effectively move to higher levels until those below them have been fulfilled. This provides a basic sequential model for dealing with topics in the curriculum and suggests a way of categorising levels of learning, in terms of the expected ceiling for a given programme. Whilst these models are useful to consider each part of learning, they do not provide a holistic view of learning.

The humanist approach to learning builds on learning across all domains. The humanist school acknowledges learning as behaviourist, cognitivist and affective but all relating to the whole person. Theorists in this field such as Maslow (1968) and Rogers (1967) are concerned with the development of the whole person (Reece and Walker 2002). Maslow's hierarchy of needs (1968) relates to the conditions required to affect positive learning which suggests individuals work towards the goal of self-actualisation. This approach defines learning as 'a personal act to fulfil potential' and the locus of this approach is in both cognitive but also affective domains.

The humanist movement in education research in the 60s and 70s took education from the scientific domain into the realms of social science. The acknowledgement of learning in relation to the affective domain and holistic person impacted on the type of research undertaken and promoted in the field. Qualitative approaches emerged acknowledging the variance within individuals.

Dewey (1938) was an early proponent of experiential learning and a focus on learning as an experience. Vygotsky (1986) placed emphasis on the context of learning and the role of relationships in the learning process. His work led to Wood et al's (1976) development of the concept of 'Scaffolding' and the significance of the role of others to the development of an individuals' learning. This shows the move in the epistemological position of educational research broadly from considering learning as acquisition of a knowledge product, to learning as a process, socially constructed. Social constructivism is based on the belief that learning is a social activity in a social context. Models emerge which are social and situational and define learning as a relationship between people and their environment (Bandura 1989, Soloman 1993).

These learning theories reflect the development of definitions of learning in the Higher Education environment to the present day.

4.2.1   Learning theories in Higher Education

Learning is the development of knowledge, skills and attitudes over time. The debate about learning is significant to the HE context, which is primarily a centre for learning.

Säljö (1979) carried out research which informs this approach on a number of adult students to determine what they understood by learning. Their responses fell into five main categories:

1.   Learning as a quantitative increase in knowledge. Learning is acquiring information or 'knowing a lot'.
2.   Learning as memorising. Learning is storing information that can be reproduced.
3.   Learning as acquiring facts, skills, and methods that can be retained and used as necessary.
4.   Learning as making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world.
5.   Learning as interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge. (quoted in Ramsden 1992: 26)

Ramsden (1992) suggests that the last two findings are qualitatively different from the first three. In the first three categories learning is something external to the learner but in the last two learning is 'internal' and personal and seems to be seen as something that you do in order to understand the real world. This model usefully brings together the previously mentioned learning theories in a holistic scale covering all domains of learning and relating learning to both internal and external processes taking place in context.

Learning shows change from lower levels of engagement or performance to higher ones. Although hierarchies have weaknesses, they are useful to emphasise the necessary change required for learning to take place. Hierarchical models are a useful heuristic to consider what change we can expect to see in learners over time.

Biggs and Collis (1982) and others (Marton and Säljö 1976, Entwistle 1984, Prosser and Trigwell 1999) hold that Higher Education has at its central purpose the need to facilitate High Order or 'deep' thinking and learning (as opposed to surface) – that which exists at the height of the taxonomies . Light, Cox and Calkins (2009:15) call this the *'gap between recall and understanding'*.

Houghton (2004:12) describes this as

> *'deep learning involves the critical analysis of new ideas, linking them to already known concepts and principles, and leads to understanding and long-term retention of concepts so that they can be used for problem solving in unfamiliar contexts. Deep learning*

promotes understanding and application for life. In contrast, surface learning is the tacit acceptance of information and memorization as isolated and unlinked facts. It leads to superficial retention of material for examinations and does not promote understanding or long-term retention of knowledge and information.' Houghton (2004:12)

This is a somewhat simplified observation. Entwistle (1984) presented research evidencing the existence of a third category where the student engages with learning wholly to pass exams – this is classified the 'strategic approach'. Light *et al* (2009:35) classify the difference between strategic and deep learning as *'the gap between understanding and having the ability to practice effectively'.*

This surface-deep learning scaling is acknowledged and used widely as a model for HE research (Case & Marshall 2004, Rushton 2005). Several authors describe limitations of this model - its simplicity (Beattie *et al* 1997) and the fact that learning approaches change with each person and each situation. In summary, learning in practice rarely follows the straight line implied by the hierarchical models. Universities' responsibilities are concerned with high order skills, but more holistic models of student-centred learning extend beyond cognitive and psychomotor skills and into the affective skills.

Recent literature in professional learning suggests that learning to be a professional involves the affective domain. Dall'Alba suggests that knowledge and skills are insufficient alone for professional practice which involves *'a process of becoming'.* She suggests that there is a limit to learning in professional education programmes which focus only on *'acquisition and application of knowledge and skills, it falls short of facilitating their integration into professional ways of being.'* Dall'Alba (2009:34).

Her argument is that this is unlikely to occur in a linear sequence as suggested by earlier hierarchical models *'but, rather, to follow a range of possible development trajectories This unfolding is open-ended and always incomplete.'* (Dall'Alba & Sandberg 2006:383). Dall'Alba's (2009) position is built on the work of Heidegger (1962) who is an early proponent of socio-culturalism. His concept of 'being-in-the-world' is useful to emphasise that we are always inextricably entwined within our world.

Heidegger defines the central purpose of education as transformation of the self

'...turning around the whole human being. It means removing human beings from the region where they first encounter things and transferring and accustoming them to another realm where beings appear' (1962:167)

Dall'Alba (2009) suggests that the role of those providing professional education, such as HE, is to support this transformation in being and that a key weakness of many HE programmes is the reluctance to acknowledge the importance of 'being' a professional. The purpose of professional education programs can then be conceptualised in terms of developing ways of being the professionals in question, rather than simply as a source of knowledge and skills acquisition.

Social constructivism focuses on the social rather than individual transformation and maintains that individuals create or construct their own new understandings or knowledge through the interaction of what they already know and believe, and the ideas, events, and activities they come into contact with (Cannella & Reiff, 1994; Richardson, 1997).

Lave and Wenger (1991) through their research in work-based learning explore the concept that learning is concerned with social engagement over cognitive and conceptual processes. Lave and Wenger (1991) states that the learning process occurs within a 'community of practice'. Wenger (1999) suggests that communities develop around areas of shared interest; within these communities exists the context for learning to take place. Lave and Wenger (1991:23) suggests that a community of practice shares not only skills and knowledge but

> '*a shared repertoire of ideas, commitments and memories. It also needs to develop various resources such as tools, documents, routines, vocabulary and symbols that in some way carry the accumulated knowledge of the community. In other words, it involves practice: ways of doing and approaching things that are shared to some significant extent among members.*' Lave and Wenger (1991:23)

Whilst this definition originates from work-based learning research it seems to be equally applicable to higher education. Lave and Wenger (1991) extend learning to include ways of speaking, acting and improvising in ways that make sense in the community. They agree that learning involves changes in meaning or identity.

The model applies particularly in subjects such as Veterinary Medicine where learners are training to become a practitioner. Brown, Collins and Duguid's (1989:44) examination of situated cognition suggested that practitioners are 'bound by intricate, socially constructed webs of belief which are essential to understanding what they do'. Lave and Wenger (1991) acknowledge that from their research, participation in a community of practice begins with legitimate peripheral participation moving into full participation over a period of time as participants become more competent and therefore more involved in the main processes of the community. Learning is therefore seen as a process of participation in a society over the acquisition of knowledge.

Studies of "Communities of Practice" (CoP) are rarely seen in relation to Higher Education. A large number of studies in education using the "Communities of Practice" model relate to teacher professional development or creating an academic community. Few studies focus at undergraduate level. One study uses the "Communities of Practice" model as a strategy of learning, but this is in the context of a strategy of experiential self-directed group learning (Monaghan and Columbaro 2009). There are few studies using the "Communities of Practice" model to describe the HE context.

Splichal (2007) gives an interesting overview of learning communities in HE but does not discuss them in terms of a holistic student experience. Cross (1998) asks why there so much interest in learning communities? She suggests that reasons can be divided into three broad categories: *philosophical* (because learning communities fit into a changing philosophy of knowledge), *research based* (because learning communities fit with what research tells us about learning), and *pragmatic* (because learning communities work). She suggests this is a 'fundamental revolution in epistemology' which is wholly ingrained in the socio-cultural paradigm.

To a certain extent, models of HE teaching with many lectures in early years are based on hierarchical models of learning, assuming a certain amount of surface learning in early years for a base upon which to build later more complex knowledge. Therefore studies into the student experience take place in a current HE context where socio-cultural learning is advocated, in an epistemological position that believes knowledge is constructed socially and learning is a process both internal and external. It is a process which begins with knowledge and applying it, and moves to deeper reconsideration and changes in values. It is not just making meaning of facts in context but also professional transferable skills, and also developing identity as 'becoming' a trainee professional. It is doing so in a community context where learning takes place through interactions with others, both within a learning context and a wider life context.

The following section reviews studies into student experience, broadly across HE, and then focusing onto Medical and Veterinary Education.

4.2.2   Student Learning Experience in Higher Education

Thus far this literature review has broadly considered learning theories, exploring development of educational research relevant to learning in HE. My approach to understanding Higher Education is in line with the development of the socio cultural domain and student centred model of education. The focus of the review now turns to what is known about the student experience of Higher Education.

The student experience is a buzzword in modern educational research, particularly in higher education. There are a wide range of student experience surveys undertaken. The National Student Survey (NSS) is administered by the Higher Education Funding Council for England (HEFCE) to every HE institution. The NSS (HEFCE 2012) is a high profile annual census of nearly half a million students across the UK. It is an established survey and produces influential Higher Education public information, giving students a powerful collective voice. It is suggested that the results of the NSS often drive improvements across Higher Education Institutions in relation to the quality of teaching and the overall student learning experience. Data from this annual survey is well cited in other research and claims to measure and improve the student experience. The Times Higher Education Supplement (2012) surveys 14,000 students about their 'student experience' annually. This research is equally widely disseminated and cited. These are two of the largest cross-institutional studies. Many universities and departments also conduct similar surveys at a local level.

Whilst survey data provides a useful broad overview of a wide range of experiences, a limitation is that they don't show changes within individuals over time. Most surveys ask prescribed questions with quantified answers which fail to give an individual voice and the outcomes of such research are determined by the questions asked.

There is a wide body of research into the student experience as learning from the student perspective in relation to social and cultural models of learning. These range from action research (Nolan 1998, Heinze and Proctor 2004) through phenomenology (Begley 2002, Sanchez 2007) to ethnographic studies using a range of methods including reflections, interviews and observations. (Becker 1956, Ball 1981, Sinclair 1997, Hatton 1997)

There are also a large number of well trusted and cited projects which help to develop the importance of the student experience (Harvey, Burrows and Green 1992, QAA/NUS 2012, THES 2012). In 2008, the Higher Education Academy funded a range of papers to review the published material in relation to the higher education student experience in five key areas. Two of these

systematic reviews into the 'first year experience' and 'overall' student experience usefully inform the study and the key areas of focus.

A portion of all literature on the student experience has focused on one specific area. The limitation of this type of approach is that this may be small scale research which is then branded as something more transformational (Harvey, Drew and Smith 2006).

Studies into the first year experience show a range of trends. Limitations of many of the studies reviewed are their inability to relate the first year experience to the holistic learning journey. (Harvey, Drew and Smith 2006:7) asks *'is there a first year experience, however diverse, or should it be seen as part of a long process of cultural, social and intellectual assimilation?'* And furthermore

> *'to decontextualize the first year from the entire student experience deflects from the need to ensure a positive learning experience suited to the evolutionary stage of the student'* (Harvey, Drew and Smith 2006:14)

This locates studies well within a socio-cultural context and uses a model of learning as a longitudinal and ongoing development. If learning involves 'learning to be' then we need to evidence the development of this identity, alongside cognitive and skill changes, over time.

Ertl *et al* (2008) reviewed all literature relating to the wider student experience. They categorised findings into areas from induction and transition, through to quality measurement. Key areas of interest in their review, relevant to this study are papers relating to 'teaching curriculum and learning' and 'the student perception of learning'. Again there are some potential weaknesses of research in this field. For example, studies relating to teaching and learning tend to be localised by group (e.g. mature or WP learners) by course module (e.g. Maths in Nursing) or by stage such as the first year experience (FYE). 72 papers reviewed in this section reviewed only one course or module by one single cohort and few resulted in strategies to promote learning. Some studies focus on what is learned, such as Lea and Street's (1998) study of academic literacies, or Meyer and Land's (2005) work on threshold concepts. Ertl *et al* (2008) suggest there is room for further studies with broad learning and teaching as their prime focus, and showing course long development.

Ertl *et al* (2008) propose that there is ambiguity in the concept of student experience, although they conclude much research in this field is formal and class based. By contrast, the SRHE student experience strand suggests research in this field should take a wider approach to what studies in student experience should cover,

'To find out what students in UK HE are learning in the widest sense of the word from
their experiences within and outwith formally institutionalised study' (Ertl et al 2008:19)

David *et al* (2007) researching Effective learning in UK higher education for the Teaching and Learning Research Programme (TLRP) concur with this, and suggest that the focus should be *'on contextualised understanding of student experience'* (David *et al* 2007:1). Ramsden (1992) warns that we must be mindful that students are responding to their perceptions, which is not always the same as the learning the teacher defines. He argues that this is the source of routine divergence between intention and actuality in HE. A view from the student experiences is helpful to remedy this and to be sure we can evaluate, not only what we think is taught, but what is perceived by the student as learning.

Research into the student experience can show the way learners develop in key areas over time and in the socio cultural context from an epistemological position of knowledge as an experienced social construct. There is a gap in the research for holistic studies that can and should show the HE student perception of their learning and development, and the context it is undertaken in.

4.2.3   Student Learning Experience in Veterinary Education

The previous section outlined the literature relating to the context of Higher Education. It is important to focus the lens even more closely on the local context of the study.

To become a veterinarian, one must first complete a veterinary degree. Vet School degree courses are designed to prepare people for a professional veterinary career. The Veterinary Curriculum is designed to be broad based and include a wide range of scientific theory as well as practical and clinical skills. It is a five year (or sometimes six year) degree course which entitles the student to go out into practice. This differs from the medical model where upon qualification students enter into a period of further work-based training and assessment before achieving the right to practice. The RCVS are narrowing this gap through the development of the 'professional development phase' - a system for ensuring fitness to practice through a checklist of 'day one competencies' which graduates are expected to achieve in readiness for real work. This is built on by a second set of competencies to be developed in the first year in practice 'year one competencies' (RCVS 2009). These competencies are research-informed developments into the requirement of a 'professional vet' and the criteria relate to learning across all three domains.

Relating back to the theory presented in the previous section, the outcome in this context is clearly 'to become a professional vet'.

Research into Veterinary Education is a limited but developing field. The *Journal of Veterinary Medical Education (JVME)* is an international peer-reviewed journal and the official publication of the Association of American Veterinary Medical Colleges. The JVME is the sole journal in the world devoted exclusively and comprehensively to Veterinary Education. The articles in JVME are written by veterinarians for veterinarians and often report on action research or evaluation rather than the type of structured rigorous educational research which may appear in more broad and established educational and teaching journals. Although trends in HE research are towards mixed methods models and qualitative approaches, significant numbers of studies in JVME report a scientific approach and often use quantitative data. There are some limitations to the types of studies published, as a result of the context within which they are researched, and the scientific 'community of practice' in which they are presented.

Nonetheless the research published in JVME is vital to paint a picture of what is known about the community of veterinary students and environments in which they work. There are several other journals in the Veterinary field which do feature articles of relevance for Veterinary Education within the discussion of broader subjects. However, given the limited size of this specialist field and associated literature is it also imperative to have consideration of the wider literature in both broader HE research and in similar contexts, such as Medical Education, which may be transferable to the Veterinary Education environment.

Taking Dall'Alba's (2009) approach to learning to be a professional, then we can assume that learning in these fields must not only focus on knowledge and skills but 'learning to be.' In this respect, overlap can be seen with a wide range of professions including, not exclusively, education of teachers, nurses and allied health professionals, and business professionals.

It is useful to also consider similarities between the field of veterinary and other medicine fields. Sweet, Huttley and Taylor (2003) publish an edited book which discusses learning strategies in combined fields of medicine, veterinary and dental education. These subjects are grouped together in a single subject Centre by the Higher Education Academy due to their perceived areas of overlap in features of these fields. Typically educational innovations arise from the Medical Education sector and follow in some other fields, including Veterinary Education, a few years later.

Doctors and Veterinarians work through a process of diagnosis which is unique to their professions (Sweet *et al* 2003). This interaction with knowledge and its application to theory shows the need to apply equal value to processes of learning across all domains. McGaghie *et al* (2007) illustrate this in their study of both medical and veterinary students understanding of physiological concepts. The preface to Sweet *et al*'s (2003) book asks 'What is so special about teaching and learning in medicine, dentistry and veterinary medicine?' Their answer relates to learning within a context of directly working with other people and their values and feelings. They concur this has overlap with other professions. As a result of the 'preparation for practice' element of the professions, courses usually include a period of work experience or placement involving the need to develop reactive and reflective practice. Clearly the affective domain is significant to these professions.

Dale, Nasir, and Sullivan (2005) propose some areas of importance in the development of the future veterinary curriculum, and there is an interesting overlap between these findings and the sub-categories in the teaching learning and assessment sections of the student experience lit review (Harvey, Drew and Smith 2008). Both highlight the importance of applying theory to practice, transferable professional skills, learning from others, problem solving and placements. Whilst these appear especially relevant to professional learning, and more narrowly to medical and Veterinary Education, it is clear from the close match between evidence in both medical and veterinary fields (Dale 2008), and this broad ranging literature review of HE (Harvey, Drew and Smith 2006) that these are categories of significant relevance to the whole of HE in considering the student experience. Literature relating to each of these key categories is reviewed in further depth, with reference to theories established in the previous section from the wider educational field.

The impetus chapter highlighted that neither regulatory body (EAEVE nor RCVS) has prescribed how improvements in Veterinary Education may be achieved. The day one competencies which list the practical and professional skills that veterinarians should have on completion of studies, provides a useful benchmark for Vet Schools to consider the 'type' of graduate they should be producing (Bok *et al* 2011). These competencies cover all domains of learning to a level in the middle of all taxonomies (RCVS 2011). SVMS used these competencies as the starting point and worked backwards to try to design learning on a blank canvas which would meet the aim of producing the type of graduate needed in modern veterinary practice. They had a unique opportunity, which others do not, which may limit the transferability of findings. Gray in his introduction to Heidegger's work on becoming points out:

'There is always a struggle to advance a new way of seeing things because customary ways and preconceptions about it stand in the way' (Gray 1968:xxi).

Ertl *et al*'s (2008) literature review of the student experience draws attention to developments in sociological research in Medical Education

'Research into how university academics and students understand learning and assessment was given an influential head start in the work of Howard Becker and colleagues in the 1960s.'

Becker's (1956) seminal text into Medical Education 'Boys in White' was the first attempt to consider the culture of student learning and understand what it was like to be a learner in that context. Becker (1956) analysed the experience of (mostly male) students working through a pre-clinical, post-clinical curriculum, noting both the range and change of values and attitudes to knowledge, skills and identity. This was the first study into the student experience focused in Medical Education and was the driver for many future projects from this perspective, my own included.

4.2.4   Theory and Application

The standard model of clinical training in most current Vet Schools is based on a medical teaching hospital model where students gain practical experience in the later years of their course affording the opportunity to link theory to practice in authentic situations. This fits with models of learning as hierarchical. Dale, Sullivan and May (2008) suggest that a lower level learning is required to acquire basic facts upon which to build evidence-based practice skills. This represents traditional models of practice in much of Medical and Veterinary Education where students are introduced to theory without application (pre-clinical) for the introductory part of a course, then subjected to clinical experience to apply the acquired theory. This is the model of clinical training followed in Becker's (1956) Boys in White and shows a culture where in the early days of learning students treat medicine as a science and fail to relate scientific ideas to real life contexts until later in the course.

By contrast, Knight and Mattick (2006) argue that clinical practice requires students to develop thinking skills which are distinct from other HE courses. They conducted qualitative research into the ways in which medical students think, by conducting interviews over a two year period. They argue that evidence-based medicine requires a sophisticated epistemological position or

understanding of the nature of knowledge. They argue that students require an appreciation of knowledge as varied, evolving and context-bound, as this is the nature of evidence based practice where each case is different. This relates to a deep learning approach.

There is no doubt that learners need to develop their criticality at whatever stage of the learning journey that it occurs. Glicken (1999) also emphasises the need for professionals to develop critical thinking, in order to move into deeper learning which questions the nature of knowledge and how it may be interpreted and applied.

The SVMS course addresses the need to learn the ability to apply clinical skills and knowledge to a wide range of settings through integrated learning and early clinical experiences. This is at odds with any structural or hierarchical model of learning. The student experience is organic, allowing for flow back and forward between low and high learning from the onset of course, allowing early opportunity for learning at the highest level. SVMS designed a curriculum aiming to address Lanyon's (1991) understanding of the limitations of biological knowledge, focusing instead on a systems based approach. In this approach, making links are more significant than the individual knowledge items (Foster 2008). This has parallels with the new integrated outcomes-based curriculum for dentistry introduced at the University of Pretoria in 1997 (Snyman and Kroon 2005). Educational principles that underpinned the new innovative dental curriculum included vertical and horizontal integration, problem-oriented learning, student-centred learning, a holistic attitude to patient care, and the promotion of oral health.

As well as the student treatment of knowledge and its relation to context, it is important to consider students' ontological approaches. At the lowest level of criticality is the belief that knowledge comprises discrete knowable units that are either right or wrong. First year psychology students are likely to hold beliefs that scientific knowledge is certain, unchanging and held by authority (Hofer, 2000), and first-year medical students consider gross anatomy as being highly fixed and certain (Fox, 1957). This fits with the culture of Medical Education described in Becker's (1956) study. However students need to develop a higher level of criticality (Foster 2008) to reach the highest level of Bloom's (1956) taxonomy which enables them to develop skills such as reasoning enabling them be open-minded and evidenced-based practitioners. This criticality is demanded within and throughout Higher Education (Barnett 1997). Barnett describes his notion of 'critical being' as including thinking, self-reflection and action: *"Critical persons are more than just critical thinkers. They are able critically to engage with the world and with themselves as well as with knowledge"* (1997:1). In this sense critical being is an approach to life that impacts on

knowledge, behaviour and identity. Barnett (1997) suggests that a 'critical being' should be the aspiration and achievement of a university educated person.

A critical being recognises that learning is limitless and ongoing. RCVS (2011) encourages professional development and emphasises this in their competencies.

> *'the need and professional obligation for a commitment to continuing education and training, and professional development, throughout one's professional life'* . (RCVS 2011:1)

Sweet *et al* (2003) suggest that the need to 'learn to learn' sets the path for lifelong learning which will be essential in the sector. Adapting to change throughout our professional lives is integral to both being professionals and continuing to learn as professionals (Webster-Wright, 2006).

It is clear from the literature that linking theory to practice relates to top level activities on learning hierarchies such as Bloom's (1984) taxonomies. Critical thinking is an important skill to develop in order to make links between learning and its application. Lifelong learning is important to all professional learning in the current economy and "critical being" (Barnett 1997) is an essential aspiration for all graduates.

4.2.5   Problem Based Learning

Problem solving is the first of Glicken's skills for lifelong learning (Glicken 1999), and also a skill which has been stressed as essential in evidence based practice. This can be facilitated through developing problem based learning in the classroom environment and affording opportunity for clinical development to apply theory to real life practice. As mentioned earlier, many medical institutions use problem based learning (PBL) approaches to help students to develop diagnostic skills and put knowledge in context (Davis and Harden 1999). There is much debate in the literature as to the extent of problem based learning – whether it is an approach that is implemented at a curriculum level or local teaching level.

Jennings (2009) argues that themes of informal learning overlap with PBL. Informal education involves group work and discussion as central elements which are well recognised characteristics of PBL groups. The idea of 'going with the flow' in response to the unpredictable nature of informal education is not widely associated with PBL in the literature, but does occur in his study. This fits with the ontological position of understanding the fallibility of knowledge.

Pollock (1985) argues that one of the reasons problem solving has not been widely implemented in Veterinary Education is that staff are unprepared to teach it, preferring the familiarity of the lecture-based system of which they themselves are a product, and being disinclined to embrace change because they believe that teaching is undervalued. The blank white sheet context affords SVMS the chance to implement new approaches without many of the barriers to change.

Heron (1993) outlines PBL as a societal and process-based learning approach which builds on student's prior knowledge as per Vygotsky's (1986) model of the Zone of Proximal Development. The strength of facilitation and support offered in this approach will provide the scaffolding for learning to occur. The problem based learning approach is designed to facilitate a link between theoretical and practical skills in a clinical environment. Knight and Mattick (2006) describe specific PBL examples designed to mimic the uncertainty of the real environment.

By contrast, Shanley (2007) does not believe that problem based learning in early years can work since levels of surface knowledge are not high enough

> 'For clinical problem solving to be a meaningful experience, it requires knowledge and experience in the area of the problem. Students in the first two years of medical school have no realistic basis for formulating or solving clinical problems.' (Shanley 2007:484)

He argues that if problem solving is introduced in a structured sense, it is contrived to a certain domain which leads to false learning.

> 'This clinical vignette approach, stripped as it usually is of ambiguity and anomaly, may have a role in undergraduate teaching as a way of illustrating important points, but it is not in any way a realistic practice tool for clinical problem solving.' (Shanley 2007:481)

Dale, Nasir, and Sullivan (2005) report significant constraints in integrating problem-based learning in an existing Veterinary curriculum which may suffer time constraints and from the Not-Invented-Here syndrome. Nottingham has a fresh canvas without this potential constraint and has therefore successfully integrated a weekly clinical relevance small group problem based learning session to facilitate deep learning from the start of the course.

4.2.6   Learning with and from peers

PBL takes place in a climate of cooperative and collaborative learning. PBL has other affordances and constraints than those related directly to problem solving. Quarmby's study (2007) used a questionnaire administered to all Year 1 students at the beginning of the 2008/9 academic year and at the end of the academic year to establish whether their perceptions of small group work had altered during their first year. There was a tendency for students to cite teamwork as a personal challenge.

A cooperative learning assignment (CLA) was introduced into the core veterinary undergraduate curriculum at Glasgow in the 2003–4 session. *"Collaborative learning occurs when small groups of students help each other to learn"* Dale, Johnston and Sullivan (2003:221). The impetus for the introduction of Co-operative Learning Approach (CLA) in the veterinary curriculum was further driven by the fact that professional skills—such as team work, decision making, and communication skills—can be gained from working in cooperative groups. RCVS competencies (2011) include '*A1.3 Work effectively as a member of a multi-disciplinary team in the delivery of services to clients' (*RCVS 2011:1) Individual development derives from social interactions within which cultural meanings are shared by the group and eventually internalized by the individual (Richardson, 1997). Interactive learning in small peer-groups is more likely to make the connections that students need to develop a more complex schema than a lecture or a textbook, by offering more links to accommodate new learning (Cross 2010).

For Heidegger (1962/1927), being-in-the-world, more generally, necessarily incorporates being with others, through being with others, we learn to think and act as (the generalised) 'they' do. For instance, trainee vets learn various ways in which one acts as a member of the veterinary profession, while taking a stand on the ways and extent to which they will follow what one is expected to do. The process of becoming a professional occurs, then, through continual interaction with other professionals, as well as those outside the professions. An individual does not become a professional in isolation - it is entangled in the broader social world. Wenger's (1999) community of practice model fits this position. Learning communities have their heart in collaborative learning. Senge *et al* (1990:13) call for

> *"a shift of mind—from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something 'out there' to seeing how our own actions create the problems we experience. A learning organization is a place where people are continually discovering how they create their reality. And how they can change it"* (Senge *et al* 1990:13).

Dall'Alba (2009) suggests that this changing view of the nature of knowledge is providing criticisms of our educational systems—hierarchies, competitiveness, and passive absorption.

'The current wave of interest in learning communities is not, I think, just nostalgia for the human touch, or just research about the efficacy of small-group learning, but a fundamental revolution in epistemology.' Dall'Alba (2009:9).This links back to Vygotsky's (1978) work with children scaffolded by a 'more knowledgeable other'. Constructivism stresses how shared meanings are created among learners as they construct knowledge on individual and collaborative levels, within sociocultural contexts using meaningful activities (Huong 2003). Vygotsky's (1978) concept of the zone of proximal development (ZPD) suggests a gap between what can be learned alone and when scaffolded by more knowledgeable others (MKOs). Vygotsky's (1978) theories inspired further research into the roles of the more knowledgeable peers in assisting learners to move beyond their potential development levels.

This work started a debate into benefits and interpretations of the role of peer learning. Peers are learners working jointly or collaboratively who share the same goal (Lantolf, 2000). Slavin (2010) discusses the potential cognitive advantages of collaboration with peers. Slavin (2010) states that students can benefit either in the role of tutor through the opportunity to elaborate ideas, or in the role of tutee, guided by a more capable peer who is likely operating within one's "zone of proximal development". Swain (1995) contends that dialogues among learners can be similar to instructional conversations between teachers and learners. Peers can scaffold and mediate the learning process (Lantolf, 2000). Peers in pairs can use language for meaning- making activity both within and beyond the context of the assigned role-play task. Peer interaction allows learners to act as both expert and novice, constructing their roles through the varying levels of expertise (Ohta 1995).

In Veterinary Education, peer assisted learning is not a new concept. The role of students as teachers was suggested by Armistead (1970) as one of a number of alternatives for delivering training in a veterinary curriculum. The suggested advantages included leaving faculty members free for other duties and improving student motivation, communication skills, and learning - *"the best way to learn is to teach"* (Baillie *et al* 2009). A "buddy system" was used at Murdoch University, Western Australia, in which final (fifth)-year students were accompanied on ward rounds by third-year students, with the aim of giving pre-clinical students more exposure to clinical cases (Swan and McDonald 1980).

4.2.7 Placements

There is an increasing emphasis within UK higher education on work-based learning, which is seen as a way to improve the employability of graduates and to increase the involvement of employers in HE (DIUS 2008). HE courses, and especially professional learning courses, often incorporate a period of work placements.

Affective outcomes are now openly and successfully sought in health education. Educating professionals to care involves setting learning outcomes that include affective attributes, and using learning and teaching activities that promote their attainment (Howe, McWilliam and Cross 2005), and ensuing that role models act appropriately (Gagne 1985, Paice, Rutter and Weatherall 2002). Kahn *et al* (1981) use Krathwohl, Bloom and Masia's (1964) taxonomy to examine the way medical students cope with feelings about professional knowledge, and feelings about death and dying.

Additionally, one apparent development within all of the students was an emerging sense of themselves as future practitioners, including the effect that making the 'wrong decision' may have on a patient. For some, this appeared to constrain the conclusions they were prepared to make when evaluating evidence as the possibility of medical error was unacceptable. For others, there was evidence of developing reflective thinking for medical practice, and discussing uncertainty of medical evidence with patients. Thus the emergence of a professional identity and the development of epistemological beliefs appear to be intertwined.

RCVS (2011:7) describe strong educational reasons why EMS should continue to be an integral part of the veterinary degree.

> 'It provides students with an unrivalled opportunity to gain real-life work experience that enhances their university-based studies. '

On EMS placements, students further practise the animal handling and clinical skills that they first learn at university, as well as building up their experience of dealing with clients and with members of the veterinary team. Authentic learning experiences are vital to students and can facilitate deep learning. Kolb's (1984) experiential learning cycle suggest the benefits of learning through experience and reflection. It shows how experience is a useful context to link theory to practice, in which the act of reflection can help to consolidate learning. Whilst this model displays links from learning to behavioural science, it also shows links to cognitvism and the socially constructed model of learning. Wenger (1999) suggests that knowing and doing, in context, are 'interlocked and inseparable.' This is especially true in clinical fields where diagnostic skills are

practiced. Brown, Collins and Duguid (1989) argues that learning should, like an apprenticeship, be a process of 'exculturation', inducting learners into a new culture of professionalism through authentic learning tasks. This has parallels with the notion of engaging in a community of practice. The theory builds evidence suggesting that deep learning will occur through engagement in authentic activity and the opportunity for reflection on action (Schon 1983).

Reflective learning theories link to the notion that learning occurs on a scale of consciousness from informal to formal. Schon (1983) describes a reflective learning cycle which embeds experiences into consciousness through reflection on action. Reflective learning offers a means to embed authentic learning experiences deep in the cognitive domain.

The benefits of reflection are widely accepted in practitioner domains and are an integral and accepted method of learning and assessment in practitioner fields. This is especially in education of 'caring' professions such as Teacher Education (Goodman 1984, Otteson 2007), Nurse Education (Quinn 2000, Taylor 2010), Medical Education (Mann, Gordon and McLeod 2007, Sandars 2009, and Aronson 2011), and Veterinary Education (Dale, Sullivan and May 2008, Mossop and Senior 2008). Dale, Sullivan and May (2008) consider the role of experiential learning in Veterinary Education to support deep learning through a link between theory and practice, and emphasizing the role of reflective practice.

> 'The model recognizes the need for learners to develop theories, apply them to real problems, evaluate the outcomes, and subsequently refine their understanding. Experiential learning, therefore, supports the development of higher cognitive abilities and allows learners to apply and practice what they have learned in authentic contexts.'
> (Dale, Sullivan and May 2008:587)

Reflective practice is becoming an integral feature of the community of practice for healthcare practitioners since they are a required feature of CPD for medics, nurses and now veterinarians. Furthermore the RCVS (2009) suggests reflective practice is a significant learning skill required by practitioners to develop their ongoing practice.

Placement experience is vital to professional learning, and reflection is a tool which helps professionals to engage critically with their experiences and the way that theory and practice are inextricably linked.

4.3 Theoretical Conclusion

This literature review has taken a broad look at the horizon which is the context for the study. I have identified a gap in the literature for holistic research into the student experience in the field of Veterinary Education. A broad review of related literature shows that key issues are transferable to medical but also wider HE educational contexts. Key emerging issues included links between theory and practice, group work, learning from others and placements. The process of literature review has been an iterative one. I began reading around HE before I began the PhD so was armed with a set of basic learning theories. I read a lot of different types of literature in the first year including books and research publications, but also quality and regulatory documentation including that relating directly to the veterinary profession. This developed my understanding of this specific field and some of the key issues relates to the specific learning experiences. Although there are key categories here, they are defined from the literature, not from the data. In analysis, I applied these theories to the data, and then researched further literature and discussed this against these findings.

In conclusion, armed with theoretical background at the end of year one and some broad ethnographic data, I expanded and refined the broad research question I proposed in the first chapter, 'What is the student learning experience at SVMS?'

1. What is the teaching and learning experience?

    a. What is the view of knowledge and learning held by students and teachers?

    b. What is the scale of learning approaches taken by students, how do they change and what facilitates changes in approach?

    c. Which methods and approaches can support and facilitate 'deep learning'?

    d. What is the experience of

        i. The integrated curriculum

        ii. PBL

        iii. Learning across three domains

        iv. Developing professional skills

        v. Reflective practice

Although these are a relatively large number of research questions, they are inter-related, since they derive from the initial question – 'what is the teaching and learning experience?', and are driven from the literature in this field. How well research questions can be answered depends on the appropriateness of method chosen (Bryman 2004).This range of research questions will be reviewed within the context of the next chapter on methodology.

This chapter has attempted to represent literature from the broad field relative to the research context. The context for the study is defined and critically examined. The next chapter follows the next steps in identifying a suitable methodology for a study in this context.

5   ETHNOGRAPHIC METHODS AND METHODOLOGY

"The final goal ... is to grasp the native's point of view, his relation to life, to realise his vision of his world." Malinowski (1961/1922:25)

'veni, vidi, scripsi'
(I came, I saw, I wrote)
Atkinson *et al* (2001:64) on Malinowski

5.1   Introductory Reflective Fieldnote

In opening I present a reflective fieldnote which I wrote at the end of the first iteration of literature review, data collection and analysis. This fieldnote uses metaphor to represent complexity of ethnographic data collection and analysis and the iterative process of focus and refocus simultaneously on the data.

It's like looking down a new camera in a new context (let's say a nature walk) at something you are not familiar with to try to see something you are not sure is there. So you look through the lens until you think you can make out from your limited view what it is you are looking at. Let's say for example it is a butterfly. Then once you know what it is you are looking at you notice what it is that is particularly interesting about it. (Let's say its wing marking) Then you refocus the lens, look more closely at that one particular bit (but not forgetting it is part of a bigger thing) until you realise that the pattern seems particularly significant. So the whole time you are understanding and seeing the big picture (the butterfly in the woods) better but you also get a close-up on a little bit of something important and you will see that affects how you look at the big picture. Now I can say it's a butterfly, it's a beautiful butterfly and I understand this to be a function of the beautiful pattern on the wings, amongst other things. That's my perspective. I might not see it the same way as others but as long as I am clear about what I see, who is seeing it and through which lens, it could be useful. Ok so no-one is going to walk down that path and see that butterfly and look at it through the same lens. But the way I see it explaining my story and the way I discovered it might be useful for anyone undertaking a similar investigation – any walk down any path (or even other environment) to look at any butterfly.

CM Fieldnote: On analysing data and finding a focus, end year 1

5.2   Introduction to ethnographic methods and methodology

This study takes an ethnographic approach to exploring learning and communities. This chapter explains why this was the most suitable methodological choice to research the student experience at the new Nottingham Vet School.

The start of the chapter outlines a brief discussion of rigour, transparency and the role of the researcher. The specific ethnographic methods of data collection and analysis in this study are explained and explored. A detailed description of the data collection and analysis methods used in this study, and the approach to writing is presented. This writing relates ethnography in theory to my experiences in practice.

It is important to understand and define the terms associated with this chapter. There is a clear difference between methodology and methods. Bryman (2004) suggests that methodology is concerned with the epistemological underpinnings and approach of the project. Methods relate more specifically to the actions of the research project and the types of data collection and analysis used. Logically, the methodological approach chosen will clearly impact on the methods used. The next sections of this chapter describe firstly an ethnographic approach to research methodology and choice of methods, and then describe the approach and actions taken within this research project.

5.3   Ethnographic Methodology

The choice of methodology was based on my position in relation to the research context. As explored in the impetus chapter, I am an educationalist with a background in teaching and educational research. I am an outsider to the Veterinary field which allows me to explore the learning independent of any preconceived ideas related to the field. I came with an open mind to research areas of importance which emerged as significant to the student learning experience. I felt I did not have enough background information about the field to define a hypothesis prior to the start of the project. I therefore rejected a range of methodologies such as action research and phenomenology, since they take a theory testing approach and require a pre-defined specific research focus.

As an 'outsider' to the environment with an interest in the student experience, it became obvious to me that I needed to choose a theory generating methodology which allowed me to become intimate enough with this context to understand it. My position as a researcher is built on epistemological and ontological beliefs about the nature of the social world. My naturalistic

position espouses my belief that attempting to understand people as subjects of learning is not appropriate without significant in-depth analysis of the context in which it occurs. Learning is constructed socially and the social world does not exist without or outside of individuals, but instead is a system created by interactions between individuals. My approach to educational research embraces modern notions of social constructivism, and rejects the measurement approaches of positivism. It was therefore an important aim to report on my perceptions of the experience of individual students within the wider context of learning and teaching in a new vet school.

Miller (1997) suggests that ethnography is even more than a method or methodology since it applies to both practices and product of research. Walford (2001) presents the argument that there is little consensus about what ethnography is, which leads to its underuse, but that it can be understood in three ways: - as a research approach, or as a set of research methods, or the product of these as a written account. For the purpose of this study, I use the term ethnography to mean each of these things in turn, since the ethnographic methodology lends itself to an ethnographic approach to data collection, analysis and writing. This section explores the meaning of ethnography as a methodology and ethnographic methods (including data collection, analysis and writing) are considered in later sections.

Ethnography is an approach used by those taking an outsider in approach to understanding a new culture. Malinowski (1922:25) is often cited as the first researcher with a declared interest in *the native's point of view*." Walford's more recent (2001) description of the aim of the ethnographic approach includes the perspective of the researcher,

> *'...to build a picture and tell a story (from the researcher perspective and interpretation) reporting on individuals perception of their situations and their interactions' (Walford 2001:34)*

Fetterman (1998) describes ethnography as the art or science of describing a group. He describes specific methods to conduct ethnography, including approaches to data collection, analysis and writing. Harris and Johnson (2000) focus on ethnographic writing as the key feature of an ethnographic study *'An ethnography is a written description of a particular culture - the customs, beliefs, and behaviour - based on information collected through fieldwork'* Harris and Johnson (2000:5). They point out that ethnography literally means *'a portrait of a people'* which focuses on a naturalistic outcome.

McCalla-Chen (1996) concludes that the principle aim of the ethnographic approach is to *explore and represent unfamiliar cultures, to understand meaning and events as they are understood by people in those cultures'*. This is concurred by other major authors in fields of ethnography both in the wider field (Walford 2001) as well as in the specific healthcare education field (Murphy and Dingwall 2001, Savage 2006). In this respect, this approach is suited to me since I have no background in the subject area or with the culture of veterinary medicine. I therefore have an unfamiliar territory to explore and represent.

Ethnography is a derivative approach of social anthropology which aims to develop knowledge through complete immersion in a culture. Some of the most famous anthropological studies include those of Margaret Mead (1961) who worked and lived in cultures across the world and highlighted differences in social understanding between these societies and those in the West.

Significant differences between social anthropology, ethnography and other approaches can be identified in the relationship between the researcher and the researched. In phenomenology, the researcher sits outside the context as an objective observer on the phenomenon under examination. In action research, it is vital that the researcher is active in the context and can therefore affect and evaluate the change they are part of. In social anthropology, it is important to be as native as possible within the culture and to therefore report on the truth of that experience from an immersed perspective. In ethnography however, the researcher treads a fine line between all these approaches. The ethnographic researcher aims to understand the native culture through immersive but not invisible interaction with the context (Wolcott 1994), and their report is their experience of the experience of others. This approach is analysed further later in this chapter, in relation to the role of the researcher in the research.

Educational ethnography assumes that knowledge is socially constructed and that we can only understand this process in detail through an 'insider's view' developed over a period of time (McCalla-Chan 1996, Walford 2001). Jeffrey and Troman (2004) argue that time in the field is needed to discern both the depth and complexity of social structures and relations. Woods (2012) agrees that to study the social world, we must focus on processes and this involves immersion in the setting over time. Wolcott (1994) suggests that time is the critical attribute of fieldwork in the ethnographic tradition. There is debate about what length of time should be spent in the field to qualify a study in the ethnographic tradition. Early anthropologists researching rural cultures had an ideal of twelve months minimum in order to study the annual cycle of the growing season. Wolcott (1994) describes an ideal fieldwork term of two years as having become the standard. As well as debate about the length of a study, there is debate about the depth of immersion that

qualifies a study as ethnographic. Woods (2012) describes three different 'fieldwork time modes' which refer to the nature of the ethnographic methodology. A compacted time mode involves a short period of intensive immersion in all activities in the community. By contrast, a selective intermittent mode is one where the length of time is longer but a more flexible approach is taken to frequency of observations. A recurrent research mode is one where projects may aim to gain a picture by sampling the same temporal phases, e.g.: beginnings and ends of terms. Woods (2012) admits that more than one of each mode can be used within a single study. In this chapter, I describe the depths of my immersion in this study, and the amounts of time spent in the field to confirm that this study fits the ethnographic tradition.

Savage (2006) argues that ethnography can be distinguished from other approaches by making the link between the micro and macro level of a context, with an interest in both individuals and their context and the interactions therein. A combination of participant observation and interviews is often used to allow for this varying focus. Hirsch and Gellner (2001) provide an excellent visual representation of this approach as one with 'one eye roving, the other focusing'.

Ethnography is an established approach in the field of educational research. As mentioned in the literature review, a view from the student experience is helpful to evaluate, not only what we think is taught, but what is perceived by the student as learning. Leung (2002) suggests that ethnography attempts to capture the true nature of human social behaviour by going beyond what individuals say to what they actually do, and explores social and educational phenomena beyond mere mechanical products of our purported educational interventions.

A review of ethnographic studies reveals significant numbers of studies which have made a unique contribution to knowledge in their research fields. There are a wide range of modern ethnographic studies into education, including adult education (Hammons-Bryner, 1995; McFadden, 1996), teacher education (Beach, 1996; Hatton, 1997), and postgraduate studies (Holland and Eisenhart 1990, Delamont, Atkinson and Parry 1997). Ball's (1981) Beachside Comprehensive is a significantly cited text in the field. His longitudinal case study of a secondary school gave valuable insights into the effects of streaming students by ability. Woods (1996) gives a published account of ethnographic studies in schools and the valuable insights they can offer about culture in teaching and learning. There are a wide range of ethnographic studies focused on the culture of Higher Education. Holland and Eisenhart's (1990) ethnographic study in US colleges identified the ways status is accrued by gender in undergraduate programs. Coffey (1996) reports the findings of an ethnographic study into workplace learning of university graduates during their first job. The expansion and change in HE cultures is further reflected by

examples of ethnography in distance learning (Garland 1993) and digitality (Wesch 2008). These are useful as examples of the wide range of cultural learning studies located in Higher Education.

There is an established history of ethnographic studies related to clinical education; primarily Medical Education. Becker *et al*'s (1956) 'Boys in White' is held up as the key text in this field - reporting an ethnographic study which reviews student culture in medical school and findings which relate to both formal and informal learning.

Ethnography emerged as an accepted approach in the USA in the 50's and 60's, but only became a significant feature in the UK Medical Education literature in the 80's and 90's. This followed Haas and Shaffirs' (1987) book reporting on a new Canadian Medical School 'Becoming Doctors' where they decided to do 'a "Boys in White" type study of an innovative school. Their findings demonstrated concepts related to hidden curriculum and professional socialisation which were recognisable and transferable to other settings. Further ethnographic studies were published in this field in the UK in the 90s including Sinclair's (1997) 'Making Doctors' which was a one year study of Medical Education and Atkinson's (2001) frequently cited three year study into 'the clinical experience'. Atkinson (1984) conducted research on the bedside teaching of medical students, and compared this with teaching in school (Delamont and Atkinson, 1995). Leung (2002) outlined ethnographic research into PBL culture and emphasised the benefits of ethnography to the development of Medical Education. More recently Goodwin *et al (2005)* published the findings of ethnographic research of anaesthetic culture, the findings related to sharing tacit knowledge and the appropriateness of ethnography to study clinical learning. In 2005 Atkinson and Parsley published 'Making Sense of Ethnography and Medical Education', which review a number of studies which have provided detailed and context-sensitive accounts of the everyday life of medical schools, practitioners and students.

The studies presented here represent a minute sample of the published ethnographic studies in education, higher education and Medical Education. The range and depth of the contexts of these studies and their findings demonstrate the acceptance and understanding of ethnography in the educational research field. There are however, as yet, no reported ethnographic studies of undergraduate veterinary learning.

Therefore this research methodology was chosen first and foremost for its fit to the research project. It provides grounding for the 'outsider' researcher and it facilitates the answering of the research question ('What is the Student Learning Experience?') from a social constructivist educational position. The ethnographic methodological approach is established in the literature in the field and growing in acceptance, and there is a clear gap for studies in the field of

veterinary learning. This section has explored my choice of an ethnographic methodology to the research. The following section addresses how this approach translates in practice into practical ethnographic research methods.

5.4   Ethnographic Research Methods

Methods relate to the specific 'working' methods and process for the work, which will be in the research study. It is important to note that this section outlines the research process as data collection, analysis and interpretation in the linear style often demanded of formal thesis writing. However, it is important to reflect awareness as an ethnographic researcher that whilst these processes are followed, they are not as distinctly separated in practice as they might appear in the writing. Naturalistic research is reflective and iterative, and data and theory can both be simultaneously collected and analysed. Furthermore in using the ethnographic approach, it is important to acknowledge the likelihood that the researcher will analyse data as it is collected, and interpret during analysis. Malinowski suggests that in ethnography 'divisions between 'data', 'method' and 'theory' are more seamless than in many disciplines.' Data collection, analysis and interpretation are on-going and overlapping throughout this study. They are outlined and explored in the following sections.

5.4.1   Rigour, triangulation and transparency

Pope (1995) suggests that because the health field has a strong tradition of biomedical research using conventional experimental and quantitative methods, qualitative research is often criticise for lacking scientific rigour. This section outlines why ethnography does not fit with traditional scientific methods of rigour but suggests alternative methods of triangulation and transparency as quality measures.

Gitlin, Seigel and Boru (1989) outline the trend in the 70s and 80s for ethnography, particularly educational ethnography to be critiqued subject to measures of rigour using concepts of reliability and validity. Lincoln and Guba (1985) were early defenders of rigour in qualitative research, arguing that typical measures used for scientific research are not transferable. One example given is in relation to the issue of an emergent design. Lincoln and Guba (1985) explain that this approach is not due to a lack of attention or focus but because researchers want to base their inquiries on realities and viewpoints of those being studied which might not be apparent at the outset of the study. This directly outlines the reason for the emergent approach taken in this study. LeCompte and Goetz (1982) present an interesting paper in defence of qualitative

research, presenting recognition of some of the limitations of applying reliability and validity as measures of rigour. Walker (1989:498) suggests that

> *'qualitative research validity is progressively achieved through the process of analysis, unlike experimental research where validity is ascribed in the research design'.*

Savage (2000) agrees and suggests that the complex activity of ethnography and diverse epistemological positions and methods require different modes of evaluation from other methods more commonly employed in medical and healthcare research. Barbour (2001:121) concurs that

> *'the question is no longer whether qualitative methods are valuable but how rigour can be assured or enhanced'.*

Data triangulation is one method used to achieve rigour in qualitative studies and is inherent in the ethnographic approach. Triangulation involves collecting from variations on one of the three types of data sources - time, space, and person (Denzin 1999). Triangulation occurs in this study since data is actively collected from observations of a range of times, spaces and people, from a range of different types of classes and learning scenarios. Furthermore through reflecting on these with participants in interviews, their views triangulate the observations. Alongside this are a range of associated fieldnotes from discussions with peers, within staff meetings and with supervisors. This range of ongoing external input ensures my opinion is regularly compared with, and reinforced or challenged by, the views of those experiencing the context. In using these triangulating approaches I seek to ensure the research is driven by the emergent data rather than the researcher and represents multiple views in terms of people, place and times. LeCompte and Goetz (1982) consider that the iterative techniques used in ethnography are a form of triangulation which ensure a fit between the appropriate constructs and the emerging data. They also suggest use of ethnographic interviewing as a technique to compliment participant observation ensures a good in-depth fit between theory and data collection and researcher interpretation. This is a strength which my research methods, as described explicitly within this chapter, seek to exploit in order to achieve rigour in the study.

LeCompte and Goetz (1982) suggest that reliability in ethnographic studies is further achieved by transparent presentation of methods and analysis in order that an audience can clearly understand the work undertaken, the context it is undertaken in and the impact of the researcher on each aspect of the research. Transparency in qualitative research has emerged over time as a key measure of rigour. Murphy and Dingwall (2003:389) suggest that the focus of rigour in

qualitative research should be in transparency and give practical hints for this to be applied to the research process.

> *'- give a clear account of data collection, analysis and interpretation*

> - *Display enough data to support claims*

> - *Do not disregard data which opposes claims*

> - *Reflect on ways data is influenced by process'*

> Murphy and Dingwall (2003:389)

These are useful methods which I have employed in this study.

Checks on rigour are used to justify the 'trustworthiness' of data. This relates to the epistemological position of the study, since the nature of trust is related to the nature of truth. The trust placed in research relates to how closely the scenario is seen to represent a true situation and therefore demonstrating what can be seen to be 'true'. These are clearly issues which are complex and which have different interpretations for experimental and qualitative research approaches. This section of the chapter aims to consider the usefulness of the research and how it may be perceived against measures of 'trust' and 'truth'.

The ontological issues associated with ethnography depend on the belief that a researcher's account, acknowledging their impact, is a truth of multiple truths which cannot be replicated as it is unique. Hammersley (2000) suggests that this is a subtle form of realism and that this type of research does not reproduce reality but represents it inevitably from a perspective with assumptions. The role of the researcher is therefore key to the methodological debate.

Miller (1974) discusses Popper's interesting alternative to the notion of truth. 'Verisimilitude' is defined as truth-likeness or one theory being nearer to the truth than another. It is my effort through my study to present findings which represent multiple truths, and in doing so create a theory with as much verisimilitude as possible.

Watson (1994) suggests that while that no research account can ever be totally 'true', some accounts are truer than others. Transparency in methodology impacts on the extent to which you,

> *'the audience see the puppet strings as they watch the puppet show'* (Watson, 1994: 78).

Van Maanen (1988:7) suggests that ethnography is a representation. In adopting a constructivist position I support this and acknowledge that this research is my personal representation of both generating and answering the research question. An ethnographic study clearly looks at the view of the participants within the culture through the interpretation of the participant observer researcher. As LeCompte and Goetz (1982:50) report *'The ethnographic process also is personalistic; no ethnographer works just like another.'* It is established, implicit and understood in the ethnographic research literature that the researcher is the research tool through whom all data is collected, interpreted and presented. It is therefore obvious and imperative that the researcher clearly identifies their position and role in the research. Furthermore it is significant to outline the impact of the researcher on each aspect of the research. At the point of data collected, the researcher can impact on the data collected in a number of ways. Several authors' remark on the effects of the researcher's presence on the data collected (Atkinson & Hammersley 1998; Lincoln & Guba, 1985).

It is important to consider the ethical impact of the researcher position. The educational researcher is bound by the British Educational Research Association (BERA) ethical guidelines. The ethnographer has to balance the need to be as invisible as possible in order not to affect the situation, yet has a duty to make their position known. As Bryman (2004:113) states

> *'In accordance with ethical standards, the ethnographer makes his or her presence known so that deception about the purpose or intent of study is not practiced.'*

In order to meet ethical standards, I circulated detailed information about the study to participants in advance of the study, including an information sheet and ethical outline. Furthermore this was circulated to both the local cohort in focus but also the wider body incorporating the wider context of lecturers, research students and administrators in the Vet School. The aim of this approach was to ensure the informed consent of all participants. It was my aim to become a familiar face within the cohort in order to minimise researcher effect. I am confident this worked well; the students accepted my presence in their day-to-day lives and quickly began to interact with me socially. My presence appeared to make minimal impact.

> *'Yesterday I stood in front of them telling them I would watch everything they do and today they were saying Hi to me on the stairs on the way in to the lecture. I got eye contact and nods from at least five people – it seems they all remember who I am and don't mind too much that I'm around.'*
>
> Fieldnote: October 2008 (It is the second day of observations.)

I never felt that my presence affected the usual behaviour of the students, however this would be impossible to truly measure, and in the spirit of acknowledging researcher effect, it is important to mention how they were informed and reacted. The way that data is collected and the language used to do so are all personal reflections of the researcher and will implicitly impact on the research undertaken. Overall the researcher will impact in many ways on each aspect of interaction with data. The way that data is directly relative to the researcher affects analysis and both interpretation and presentation of findings. Ethnographic writing is an interpretation and representation directly from the researcher interacting with the data and literature. Clearly as it is important for lab based clinical researchers to conduct sterile research where they do not affect the conditions or variables; it is equally important for naturalistic researchers to understand the impossibility of conducting social research without becoming involved.

> 'Simply by studying a group, culture, or setting, the investigator affects it in some ways.'
> (LeCompte and Goetz 1982:32)

This section has acknowledged that this thesis represents layers of truth. That is, although the student voice quotes are, to use Geertz's (1973) expression, more "experience-near" than the researcher's voice, they are themselves, reconstructions of social reality. Therefore this thesis is based on an ontological position that recognises a researcher reporting the student experience as a multi-layered truth like reality. The next part of this chapter aims to clearly explain the process undertaken in this study in order to achieve transparency and therefore demonstrate rigour in this study and potential transferability of findings.

5.4.2   Ethnographic data collection in this study

I identified that for the purpose of this ethnography and due to limitations of resource and time it would be useful to focus on collecting observational and interview data focused on one cohort of students. This study focuses on a cohort of 104 students who commenced undergraduate study at the Vet School in 2008/9, the same time that I started the PhD study. This was the third cohort in the new Vet School so I captured very early experiences of the new curriculum.

In early reflections I considered it an advantage that I did not capture the initial two years since there were many changes early on and the course was less settled and 'typical'. With hindsight a clear limitation of this approach is that each cohort will be variable and distinct and this limitation could have been mitigated by collecting data from cross-cohort.

There is some debate over the distinctness of the use of ethnographic methods. Savage (2006) reports that ethnography is sometimes mistakenly used interchangeably with participant observation. Pope (2005) suggests that the term participant observation is often used as a synonym for ethnography, describing the researcher who actively takes part in the life of the group being studied. Hammersley (1990b) suggests that any case study using participant observation methods can be classified as ethnography. Others seek to contradict this - Outhwaite (1975) and Spradley (1980) argue that it is the length and depth of participation which defines a true ethnography. McCalla-Chen (1996) argues that behind ethnography lies an epistemological belief that an understanding of the social world can only be gained by spending long periods in the field during which time change will occur and changes in context will be observed.

For clarity and understanding, as well as for validity, it is important to outline the exact process of data collection and ways the process interacted with other parts of the research process such as literature review and data analysis.

As mentioned earlier, as an outsider to the context I took an approach to immerse myself in the new culture. I started an intensive process of participant observation in the classes which the cohort undertook. In the first two weeks of the course I observed 100% of all teaching activity, and in the following ten weeks I observed 60-80% of all teaching. This covers the first period of October – December 2008 in year one of the course. During and immediately after each teaching activity, I made observational notes. I also spent time informally with students, chatting in between classes, over breaks and during social activities. In the first two weeks of term I also worked as a student IT support office coming into regular contact with new students. A summary of the iterative research process as a timeline is detailed in appendix 1. During this time, I was also broadly reviewing the literature on higher education. At this stage, my observational notes are detailed but without direction. This fits with the description of the compacted mode offered by Jeffrey and Troman (2004:544).

> 'Everything is recorded in an intense experience where the relevancy of any observation will not be immediately clear'.

Woods (2012) suggests that whilst this approach can immerse a researcher in an environment, it cannot alone develop a focus in depth.

At the start of January 2009, the end of this initial three months period, I had amassed over 80,000 words of data. At this point I took some time to review the data collected and begin a broad process of thematising data. Data from the initial immersion period fell into a wide range

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of themes and sub-themes. There was significant overlap between many of the categories. The process undertaken, and the emerging themes are outlined in depth in the section relating to data analysis.

At the same time I also began reviewing the literature in depth, focusing especially on the literature in medical and Veterinary Education and the student experience. During this time, for the following three months from January to March 2009, I maintained my participant observation at a lower rate of between 10% and 20% of teaching activities (1 day per week). Whilst it was important to review the data against the literature, it also felt important to maintain an active role as a participant in the community. The activities observed during this time period were those which emerged as of interest, or were recommended by those in the department as potentially significant to the learning journey. During the period of reviewing data and literature, I came to understand that an ethnographic approach also requires a focus on individuals within the context. I therefore decided to create a smaller sample of students from within the cohort for a more focused and in-depth study.

A period of data analysis took place to identify a set of emerging issues for discussion with students. From analysis of emerging issues I created a set of semi-structured interviews covering a broad range of topics observed. I employed an opportunistic approach to sampling students for in-depth interviews. I recruited students from one year group who responded to an email advert and showed willing to be involved in the longitudinal study. It was important that students volunteered their involvement, since there were high levels of research participation apathy amongst students in this new environment who were the subjects of several regular and on-going studies. Therefore students had to participate from free will to ensure their commitment to the longitudinal research. Ten students volunteered and became key informants in my study. I was fortunate that the range of participants represented the variance in the cohort. This included including representation (albeit not proportionate) of both genders, both national and international students and those from a wide range of previous learning backgrounds i.e. those directly from A level, those from prelim course and graduates. These categories emerged from data in established studies in Veterinary Education, for example these characteristics make up the entire section on personal data in the BVA/ AVS Survey (2008). Kogan, McConnell, and Schoenfeld-Tacher (2005) explore gender differences and the definition of success in veterinary students and Elsheikha and Kendall (2009) report differences between genders in veterinary undergraduate students' approaches to clinical relevance sessions. There are many other studies highlighting differences in learning experiences between genders and it is therefore important that this criterion is represented. Clearly the experiences of national and international students

will vary, for example international students are known to struggle with above average levels of stress (Hafen *et al* 2008). It is therefore important to represent this criteria. The final sampling criteria includes the section of students from a range of study backgrounds including those directly from A level, those from the Prelim course and also graduates in other subjects. Nottingham has a strong widening participation programme and accepts students with a wide range of backgrounds therefore it is important to represent those from each category of academic background. Elsheikha and Kendall's (2009) study of clinical relevance sessions at SMVS identified differences between those with exposure to the approach, which would be inherent in those who had experienced the Prelim course at Nottingham. It therefore seemed important to have representatives from this category. The students selected became my key informants and interview data forms an integral part of the ethnographic data collected.

In-depth interview with ten participants took place between April and June 2009 (focus period 1). Data collected from the first in-depth interviews had two purposes. Firstly I took a detailed life history, which is important for getting to know participants in a longitudinal study. Secondly, it was a chance to focus the lens more closely on key research questions.

The period from June – October 2009 was spent in early analysis of the data, and themes started to emerge. I was able to see how the interview data collected matched or diverted from the original themes. I still had a wide range of themes but the depth of the critical mass was stronger, giving the work more focus. This is the point at which the Chapter 3 vignette 'A bird's eye view of vet school' was written. The headings of the sections of Chapter 3 'curriculum' 'assessment' and 'relationships' represent the key themes in the data at this point.

My strategy going forward into the second year was to focus on the key areas which had emerged, and to track changes in the student experience from first to second year.

The second year of data collection became more focused as the broad research area was identified, defined and refined. This fits with Woods (2012) intermittent mode of ethnographic data collection. Whilst an ethnographic approach was maintained, observation of context was conducted less and more selectively in the second year than the first. Woods (2012) suggests that in an intermittent approach:

> *'is the flexibility to follow a particular empirical or analytical path across people and contexts and to be able to focus more and more closely on any relevant aspect of a site just as a cinematographer who gradually zooms closer and closer on to his or her preferred subject. ' (Woods 2012:12)*

From October – December 2009 I maintained 10-20% participant observation choosing a range of teaching sessions and focusing on small group work with a range of groups, some lectures and PPS skills training. This period fits with Woods (2012) 'refined observation' where after an initial period of broad observation, a more refined and selective approach is taken.

During this time I was also intensively reviewing the literature, drafting a first literature review and through this process of writing, analysing key themes and links between them.

I had originally hoped to follow students throughout the full three years of their first degree and write iteratively about their experiences. With hindsight I did not have a realistic appreciation of the amount of data that the ethnographic approach would generate and the amount of time required to process this. I realised half way through this three year period that a full three year study following every aspect of the course would be impossible to complete during the PhD study. This therefore became a limitation of this study since I had to make decisions about which data to collect which, to some extent, created an artificial partitioning of the student experience.

The Jan-March 2010 period of the second year was spent in a time with minimal formal participant observation. I had become saturated in data and needed to be clear about the focus of the work before conducting further interviews. In this time I conducted secondary research following up the emergent themes with the appropriate black, grey and white literature. I drafted some initial findings which focused on learning to be a vet and what it meant through the key themes which had emerged. At this point, I recognised the significance of defining what learning meant and the interaction between the key themes of curriculum and relationships.

In the period of April-June 2010 there was little teaching as students were lambing and in exams. I therefore conducted no formal participant observation. I used this time to meet with students for their second interviews. Emerging areas of interest were pursued through further student interviews with the identified sample, as well as further desk research. In this way the methods used evolved from ethnographic participant observation in the first year towards an ethnographic 'case study' approach using interviews as the main form of data collection. This is appropriate to focus the research on the experiences of the students who constitute the cases for study. With hindsight I recognise that the decision to focus this time on data analysis and collection through interview, meant that I missed the chance to observe off site learning - a key part of the student experience.

In the second year interviews, many of the questions I asked were the same as in the first year. In this way the interviews were a measure of change – for example in what a student thought

learning to be a vet meant and how near they felt to being a vet. Each time I asked about different areas of the curriculum and relationships - this had a broader focus and prompts in the first year, but was more focused in the second year. This fits with Woods (2012:11) recurrent research mode, as it samples recurrent time periods in the calendar and involves *'a systematic recording of a narrative that is legitimised by the regularity of the fieldwork'*.

At the outset of the study, I had planned to follow my cohort throughout their first degree and for the first three years of the course. After a year of immersion in the field and a further year at close reflection in the field, I realised how problematic the process of simultaneous data collection, analysis and literature review was. I realised I needed to focus my third year on reflecting and reviewing the data collected and conducting in-depth analysis through writing.

The following section outlines the process of ethnographic data analysis undertaken throughout the project and clarifies the key themes and how they relate to the findings.

5.4.3   Ethnographic Data analysis

There is broad agreement about the fact that there are variations in analytical approaches used in ethnography (Wolcott 1994, Hammersley 2000, Walford 2001, Bryman 2004). Some significant discussions relate to the way that theory is 'applied' to ethnographic research.

It is therefore necessary to consider exactly what a theory is and the ways it might potentially work in a study of this nature. Bell (2009) describes a theory as an explanation of concepts and relationships which may be useful for generalisation. LeCompte and Preissle (2003) discuss the ways in which theory can impact at any stage or combination of stages of research. Denzin (2001) classifies studies which begin with theory as deductive and those in which theories emerge later as inductive. A review of ethnographic literature demonstrates all range of approaches on the deductive to inductive scale.

At one end of the scale there are studies (such as the Boys in White, Becker *et al*) which are led by broader interests in the field where a specific theoretical framework does not inform the earlier stages of research design, but is useful to make sense of findings. Traditional ethnography defined by Hammersley (1990b:12) seeks to *'tell a story'* and by Layder (1993:83) is an approach used to *'transmit information about the social world'*. These definitions support an inductive approach to theory allowing concepts to emerge through the ethnographic process. Hammersley (2000a) argues that the constraint of this approach is that we risk being 'swamped by descriptive

accounts' claiming to use a Grounded Theory approach but doing little more than describing events. Bryman (2004) agrees that many ethnographic narratives take a 'storytelling approach which may be limiting for both the author and audience'. It is important to me as an educational researcher, from outside the veterinary context, to be able to clearly tell the story of my research and how the findings emerged to others who may be outside the context. It wanted my work to be descriptive enough to be interesting but underpinned by enough theory to be transferable outside its original context.

At the other extreme are approaches which use a deductive approach. Sindell's (1987) socialisation of Mistansini Cree children study was based on Bandura's (1977) social learning theory from inception. Sindell (1987) used theory to inform every aspect of his research from the origination of research question through to findings. In the field of ethnography, critical ethnography has emerged as an approach which seems to minimise the limitations of the inductive procedure described above. A critical ethnographic study is value-laden and uses existing theories to identify and emancipate disadvantaged cultures through methods to challenge existing structures. Examples of these include Calabrese-Barton's (1994) critical ethnography seeking to establish why urban children do not engage with Science, or Young-Leslie's (2005) critical medical ethnography which explores assumptions about Tongon Doctors. The main aim in critical ethnography is reporting on 'not just how things are but how they could be better'.

These examples are listed to show the polar ends of difference between the wide range ethnographic sub-categories. In between are a wide range of studies which demonstrate the enormously varying ways that theory can be applied to studies of educational ethnography, such as those described by Wolcott (1994).

This study consider specific theoretical frameworks before the first stage of analysis, nor did the study take a grounded theory approach analysing data to saturation (Glaser and Strauss 1967). Grounded Theory was deemed too broad insofar as there are too many learning issues which may potentially arise within the field of 'Veterinary Education' and this study could potentially continue indefinitely! Instead the initial ethnographic data collection was time limited to allow the researcher to become grounded in the context.

An emergent approach was taken to 'The Student Learning Experience' and throughout the first year of the study, broad literature was reviewed whilst data collected simultaneously. At the end of the first year data was coded and thematised and a potential theoretical framework was allowed to emerge to explain my understanding of the student perceptions of learning to be a

vet.   In essence a complete micro-ethnographic study took place in the first year which concluded by identifying the significant areas of the student learning experience from a combined perspective (mine and theirs!). This allowed a further focus later within the research process which could apply the theory emerged to later data collection.

This inductive analytical approach has parallels to the notion of alternative ethnography proposed by McCalla-Chen (1996). This approach critiques the lack of theoretical frameworks used in a wholly grounded theory approach and takes a deductive approach to hypothesis applying theory from emergent data to later cycles of data collection and analysis. Using this approach, alternative ethnography describes the process of applying inductive analysis at an interim stage of the research to inform later stages. This approach professes to overcome issues of implicit vs. explicit, intuitive vs. discursive and openness of data collection vs. focus. Inductive analysis is used as a technique in qualitative research which spans studies far wider than those limited to ethnography.

Bryman (2004:32) argues that because of the 'lack of orthodoxy within ethnography' authors must be *'explicit about what school they espouse.'* Therefore within a wide range of approaches available to applying theory, I take an alternative ethnographic approach using inductive data analysis on initially emerging data to create a theoretical framework for further investigation and reflection in case study research.

The following section of this chapter explores the reality of how I applied this theoretical approach to actual data analysis.

5.4.4   Ethnographic Data Analysis in this study

The data analysis process started at the end of the first three months of intensive data collection and continued throughout the project. The analysis followed an iterative cyclical pattern as new data was regularly added and coded. Data was coded in a software package called NVivo which facilitates thematic coding by arranging data into categories which can be linked. The categories used were not pre-determined since this might have limited the potential for emergent thematising.

The first process of thematising data which took place at the end of the first three months identified some broad categories for further investigation. A substantial number of categories emerged which were constantly reorganised, throughout the simultaneous processes of data analysis and literature review. A final number of 58 categories emerged and these were organised

into related categories e.g. technology included references to sub-categories including using laptops, interactive whiteboards and chat fora. These informed the questions for first interviews as outlined in the section on data collection.

The data analysis began during this simple coding exercise. By applying labels to data through coding, I made decisions about what the data I collected represented. By arranging the coded data into categories and sub-categories, I drew attention to the links between them.

Some categories emerged with significantly larger amounts of data than others, highlighting significant recurring themes which were important across more than one case. Therefore at the stage of analysis prior to the interviews, it was important to consider the categories which carried the most references. They are listed in the table (figure 4) and chart (figure 5) below. They are displayed to highlight the significance of key categories at an early stage. 'Authentic learning' is the most referenced category but can clearly be cross referenced with many of the other key categories such as relationships and teaching, including sub-categories such as 'deep approach, '"Communities of Practice"' and 'engagement' .

Category	Sub-category	Number of different data sources	Total number of references
Educational Theory	Authentic learning	17 sources	47 references
	Deep approach	22 sources	37 references
	Communities of practice	17 sources	28 references
	Engagement	17 sources	36 references
	Reflection	14 sources	20 references
Assessment	Authentic assessment	7 sources	10 references
Relationships	Student-teacher	17 sources	27 references
	Peer-peer	13 sources	17 references
Teaching	Scaffolding	11 sources	16 references
	PBL	12 sources	28 references
	PPS	14 sources	26 references

Figure 4: Table of Top themes, number of sources and references
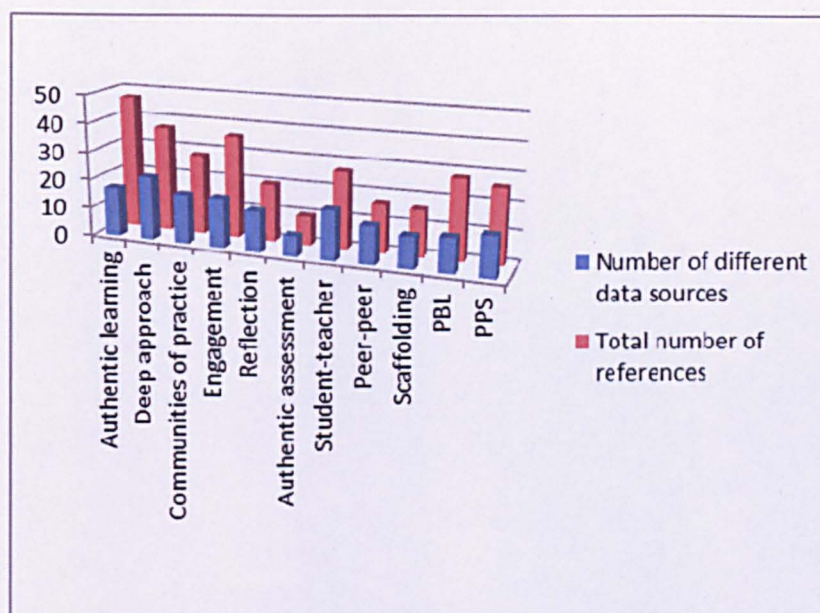
Figure 5: Top Ten Key Emergent Categories from year one data collection

Using this basic inductive analysis of participant observations and from the emerging significant categories, I was able to draft a first interview schedule which I felt would draw on these fields. These interviews were also conducted with a substantial amount of grounding data to get to know the student (Atkinson *et al* 2001). The life history approach to interviews in ethnography is popular and can be useful to ground longitudinal data which follows and will change (Plummer 2001). These interviews were designed to begin the case study process and to begin to explore, in depth, the experience of learning from the perspective of specific students. The first half of the interview was designed simply to create an open relationship between the researcher and the researched, and outline some of the background to learning in this field. The middle section of the interview was designed to explore student definitions of some key terms related to the study (such as learning and knowledge). The final section of the interview related to the experiences of the past year in the Vet School. These are the areas of questioning drawn from the original top ten themes identified from the ethnographic data collection. The semi-structured approach to interviews ensured the opportunity to address emerging areas of research significance.

The first iteration of data analysis took place at the end of first year after the first interviews had taken place. The interviews were analysed consistent with the approach taken to the earlier data, being coded in NVivo again using 'analytical induction' to allow new categories to emerge. Clearly much of the data which emerged was closely related to the categories pre-existing as significant which informed the research, however new areas of interest also emerged. A large majority of

the data mapped to existing themes but new themes were created after the interviews. At this second iterative stage of analysis what became increasingly obvious to me was an interest in the overlap between the significant categories. As well as observationally themed categories such as technology, more conceptual categories such as 'learning to be a vet' emerged. This category includes reference to the many different scenarios in which students reflected on the vocational nature of their role. Within this broad category are a range of sub-categories including 'vet knowledge', practical skills and PPS (personal and professional skills). Significant rearrangement of the themes occurred showing significant overlap between key areas. Therefore the end of year one concluded with an intensive period of analysis attempting to deconstruct the content and relationship of key categories. The approach I took was to use writing as a method of enquiry (Denzin 1999) to reorganise and refine ideas. The writing at the end of the immersion period formed the basis for the bird's eye vignettes. I wrote an account of each category of findings which is presented (after several redrafts) in the following thesis chapter. It is the redrafting process which forms the third layer of analysis.

Initial drafts of findings presented the findings in the distinct categories (and sub-categories) identified in the table above, describing similarities and differences within them. Data was cross-referenced between categories allowing significant links to emerge. A key finding of interest was the on-going extent of links between the category of 'authentic learning' and each other key category. This iterative process of analysis through writing was productive to focus on both the broad context and individual stories. The key theme which emerged was the focus on learning to be a vet and what that meant to the student experience. In an effort to break down the meaning of this I returned to the literature to consider the significance of authentic learning. This led me to literature focusing on workplace and professional learning and professional socialisation.

At this time my work still lacked a solid theoretical framework. Through theories of educational research, I was confident that my work was in the socio-constructivist domain and initial periods of data immersion identified key themes in relation to curriculum and identity. Throughout the second year, the second iteration of analysis focused on the link between the emergent themes and relevant theoretical frameworks which overlay the research.

Analysis of the second year data gave me opportunity to reflect on the data in both a broad and more focused sense. At the broadest level, I reflected on what learning to be a vet meant to the student sample, and how it changed over time. This demonstrated that learning related to each domain – affective, psychomotor and cognitive, but furthermore that it was related to developing a professional identity as well as gaining skills and knowledge. At a more focused level, I

considered what impacted on learning and drew from data in the key themes of curriculum and relationships. Data about curriculum was more heavily weighted in the first year and relationships more heavily in the second year. I used this data to write two further vignettes which are presented prior to the findings. They are explained in more depth in the next section which focuses on the ethnographic approach to writing including use of vignettes.

The final stage of analysis which took place over the third year is through the process of ethnographic writing. This included analysing the data and its significant interaction with theoretical frameworks – most notably that of Wenger's (1999) model of learning in "Communities of Practice". The model showed significant overlap with the data. Writing about the relationship between the data and the theory was the largest part of analysis process.

5.4.5   Ethnographic writing and vignettes

This thesis uses several ethnographic writing techniques which need to be defined and explained. They all arise from the ethnographic tradition outlined by Geertz (1973) who emphasised the need for long and sustained immersion in the field in order to cover whole processes and produce 'thick description' that will encompass this richness. The range of approaches to writing also mimics the range of data collection modes used (Woods 2012). The approach to writing demonstrates progressive focusing (Strauss and Corbin 1990) throughout the study. The writing was a process of data analysis as I was able to reflect on the writing against the data and focus the lens more specifically on areas of interest and significance. For this reason some of the early data presented in the first vignettes, such as the theme of IT, does not feature in later, more focused work.

Humphreys and Watson (2009) present a written ethnographic account and make the distinction between it being creative but not fictional. Although using fiction-writing techniques, the vignette 'is as close as memory and field notes would allow to 'what actually happened' that day'. They refer to Rose (1990) who suggests that the creative approach to writing is changing the reporting of research not

> 'through the use of fiction particularly, but through the descriptive setting of the scene, the narration of the local people's own stories, the use of dialogue, the privileging of the objects of inquiry along with the subject or author who writes, and the notation by the author of emotions, subjective reactions, and involvement in on-going activities' Rose (1990:55)

Two approaches are taken to ethnographic writing in the thesis. The first is a creative 'vignette' approach and the second is a more analytical-theoretical approach. This section analyses each in turn.

There is little consensus in the literature about what a vignette is and how it can be used in research. Vignette is a word that originally meant "something that may be written on a vine-leaf" and represents small chunks of descriptive data. Barter and Renold (1999) describe vignettes as "short stories about hypothetical characters in specified circumstances" however they only relate them to use as a device for data collection. In Coryell *et al's* (2010) work, doctoral students write descriptive stories about their early research experiences. They term these vignettes, using the term interchangeably with narrative. They suggest the way students tell stories about themselves are representations of truth. It is obvious that if vignettes are used in research then for transparency, it is important to be clear about how they are used, the purpose intended for them, and the data and position used to construct them.

The first piece of ethnographic writing is a vignette as chapter three which gives the opportunity to present a representation of data early in the thesis, deliberately and unusually. This is to ground the audience in both the research context and the approach and role of the researcher. It makes little attempt to analyse the context, simply reflecting the compacted mode approach (Woods 2012). This fits with the definition of scene-setting vignettes of Van Maanen (1988: 136), who described them as *'personalised accounts of fleeting moments of fieldwork in dramatic form'* (see also Barter and Renold, 2000; Ellis, 1998; Erickson, 1986). Humphreys suggest that this style of writing could justifiably be labelled as 'naive realism' which is descriptive representation from the position of the researcher (Hammersley, 1992; Denzin, 2001). In reflecting on his own work Humphreys (1999) argues that this type of broad vignette from the researcher voice identifies more about the researcher position in relation to the research and what is captured lays the position open to the audience

Following this chapter, is a second set of data vignettes. These vignettes represent a second approach to ethnographic writing. They are from a significantly different perspective to the 'bird's eye view' of the initial vignette. The second vignettes are written from the perspective of a fictional vet school student and represent the perspective of the 'student experience'. These vignettes represent data drawn from both participant observation and longitudinal interviews with a range of individuals, based in the context described in the original vignette. They reflect the intermittent approach to data collection and the ability to *'pursue particular interests with gusto and to discard those avenues that seem less relevant or interesting.'* These vignettes are the

process of data analysis through writing, focused on the key areas emerging from the interview with key informants and their relationship to the observational data. Vignettes are both a process of data analysis and dissemination. They are used as a device to ground the reader in the data, to help the audience to know what 'the student experience' is like, before a more in-depth theoretical analysis.

Using a composite fictional character is unusual but not unheard of in the literature, Wareing (2010) presents data arising from interviews into work-based learning as vignettes. The first vignette is of a notional workplace mentor describing her experience of supporting two notional students. Humphreys and Brown (2008) write an ethnographic account of 'a composite person, who could not be identified as any single employee.' *in order to represent changing, overlapping and competing narratives told by research participants about their organisation.'* (Humphreys and Brown 2008:406) It is unclear to what extent Wenger's (1999) ethnographic writing about a worker in a call centre represents data collected. Barton and Tusting (2005:12) suggest that Wenger's vignette is *'part ethnographic description, part fictional narrative'*.

In the above study and several others using this technique, it is employed for ethical reasons, usually to protect anonymity. In my study using this technique has a different aim – to represent the widest range of findings reported by a range of individuals in one succinct story. It seems Wenger uses a similar technique to the one employed above with the main intention being a representation of the focus of the research for the benefit of the audience understanding. In taking this homogenous approach there is a risk trivialising the detail of individual stories. The vignette is presented by Wenger (1999), prior to a more focused theoretical analysis, as used in this study.

The second type of writing I use in presenting the findings is a more focused theoretical analysis but still employs strategies of thick description. It is at this stage that the data is clearly linked to the relevant debate in the literature. Anderson (1989) suggests that working with ethnographic data *'requires a reciprocal relationship between data and theory. Data must be allowed to generate propositions in a dialectical manner that permits use of a priori theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured'* (Anderson (1989:267). This is a crucial stage of the research as it is important to allow the data to emerge and find how it fits with the literature, without treating the models as containers to be filled with data. There is a risk of allowing data to emerge so far that it fails to fit with a framework and becomes merely descriptive but with risk comes the opportunity to develop new theoretical models. There is also a risk of forcing data to fit a model so far that it

does not truthfully represent the context. Ethnographic data analysis in conjunction with the literature allowing emerging data to fit with emerging frameworks is a simultaneous iterative process. The outcome is data that can simultaneously describe and analyse a context and culture through a vari-focal lens. At this point, I was able to recognise the significance of the "Communities of Practice" model to the relationships between the themes in the data.

The above sections have outlined and analysed, at both micro and macro levels, the ethnographic approach taken to data collection, analysis and writing. There are a range of links and overlap between these steps, and between the data and theory, which have been identified. I conclude by drawing together the ideas presented about the ethnographic approach in this study and reflecting on data and theory in practice.

5.4.6   Methodological Conclusion

This chapter has outlined my first year methodological choices in depth. In opening I presented a fieldnote which used metaphor to represent the iterative process of focus and refocus simultaneously on the data. In this chapter I have attempted to show clearly the methods and methodology applied.

I have demonstrated the importance of both transparency and transferability in this work. I have outlined arguments to justify the ethnographic approach and described in detail the process of data collection. I have explained the process of iterative inductive data analysis undertaken which led to the development of writing which became informed by theoretical frameworks. I have focused on transparency as a key measure of rigour and have explored my position as researcher in relation to the research. I aim to produce a study which is truth-like and I have justified the use of vignettes and thick description as well as analytical and theoretical triangulation in the aim of transferability. I used Malinowski's (1956) ideas in the introduction to this chapter to introduce the significance of writing within the ethnographic process. I have explained my approach to writing including outlining time I spent in the field, writing fieldnotes as data collection, writing as an integral part of the data analysis and experimenting with a range of writing formats to represent the data. I have reflected on the methodological choices made and the limitations and opportunities afforded from these actions. I have aimed, overall, to present a methodology chapter which is transparent about the work undertaken and the way that the methodology leads to multi-layered representations as findings.

This summarises the ethnographic approach undertaken to this research.

6   THE STUDENT EXPERIENCE – A WEEK IN THE LIFE OF A VET SCHOOL STUDENT

The methods chapter described the use of vignettes in this research. This is the second set of vignettes. They are based on a fictional character Sally, and her experiences represent many actual events from data either observed or reported to me. The first vignette focuses on participation in curriculum activities during year 1. The second vignette focuses on participation in relationships during year 2. This is presented to give an outsider-in perspective to the data prior to presenting analysis and discussion of findings.

6.1   *The Student Experience of Year One*

Sally is a fictional first year student at SVMS and started in September 2008. The first week was fresher's week followed by two more introductory weeks. Sally was surprised but pleased by how 'hands-on' the course is from the start.

It is now 3rd November 2008 and the start of Sally's 7th week at Vet School. The Muscoskeletal (MSK) 1 module is in its fourth week and Sally is getting used to where she should be and when. The normal first year timetable is followed (see figure 6 below) and the full mix of session types is on offer in the week.

Year 1 Week 8 - The Distal Limb and Foot

	Monday 10 November	Tuesday 11 November	Wednesday 13 November	Thursday 14 November	Friday 15 November
9am-10am	Personal and Professional Skills: Learning Techniques - Critical Review of Learning	Musculoskeletal System: Distal Limb Osteology and Radiography SF SGTR's	Musculoskeletal System: Vasculature And Innervation SF Lecture block – A2	Musculoskeletal System: Practical 10 – The Distal Limb SF Dissection Lab	Musculoskeletal System: Species Adaptation – exotics (aquatics) PL

	Materials SGTR's		1/8/3/9		A29 1/8/5/9
10am-11am			Musculoskeletal System: Species Adaptation – ruminants JH Lecture block – A2		Musculoskeletal System: Ultrasound of the Distal Limb SF A29
	1/8/1/9 1/8/1/10	1/8/2/9 1/8/2/10	1/8/3/10		1/8/5/10
11.15am-12.15am	Musculoskeletal System: Distal Limb - Skeleton SF A30	Musculoskeletal System: Distal Limb Soft Tissue SF SGTR's	Musculoskeletal System: The foot SF Lecture block – A2		Private Study
	1/8/1/11		1/8/3/11		1/8/5/11
12.15am-1pm	Musculoskeletal System: Distal Limb - Tissues SF A30		Musculoskeletal System: Nerve Blocks SF SGTR's		LUNCH
	1/8/1/12	1/8/2/11 1/8/2/12	1/8/3/12	1/8/4/9	
1pm-2pm	LUNCH				Musculoskeletal

					System: Synovial Injures SF SGTR's 1/8/5/13
2pm-3pm	Musculoskeletal System: Cattle Foot Disease JH SGTR's 1/8/1/14	Musculoskeletal System: Practical 9 Bovine Foot Dissection Lab Exotics Surgery Lab & Lab	Private Study: 1/8/3/14 Private Study:	Animal Health and Welfare: Practical Rotation B Poultry Practical Anslow Eggs Calf Practical Small Holding Camelid Practical Brooklea Farm Pig Practical Pig Unit	Musculoskeletal System: Practical 9 Bovine Foot Dissection Lab Equine Techniques Surgery Lab & Lab
3pm-4pm	Musculoskeletal System: Apoptosis and Necrosis AM A29 1/8/1/15		1/8/3/15 Private Study:		
4pm-5pm	Musculoskeletal System: Exotic Locomotion LY A29				

Figure 6: SVMS timetable Year 1 Week 8 - The Distal Limb and Foot

On Monday morning Sally attends an SDL PPS session about critical reading. The gist of this session is not to trust Wikipedia and use it for information which most of us know but do anyway. She is not convinced of how this, or any of the PPS sessions, relates to 'learning to be a vet'.

Extensors of carpus and digit

Craniolateral on leg
Carpus
• Extensor carpi radialis muscle
• Extensor carpi ulnaris
• Extensor carpi obliquus
• Ulnaris lateralis

Digit
• Common digital extensor
• Lateral digital extensor

• Innervation – radial nerve

After a mid –morning break, Sally goes to a short 45 minute lecture. She learns about a specific set of bones which means more new terminology. She recognises lots of the things they have covered in the first few weeks but realises now they are going into more specific detail. She likes the way they learn about the way the anatomy and physiology is slightly different in each type of animal. The lecture is quite interactive as students try to name bones in horses, cows and dogs. Sally likes it when they show the radiograph images as it helps her to visualise. There is a break followed by a second lecture.

The second lecture is more in-depth with many new terms and less visuals. Sally struggles to remember everything as she goes along. She makes a mental note to learn these terms tonight as she knows there will be more to learn tomorrow! She is glad when it is lunchtime.

After lunch Sally meets with her clinical relevance group for a short 50 minutes problem solving session. Their task is linked to diseases of the Ovine foot, specifically 'footrot' in sheep and really tests how much Sally understood from the morning's lecture. The session helps her to understand why it is so important that they are learning about MSK and how this affects farm animals in practice. They work on two cases of what they would do in practice as well as answering more broad questions about the importance of disseminating information in the farm community.

Following this Sally has another 2 sets of 45 minute lectures. The first is quite scientific relating to dying cells and Sally finds it quite difficult to follow at first. It becomes easier when she is told about the ways that cells create illness in animals, particularly cancer. It helps her when the lecturer uses the metaphor cells 'committing suicide'. However by the end of the lecture there lots of new terms and too many complex diagrams and the lecturer are speaking
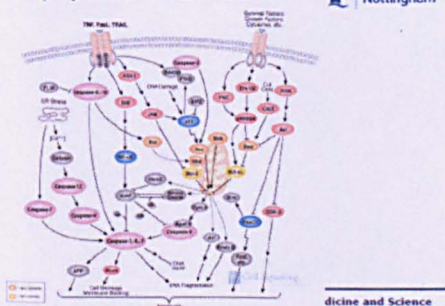
Apoptosis Overview

quickly to try to cover everything within 45 minutes. Her head is spinning by the end of the lecture.

A different lecturer takes the second lecture which is about reptiles. Sally finds this far more enjoyable and finds it easy to understand. The lecturer gives an overview of reptiles then a detailed explanation of each type and its significant differences.

They are shown visuals of male and female turtles and told how to tell the difference between them. Sally feels like this is really important knowledge for a future vet.

At the end of the day Sally feels quite positive. After today she knows she has taken in a lot about skeletons and bones from the earlier weeks. However she knows there is a lot more to learn and heads home to try to learn some of the new terminology that has been thrown her way.

At the start of Tuesday there is 2 x 2 hour self-directed learning sessions timetabled. Most of Sally's group attend. There are lots of tasks to work on and they have to decide how to work as a group. She finds this part irritating as some people do lots and others hardly any. They put the task on the overhead projector so they can all see what they are working on and read through the whole task before they start. There are some tables to complete and some diagrams to label. They have already learned some of the terms in previous lectures but will have to research some too. By completing this task they will have a grounding knowledge for the work being covered next week.

Sally volunteers to look up answers in a book as she finds this helps her to remember things after the session. They all discuss the answers they know and someone types them up. Sally is pleased to find she has remembered more than she thought and the terms are becoming more meaningful. After two hours they have not completed half of the task and so decide to divide up tasks and share their answers. Some people leave the group but Sally and another stay and complete their tasks together. They finish early, email their work to the others in the group and take an early lunch.

After lunch is a 3 hour practical session. There is a lot of material to cover but it helps Sally to look at the things she has been learning the terminology about. The afternoon is organised as a rotation with sessions in bovines and exotics. The sessions involve examining a live bovine foot in the small holding then a cadaver in dissection, answering questions on exotics and then have exotics MSK dissection. Finally Sally can see in practice all of the terms she has been learning about in lectures.

Sally feels that the practical session at the end of Tuesday compounded the learning from Monday.On Wednesday starting at 9am Sally has three hours of lectures.

The first relates nerves to the distal limb and the kind of diseases they can cause. The lecturer talks about and gives visual examples of her own practice. There are more new terms to learn They are told about the way vets use nerve blocks and the lecturer explains how this relates to the practical they will do tomorrow.

There is a quick break before a different lecturer arrives to deliver the second lecture. This is broader and relates the distal limb in farm animals and some have not yet been covered such as pigs and sheep. Since Sally has already learned so much this week about the distal limb it is

Task 4.
Erin – lameness investigation

The University of Nottingham

- How would you further investigate this lameness?

- Radiography of fetlock =£130
- Ultrasonography = £95
- MRI = £1058
- Joint blocks = £40 for each joint or tendon sheath

easier to apply this to the new species and understand the slight but significant differences.

The third lecture is delivered by the same person as the first and follows on from both. It focuses on the equine foot. Although it is quite repetitive of the earlier lectures it helps to make it sink in.

The last activity on Wednesday morning is a short 45 minute clinical relevance session. The task is related to identifying equine lameness. It is vital for this practical that you did the earlier practical and lectures in the week. Sally works in a group with 4 others. The task asks them to look at the history of a case and decide a diagnostic approach as well as interpreting assessment results. Sally enjoys the task and is able to use some of the terms she has used in the week to talk about the task. She thinks it is really interesting that they are asked to consider the price of treatments when deciding what action to take as this makes the task more realistic. It makes her think about the ethical choices she might have to make as a vet.

The rest of Wednesday is free for recreational activity. Sally takes some time to clean her room before going to street dance class with her friends. Later on she reads through her lecture notes from the week as she files them away. She prints off the work for Thursday and Friday and has a quick look through them to see if there is anything she needs to prepare.

Thursday is a full day of practical activity. In the morning they are in the dissection lab. Sally finds it helpful to watch the lecturer demonstration on the big screen. The small groups dissect a cadaver horse distal limb and identify the key components. It is much harder in real life than pictures and Sally has to use a lot of support material – books and pictures. There is a laptop with useful supporting notes and diagrams. Some of her group are happy that they have done the work and leave early but Sally stay to the end covering everything slowly to make sure she has seen everything. It helps her to see things in practice.

The afternoon comprises practical rotations covering poultry, calf, camelid and pig. Each week each group does one of the rotations and some take place off-site in practice. This week Sally's group are visiting an Alpaca farm on the Camelid rotation. They spend the afternoon learning practical skills including handling, moving, sexing and performing a basic clinical examination. Sally thoroughly enjoys the afternoon and has a go at everything. This is her first hands on experience with camelids. The group return late to Vet School and Sally is tired.

Friday begins with two lectures. The first relates to aquatic locomotion. Sally is glad she read through her notes from earlier in the week as it builds on them quite a lot. She finds it interesting but quite different to the other work they have done this week.

The second lecture is delivered by the module leader who has done most of the lectures in the week. The lecture completely links in with all the other work in the week. Most of it relates to conducting x-rays on the distal limb and lots of visual examples are given.

On Fridays there is free study before lunch. Straight after lunch is a short clinical relevance session. The case builds on all the learning in the week. There is much repetition – naming and renaming bones. This is undertaken in relation to diagnosing and treating a real illness

Task 1. Foot anatomy ‖ The University of Nottingham

Identify:
Proximal, middle & distal phalanx
Navicular bone
Navicular bursa
Digital cushion
Coronary band
Deep digital flexor tendon
Proximal & distal interphalangeal joints
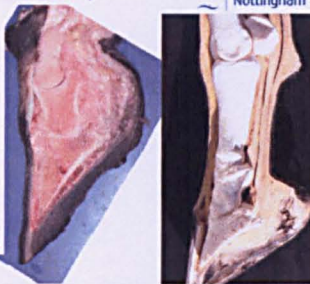
Resources: Dyce's Veterinary Anatomy p.589 and 740
Budras' Bovine Anatomy p.27

Task 3. Bovine sole injuries. The University of Nottingham

Structures affected:

Friday ends with a 3 hour practical. Sally's group is working in the dissection lab on injecting the equine distal limb. They use dye so that when they dissect they can tell if they got it in the right place. Everyone in her group is happy that they understand the task and they all finished early. It is Friday after all.

Sally goes home for the weekend and leaves shortly after the practical. She takes her notes from the week and her laptop with her and reads through the notes on the train on the way home.

6.2   The Student Experience – Year Two

It is Monday 16th March 2010 and Sally is now a second year student at SVMS.

Sally lived in halls in the first year which she enjoyed but has moved into a shared house in her second year. She shares her house with a friend from Vet School in her year Lara, a 3rd year Vet student Maisy and a 3rd year Biology student Aleah.

It is week 26 of the course and the students are in the 4th week of the reproduction module. (This is their fourth module of the year after Endocrine, Skin Hoof & Horn and Gastrointestinal.) Students break up from Vet School on Friday (20th March) for Easter holidays and are not required to return to Vet School until 19th April. During the break most students will undertake a week or two week lambing placement. Upon their return students will have a final week of the Reproduction module before the final four week module of the Urinary system is delivered. This is followed by exams and some time preparing for the third year research module which begins in September, or earlier for some students.

Sally will complete a two week lambing placement on a larger farm than she did in the first year. She has arranged this through a friend who will be in placement with her during her second week and she is looking forward to this. In the summer Sally has planned a holiday straight after exams as she feels she needs a break. She will return home then complete a dairy placement for a week. In August Sally is travelling to America as she has a 2 month placement to undertake some research with marine animals which she will use in her 3rd year research project.

Sally wakes up early on Monday morning as she has a 9am lecture and hasn't yet read the notes. She loads up the lecture notes on her computer and reads through them while she has a coffee and toast. The third year vet she lives with, Maisy is also up and they have a brief chat about what they both have on that week. Sally loves hearing what Maisy is up to and imagining what it will be like for her in another year. This week Maisy has practical techniques and lots of exciting practical rotations which Sally is looking forward to. Sally explains her week in repro and Maisy tells her to really pay attention to the way the concepts relate to lambs as she might find it useful on placement in a few weeks. Maisy tells Sally that on her second year lambing placement she came across lots of examples of the things in the repro module, some of them resulting in the deaths of the animals. Sally asks what she did, horrified at the thought of facing a life or death situation on her own. I just had to wake the farmer and ask for his help says Maisy. Was he angry? Asks Sally No replied Maisy, he was happy I didn't leave the animal to die alone in pain. Sally thinks about

this conversation as she cycles into vet school and wonders what she would do if left alone facing a dying lamb. Sally gets to vet school for 8.55, just in time for her 9am lecture.

Although she has read the lecture notes, Sally realises she didn't take much in as she sits in the lecture. Her first lecturer (lecturer T) makes everything sound like new information. She likes his lectures because he always uses examples from when he worked as a farm animal vet. She tries to take everything in but realises she hasn't when the lecturer asks a question and she panics as she realises she doesn't know the answer and doesn't want to be singled out. No-one seems to know the answer to the first question so the lecturer immediately goes back to the point in the lecture and tries to make it a new way. It's helpful and Sally understands better the second time he explains.

Towards the end of the lecture Sally downloads the second set of lecture notes she will need to her laptop. She realises that they are time released and so there will be activities to complete on the presentation slides.

At the end of the first lecture there is a brief break and Sally pops down to reception to see if anyone has handed in her lost keys – she thinks she left them in them Atrium while meeting her tutor on Friday. Maria shows her the lost property box and she is pleased to find that they have been handed in. Maria remembers that Sally is going to America on placement and asks if she has everything in place. Sally tells her she is urgently waiting for her references to be confirmed and Maria says she will look out for a letter and make sure it gets straight to her tutor Lecturer K. When Sally gets back to the lecture hall, lecturer L who delivered the first lecture is talking to lecturer S.

During the second lecture there is a lot of information and Sally finds it hard to take everything in. There are some parts which overlap and even repeat the information from the first lecture which she finds helpful. It is also useful when towards the end of the lecture the students are presented with photographs of
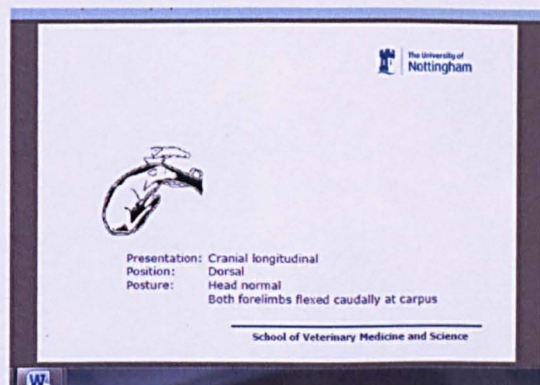
conditions to identify – they have time to complete this and then the answers are revealed. Although Sally didn't get them all right first time she was surprised by how much she had taken in and has learned most of the ones she got wrong. Lecturer W does not check how many of the group got each answer right and Sally is sure that no one around her got the last question right.

She doesn't really understand the last question but doesn't bother asking the lecturer – she will ask her friends later or maybe pop a question on the discussion forum. With some lecturers she would ask after the lecture but she finds it difficult to talk to lecturer W, as sometimes he doesn't make a clear point.

After the second lecture the cohort drift off into the small group teaching rooms for directed learning. Because the groups are unfacilitated there is no rush to get there and Sally grabs a coffee and chocolate bar from the machine on the way.

As she arrives she looks around the room, everyone is here today. Sally likes the small group she is currently working with. She has enjoyed most of her small groups this year – they have helped her to feel like she knows almost everyone in the year. Sally's current group comprises herself and six others. One is her close friend Lucy – they tend to sit together and sometimes spend some time working on the small group material together away from the group. Lucy lives on the same street as Sally and they go to Street dance classes together. They walk or cycle home together on Wednesdays after clinical relevance sessions and talk about what has happened.

There are two males in the group. Bill is quite quiet but has a brilliant scientific mind – they have come to know that he doesn't say much unless asked directly but when asked can come up with complex but logical reasoning. Sally didn't know Bill very well before this group work but now finds herself asking him a lot of questions and prompting him to join in discussions and his answers help her to think through her own problem solving. James is the clown of the group and usually makes everyone laugh, although can distract the group from the task sometimes. He has a lot to say but it is usually interesting because he grew up on a farm and so he has a lot of experience, especially in this module about reproduction. Lina is another person Sally didn't really know very well before the module but would now count as a friend. Lina is an international student from Canada and Sally has been meaning to talk to Lina about her trip to America – she makes a mental note to invite her for a coffee and chat. Nicky is the quiet one of the group and Sally doesn't know her very well, except that she makes very good notes! Nicky always takes the notes from the meetings and emails them around after the sessions. The final member of the group is Polly who is a member of the 'pony club' – this is Sally's name for the group of girls who mix together from privileged backgrounds and who all have horses. Polly is high achiever whose parents own stables and Polly keeps her own horse at SB. Sally doesn't particularly like Polly, she thinks that she looks down her nose at people, but they get on. Sally respects that Polly helps the group to move forward, she always prepares well and has a lot of ideas.

This group is one of the best that Sally has worked with; they are a mix of different personalities which seems to work. In the first year Sally didn't enjoy her groups. In her first ever group everyone was very quiet and so after the first few weeks she stopped attending directed learning sessions because they seemed a waste of time. She tried again with her second group but found a lot of conflict between big personalities and again stopped attending. A lot of her friends also had problems with their groups and so they would work through their tasks together creating an informal working group. She decided to give small group work a real go this year and is glad she did!

The task which the group are working on today is interesting – they are presented with two repro cases where they have to decide which to prioritise. Polly and Nick have different ideas and debate them out. They both present ideas Sally hadn't initially considered. She asks Bill what he thinks. He admits he isn't sure and they both present good arguments. Lina suggests they think of the task in a different way…is there any reason you would travel to the furthest away case first, can the nearer one be talked through it over the phone, or is it a hopeless case? Sally thinks this is a really clever way to think about the problem and it helps the group to reach their conclusion. As Nicky types up the notes the group begin to chat off-task – the topic is their next lambing placements. They are finished a little early and drift off to make phone calls or get drinks before their facilitator arrives for the clinical relevance session.

Lecturer T is the facilitator for Sally's current group. She enjoys the sessions with this facilitator and feels they add lots of value, especially compared to some previous facilitators she has had. At the end of the first year Sally had a postgraduate student who acted as a facilitator who just used to give them the answers to the tasks if they didn't work it out in the first half hour. Although it was good at the time because they always got out early, she found when it came to looking through the notes for revision that, on reflection, she didn't always really understand the cases.

Lecturer T starts the session by asking them to explain what they had done in the directed learning, their conclusion and how they arrived at it. Sally explains, pointing to the arguments raised by both James and Polly, which helps her to realise that she understands and can recall what she has learned from the others in the last hour. They let her summarise and Nicky adds a

few points from looking through the notes. The facilitator seems impressed that they thought of so many factors. He agrees that Lina's approach was a good way to think about the task and reinforces the importance to the students of being able to realistically prioritise two cases against one another. He gives an example of when he had a similar situation, although not repro related, two farm cases which both seemed to require urgent attention. He felt that, although both were life and death, that one was far more likely to die than the other and this was a difficult decision to make. He refers to the ethical dilemmas involved in day to day vet work and Sally finds herself wondering how it would actually feel to be in that position. As though he can read her mind, the facilitator reminds them that although they work in a rewarding job there will be lots of times where vets have limitations on the help they can offer and all experience death as part of the role. He distracts the group by moving on with the task and they work through more cases. By using the techniques they have co-constructed the group works quickly through the tasks and debate the ethical issues alongside the diseases and diagnoses. Sally finds this session very valuable and it makes her think a lot about future practice, although it does make her worry a little. After the session when most others have left she stays to talk to Lecturer T. She asks him if he felt guilty about the animal that died because he couldn't attend and asked if death is something that everyone just gets used to. Lecturer T gave her some advice which has stayed with her ever since. He said that although he felt sad, which was natural, he didn't feel guilty because the death wasn't his fault. The animal was dying – that was the natural order of the world. Having the ability to potentially help didn't make him responsible for her life – the farmer understood that, as did he. His words reassured Sally and although she was sure that she would have felt guilty in that situation she realised that she would have to learn to live with the limitations of the role. This was something she had never anticipated about being a vet, before Vet School, but which she had become acutely aware of during the early years on the course.

The clinical relevance session has given Sally a lot to think about and she is glad for the hour lunch break. She takes her packed lunch and eats it out on the grass, with a group of her friends. They talk about the cases and how they feel about dealing with death. Some of them have had more experience than her and it seems the more experience of death you have the more you adjust to it. This is just not something she is looking forward to but is adjusting to being able to think about.

The afternoon begins with an hour lecture by someone they don't have very often as he is one of the senior managers at the Vet School. Sally always enjoys his lectures as he talks so much about actually being a vet. In this lecture Lecturer V tells them about the importance of checking a dam after delivery. He talks about a distressing case a farmer reported to him where a multiple birth was not diagnosed and the farmer had been present at delivery but not examined the dam post-delivery. When he arrived the dam had tried to labour alone, the lamb had become stuck and both Mum and baby died in delivery. The first lamb did not settle with a foster mother, did not feed and also died. This could have all been prevented by a post-delivery check for another foetus. Sally is sure she will always remember this as though it had happened to her.

For the two hour PPS session which ends the day the group stay in the lecture hall instead of the small rooms. Sally notices a small group of about ten people leave before PPS starts. While they wait for the lecturer to arrive Sally downloads the lecture notes to her laptop. A guest lecturer from the Vet School at Copenhagen is taking the session and Sally is optimistic – sessions by externals are usually really interesting.

The start of the session is actually pretty boring. The lecturer has a foreign accent which is difficult to adjust to and is talking about theoretical ethics. Sally hopes the whole lecture doesn't go this way and starts to open the last lecture notes to read through them again. After the first ten minutes the external stops lecturing and starts just talking to them. As the slides stop changing Sally starts paying attention again in case she is missing anything. External A is talking about some cases and posing some interesting theoretical questions which you can actually apply to practice – is it ever ok to kill, is it ok to kill a pest, to put out of misery, where is the line drawn. These are really interesting questions that Sally has thought about a lot since she has been at vet school. She would be really interested to hear other people's views but no-one is saying much and the lecturer keeps talking. He goes back to the slides where he shows lots of

pictures and talks about cases. There are some shocking pictures of interesting dilemmas. Sally does a lot of thinking about how she feels and where she would position herself against the cases he talks about.

As the lecture ends everyone starts talking about the cases they have just seen. Sally walks out with her friends and they are debating what they thought about the idea of a 'disposapup' business. The conversation continues most of the way home.

When Sally gets home she is starving and exhausted. Her housemates are in the kitchen and her friend is telling them about 'disposapup' and the luminous pigs. As Sally puts her pasta in the pan her housemates have turned to debating euthanasia and differences between animals and humans. She finds this really interesting, but is too tired to debate so she listens in as she eats her tea.

After dinner the household sits down to watch soaps and eat chocolate cake. This is Sally's favourite part of the day and the only hour she really allows herself to switch off. Afterwards she says good night and goes up to her room for a shower. She spends an hour reading through her notes from the day and summarising the key points from the whole day's learning on one page. After this she downloads the notes for the next day and tries to read them instead of watching TV. It has been a long day and although ideas are buzzing round her head Sally falls straight to sleep.

Sally feel re-energised when she wakes up early on Tuesday. She slept well and is excited about the day ahead – she has half a day of practical activities and an early finish.

For the morning practical activities the year group is split into four so she is in a group comprising about 25 people. As she looks down the list she recognises most names – James, Bill and Nicky from her current small group will be working with her as well as her friend Sarah and Sarah's boyfriend Tom. They also have Sandra who is the one in the year who usually gets 100% on everything. Sally likes working in these different groups because it gives her the chance to work with different people all the time and benefit from what they know. They are wearing their practical clothes and Sally remembers her pen and pencil and hand washing techniques – they have had plenty of practice at this and it is almost second nature now when she puts on the uniform she acts like a vet.

Source: University image bank

They work on a range of activities including identifying lambs in positions and putting dead calves in different positions. Sally doesn't particularly like handling dead animals but realises after yesterday that she will have to get used to it so she volunteers to have a go at the first activity of removing a dead foetus. It feels horrible but she is glad she had a go because it didn't feel how she had imagined. She forgets what she is supposed to remember and the other students help to guide her through the task reminding her of what she should be thinking about. Although it was a horrible experience Sally learned a lot and feel that at least now if she ever had to do it she knows what it will feel like. When they move on the second activity of identifying lambs in different positions she stands with Sandra because she knows that she will have the answers. Sandra doesn't tell her the answer but Sally feels confident to say 'I think it's this' each time and Sandra confirms that she does too. On the last one Sally is unsure but when Sandra tells her what she thinks she kicks herself that she hadn't remembered. It is the one from the lecture yesterday which she didn't really understand. She makes a note to write this up and then she is confident that because of this practical experience she will now remember this scenario.

It is an intensive morning and there is no time for a break. Sally is glad that they are only in for the morning so she changes and heads straight home. She has realised from experience that if she hangs around vet school after classes she ends up wasting time and spending money – both of which she can't afford to do. She makes the most of her afternoon by relaxing for an hour and writing up her notes from yesterday and today. She also goes through her planning for her trip in August and emails her tutor to ask if her reference request has arrived yet. He answers immediately saying that Maria brought it straight up to him about an hour ago when it arrived in the post. He reassures her that he knows how important it is to her so will make sure he completes it and sends it back today. She logs on to the discussion forum and isn't surprised to see someone has
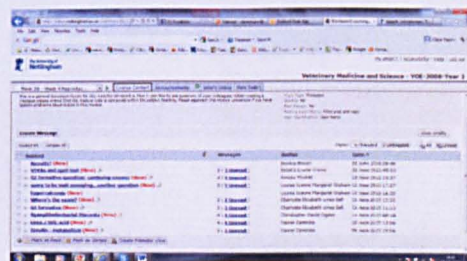
asked about the last question which no-one got from the lecture. She knows the answer because of the explanation in her clinical relevance so she posts an answer. Within half an hour someone else has posted a similar answer agreeing with her and she feels confident in her knowledge and proud of herself.

It has been a productive day and Sally feels ready to start packing to go home, and on placement. She spends the evening at home sorting through her packing (washing) and talking to her housemates – again mostly about lambing and death, but also about their plans for the summer, and beyond. Maisy is excited to be going into the clinical fourth year and they talk about what it will be like and how ready they feel to be vets.

Sally wakes up feeling ready for Wednesday. First there is a 1 hour lecture delivered again by lecturer T. He starts with some questions which checks everyone has done their background reading and Sally is glad she had time to do this yesterday. It is interesting to hear about the drugs required to treat the conditions they have been learning about. There seems a lot to remember but lecturer T talks about real cases and the drugs he used and the basic cases seem fairly straightforward to remember. Sally makes a mental note to go through these again when she gets home to make sure it has gone in.

After the lecture they move into small groups again and everyone is present except Bill. Nicky says he has emailed them to say he will be ten minutes late as he needs to catch up with his research supervisor. They download the notes and read through them before they start work on the task. They debate what they need to consider and break off into pairs to research different areas. When Bill arrives half way through the session they are reporting back to each other and drawing together their ideas. They spend a long time debating the list of 'take home messages' and decide to include most ideas, even though they don't all agree with them all.

At 11 their facilitator arrives, and with him are 2 fourth year students Lisa and May who are studying repro 2 and will also act as facilitators. Sally doesn't really know these students but has seen them around, and thinks she recognises Lisa from the scuba club she is a member of. They begin by explaining their list of 'take home messages'. The facilitator asks the fourth year students what they think and they say that although lots of the ideas are important, some are obviously more important than others. The facilitator asks the group if they could choose a top 5 from the 15 or so items on the list. The group goes through some of the debate they had earlier but the fourth years are quick to point out where messages are less significant. They all agree quite quickly on the most important messages and the facilitator encourages them to move on to the new task.

The facilitator gives some further history and some questions to answer and the group begin to debate the diagnostic process. The fourth years are keen to be involved in the debate and are helpful in steering the debate in the right direction. The lecturer facilitator says very little for half an hour. After this time he suggests that the group might be ready to summarise their ideas and present their answers. Sally volunteers to lead the summary and writes some headings on the interactive whiteboard. The group prompts her to write keywords under the headings which guide their answers. The fourth years suggest listing the diagnostic procedure at the side of the headings that Sally has put and they can see that this is a good way to visually link the diagnosis to the debate they have had. Sally feels that she really understands the learning and the diagnostic process in this session, more than any previously and feels a strong sense of achievement at the end of the session. They finish five minutes before the allotted time and the lecturer facilitator thanks them and leaves. Lisa and May stay and are bombarded with questions from the second years about their experience in the research project and clinical years. Lisa did a research project on marine animals and Sally begins an aside conversation with her about the research project she has planned and about scuba. They exchange email addresses and Facebooks and agree to keep in touch to talk marines!

After the session Sally walks home alone. She is thinking about the interesting morning she has had, and in particular about the fourth years and how much more vet like they seem than her. She hopes she will be like them in a few years.

Sally goes home to have lunch and get changed. She is working a shift in the afternoon and evening in the student bar. She used to have regular Wednesday and Friday shifts in the first year but it got too much and she gave it up towards exam time. In the second year she was asked if she could do occasional shifts to cover holidays and sickness which she agreed to because she needs as much money as possible for America. She is working 2-10 which is a full day of pay. She likes working in the bar because her friends come down for a drink in the evening and when she finishes she can stay for an hour. The afternoon and evening fly by and before she knows it she is home in bed thinking about what the last two days at Vet School and beyond will hold.

Thursday is another exciting day and Sally gets up early. She feels a bit worse for wear which is not good as she has a busy long day today.

The entire day is dedicated to guide dogs. The year group is split in half and there are two parts to the day with the groups rotating at lunch time.

For the first half of the day Sally is based on campus. Several of the guide dog trainers have come in with dogs and the students are involved in several handling activities. Sally has always had a family dog and is happy to get involved in the handling. She is amazed by the relationship between the trainer and the dogs and is very impressed with the level of care. She finds one female trainer very interesting and asks several questions about training and care techniques.

At lunchtime the coach brings the first group back and as they get off the coach there is a buzz of excited chatter. Sally is looking forward to visiting the large guide dog breeding centre. On the bus she sits with her housemate and they talk about how impressed they are with the training. Polly and her friend Sam are in front of them and are discussing whether breeding guide dogs is more like breeding racehorses or cattle. Others around them join in the debate but Sally just takes in all the points of view that are presented and decides that you just have to consider that they are all different.

At the guide dog centre they are shown many pregnant bitches at different stages and the students are encouraged to have a go at an ultrasound. They are lucky to witness an unusual case which was described in a lecture earlier in the week. Sally didn't consider that this was likely to happen and doesn't really remember all the details. The guide dog external asks the group questions about the condition, its features and care and her peers volunteer the answers. Sally pulls out her notebook and writes down the key features. When the external asks if there are any questions there are lots – how often do you see this, what will happen to the mother afterwards, what percentage of pups survive? The lecturer who is guiding the group answers some questions while the external answers the others.

Finally they see puppies, from those who are only a week old to those who are due to begin training, and they learn about their care regime. A litter of newborn puppies requires a lot of time and with so many in a large breeding centre Sally is impressed with the level of care provided by the staff. The coach arrives but the students continue to ask the externals questions until half an hour has passed and their lecturer suggests they must leave.

On the bus going home Sally has multiple conversations with her friends and those around her about guide dogs and their experience at the centre. They are stuck in traffic and don't get back to vet school until 6.30pm but Sally hardly notices the time has flown. She walks home with her housemate deep in conversation. Sally realises that despite her best intentions she has not packed and is going home tomorrow! She leaves out the things she will need for her last day and piles everything else in bags by the door. Although she is tired she can hardly sleep as the hectic week she has had, and images of puppy guide dogs, run through her head.

Source: www.guidedogs.org.uk

Sally wakes with a start on Friday morning as though she is late for something very important. She quickly realises it is the last day of term which always makes her feel like this. Another step further, nearer.

Sally gets to Vet School in practical clothes for a 9am start. She usually enjoys practicals but this one is quite boring in comparison to most. They are looking at digital slides on the microscope and completing tasks based on what they can see. Sally isn't really in the mood and lets the others do most of the work. She isn't confident with the microscope and lets the others in her group who are keener set it up. Although it is emphasised that using a microscope is an RCVS day 1 key competency, Sally doesn't feel like this will be something she will do day to day in small animal or marine practice. Although the group works through the task quickly it seems to drag and Sally is glad when it is time to change back to normal clothes for the lecture.

At 10-11 is a lecture by lecturer T. Sally didn't bring her laptop today so she plans to make written notes. She sits next to her friend Kate who has the lecture notes open on her laptop and she is dismayed to see that there are 58 slides to be covered in 50 minutes! Lecturer T seems to know he has too much to cover in the time so rushes through reading out some material and skipping past some slides. He doesn't really talk about many cases, apart from those on the slides. Sally feels in a whirlwind and although she takes some notes she is not sure they will be useful later.

11-1 is spent in the small groups and after that lecture Sally definitely feels the need to grab a coffee on the way! She is clearly not alone as she is the first to the small group teaching room, the others filing in shortly behind her and everyone present by ten minutes into the session. They agree that the last lecture was hard going and the discussion turns to who is going home when. Nicky encourages them to get on with the task 'the sooner we get it done the sooner we can go home'. They split up the areas they need to research – causes, prevention etc. and split into pairs but the conversations continue and little work is done. Ten minutes before the end of the session Nicky suggests they share what they have and list some take home messages. They brainstorm some ideas before James suggests another five minute coffee break and no-one disagrees.

When they arrive back at the small group teaching room the lecturer facilitator is already present. He taps his watch and encourages them to make a start. When they are asked to summarise the case Sally doesn't volunteer because she is not really sure what to say. Lecturer T senses that the group have not prepared well and asks them what is wrong. Have the guide dogs softened your brain? He recognises that it is the last day but gives them a pep talk and tells them that every bit of learning is as important as the next – first day to last day. Sally feels more motivated and volunteers to share the limited findings they have. The facilitator senses that they have missed some key information and asks Nicky to put the lecture notes from this morning on the board. He flicks through and points to some relevant concepts that have been overlooked. Sally and her peers are able to add these to their ideas to complete the summary. They add two key 'take home messages' and are ready to work on the facilitated task. The group are given further history and questions to answer. It is hard going and Sally doesn't feel she has enough background to draw on. The facilitator gives lots of prompts to steer them towards the potential diagnosis. He encourages Sally to write the process up on the interactive whiteboard as she did in the previous session and this really helps her to understand the process. She saves the document and emails it round the group so that they all have it for later. Nicky adds it into the notes and they finish almost exaclty on time.

At the lunch break Sally feels elated. She goes to the student bar with her friends and over a bowl of soup they discuss where they will be in a week, a month, a year and a decade. She is excited about what lies ahead. They say their goodbyes because after the next hour lecture they will all go their separate ways for a month.

Back in the main lecture theatre is the entire cohort. Sally notices a few missing faces and guesses that for the odd one or two the temptation of the pub or the early train home was too much too resist. The qwizdom ARS handsets are given out for the final Q&A lecture of the module. Sally always participates in these tests and enjoys them. Because they are anonymous no-one but you knows how well or badly you did. But you do know which ones you got right and wrong which confirms which bits you need to look at later. Sally will have three hours on the train home so commits to revise the things she doesn't know from this module and nail them on the way home.

The Q&A session starts with basic concepts from the start of the module - things it seems to Sally like she studied a long tome ago. A lot of these early questions seems Sally can answer without really thinking. After about half way though they get really hard and towards the end they ask about the material that was covered this week. Some of it is still fresh in Sally's mind, but some of the last few she does get wrong. From the scores on the interactive handsets she can tell how well she is doing compared with the rest of the group. She can tell that overall among the cohort she is doing quite well, top 25% she thinks, and she is more than happy with this. The module leader, Lecturers U, V and W draw the session to an end. They ask if there are any questions but this is a pretty futile question to ask at the end of the last session on the last day of term. Even if someone did ask something it wouldn't be heard because everyone takes this question as their cue that their holidays have just begun! Sally dashes home, collects her luggage and waits for the bus to the train station. It will be a long journey home but she has plenty to think about and reflect on and is excited about what is to come.

7   DATA ANALYSIS 1 – REIFICATION AND RELATIONSHIPS

7.1   Introduction

The methodology chapter explained broadly how the data collected fit into a range of overlapping and linked themes. The previous chapter 'week in the life' used a 'vignette' or fictional case study narrative technique to represent the themes as they exist in day to day practice. This chapter breaks down the themes and the way they connect to one another and to the data as well as to theoretical models of learning.

This is a study of learning, in the domain of professional veterinary practice in higher education. The single most recurring theme in the data which also had the most overlap with all other key themes is that of 'authentic learning'. An examination of the data categorised in this theme shows that students in this context perceive their learning in terms of its value in relation to their perception of their future position in the context of the veterinary community. This is a study of professional learning – the student experience of learning to be a vet, which directs the research towards models of situated learning.

This is also a study from the perspective of the student experience. It is not a study of one individual student experience but uses cases of individuals along with ethnographic data to ensure a representation of views from across the cohort. Whilst the narrative in the previous chapter is fictional and not all issues are likely to be experienced in this way by any one student, issues are likely to be experienced by a range of individuals across the cohort. The findings therefore represent a collective group or community student learning experience. This directs the research towards models of learning communities.

The two overarching categories under which all further data sits are 'curriculum' and 'relationships'. The two are not distinct categories and indeed data which appears within a sub category of curriculum may also appear in a sub-category of relationships. A good example of this would be professional skills. For example, observation notes from an ethics discussion in a PPS teaching session may relate to 'professionalism' in the curriculum, but equally to relationships as 'the way students learn together through debate'. A case study student who is asked about this in a follow up interview may mention a conversation with another student occurring as a result of self-directed curriculum work, therefore applying again under both headings.

The broad themes from the data have significant overlap and 'fit' with several models of learning. All findings under the curriculum heading could relate, for example, to Bloom's (1984) taxonomy of learning across domains. Evidence shows that SVMS curriculum offers the opportunity to learn

knowledge, skills and values and attitudes across all three domains. However this model has many gaps in relation to the student experience. Firstly it disregards a significant amount of data in relation to the 'relationships' aspect of the data and does not explore the way students interact with the curriculum; although gives a helpful categorisation of components of learning design, it does not contribute to a socio cultural understanding of how learning is experienced.

The significance of the curriculum and relationships as main themes, accompanied by the interwoven theme of authentic learning (the need for students to contextualise learning in terms of the veterinary profession) demonstrates the need for a model of situated learning communities against which to consider the findings from this study.

Wenger (1999) presents "Communities of Practice" as a model suitable for all social learning. Wenger's epistemological position is that simply by being, in any context, we are learning. Learning is therefore participation and the meaning and identity construed through that process. The "Communities of Practice" model is based on socio-cultural perspectives of learning and an epistemological position that knowledge is never fixed but fluid and applied and constructed through social interactions.

A community of practice is a group of individuals who learn, or whom through participating in community activities develop meaning and construct identity. Lave and Wenger (1999) suggest that newcomers spent time initially observing and then performing basic tasks in simple roles and they learn how the group works and how they can participate. Newcomers therefore enter the community of practice at the legitimate periphery of participation.

The legitimate periphery of participation in the veterinary community of practice at SVMS exists in two significant ways – firstly through learning is linked with professional veterinary practice and secondly the way that a community is formed amongst those sharing the learning journey. This has parallels with the key themes of curriculum and relationships.

Wenger is clear that not all communities are automatically a community of practice. In Wenger *et al*'s latest definition (2002:61) a community of practice shares three clear distinct features. Firstly a community of practice shares a domain of knowledge which creates common ground. In our context the common ground amongst our cohort is the domain of 'authentic learning' or the professional veterinary knowledge which they seek from SVMS. Whilst the cohort of study shares a unique community, they are part of a larger community, other student cohorts, who have had similar experiences and share this domain. The second component is community – 'the social fabric for learning.' The community at SVMS is the sum of the learners and teachers who share

the veterinary learning domain. Wenger (1999) suggests that a strong community fosters interactions and encourages a willingness to share ideas. Finally the community of practice share their practice. While the domain provides the context and common ground for learning, the practice is the focus of the professional knowledge shared by the community (Wenger 1999).

In summary this tripartite model of a community of practice can be described as 'learning to be a vet'; The domain is 'learning', the community is being or becoming (with other related to the veterinary profession) and the practice is veterinary. Using this model, we can define this study as an examination of the community of practice which is the SVMS student experience of learning to be a vet.

There are nonetheless some problems in applying the "Communities of Practice" model to a formal educational environment. Traditionally studies of "Communities of Practice" relate to informal groups in work based environments. Wenger maintains a practice-based learning focus to his CoP theory. He makes limited references to formal education throughout his book '"Communities of Practice"' (1999) save a focus in the final chapter on approaches to designing learning. Through the analysis of findings this chapter recognises and present the limitations of applying the "Communities of Practice" model to a formal higher education environment. The primary limitation in using this model is in proving transferability to higher education contexts which are not as closely mapped to a profession as vocational courses such as medical, legal and teacher education.

In Wenger's early analysis he builds on the model of master-apprentice, typically observed in working institutions, to explore the way people learn as they become fully fledged members of their professional community and eventually become masters themselves. Newcomers to a community begin at the legitimate periphery of participation (LPP) (Lave and Wenger 1991) and over time develop meaning and identity which allows them to progress to a deeper position away from the periphery and towards the centre of the practice. This has some parallels with vet school students who are at the edge of the profession, learning what is required in order to be a fully practising member. The LPP model is subject to much debate in the literature. Several authors' (Hay 1996, O'Donnell *et al* 2003, Hasrati 2005) debate the LPP as it implies at the other end of the scale a completeness - i.e. full participation in the community. This concept contradicts Wenger's epistemology that learning is never fixed or complete. A commitment to lifelong learning implies that the LPP model is faulty as the 'master' position can never be truly attained. This seems logical in relation to an ever growing medical knowledge base. Nonetheless there is clearly a professional journey which begins at the periphery of a community and which an individual

transverses through to become a less peripheral member of the community. Duguid (2005:5), suggests that the LPP model can be considered as an empowering model as a place where one *'moves towards more intensive participation'* and suggests that the notion of LPP is 'not an educational form or strategy but it is a way of thinking about learning'. He argues that a study of education using the starting point as legitimate peripheral participation is useful as it *'would afford a better context for determining what students learn and what they do not, and what it comes to mean for them, than would a study of curriculum or instructional practices'* (Wenger 1999:101). It seems therefore that a study considering the student experience as a community of practice, which follows their progression on from a position of the legitimate periphery of participation would fit the cross-cutting theme of authentic learning. Using the LPP model we can understand learning in terms of the 'authentic learning' required on the student journey towards being a vet.

Learning is an ongoing process with sets of important balances or dualities. Wenger (1999:98) describes key dualities inherent within learning in a community of practice. The duality which has the prime focus of Wenger's work and has been adapted as the focus of my own is that of participation-reification.

Participation is the act of being in a context with others. Relationships form the basis of participation – in Merriam-Webster's (2013:1) definition *'to have or to take a part or to share with others'*. Reification, broadly defined, involves making concepts concrete (Wenger 1999.) In the workplace this is represented through formal documents and procedures such as manuals and templates. In work based learning, the experience of participating in the job with others may stand distinctly from the reification – for example using formal written procedures such as manuals and templates. Indeed in some examples used by Wenger (1999) the formal systems are distinctly different to what is learned in practice with others. Furthermore in these contexts, learning takes place by different people in different power positions at different times restricting the channels of learning in relationships. Although the Community of Practice model has many useful elements that cross contexts, there is a significant difference in applying it to a formal workplace and to a higher education environment which may explain the limited number of studies which apply it to this context.

In higher education, participation is experienced by many individuals in conjunction with one another in set groupings and in response to curriculum. Wenger (1999:10) describes reification in formal education as the *'codification of knowledge into…. subject matter in the form of a textbook or curriculum.'* Vandewalle (2011) interprets the "Communities of Practice" model in relation to a

formal learning environment and suggests that participation involves interactions amongst learners and reification is the curriculum.

> '*Participation is the direct interaction between members of a community. Reification is the use of artefacts such as lesson plans, guidelines or a curriculum to impose or affect others' behaviour.*' Vandewalle (2011:1)

It is therefore potentially more useful in professional higher education to consider the duality as that of a continuum of participation spanning both relationships and reification in balance. The main duality of the "Communities of Practice" model therefore has significant parallels with the key overlapping themes of curriculum and relationships which emerge from the data. This study is of participation in the student experience. The student experience comprises participation in something with someone, – the curriculum which represents the formalisation or reification of the practice, and relationships form the participatory basis of the community. This duality is an important starting point for this analysis given that the two most frequently appearing themes in the thematic analysis of the data at the end of the second year were curriculum and relationships. It is the combination of these factors rather than either alone which are the context for learning,

> '*Participation and reification cannot be considered in isolation, they come as a pair*'
> *(Wenger 1999:62)*

The first section of analysis uses this duality to make sense of the student experience of the curriculum and relationships in which students participate. It is the duality of the learning opportunity presented and the participation in this which presents the context for learning to develop.

Wenger's (1999) model fits earlier models presented in the literature review which show learning to be both a process and a product (Prosser and Trigwell 1999). The process of learning is the experience of relationships and reification, along with the other dualities. The product of learning is the meaning and identity construed through participation in this process.

These findings replicate this duality. The first section of the findings analyse the learning process through the duality of reification and relationships. I present a focus on the way that students experience the curriculum and community, and how this participation becomes a significant part of the learning process.

The second section of the analysis examines the evolving product of learning – meaning and identity. I explore the ways that meanings and identities are formed through the participation in reification and relationships. Wenger describes that 'the use of language in face to face interactions' is a good example of the way meaning is made (1999:62). The way vet school students make meaning from interwoven participation and reification is explored in depth later in the analysis chapters. Identity is defined by Wenger (1999) as 'ways of being in a context' and relates to 'seeing the self in new ways'. Identity is temporal and therefore changes and develops with each new experience in the community of practice. Wenger refers to the need for formal education to recognise its role in identity formation and the associated importance of links between classroom and real world activity. The way vet school students develop professional identity through participation in relationships and reification is explored in depth later in the next chapter 'Talking the talk and walking the walk.'

Through this chapter I show the way that the "Communities of Practice" model and notions of legitimate peripheral participation can be adjusted to apply to professional learning in a Higher Education context.

7.2   Reification

It is important to consider the curriculum as the reification aspect of student learning. The three key sub-themes arising most often under the 'curriculum' heading are the clinical approach, the integrated approach and the professional approach. The impetus chapter explained the motivation for the reform involved in the new curriculum at SVMS. The widely reported Dundee model of Medical Education implemented in 1995 was transformational. The unique opportunity in developing a new Vet School in 2006 gave SVMS opportunity to follow this transformational change. As Harden, Davis and Crosby (2009) report it is the whole curriculum change which is greater than the sum of the individual parts. It is difficult to separate the benefits of this type of curriculum but this study has focused the lens on the key features – the clinical approach, the integrated approach and the professional approach. In this section, I focus the research analysis on what each of these approaches looks like in both formal and hidden curriculum practice, referring to the vignettes and real case studies as supporting data.

7.2.1 Reifying clinical practice

The historic separation between pre-clinical and clinical phases of veterinary (and medical) education parallels historic models of learning which separate the acquisition of knowledge and the ability to use that new knowledge in situ. Boys in White is based on education in this context (Becker 1954). The new approach of an integrated curriculum is becoming the dominant model in medical and clinical education. This approach is based on situated cognition (Brown, Collins, & Duguid, 1989) where knowledge is not translated into learning until learners have the opportunity to make meaning of the new knowledge through its application in an authentic context. This revolution in practice has been recognised and implemented over medical and veterinary training in a range of ways in the last twenty years.

It is important to understand the ways in which the clinical approach is reified to understand the learning process. With a blank white sheet for a curriculum, SVMS had the unique opportunity to embed clinical practice and interweave it into the early years of the veterinary curriculum in a way not done before. The clinical approach is tangible in the curriculum in three major modes of delivery which are explored in this section. Firstly through the practical lessons, secondly through clinical relevance small group work and finally through the EMS course requirements and associated portfolio development. Wenger's (1999) "Communities of Practice" model draws on another duality relevant to situated cognition and useful to the professional education environment – that of local and global learning. He accepts that while learning must take place in a local environment, it must replicate the ability to apply learning on a global scale. This gives learning in the Higher Education context its situatedness.

The data is drawn from observations of many sessions but it is important to note that the observations were all conducted 'in house' at SVMS. Whilst this decision was taken to focus on the local context, a limitation of this study is that off-site learning was not observed. This creates an artificial separation in the data especially since EMS emerged as a significant category. In this section I can only reflect on data from key informants and cannot underpin this with observational data. I acknowledge this as a weakness of the study and would make a different methodological choice with hindsight.

The clinical approach emerges as significant in both themes of authentic learning and reification. In addition, in my observations, practical sessions were the most well attended type of session. The practical sessions allow activity which students can clearly understand to be at the legitimate periphery of the veterinary profession. There are many dissections in the early part of the course as students become familiar with the basic components of the body system. I asked students in

their interviews which were the best part of the course, nine out of ten respondents answered that practical sessions were their preferred learning within the curriculum. This situated learning approach is defined as the theme 'authentic learning' which occurs as significant throughout all categories relating to the student experience.

There are also a large number of interactions with live animals which provide excellent planned and emergent learning opportunities. In the vignette, Sally's visit to the Guide Dog Centre, a planned activity in ultrasound on pregnant bitches turned into an emergent learning opportunity about a unique condition. The reification (conceptualisation) that the students had been taught about this particular pregnancy complication was underpinned by participation in an emergent real life context. This closeness to practice allowed the opportunity for Sally and her peers to experience the dualities Wenger (1999) emphasises as implicit in developing meaning and identity.

The student experience of some practical sessions is negative if the students do not perceive them as relevant to their position at the periphery of veterinary practice. These are rare but highlighted in my observations and Chloe reported on this in her first year interview.

> 'Lecturer Y's ones – it's not his fault but it's just the subject – it was great acids so we put some stuff into some other stuff then get some number and if I'm honest I had no idea what we were doing or why we were doing it or what the results meant, we were just following a sheet really ....it was just about determining the amount of calcium or whatever in a sample and we were doing about elements and deficiencies and stuff so I suppose to was relevant but it wasn't well it didn't feel relevant, it didn't feel vetty' Chloe, 1ˢᵗ year interview

Although Chloe perceives that the task may be relevant to future practice, because it did not 'feel like it', she was not able to locate the learning within her perception of the LPP. Overall, in the first years there is a direct relationship between student learning motivation and the relevance of their learning in relation to their perceived future practice. The clinical approach in the curriculum broadly meets these needs and contextualises conceptual learning.

> 'It makes you understand something better, you think you understand something but then when you try to apply it that's when you understand' Alice year 1

The only person who did not say that practical sessions were 'the best' was Gemma. She chose clinical relevance sessions instead but interestingly suggested this with a practical twist,

'I am a very ,very practical person and I need to have my learning applied to things so it really helps me go over things and apply them to them to a situation that would realistically happen so it makes it easier for me to remember' Gemma year 1

This implies that Gemma does not actually mean practical in the sense of handling animals but practical in relation to a practical or useful, albeit theoretical scenario.

The data shows the ways that clinical relevance sessions are another strong, and early, reification of the clinical approach in the student experience. These sessions offer a chance to use new knowledge from lectures, practicals and self-directed learning in realistic problem based scenarios. In each small group teaching room are authentic veterinary tools often used by students - these range from practical tools such as skeletons and x-ray machines, through to knowledge based tools – books and the internet. Through using these tools, students make meaning of how to make links between knowledge and practice. Clinical relevance scenarios utilise the case-based or problem-based approach and in first year this is a successful approach to help learners to relate basic scientific concepts introduced in lectures and practicals to scenarios where they might be useful – adding the 'situatedness' to the cognition. When asked about clinical relevance sessions in interviews, in both first and second years, all students responded favourably to their inclusion in the curriculum.

It would be possible to analyse the levels of reification in relation to the clinical relevance sessions as a research piece in its own right. There is wide variance between and within modules and the content and type of session will depend on the author. In some ways, the cases are the same. Module leaders are trained in the essential requirements of a case and are all experienced practitioners – both veterinary and teaching. The cases should be linked to prior learning in the module and give the students the opportunity to apply theory to a realistic case. The case should represent real life and a problem where learners can use new concepts (or reifications) to identify a range of possible solutions or actions in response to the problem.

The main differences between cases are twofold. Firstly the complexity of the task and secondly the extents to which cases are relevant and realistic.

A simple task may link too overtly to recent teaching in the module and give an obvious answer which does not fully engage the students' problem solving skills. This is evidenced by observations, particularly one session where students have an hour to complete a task and all but one group had left the session by half way through (upon further investigation the group who stayed were not discussing the clinical relevance case). This is also supported by students

reflecting in interviews on what makes a successful clinical relevance case. Some tasks are too complex or cryptic and students struggle to solve without major support. I observed these in relation to individual groups rather than the entire cohort suggesting the inability to complete the task may relate more to the preparation undertaken and the participation of the group. This is further considered in the section on relationships. An ideal reified clinical relevance case is neither to simple nor too complex, but balanced in between requiring students to use recently gained knowledge and problem solving skills to successfully work to a potential conclusion.

The extent to which cases are relevant and realistic is important and links to the local global duality Wenger (1999) proposes. One case which three of the students reported in their first year interview as a negative clinical relevance session was related to meat and animal health. The student's issue with the case was the lack of direct relevance for them to their perception of their learning needs – they could not link the local learning to the global. Wenger (1999) purports that formal teaching environments lack the complexity of the real world and clinical relevance sessions have the potential to make that link. Betty, who is an experienced mature learner, recognises in the first year the benefit of some sessions which are authored this way

> *"It's lecturer T who puts detail in cases like hair colour, kid's names and time of day. Some people think he is trying red herrings, but it's not, real life is like that!' Betty, year 1 interview*

Therefore while the clinical relevance sessions broadly reflect the reification of the clinical approach, the extent to which they do so is dependent on the author. This demonstrates the overlap between reification and relationships. Equally participation in the sessions will vary according to the individuals and their action within the context and of the case. This analysis focuses on a broad consideration of the clinical relevance sessions as they fit within the wider curriculum therefore impact on the student experience.

The clinical relevance sessions help students to learn in a context in relation to their position at the LPP of the veterinary community:

> *'the clinical relevance thing you can see that what you are learning is useful and you can see there is actually a point to learning this and I will probably see this in the future ' Juliet year 1*

This benefit gains in the second year as the scenarios become more complex, representing the wide range of real-life situations. This is evidenced by the case of Alice who describes her

experience of the sessions differently at the end of the first and second years. In the first year she says,

> *'I think clinical relevance is quite good because it reinforces your knowledge and you can apply to different situations.' Alice year 1.*

By the second year she sees a deeper relevance,

> *'It's been really good this year and I think that's because we know a lot more now so it's sort of been easier to come up with lots of different potential diagnoses and things. Yes I really like clinical relevance coz this is where we see what we are actually going to be doing in practice. I think it will prepare us well, as well, for our fourth year because that's really the clinical year where we are going to have to start to produce actual lists of diagnoses and stuff and do exams and face owners and stuff' Alice year 2.*

This evidence shows Alice's growing understanding of the value of the problem based approach and the way it links to her position in relation to the local and wider community of practice. Initially she sees the benefit for her immediate learning needs but later she understands how the process of problem-solving is as beneficial as the specific knowledge application. Her approach is typical amongst the interview sample. Clinical relevance sessions have a positive response from all respondents in both years. From the first year, all students appreciate the opportunity to contextualise learning. By the second year (earlier for some, usually mature students) most students realise that they can benefit from the process of working together. I witnessed higher attendance in all group learning activities in the second year than the first, which underpins the evidence presented in interviews.

In this respect the clinical relevance sessions broadly meet their main aims. In the first year students are able to understand their learning in terms of clinical cases. In the second year as the cases become more complex students gain problem solving skills and recognise the benefit of these to both their learning and future practice.

It is important to note that this is a broad analysis and there are specific examples of negative cases. The strength of case based learning session depends on the reification analysed here and the participation (analysed in the next section).

The clinical approach is part of the curriculum which links knowledge based Vet School learning with real life external experiences. EMS is a significant feature of all veterinary courses and not unique to SVMS; placements are a significant part of education for any practice-based profession.

At any UK Vet School students are required to carry out a minimum number of hours of placement work in a prescribed range of settings (according to RCVS 2011) and to complete both a skills diary and reflective portfolio as part of the course. While the number and type of EMS sessions is reified through the curriculum and reflection is encouraged through the use of portfolios, these experiences are more emergent than planned learning. SVMS do match the emergent learning with an element of planned learning, for example by teaching the reproduction module directly before Lambing EMS. Reflection on these emergent learning experiences facilitated deep learning. (Schon 1983)

Duguid (2005) focuses on the difference between tacit knowledge or knowing how, and explicit knowledge or knowing what. He asserts that performing optimally in a job requires the ability to convert theory to real life practice and that the "Communities of Practice" model helps individuals to bridge the gap between knowing what and knowing how. Hildreth and Kimble (2004) argue that this model has limitations since although know-what is explicit knowledge, know-how can also have an explicit component. This is illustrated by the basic clinical procedures taught within the early years at Vet School such as injections and sutures. Yet a certain level of know-how can only be gained in a real life situation and Hildreth and Kimble (2004) describe this as the difference between explicit and tacit knowledge. They draw on the work of Polyani (1964) who claims that tacit knowledge is known but cannot be told, usually because it is internalised in the unconscious. Nonaka (1991) emphasises that the sharing of tacit knowledge takes place through joint activities and requires physical proximity.

In interviews, students report varying levels of interaction with their placements, usually categorising them as 'good' or 'bad'. A bad EMS usually involves the student being used for menial tasks. The good EMS student experiences reported to me in interviews fell into two categories. Firstly students benefitted from situated learning placements where they had the opportunity to relate theories presented at vet school to real practice. Secondly students reported positive placements which shared tacit knowledge that is unlikely to be achieved within the classroom.

Entwistle (1984) would describe learning on placement as spontaneous learning, as opposed to reification in the Vet School curriculum. However it is important to recognise that whilst much of the learning on placement will be spontaneous, some can be anticipated and linked to the curriculum. For example all students undertake lambing placements each year and these placements are usually undertaken during the Easter break. In the second year the 'repro' module is undertaken directly prior to the Easter break. In their second year interviews, several

students reported ways their Vet School learning was able to be seen and understood in terms of their practice on placement. For example when a breech birth occurred in a sheep it could be recognised as it had been described in lectures and presented as a case in clinical relevance sessions. These spontaneous events are vital to the clinical approach and can, in some cases, be captured and aid learning. The skills diary ensures that students log the practical skills gained from first-hand experience. In the first year, students describe this as a chore but by the end of the second year several students report that the skills diary is a useful personalised learning tool. The requirement to complete the e-portfolio for assessments shows that reflective practice is also emphasised in the formal curriculum. In the early years, students do not enjoy working on reflective writing and find this level of reification difficult. The interview data suggests that this may be because in the first years, students prioritise reflective writing as less important or less clinically relevant (even though they relate it directly to practice) than their mainstream curriculum learning. It is not perceived as 'science' as is undervalued. This impacts on students in the first year who seem to find it difficult to understand what is required from them, and what benefit they gain from reflective practice. Most students interviewed reported that they 'go through the motions' and 'do the minimum possible' in terms of reflective writing in the first year, and a limited amount of learning occurs.

> *'I could do pebblepad to a higher standard I am only working to pass standard and it's not marked so it just seems more worthwhile to spend my time on something that is actually worth marks' Alice, year 1*

However, by the second year, students have the opportunity to begin deeper learning by reflecting on earlier experiences. Furthermore they develop a better concept of how it relates to the identity of a veterinary practitioner. Alice has changed position by the second year

> *'now I am looking back at my portfolio and seeing what I did last year and actually seeing what I did and I think oh I did do quite a lot even though when you do try to think of stuff you have done nor all you can't remember half the stuff – you see again the things that you thought were interesting and useful, the things that you saw so now I can see that in my portfolio it makes sense to do it again because I know in the future I will be in that position again where I can't remember everything and it will be good to look back on what I thought' Alice, year 2*

Although the majority of the interview participants display this position, there are negative cases at either side of this. Some still do not engage in reflection or understand its position in relation even by the second year. Alice, for example, who achieves highly (within the top 5 in the year

group on exam results) still does not see the benefit of reflection even by the end of the second year, and speaks negatively about the process as a distraction from her mainstream learning. In contrast to this is the case of Juliet, who has a wider variance in her background (having studied a range of social science and sciences previously and completed the prelim year). She engages with the reflective portfolio at an early stage and in the second year tells me how it has helped her to learn and develop her professional identity. (Her case study is reported in greater depth later in relation to developing identity). Since the students have encountered the same teaching, these differences in learning approach may be attributed to individual character differences, but are important to recognise. It is likely that Juliet's experiences outside Science help her to have a greater understanding and respect for the affective learning domain. As such, although Alice surpasses Juliet on exam results, Juliet has a more holistic understanding of her veterinary identity. Neil Foster's (2009) dissertation on analysing integrated learning at SVMS draws attention to the way this curriculum aims to encourage a fallabalistic epistemology or critical approach to learning. My findings appear to demonstrate that the reliabilistic approach is one which many students arrive with, and which remains present in the early years. The exception to this may be those with a wider background, who have previously encountered learning in the affective domain – generally widening participation and mature students. Learning in the affective domain develops over time and can be seen in most students to have developed over the first two years, alongside a developing sense of veterinary identity.

The clinical approach is further displayed through a wide range of formal, informal and semi-formal extracurricular activities. Only the top three examples of reification of the clinical approach have been investigated in depth, but it is important to recognise the breadth and depth of clinical activity in the early years at SVMS. For example, the 'clinical skills centre' is a drop-in resource students can use to practice skills – the centre opened during the course of this research and is very popular, well used and fully booked in periods close to assessments. There are a number of other schemes giving students access to clinical practice. With a large number of animals on site, there are opportunities to engage with semi-formal sessions, from walking dogs to sharing horse duties. In my observational notes there are many examples of students volunteering to spend time, off timetable, engaging with animals informally. There are a wide range of trips from Vet School, some within the curriculum and a wider range are optional – to the zoo, the greyhound races, the army horse HQ. Trips that I observed were well attended. Students engaged with off-site off-curriculum opportunities through active engagement such as questioning. There is a clinical club within the school which puts on regular talks with 'celebrity' guest speakers (where celebrity means a vet well known in their field). There are regularly guest speakers and visitors in the school offering talks, displays and workshops. At each session I

observed there were high levels of attendance by both staff and students showing the importance of the global context in identity formation. This emphasis on clinical contact highlights the importance of managing Wenger's (1999) local-global duality.

The data shows that students engage with semi-formal clinical opportunities more as they go through the course. For example the 'clinical club' talks are often organised by students from later years. During the first year of the course, students don't have a holistic picture of the gaps in their learning. By the nature of their semi formality (and the fact they are not part of the reified curriculum) students have to identify a need for themselves to engage with these experiences. By the second year, students start to make meaning of their learning and the importance of connecting their conceptual knowledge and practical skills and experience, and where their gaps are. At 'off curriculum' events I observed, attendance was by higher numbers as the course progresses – i.e. there are limited numbers of first years, slightly more second years and higher numbers of students in the upper years of the course.

The clinical culture of the reified curriculum locates learners at their perception of the legitimate periphery of veterinary community. The reification of the clinical approach contributes to a culture and professional identity in the community which starts at the very periphery of participation. The perception is of a community of practice learning to be a vet, rather than a scientist, and the significant benefit of this in the early year is that it meets student expectations and is still a cutting edge and unique approach compared with competitors:

> *'I have friends who are in Cambridge who are doing veterinary medicine in my year and they are like 'It's science' and I only did A level science in wanting to get to vet school and now I am so glad I'm here because it's so practical and I think it's the best course for me so I am so glad I got in here!' Alice, year 1*

This competitive advantage will not last long in a climate of educational reform and SVMS must make sure that they maintain the approach and overcome any weaknesses within it. While data relating to the clinical approach is positive in the first two years, there are some negative aspects arising which cannot be overlooked. Whilst the formal line in the curriculum between pre-clinical and post-clinical has been erased, it is an invisible line in the student learning process which has not been removed in practice. Some divide which remains between the early and later years and students see them as separate although linked learning experiences. This is evidenced earlier in the way Alice showed her understanding of the clinical relevance sessions as a good grounding for *'our fourth year because that's really the clinical year where we are going to have to start to produce actual lists of diagnoses and stuff and do exams and face owners and stuff.* This relates to

the students' understanding of the early years of the course at the furthest periphery of participation with later years being further advanced towards more full participation in the veterinary community of practice.

The reification of the clinical approach described and analysed here is one of the unique features of SVMS. It emerges from the data as significant to the student learning experience and this analysis explains that impact broadly. Later sections on meaning and identity draw on this analysis to show the impact of the reification-participation duality.

7.2.2   Reifying integration

The Vet School use an integrated systems based approach which impacts on the student learning experiences and arises frequently in the data. The integrated approach is an important part of the reified curriculum. The systems approach means that modules in the curriculum are related to one body system (e.g. musculoskeletal, cardiology), and applied to multiple species due to significant overlap. This is not unique to SVMS and was first implemented by Dundee Medical School in the 1990s as a new way to think about structuring knowledge in response to the ever growing knowledge within medicine. The similarities and differences form the basis of the knowledge (rather than learning disjointed physiology and needing to apply to both multiple species and multiple systems.) This separates the body to its easiest functional parts but with connectors joining these systems.

Integrated learning relates to the ways in which course design within and across modules offers the opportunity for the material and teaching to match a hierarchy of learning development and make links between concepts within and across modules. In early desk research reviewing the SVMS initial planning documents, school strategies, I noted the SVMS aim to achieve both vertical and horizontal integration.

Horizontal integration should occur in content and delivery between different types of teaching such as lectures, practical and case based sessions. At SVMS, I observed module leaders take responsibility for this in curriculum planning. . Learning objectives are designed within a module to build from a basic to more advanced point. Module staff working together to develop the course using in an integrated approach. For example in planning individual lessons, links between them were mapped in order that different teachers can ensure repetition and reinforcement between their sessions.

I observed many examples of horizontal integration. Within the first MSK module, practical session dissections follow lectures giving learners the opportunity to visualise new knowledge. Clinical relevance sessions follow to further contextualise the new learning. This is represented in Sally's vignette which shows specifically how in one week she learns about the forelimb and how this relates to several animals, and to clinical practical activities. The extent to which data is repeated, reinforced and applied within each week is significant to the learning journey. The student interview data underpins this finding,

> 'I think it's really good if it links in well to the lectures you have had and so you can use your, well you can apply what you have learned and then work out for yourself how that is useful to a case' Alice year2

> 'we had one recently that was to do with an ectopic ureter in dog or something which was really good because I felt like I took in the stuff from lectures well and when we came back to do images and stuff, and look over terminology, I felt on the ball with it and I really enjoyed it because I really felt that it enhanced what I had just done.' Juliet year 2

Whilst the previous section examined the impact of the clinical approach on learning it is clear that none of the educational 'nuggets' such as clinical relevance or practical sessions alone convey a clinical culture. Instead, it is the way they are integrated in the curriculum with other learning techniques which enable students to take an integrated clinical approach.

A vertically integrated curriculum is more difficult to achieve as it aims to integrate learning upwards throughout and between modules ensuring later modules build on the learning delivered in earlier modules. It requires integration in course design as well as co-ordination between module leaders and all module delivery staff.

Even with no subject expertise and little understanding, I observed many sessions which I could identify as vertical integration as they were linked to other areas of the curriculum I had observed. For example basic concepts which are introduced in week one are repeated as the basis for the module after Xmas in the first year. Each module relates to, and builds on, the material of previous modules. I observed many teaching sessions in the initial MSK modules which introduces bones and muscles and anatomy related to this area. I noted the way that later modules such as endocrinology and even cardiology would refer back to the learning in the MSK module. For example in lectures about the heart, material was repeated and reinforced from the initial learning about muscles and then new material added.

Integration occurs when materials from different sessions are repeated and reinforced to aid student understanding across different areas – such as between different animals in the first instance. Horizontal integration does contribute to deep learning and takes place within the clinical culture, which in turn helps learning to meaning of learning to be a vet in context. This is demonstrated in the vignette by Sally's growing understanding through a week on one topic which is integrated horizontally with plenty of reinforcement. This is evidenced by my own participant observations where I felt my own knowledge growing through observation of repetition in horizontal integration. It is also triangulated by interview data which shows that more than half students in both sets of interviews mentioned the benefits of repetition.

Through discussing integration with students in interviews, a negative case emerged which shows that despite the broader benefits, the horizontal integration approach does runs risks. The systems based approach may limit the process of learning the wider application of knowledge. This is evidenced by the following conversation.

> 'Me: some people have spoken to me about the way that links are made within a week of a module is that something you recognise?
> C: Yeh I think so, yeh its good, yeh because it give you a grounding point and you know where to go. But the problem is that you are only thinking about that one week, you don't think about what other areas it could be, you don't ever think about other modules because you would never ever say think of getting an endocrine case within a GI module
> Me: Do you imagine that might change?
> C:'I don't know! They do things differently in clinical years I would imagine'

This represents a distinct modular rather than linked perception of learning objects. This negative case was only observed once in year one and not at all in the second year. It seems this approach is usually mitigated later when students recognise there is vertical integration between modules. This modular approach can also be mitigated by delivery of that integration by staff who make clear links between concepts. In the sessions that I observed some staff were able to make these links clearly and concisely, for example one fieldnotes reads

> "He (the facilitator) said "What about when you did the case about the pigs in the MSK module?" He is trying to link them back up with the early stuff they did and remind them they should have thought of that first. Building on previous learning" Observation in clinical relevance session of 2nd years Oct 2010

In the sessions I observed I noted that these links were most obviously displayed by module leaders, although I noted new staff also making concerted efforts to clearly point out the links in horizontal learning to students. This occurred in all types of sessions - lectures, practical and clinical relevance sessions. This demonstrates that reification and relationships are not opposites but both essential components of the student experience. This is supported by the data from key informants. In the following example a student describes their understanding of moving forward in the community through reification as experienced through relationships.

> *'I am not sure if you know Lecturer X but he is very keen on making sure that we see the broader picture in veterinary, you know, making sure that we see you know that we can see the woods for the trees, that we don't just see the system based learning. So when we are doing endocrine he wants to make sure we see that in connection with gastro-intestinal that we are not just seeing that system that we really see how everything integrates because at the end of the day you know animals are all the systems working together as a whole and he is always banging on about that and I think it's very true actually' Harry year 1*

Vertical integration of the curriculum is the way that individual modules link together to give a 'big picture' to the learning. Integration helps learners to move from the absolute periphery of the community to a slightly more integrated position of understanding. I observed this in two major ways – through linked modules and repetition between modules. This is demonstrated at several points in the vignette when Sally recognises links and repetition in the curriculum. Repetition, reinforcement and building on prior learning are all strong sound pedagogic techniques reported in the literature review. Linked modules are delivered firstly within the first two years and again as modules in later, usually the fourth year. An example of this is the MSK module – MSK1 is the first module delivered in the first year and MSK2 is delivered in the fourth year. The second time MSK starts it is with a test to help identify what is remembered from the previous module. This second module provides an opportunity to recap on earlier knowledge and build it to a greater depth.

In my observations I clearly saw learning progress from basic peripheral learning to a greater understanding of the 'big picture'. This is evidenced, for example, in comparing the type of questions students ask in early and later linked modules. In early first year modules students asked basic clarifying questions – 'is this the correct bone', whereas in early second year modules I noted

'Facilitator asks what can cause heart weakness, and students discuss infections – Student X reminds everyone that they covered infections in an earlier modules and this gives others in the group new ideas. Three students come up with lots of ideas to solve the problem. Some stay silent. I am getting a bit lost now!' Observation of second year clinical relevance session November 2010

Since I did not participate fully in the student experience my knowledge about the subject matter starts to fall behind the students and by the start of the second year I struggle to follow the links. Learners demonstrate that they make greater meaning of when they have more knowledge and experiences to link together. This is reinforced by interview data.

'Although there is one last thing to say about having them at the end of the year, I did notice going back to the endocrine module at the beginning of the year and I know other people have said this as well, that a lot of the stuff we did in endocrine at the start of the year is repeated again in the other stuff through the year and if I had had the same assessment at the end of the endocrine module straight after the module then I wouldn't have understood it half as much as I do now having done the other things so ... like in endocrine we did this bit about andybands and sodium polyps and now having done the renal module at the end of the year it makes all the endocrine stuff like that make sense.'
Imogen year 2

This reification is not only making concrete the concepts within the body system but an approach to thinking about the body as a series of linked organs. Repetition between modules is vital to reinforce the areas of links between concepts in different systems. In order for horizontal integration to be reified staff must work together to gain a broad understanding of the curriculum and the key links to their area. This again reiterates the importance of the reification-relationship duality as complimenting components of the student experience.

Harry gives a useful example of this integration in practice.

There are areas I was unsure of in certain modules that we didn't seem to go into any depth over, but now I can see why they didn't as we are covering them now and that's a big thing!' Harry year 1

Learners make meaning through relating their learning to prior knowledge. This is an approach which the learners understand more as time progresses and they are able to make these links. This is also evidenced by observations of the depths to which links are offered during teaching. In early teaching sessions, no assumptions can be made about prior learning. By modules at the end

of the first year, lecturers often refer to previous the teaching in previous modules. This is reinforced by the interview data which shows the change in the way students talk about integration in over the two years. In the first year most students refer to reification of knowledge as modular 'I'm good at this module' or 'The last module was easy but this one is so hard!' By the second year some students display a wider understanding of modules as part of a whole.

Harry has a clear appreciation of the links between the modules, probably as he has a basis for comparison, as he has already studied for a degree in Classics which was modular based with few links.

> 'with veterinary you know it's a gradual build-up of layer upon layer whereas with classics I might be doing, I don't know a module about Augustus one week and then you know a module about Greek pottery the next – there's no progression there but with veterinary its very progressive so I will look back and think that when we doing musculo-skeletal in the first term – you know where the femur is and all that is second nature, you just know that stuff but you know it's all building whereas classics wasn't there was a lot of kind of just associated modules'

This student's previous experience of non-integrated learning gives him a perspective from which to recognise the benefits of the integrated approach. Although his classics background may seem to have little relevance to his veterinary degree, the learner's background and previous experience helps him to develop an early understanding of the importance of making links and taking an integrated approach. This shows the benefit of any previous learning experience as useful experience in learning to learn.

Harry's approach to linked knowledge is not exhibited by all students, particularly those who have recently completed A levels. For example even at the end of the second year, despite achieving high grades in modules, Daisy fails to show understanding of the importance of the way her learning links together.

> 'I did well on all the modules except one, but that doesn't worry me because it doesn't come up again until the fourth year.' Daisy year 2

Daisy achieved high results in her modular science A levels. She suggests that her lack of understanding in one system will not impact on the rest of her learning, as though the modules sit in isolation from one another. The vertically integrated curriculum aims to create a reinforced learning loop rather than a modular approach, and to take surface modularised learning to deep linked learning from early on. The benefits of the vertically integrated curriculum are generally

recognised by learners more as they progress further through the course and their learning gains pace to recognise the links in their learning. Students in the first year learn without a real understanding of the big picture but generally the more they learn, the more they understand about where their prior learning fits into the bigger picture.

The integrated approach represents an understanding of the journey from the periphery of participation and basic understanding towards a deeper understanding and integration into the veterinary community.

7.2.3   Reifying Professionalism

The third major finding in relation to the curriculum is the way that professionalism is reified. There is significant overlap between the theme of professional learning and situated learning, and the theme 'authentic learning' occurred significantly throughout this category. Overall the significance of the professionalism category and its overlap with situated learning demonstrates that this new curriculum is indeed transformational since professionalism is a new debate relative to this.

This study is not overly concerned with the components of professionalism; this could and does constitute studies of its own. A great body of work exists which debate definitions of professionalism in Medical Education (Royal College of Physicians 2005, General Medical Council 2009, Garner *et al* 2010). Hilton and Slotnick (2005:60) describe professionalism in Medical Education as existing on a continuum and suggest it can only fully be attained and understood after '*a prolonged period of experience (and reflection on experience) occurring in concert with the professional's evolving knowledge and skills base*'. This parallels the movement from the periphery and predicts professionalism to develop through the journey towards the centre of practice, and beyond. There is much less work on professionalism in veterinarians and Mossop (2012) suggests that it is time to define veterinary professionalism. She outlines key themes from her research which point to the most important professional skills to teach veterinary students. SVMS have an advantage that Mossop who published the above paper is the module leader for Personal and Professional Skills and leads the work by SVMS towards embedding professionalism in their new curriculum.

This study is concerned with the student experience, incorporating that of professionalism within and beyond the curriculum. This part of the analysis considers the reification of professionalism. A series of consultations in 2009 and 2010 on professionalism in medical students is reported in

'21st Century Doctor: Understanding the Doctors of Tomorrow'. Current debate suggests that professionalism is a critical and integral part of Medical Education and linked to lifelong learning. This parallels Hilton and Slotnick's (2005) findings from above.

Personal and Professional skills are reified in two significant ways in the curriculum. Firstly an all year round 'PPS' module runs alongside the systems based modules. Secondly students are required to complete a professional portfolio including written reflective practice.

The findings show that the PPS module is not well-liked or respected among students. Material is varied and wide ranging and themed by year; in the first year the focus is on skills for learning including groupwork, communication and IT. In the second year material includes scientific writing and ethics and by the third year the focus is on skills for research. Although PPS sessions are not favoured, the ones I observed were well attended. In interviews students often reflected negatively about PPS sessions. For example many students spoke negatively about PPS sessions covering ethics, which they perceived as too academic and not related enough to actual interesting debate within the field. The ethics PPS session I observed was very theoretical with few obvious links to practice. Student negativity about PPS was usually in response to particular sessions, or types of sessions, and their disjuncture or lack of integration with other aspects of the curriculum. Ethics itself as the subject matter seems not to be the issue as I observed by a guest lecturer present on ethics and students engaged with the debate as it was clearly related to veterinary practice and their position at the periphery of the veterinary community. After the lecture I observed that students continued to discuss and debate ethics in their own time.

I observed both positive and negative PPS sessions. Within the first year I observed a session where students practice taking notes from a telephone conversation in an authentic scenario. Later in the course I observed students practising taking history notes from actors posing as clients. Both sessions were amongst the best I observed and ones which students repeatedly reflect on as beneficial to their learning. The data collected are enthusiastic annotated field notes representing active participation by students and opportunity for reflection both on action and in action (Schon 1983). These are the type of learning sessions which students report offer the most authentic learning experiences and chance to develop personal and professional skills.

I became involved in the delivery of the first year IT module within PPS (as my background is in IT teaching) but I did not teach the cohort which are the subject of this study. I recognised a distinct lack of engagement from students. There was limited engagement during classes with many pursuing off-task activity, attendance was minimal and interest was mostly focused on achieving the highest possible mark in the assignment. Feedback from the students suggested that they

resented being taught skills that they already possessed. Furthermore data showed an early perception that IT skills were for student life but less required in veterinary practice. In response to this I developed a practitioner informed set of video resources which are now used in IT training. Students' latest feedback suggested they should have early access to training in the integrated practice systems used in day to day work in practice. I found that students did not resent the PPS sessions themselves, only those distanced too far from their perceived trajectory in the community of practice. These findings parallel those reported in 21st Century Doctor which suggests that mechanistic approaches to teaching and assessing professionalism are usually rejected by students. Currently work is underway to integrate the PPS teaching within the major curriculum.

The portfolio approach to developing professionalism is one used in a wide range of practice based subjects including Medicine (Challis 1999, Snadden and Thomas 1999, Roberts, Newbie and O'Rourke 2002), Nursing (McMullen 2003) and Teaching (McLaughlin and Vogt 1996, Lyons 1998, Carney and Jay 2002). In each case the approach is supported by professional governing bodies and practice by newly qualified practitioners; these are respectively the General Medical Council (GMC), Nursing and Midwifery Council (NMC) and General Teaching Council (GTC).

The veterinary profession is following the above examples introducing a portfolio based approach to promoting reflection which will be implemented as a model of professional development for newly qualified vets by their governing body the RCVS. Research in the field is much more limited but draws upon the above fields. Two papers in JVME in 2006 report on the early pilots with portfolios in Veterinary Education. A paper in JVME in 2008, written by Liz Mossop from SVMS with colleagues from University of Liverpool, reports on early use of the approach in practice and affordances and constraints.

As outlined in the section relating to EMS and the clinical approach, the student experience of portfolios varies and grows through the first two years, as students' journey forwards from the legitimate periphery of participation. This fits with the Hilton and Slotnick (2005) model of photo-professionalism.

This section has briefly outlined the way that professionalism is reified in the curriculum. This is however, only part of the story since participation will also develop professionalism, often in tacit ways. This is explored in further detail on the section called 'walking the walk' relating to the development of identity. This section on reification has considered how the vet school curriculum reifies the significant unique aspects of the SVMS culture. The clinical culture is reified through practical sessions, clinical relevance sessions and EMS. The integrated approach is reified through

vertical and horizontal integration. The professional approach is integrated through the PPS module and use of portfolios. The data shows that the student experience of these reifications varies for a multitude of reasons. There is equal variance in experiences from the participation aspect of the duality which is considered in the next section. These two areas define the context for the student learning experience and provide grounding for an examination of the way SVMS students make meaning and identity.

7.3   Participation through relationships

The previous section considered the key themes relative to curriculum which emerged through this study of student experience. This provided an insight into the reification of veterinary knowledge and practices within higher education. However I also presented ways in which participation in reified curriculum shows tension between what we plan for students to learn and what is experienced. In Wenger's (1999) model the reification aspect of learning is relative to the participation aspect. That is to say that varying amounts and type of reification can promote or vary the type of participation (Wenger 1999). They are a duality, each of which cannot exist without the other (Hildreth and Kimble 2004).

Participation can be considered in a number of ways. Wenger (1999) presents it broadly as a duality of the process of taking part and the relations with others that reflect this process.

'It suggests both action and connection.' (Wenger 1999:35)

Thematic analysis of the data shows the significance of two key broad areas in the student learning experience – curriculum and relationships. This section of analysis focuses on the student experience of learning as participation according to the relationships that exist within the Community of Practice. Smith (2009) points to relationships as the central focus of learning in "Communities of Practice". Smith (2009) refers to the definition (Murphy 1999:17) of learning as relationships

> Learning is in the relationships between people. Learning is in the conditions that bring people together and organize a point of contact that allows for particular pieces of information to take on a relevance; without the points of contact, without the system of relevancies, there is not learning, and there is little memory. Learning does not belong to individual persons, but to the various conversations of which they are a part. (in Murphy 1999:17)

This definition draws attention to the act of learning as interactions with others.

The first vignette focuses on presenting evidence of the student experience of reification in the context of the curriculum. In the second vignette, Sally is still within the reified context of the new SVMS curriculum and the key areas of focus from the earlier findings are still relevant. The second vignette represents learning as participation in the curriculum and the focus is on the student experience of relationships which impact on their participation in learning. This section explores the significance of those relationships.

There are many significant staff, associates and students who exist in the veterinary community of practice at various levels of participation. This section on three distinct sets of relationships between students and 'others' which emerged from the data as significant. Firstly the relationship between student and their formal teachers is explored. This draws on Vygotsky's (1986) notion of a More Knowledgeable Other (MKO) and explores observations and discussions of scaffolding (Bruner 1977). Secondly the relationship between students and veterinary practitioners that they encounter in their practice-based experiences is explored, reflecting mostly on the secondary data from student interviews. These others are defined as More Experienced Others (MEO) to distinguish their relationship from the more formal ones of MKOs and less formal ones of peer relationships. The learning which is observed and reported deriving from peer relationships are explored in the third section and leads to a definition of peers as Similarly Knowledgeable Others (SKOs). Throughout all these relationships, learning through storytelling and the significance of language in the cultural context is an important theme. This is explored further in the next chapter 'talking the talk and walking the walk'.

Lave and Wenger (1991) emphasises the importance of community on the structure of identity. Relationships with MKOs, MEOs and SKOs, in the context of the curriculum, contribute to the student experience of identity formation. This is tacitly demonstrated in the vignette, touched on in relationships, and explored in more depth in the final section of the findings relating to identity construction - 'walking the walk'.

Throughout the highlighted relationships, the congruence between the student and 'other' emerges as significant. Three significant types of congruence are relevant – cognitive congruence, social congruence and professional congruence.

Cognitive congruence is the extent to which learners relate to the knowledge in similar ways to those sharing it with them (Lockspeise et al 2008). In reverse it explains why students struggle to relate to educators whose knowledge is so ingrained it has become tacit and so to a certain

extent is inexplicable (Cornwall 1980). This hampers an experts' ability to explain content in a way a novice can understand and relate to context.

Social congruence refers to similarities in social and motivational aspects of learning (Lockspeise *et al* 2008). Since teachers have the most potential for cognitive congruence, their relationship with students is categorised as More Knowledgeable Others (MKOs). Students will learn best from those who have similar experiences and goals who share similar motivations for their learning journey. Since peers have the most potential for social congruence, and are more likely to have similar cognitive levels, the relationship with students is categorised as Similarly Knowledgeable Others (SKOs).

Professional congruence is introduced as a concept to explain the relationship with experts in the field – students learn best from those who already hold a position of importance within their community of practice and are good at sharing their professional expertise. This relationship is described as that between students and More Experienced Others (MEOs).

This chapter will give the reader an understanding of what it is like to be a learner at SVMS *participating* in learning through relationships with others.

7.3.1   Relationships with More Knowledgeable Others (MKOs)

In Harden's (2011) reflections on his 50 year career in Medical Education he gave ten key lessons for future educators. The first of these is that people are important and he explains that this means,

> '*More important than the educational or assessment technique adopted is the **expertise with which it is employed.*** * A good discipline-based curriculum is better than a poor integrated one, and a good integrated curriculum is better than a poor discipline-based one.'* (Harden 2011:781)
> *(*emphasis added)*

I interpret this that Harden (2011) refers to the importance of balancing the participation aspect of the duality with reification in the learning process. The impact of techniques such as the clinical, integrated and professional approaches to the curriculum can only be measured by the way they are experienced through participation. The start of the student learning experience is in participation with teachers, or the expertise employed to deliver on the reification.

It is therefore important to consider the teaching staff at SVMS and the impact this may have on the culture. They, like the first cohorts of learners, to a certain extent had to be risk-takers. The type of person willing to work in an institution which is not yet fully accredited, with a brand new curriculum, has to be an innovator whose belief in the importance and benefits of the new culture outweigh the potential risks to their career.

Many lecturers transferred from other institutions bringing a wealth of existing experience of a range of teaching cultures. The majority are qualified and experienced vets also bringing the experiences of their own education and clinical practices. This is confirmed by data collected through conversational field notes – many teaching staff I spoke to express a desire to work at SVMS because it gave them the opportunity to make future learners' experiences better than their own. In creating a link to these experiences there is a culture built on a desire to help build the best veterinary community of practice.

There are also a wider range of staff employed at the vet school than just academics with experience of veterinary practice. Some academics have limited veterinary experience but are highly experienced scientists with an animal-related research profile. It is important that cutting edge scientific techniques are presented as a part of the holistic degree. However these lecturers obviously have less congruence (both socially and cognitively) with those directly related to veterinary practice.

There are also a range of practising experts used as part-time lecturers, - either working part time in practice and part time in teaching, or as visiting lecturers. This section includes staff whom are employed by the University in part-time roles and also in practice.

Vygotsky (1986) used the term 'More Knowledgeable Other' to describe someone who has a better understanding or a higher ability level than the learner in regards to a specific task, concept or process. Traditionally the MKO is thought of as the teacher or an older adult, but Vygotsky acknowledged that this is not always the case and his work is often cited as a basis for peer learning. However for the purpose of my study, I use the term MKO to describe specifically a Vet School staff member responsible for an aspect of learning and their relationship with a learner or group of learners. Relationships with experts in the field and other students who impact on the learning process are considered later.

Vygotksy's work including the notion of learning with an MKO was based on the way that the relationship between the MKO and learner leads to the generation of meaning and identity. Wood, Bruner and Ross's (1976) notion of scaffolding has origins in, and is therefore usually

applied to, investigations of the primary classroom, but is transferable to any learning environment in principle. Learning is enhanced when support is provided by a more knowledgeable person. Good pedagogic practice in scaffolding involves leading a learner through a hierarchy of learning development until the new skill or knowledge can be applied to new situations, at which point the scaffold can be removed. The integrated curriculum is designed to offer planned scaffolding through reification. The staff are expected to offer both planned and emergent scaffolding through participation.

Conducting observations over the first two years at SVMS allowed me to encounter the wide range of scaffolds employed through participation in a range of scenarios which forms a broad and deep evidence base. So many relationships exist that it was important to categorise and thematically analyse those which are most significant. I reflect on the key teacher-learner relationship identified in sections which reflect the different roles that teachers take – as lecturers, as small group facilitators and as tutors offering pastoral care.

7.3.1.1 The Student Experience of the Learner-Teacher Relationship

The data about relationships between students and MKOs in both lectures and clinical relevance sessions was analysed independently but findings overlap significantly in terms of positive and negative student experiences.

In basic components, a lecture comprises the whole year cohort of 100 students, where clinical relevance sessions comprise small groups of 10-15 students. The role of the facilitator in clinical relevance sessions is significantly different to role of lecturer. In lectures, learning is controlled by teachers, in small groups a problem based collaborative learning approach is taken. Instead of being an expert directly sharing their knowledge, the facilitator role should support and steer student learning.

I took all data which related to the learner-teacher relationship and categorised these into positive and negative experiences. Three significant types of both lectures and small group teaching emerged which can be broadly categorised into those which add no value, little value and a lot of value.

The type of lecture which adds no value to learning is commonly reported both in the literature and by the national student population as 'death by PowerPoint'. I observed one lecture on a Monday at 3pm at the start of the second year which had the lowest attendance I had ever seen in any SVMS lecture, approx. 25. It was led by a lecturer I had not observed before but who the

students had been taught by previously. Within five minutes of being in the lecture it became obvious to me why the attendance was so low. The lecturer was using the content of the PowerPoint as a script to read to the class adding little content to that already visible. To make matters worse his first language was not English and even listening to the monologue was difficult. Of the few students in attendance, many were involved in off-task activity and others considering the material were simply reading it through for themselves. The lecture was conducted at lightning speed with no recaps or reinforcement in the material. The only interaction came at the end of the session when the lecturer said 'Did everyone get that ok?' by which point most students had started packing away their bags and leaving the room. Whilst this type of lecture was not observed again at SVMS, I have witnessed this type of didactic non-value-adding lecture in a range of other scenarios across this and other institutions. When I asked students in interview about negative experiences of learning, in particular lectures, this approach was described by all as the worst type.

'I mean if somebody's just reading off the slides and you just think, well personally because when I revise I'll go over the lecture and pretty much make notes from everything that's on the lecture slides, so I just think if they're not adding anything to what's already there, in the raw kind of sense of the lecture, it's... you're more inclined to drift off and go and look at other things on the internet' Harry, year1

Where a lecturer makes no obvious effort to engage students to make meaning of PowerPoint notes through use of pedagogic techniques, the lecture adds no value to the student who might as well stay at home and read the notes themselves. In this scenario there is no relationship or congruence displayed between the student and teacher and no scaffolding is in place. This approach is recognised in the literature (Holzl 1997, Nisbet 1994, Exley & Dennick 2004).
In small group teaching, a lack of engagement or relationship with learners can have a negative impact on the student experience. In year 1, Chloe points out how a lack of intervention can limit learning.

'They say very little and we're just sitting around sweating, just don't know what we're doing, you know just scratching around in the dark. Those are the times when the facilitator, I think should step in and go 'oh maybe you want to look in this area' or just a little prompt or something. Chloe, Year 1

One field note taken from a conversation in my office arises when a PG arrives back particularly early from acting as a facilitator in one clinical relevance session. I ask her about it she admits that she gave the answers to the students (when they were moving in the right direction) in order to

end the session early and get back to her research. Postgraduates are not however the only ones guilty of bad facilitation – one clinical lecturer who facilitates regularly gives the answer to the problem to students without them completing the problem solving process for themselves.

> *'I've had facilitators before who just read out the, you know the facilitator notes. Lecturer Z in particular, he was ridiculous, he used to just read out what he had and go 'right, this is what you need to get' and that wasn't helpful at all.'* Fred, year 1

This example of over intervention arises from social incongruence or a lack of application of pedagogic content knowledge. In year 2, Betty describes intervention as a balance which can be overdone or underdone and be ineffective.

> *'Ok. What makes a good facilitator then?*
> *Erm, from my opinion, its someone who is happy to sit back and let us have a discussion, but if we are clearly struggling or we haven't got the main point of it, will help us out a bit. It is necessary to have one. I think facilitators who try and give you the answer straight away, I've had a few of them who try and work too hard to get you to the answer and its almost too much leading you to the answer and we have to, particularly as vets, be very independent about how we are thinking, so that's.. Yeah. But equally I've had other facilitators who, not this year actually, last year, who just didn't say anything and went off, sat in the corner of the room, said hello goodbye and that's it, nothing.'*
> *Betty year 2*

A facilitator helps the students to make meaning by allowing and encouraging them to problem-solve, and apply theory to practice with their peers. This type of scaffolding requires both cognitive and social congruence in order to understand the students learning processes. This is demonstrated in Sally's story by the facilitator who recognised the group were not functioning well on the last guide, and needed to be steered more around the diagnostic process. These examples of negative relationships give an insight into the type of student-teacher relationship which adds most value.

The second type of student experience is one where a relationship exists between the learner and teacher in the lecture, and the actions of the lecturer add some value to the learning resources available or task undertaken. There are several ways in which value adding occurs, but the most successful I observed, and which emerged from the data broadly relate to two sets of techniques – pedagogic techniques and contextualising or content knowledge. (While I do not dispute that contextualising is indeed a pedagogic technique, it is separated here from all 'other' techniques to

be recognised for its significance). These categories emerge both in relation to lectures and small group teaching sessions.

Pedagogic techniques relate directly to interventions and scaffolding techniques (Wood, Bruner and Ross 1976). The use of techniques in practice such as humour (Desberg, Henschel and Marshall 1981) repetition and recall (Dunlap et al 1996), questioning, (Hardman and D Ng'ambi 2003, Brown and Atkins 1988, Ramsden 1992) and modelling (Pratt 1998, Loughran 1996) build hierarchical conceptual learning (termed 'deep learning' by Entwistle 1984) which scaffold learners into the zone of proximal development (Vygotsky 1978). These techniques can be used by any teacher with any learner or group of learners in any scenario. The limitation of these pedagogic techniques is that repetition and hierarchical learning require an understanding of the location of the learning in the curriculum. An expert teacher would still be limited in using these techniques if unfamiliar with the culture. Social congruence is required to understand the learner journey - where the learner has come from, is at, where they want to get to and the means at their disposal to do so.

Two vital components of facilitation emerge in small group teaching which the students find helpful in their quest to find meaning. The first key skill of facilitation is intervention (Brookfield 1986). Betty summarises the perfect balanced scaffolding approach from a facilitator with social congruence.

> *'So thinking about his (Lecturer W) approach in clinical relevance, it was 'I will leave you to it while you are getting on ok but if you need help I will step in and help so that is what you really need. Betty year 2*

This experience and relationship is so significant to Betty that she actively seeks a project by this supervisor to work on in the third year.

> *'I was thinking about the projects I have done before and what made them good or bad and I think it all comes down to the supervisor. A lot of how well you do depends on the help and guidance you get than having anything to do with the subject. So I was really determined to get a supervisor who suited me' Betty, year 2*

Facilitation is clearly not about possessing knowledge to solve the task, but about knowing how to solve problems and what type of help to offer and when.

By contrast, contextualising techniques can really only be delivered by those with cognitive congruence. Contextualising brings situated cognition to the lecture scenario and helps students

to understand where their learning is located in relation to their learning to be a vet. Those with the deepest cognitive congruence have experience of being a vet which they can share with students to help them contextualise learning. Techniques for these are balanced between the planned and emergent dualities, and examples include using case study examples built into learning materials through reification but also storytelling on the fly. Those with cognitive congruence understand how to look at the knowledge they hold from the perspective of the learner and therefore use that to understand the need to contextualise, and to link. Contextualising is an additional form of scaffolding as it helps the learner to build a broader understanding and link their concepts to practice. This is another component of Entwistle's (1984) approach to deep learning.

There is some variance in the teaching that I observed. Most staff add value to the curriculum through use of one or the other of the above techniques. But there are some exceptions:

Firstly, there are lectures which do not use any pedagogic techniques. No matter how contextualised the material, if the lecturer reads from paper and does not create a pedagogic relationship with the learners then the value they add is limited. This type of lecture is rare, and usually relates to outside speakers or 'externals'. In these cases the lack of value added to lecture notes can be mitigated by an active question and answer session at the end of the lecture.

Secondly, some lecturers fail to recognise the significance of situated context, and prefer to focus at the conceptual level. However this is rare and hardly ever occurs with lecturers who have a background as a veterinary practitioner. When scientific lecturers fail to use situated cognition it could be seen as much as a function of the subject area as of their teaching expertise.

> 'My learning is better when we have the vets as lecturers. Because they're talking about the more clinical side of things. When you've got pure science you get thinking 'Well this is not important what's the point learning about it so I'm not learning.' Betty year 2

I observed one session by a scientific lecturer teaching complex material about cell formation. She was keen to engage with me and find out what I thought about her teaching. It is important to note that this lecturer, as the one described above, did not have English as her first language. However this issue was not of note to the students or I as it did not impact on her teaching, and therefore it did not arise as a point in the research. This may be because she spoke clearly and slowly and did not read anything which was on the board verbatim, using the slides instead as prompts. Lecturer V used a wide range of pedagogic techniques – for example reinforcing and questioning techniques to ensure student understanding (qwizdoms were used at the end of the

session.) She also used a lot of visual techniques in the lecture linking off to visuals and animations on the internet, not contained in the PowerPoint (although the link was sent to the students after the lecture). There were some references to animals but these were very limited, since the science was focused as such a micro level. Despite her best efforts at sound pedagogic practice it felt to me, as an outsider, like being in a lecture which belonged on a Science degree more than a Veterinary one. Students seemed to be discussing some difficulties in understanding the concepts (over the comfort break in between a long lecture) and there were a high number of discussions on the web forum relating to the topic, which students struggled to resolve themselves and required the lecturer's help to continue to make meaning after the lecture.

Educational researchers broadly agree that both subject and teaching expertise are required by expert teachers. Universities follow the basic premise that students learn best from those who are experts in their field. Piaget (1926) pointed out that the learner depends on the teacher for the knowledge of what there is to learn and how important it is. This type of knowledge depends on the teacher's subject expertise. Perry (2001) argues that knowledge of any area involves alternative views, their relationships, and strengths and weaknesses which relate to expert knowledge. Shulman (1986) suggests that there are three significant components of expert teaching and only one relates to subject expertise. The other two areas of significance are pedagogical knowledge (knowledge about teaching methods) and pedagogical content knowledge (knowledge about the best way to teach a particular subject). The latter is the knowledge related specifically to delivering teaching in one's area of expertise, which Shulman describes as the most significant factor to impact on learning positively.

Broadly, the findings around lectures in this research parallel Shulman's (1986) work. Poor lectures demonstrate content knowledge, but no pedagogic knowledge in action. Better lectures employ pedagogic techniques relating to the content, resulting in more congruence in the teacher-learner relationship, which in turn facilitates learning.

The findings I describe above relating to the Science lecturer however are a negative case and contradict Shulman's (1986) prioritisation of teacher's knowledge. These findings suggest that although the lecturer is a subject expert and 'expert teacher' in this context, that does not automatically lead to learning. Where the lecturer is not a vet, despite expert teaching, they share less professional congruence with the students and struggle to offer teaching which is situated in a holistic veterinary context that learners can relate to. Equally however, as described above, having a vet as a lecturer does not guarantee learning without the use of pedagogic techniques to scaffold and situated cognition to contextualise learning.

The second vital component of facilitation in small group teaching relates to pedagogic content knowledge. Facilitators require an authentic understanding of the task to a greater extent than for lectures, research around facilitation debate whether a good teacher must be a knowledgeable content expert or primarily an expert in facilitating student learning (Ten Cate, Kusarkar and Williams 2011).

All students routinely suggest they prefer teaching in all scenarios to be facilitated by a Vet.

> 'Does the background of the facilitator matter?
>
> I think it does – we have had SS and he often refers to cases he has seen in practice so that is really helpful, really good. But then I don't know there should probably be enough in the notes really
>
> So do you think a non-vet or non-scientist can facilitate as well as those?
>
> No I'm not convinced of that actually no' Chloe year 2.

It is unrealistic and economically unfeasible to expect a vet school to be able to provide a supply of clinical lecturers to act as facilitators. Harry in his second year describes ways that cognitive and professional congruence helps learners in small groups to make meaning through adding value to the already situated context.

> 'If somebody has worked in a practice then they know clinical relevance. If somebody has worked in practice, it's not always necessary but I think it does help if you... if they have that personal knowledge, confidence. And you know it makes you remember things, anecdotes and somebody tells you about this case, like a funny story about a certain area it will kind of reinforce your memory.' Harry year 2

Storytelling emerges again as a significant tool of those who are congruent to scaffold learning through contextualisation. This is likely to be more structured and planned into the lecture and emergent and applied more spontaneously in small group teaching in response to arising discussions. Two of the same lecturers described as strong at storytelling in lectures are described with the same skills in facilitation (It is possible that only two of the four are facilitators).

This research finds that the third type of relationships reported are the most positive in the student learning experience. They are usually conducted by vets, socially congruent with the students, who use pedagogic techniques and contextualised links to veterinary practice to help students make meaning of the material they present.

Some of the techniques observed in lectures are textbook pedagogic techniques including visualisation, structure, reinforcing and questioning. The questioning technique is one of the ways in which staff and students can interact during a lecture scenario. It is a popular scaffolding technique used by several staff, especially given the availability of ARS handsets (Automatic Response Systems) which can be used as a tool for ongoing formative informal assessment. However despite the ease of this technique and of access to facilitative equipment, questioning remains a technique which is dependent on staff employing the strategy in practice. Chloe describes how this works in practice,

> '*C: When we did endocrine Lecturer U was very good. I'm really noticing this now I am coming to revise this actually because at the beginning of each lecture (it was horrible at the time) he would quiz us on what we had done in the last lecture so of course you had to know it by then and if you know it in the module it is so much easier now to remember it.*
>
> *Me: Good, that's logical how did he quiz you? Hands up, qwizdoms....?*
>
> *C: No it was just like – you, answer this*
>
> *Me: So he could choose anybody?*
>
> *C: Yeh it was the fear factor!*
>
> *Me: Some people hate that, and you said interestingly that you hated it on the day.*
>
> *C: I never got asked actually! But I was ready...'*
>
> *Chloe, year 2 interview*

Despite mostly not *liking* this technique (of the interview sample only one did and the others did not) all students recognise its benefit to ensure preparation and a hierarchy of learning. Furthermore they benefit from the co-construction of knowledge by understanding how their peers are making meaning of similar concepts which leads to both further social and cognitive congruence amongst the group. Many students I asked about the best type of lecture reported on this technique as a strategy of this particular teacher. As a result, they respect his teaching approach and work hard to match it through a reinforced learning approach. In the vignette, Sally shows twice how questioning in the lecture scenario makes her consider her previous knowledge and helps her to ensure she has solidified her level of learning before moving on to the next point.

Many students report that they make meaning of concepts well in the lectures run by Lecturer W, through the reinforcement and strategic design of learning in a hierarchy and the approach which ensures they internalise each session of learning before moving into the next. This step-by-step

approach seems simplistic but is vital in order that students make sense of their learning. It is especially important where concepts are especially complex and with many relevant branches.

> 'Lecturer U is really good. He's got really complicated stuff, like we did fluid in urinary and there are loads of different kinds of ions that are all similar and it's a bit hard to get your head round how it all works but he did that really clearly and repeats himself a lot but everything is in such as logical order as well – it's all very well structured.' Alice year 2.

I observed this lecturer in practice, and what this student describes as repetition was not the lecturer repeating but reinforcing, throughout the lecture returning to earlier concepts and explaining how they link both to later concepts and the bigger picture. Sally reports this benefit in the lectures of the second year Repro module. This is a significant way in which cognitive congruence in the learner-teacher relationship can help students to make meaning of veterinary concepts. It is scaffolding in action in its most positive sense, within the limitations of the lecture scenario.

Cognitive congruence demonstrated in the learner-teacher relationship is related to the teachers' understanding of the student's prior learning experiences and motivations. At the Vet School, all students share a position at the periphery of the veterinary profession and teachers display a professional cognitive congruence, through recognising the significance of this journey in the learner experience. Kimble, Hildreth and Wright (2001) argue that students learn best when teachers share soft knowledge through storytelling and narrative to contextualise learning. The best lecturers use this as a technique of pedagogic content knowledge. This is a technique I regularly observed at SVMS, and one which students reported in interviews helps them to make meaning of their learning and give situatedness to cognition in lectures.

> 'At the start you are really concentrating really scared of him Lecturer U in case he is going to ask you a question and stuff, and he does hold your attention and stuff because of his respect as a lecturer. He's not the kind who would ever stand and read slides out – that's a big No-no. I know a lot of lecturers do but not many here to be fair. But he is one who is constantly relating things, so if he is doing an anatomy or a physiology lecture, he will be constantly relating it to clinical cases and things that he has seen. And that is so engaging because that's the interesting stuff that you want to know about and eventually you can see how you will be able to use something yourself so he will constantly be throwing in these little titbits about personal experience or you know just general things about veterinary that he is aware of. So like 'when I was a vet', he is always doing that' Imogen, year 2

In this scenario, pedagogic content knowledge is contextualised allowing students to make meaning of the relationship between concepts and practice. A core of staff emerges from the research as significant in this respect – those who are masters of storytelling and narrative in the classroom.

> *'Lecturer T, U and W, well I can imagine they've all got quite full clinical backgrounds and so constantly they're relating the theory to the clinical cases that they've experienced themselves and that's really engaging because at the end of the day you want to be a ... everybody wants to be a good clinician, to be a good vet in the end so everybody kind of listens up for those things and that's ... I think that's what engages us.' Harry year 2*

The teaching described above helps learners to make meanings in a dualistic way; by making meaning of how concepts apply to clinical practice, and how they relate to the professional identity of a vet. Tacit professional knowledge, and the ability to share it in relation to the student learning journey and their location at the periphery of the community of practice, adds maximum value in the lecture scenario.

The data shows the significance of the learner-teacher relationship on the learning journey. Where no learner-teacher relationship or congruence exists no scaffolding is provided and no learning exists beyond that which the learner could experience themselves reading from notes alone. Teaching delivered by certain staff (identified in this research as lecturers T, U, V and W,) demonstrate social, cognitive and professional congruence with learners, and therefore maximise learning. They do this through a range of scaffolding techniques including repetition and reinforcement, questioning and contextualising through storytelling.

The data presented suggests that there are 4 key types of relationship between learners and MKOs depending on the combination of social and cognitive congruence displayed through sharing pedagogic and subject knowledge. They are summarised in figure 6 below:

Socially congruent↑

Socially and cognitively congruent	Socially congruent / Cognitively incongruent
Best type of learning experience MKOs with clinical experience and pedagogic knowledge (usually clinicians) Students facilitated using with pedagogic techniques and clinical examples Repetition, reinforcement and questioning in lectures Storytelling and soft examples often used for contextualising Lecturers T, U, V and W *Lots of value added*	MKOs with pedagogic knowledge but lacking content knowledge (usually scientists) Unable to relate to material in clinical relevance beyond brief given but can still facilitate learning Lectures not directly related to clinical practice May use techniques such as questioning, visual aids, Postgraduates *Some value added*
Cognitively congruent Socially incongruent MKOs lacking pedagogic knowledge or pedagogic content knowledge (usually lecturers) Usually have clinical knowledge but over or under intervention: Over intervention – giving answers without allowing problem solving Under intervention – allowing students to waste time Lecturer Y *Some value added*	Socially and cognitively incongruent MKOs with limited content or pedagogic knowledge (usually less experienced staff or those teaching outside their field of expertise) Last minute supply teaching cover Those with limited experience or training Reading out lecture slides Many new / inexperienced people start here and then move onto other categories Lecturer Z *No value added*

←Cognitively congruent   Socially incongruent↓   Cognitively incongruent→

Figure 6: Table of Social and Cognitive congruence combinations

This analysis has shown that social and cognitive congruence are characteristics vital in those supporting learning, and they help the teacher to provide scaffolding through pedagogic techniques and contextualisation. In relationships with teachers in formal classes and informal contexts, learners co-construct conceptual meanings and begin to form a personal and professional veterinary identity especially from those who share clinical experiences. It is clear that there is a culture of scaffolding at SVMS, where students are at the centre of the learning experience. Authentic scaffolding provided by those with social and cognitive congruence and supported informally leads to strong relationships which helps students to learn.

7.3.2   Relationships with More Experienced Others (MEOs)

Staff and students naturally share one of the most significant relationships in the learning community. However it is also vital to consider the impact of other professionals who contribute to the learning experience. Although I did not observe any external sessions or work placements, the role of 'externals' emerged as a significant sub-category under the theme of relationships. Professional practitioners contribute to the student experience in a number of key ways. This section discusses learning as participation in the relationship between students and veterinary professionals in their early clinical experiences. Although I did not observe these experiences as they were 'off-site', they still arose as significant in interview data. With hindsight I do regret not undertaking observations of interactions between students and MEOs. As I showed in previous sections, observational data can underpin or challenge the student voice and therefore this data appears weaker than the rest in the thesis. This emphasises the importance of the choices made by the researcher and their impact on the study.

When asked about their best or most significant learning experienced several students discussed their learning 'in the field', and the impact of externals on the learning process. On placements, students can observe practice near to the centre of Wenger's (1999) community of practice model. Working in the field and learning from others whose focus is more on expertise in a job than in teaching, replicates models of apprenticeship (Wenger 1999).

Externals may have less social congruence but more cognitive congruence and practical experience. Interview data shows that the major benefit that externals bring to the student learning experience is their own professional experience, often shared through storytelling. This is evidenced in the second vignette which demonstrates the way Sally learns from externals in the field. Externals' knowledge is generally different to that of their Vet School teachers; it is geared for practice rather than teaching. For this reason, and to separate externals from mainstream Vet

School teaching staff, they are categorised as MEOs or More Experienced Others in this research. In the most part, they scaffold learners through shared experience and practices and have more professional congruence than social or cognitive.

The student experience of 'externals' is usually located in three major interactions. The first of these is when guest speakers or lecturers are invited into the School to give special talks or lectures. These are always well received by students as they are so closely linked to clinical practice.

> *'It was an external. There was a greyhound and he had gone through a hedge and it was the skin structure he'd ripped his skin off his flank and then we had the picture of that and then it was stitched up and we could see how he was stitched up and how he was treated and how well he was doing now. And it was a real case this guy had worked on.'*
> Fred year 2.

This is evidence of the clinical approach but does not represent an integrated approach, since externals teaching don't have involvement in or experience of the broader curriculum and as a result are likely to experience problems with linking and integrating directly to other learning. However, the benefit of this type of learning is the clear authenticity displayed and the learner's appreciation of the MEO central positioning in the community of practice.

The other two types of student-MEO interactions take place in the field, which is another significant difference from the student-MKO relationship.

The second example of MEO-student interactions are those integrated through the curriculum. They are reified, more planned than emergent, and as such can maximise pedagogic effectiveness. The learning experience in these situations varies according to the integrated depth of the learning and the congruence of the staff. In the vignette, Sally experiences best practice at the Guide Dog centre - she learns a lot from the guide dog trainer who understands the focus on repro learning and is responsive to their questioning. This professional approach is both socially and cognitively congruent with the students. She also uses storytelling as a tool of contextualisation.

Finally, most interaction with externals occurs outside the curriculum and directly in the work context – through placements. This is the most emergent context for situated cognition and whilst students have the potential to make great gains in learning through the application of knowledge in practice, this depends significantly on the relationship with experts in the field. I observed the impact changes in student's values and attitudes after experiences in the field, for

example upon returning from lambing I recognised that all students gained in practical confidence and use of language.

Although I did not observe these experiences in practice I discussed them with students. Positive placement learning experiences, reported by students in interview, involve MEOs who take active opportunities to help students make links and reflect on learning in the profession. These socially congruent externals are able to consider the student learning position and the relationship between that and their professional experience.

Alice and Juliet both report in their second year on challenging lambing placements which involved managing disease and death. Both girls delivered lambs who were suffering from birth defects or illness and were likely to die. Alice was afraid to ask for help and when she did she felt that she had made a mistake. She was distressed and did not learn from this experience and does not know what she would do if it happens again. By contrast, in a similar situation Juliet was scaffolded by the farmer to understand what was happening and the implications of that. Juliet learned a very important lesson about the limitations of the vet role and the balance between life and death, and volunteered to undertake some euthanasia. Although this was an emotionally challenging time for Juliet, she was scaffolded throughout by the farmer who was cognitively congruent assuming she knew nothing, and checking her knowledge at each step of the way, filling in gaps where required. He was also able to demonstrate his social congruence and told her 'I remember how I felt the first time I had to shoot a lamb I had fed by hand from birth'. Finally he demonstrated professional congruence by ensuring Juliet understands all aspects of the task from hygiene to drugs and paperwork.

Michalec (2012) examines the function of modelled behaviour during clinical experiences in preclinical training and concludes that students gain experience of and distinguish between role models and anti-role models.

> 'students actively engage in the social learning process, deciding what actions and behaviours exemplify the role of the physician they wish to emulate and those that are not conducive to their future professional practice.' (Michalec 2012:38)

Juliet learned about the kind of person she will be as a vet dealing with death, from a MEO with social and cognitive congruence. This is a situated context which could not be replicated in the classroom. I acknowledge again the limitation of not having observational data to underpin these findings. This is particularly pertinent to this section since modelling goes on at both an obvious

overt practice but also at a subtle, tacit level and I am unable to explore this further without observational data.

Techniques used in the field which demonstrate social congruence are those which test and challenge students as well as building confidence.

> 'Me: How did your work experience give you an insight into what it might be like working in the field?
>
> It was amazing, on the lamb placement it was as though they already respected my opinion they kept asking me about things and it wasn't just a flippant well do you think we should do this? They actually cared what I said …'Should we lamb this one now or leave it?' They cared! They acted like I was important. And it was weird!' Imogen, year 2

The students report that when treated like a professional in the field, they are encouraged to behave in a professional way. In this example the student is experiencing what learning to be a vet means directly in context at the hands of those experienced in practice. The placement is described as a bridge between the vet school learning and graduate professional practice.

A few students described negative placements which maintained their distance at the periphery and did not allow them opportunity to progress nearer their perception of action in the veterinary community. There is limited congruence of any kind on offer and students resent time spent in context but not actively moving forward.

SVMS takes the opportunity to reify the benefit of these experiences as far as possible in the curriculum through the vertical integration and reflective culture. The vertical curriculum ensures, for example, that the repro module falls directly before lambing placement (which students report as a timely link between theory and their practice). Reflective learning is facilitated through the requirements of the e-portfolio. Although students in the first year show little understanding of the benefits of reflective writing, this change in the second year as students build a resource which helps them to reflect on their learning. The more experiences the students have, the deeper their learning, the greater their confidence, and more interesting their discussions with each other are. As they get more experience they better understand the community and its fit with the curriculum. By making meaning of learning in real scenarios with authentic scaffolding from externals, and through reflective practice, students build meanings about the role of professional veterinary practice. This is explored in more depth in the section about identity formation.

External professionals add significant value to the student learning experience. At SVMS they are integral to the learning experience, and their contribution and interaction with students impacts on the way they continue to construct situated meaning and identity in context.

7.3.3 Relationships with Similarly Knowledgeable Others (SKOs)

This section of the findings relates to the relationships between students and near peers in the Vet School context. Research in the socio-cultural context embraces the benefits of peer learning as highlighted in the literature review. Harden (2011) confirms this with his fourth lesson entitled *'students are important players'* – identifying this is as a developing area for Medical Education

> *'Collaborative and peer-to-peer learning and students' input to the generation of learning resources can be important and will become increasingly so.'* Harden (2011:780).

This analysis reflects on the ways that peers co-construct meanings in formal learning, self-directed and informal learning scenarios.

Griffiths, Houston and Lazenbatt (1995) describe ten examples or categories of peer learning which relate to formal and self-directed learning, but not to informal learning. Boud, Cohen and Sampson (2001) dedicate their entire seminal book on peer learning in Higher Education to formal and informal settings with a nod to the fact that learning also exists in informal settings. When Universities were first created, it was informal learning through discussion which was at the heart of knowledge creation. Boud, Cohen and Sampson (2001) argue that the informal learning which used to define HE are undervalued and in decline, and need to be supplemented with formal regimes.

The "Communities of Practice" model emphasises the informal learning undertaken in communities, not least due to the informal learning environments in which most of Wenger's (1999) case studies are based. My research finds the importance of learning in both formal and informal contexts and analyses important examples of both contexts. However the majority of the focus of this section is on peer learning in the formal environment since it is this which can be impacted upon. I agree with Anderson and Boud (1996:113)

> *"Despite the fact that most peer learning occurs informally and often in unplanned ways, the currently most common idea of peer learning is much narrower, suggesting usually a type of supplemental instruction or surrogate teaching"* Anderson and Boud (1996:113)

This paper presents the argument that where the term 'peer teaching' may be more appropriate, it is not used instead, since this term implies a transmission between a student and a more knowledgeable other. This is the reason I chose to distinguish between these relationships and define peers as 'Similarly Knowledgeable Others'. Griffiths, Houston and Lazenbarr (1995) agree that peer learning is participatory with benefits for both parties, rather than a replacement for teaching. I will continue to differentiate between types of peer learning by their context – where they relate directly to learning within the curriculum and classroom they will be formal, and beyond they are informal. The formal learning with peers relates most significantly to the work undertaken in small groups for both clinical relevance and self-directed learning.

The benefits of working with peers are widely reported, not just in educational research but in organisational, medical and psychological research. Working in groups can be considered for developing inter-personal skills as well as being a method to access a higher level of learning. Teamwork is one of the six key professional skills described in the Hilton and Slotnick (2005) model of photo-professionalism. A variety of formal and informal peer learning benefits are outlined in the literature. These schemes claim a range of benefits from improved high order thinking (Collier 1980) and improved results (Crouch and Mazura 2001) to savings in lecturer time (McDowell 1995).

At SVMS, small groups for clinical relevance seminars and self-directed learning are changed with each module, three times in each academic year, which is an approach that has both affordances and constraints. Maher (2005) suggests that to progress through a course working with the same small group can have many positive effects on learning. By contrast Gordon and Connor (2001) report a case of peer learning on a MBA course where students are "systematically allocated to groups, not permitted to self-select", giving the main reasons that this most closely reflects working collaboratively in real life. It is proposed that regularly changing groups forces students out of their comfort zone which leads to the benefits for students. Working in groups presents a wide range of challenges. Boud, Cohen and Sampson (2001) suggests that problems with peer learning usually stem from differences between students. These differences, which may be a source of conflict, are also the potential source of enhanced learning experiences.

Benefits of working in groups which change regularly are that students work with a wide range of their peers. Usually students know most of the year cohort (by first name) from this process by the end of the first two years, sometimes sooner. (By contrast I did years of study towards a degree but worked with the same small group of people and had no idea of half of the people in

my year cohort.) This process helps to facilitate the small campus culture and a feeling of mutual respect for those with social and cognitive congruence.

'It's good to get different groups because you meet different people and – it's like one of the groups I was in, I didn't know half of the people in it but by the end of the group we worked really well together.' Daisy year 1

Each time group participants are changed and a new group is formed, it is subject to each stage of group development. Tuckman's (1992) model of group development (forming, storming, norming and performing) suggests that early stages of group work are usually problematic and peak performance of the group occurs towards the end of the cycle. The risk taken by SVMS in taking this approach is that students could quite possibly spend more time in social group confrontation than beneficial learning experience. In the vignette, Sally lost a whole year of group work because of opting out after confrontation. This replicates, in part, Chloe's real life experience. I observed a wide range of different groups and within this much conflict, especially in new groups. The most engaged and interactive group work I observed was towards the end of modules.

In group work, in the first instance is a period of bonding, followed by confrontation settling into roles and habits. The potential realistic constraint on learning is that more time is spent negotiating roles and in confrontation than in meaningful debate and discussion for learning. I observed one session, the first of a new group, where more than half of the session was spent on debating what the task actually meant and how to divide up the roles (who would type notes, who would look things up in books). This timewasting is reflected in the final small group session described in the vignette. Nonetheless, to a certain extent this is to be expected in the early (forming and storming) stages of group development.

Bad groups can be classified in many ways according to the levels of participation. Some groups suffer from a lack of participation which clearly leads to reduced learning for participants

'it depends which group you are in – at the moment it's really good but I was in a group for a module last year and we didn't get on so well as a group, everyone was too quiet, no-one was saying anything and it was a bit awkward' Juliet year1.

The group dynamic is significant to the student learning experience and changes over time. The incident described above is a negative case, being the exception rather than the general rule throughout my data. I did not observe a group that I felt suffered from a lack of participation but several students mentioned them in interviews. All groups described as lacking participation occurred in the first half of the first year. This may reflect forming issues from Tuckman's (1992)

model in relation to the entire cohort and their familiarity with one another across the cohort. In Sally's story we see a group who work well together suffering from a lack of participation in their final session due to last day apathy. This is designed to highlight my observations that although groups may work well in general that changes in approach can also be relative to the context and culture. I witnessed last day apathy and, as reflected in Sally's story I also witnessed teaching staff response. Although it is acknowledged that there must be work-life balance staff actively encourage students to maximise all learning time on campus.

In collaborative learning is it vital to take a common approach to the task. Several students reported in interviews that their group members did not participate in the same way

> 'Everyone tends to go in different directions. One wants to spend loads of time doing the questions and the other wants to rush through. So not, kind of taking a strategic group approach but everybody was doing their own thing… It doesn't work' Fred year 1.

I witnessed many small group sessions and there was such variety that there was little commonality. Some sessions were great fun with high spirits, lots of participation both on-task and off-task. At the other extreme, some sessions were focused completely on task, sometimes with tasks divided, working in hushed whisper. Some groups completed tasks quickly; others failed to complete the task because they were so deep in discussion. There were sessions at each extreme of learning approaches and at every stage in between.

It is important to focus on participations as experienced by students, and the data from interviews draws attention to interesting cases. When I asked students in their early second year interviews to discuss their clinical relevance groups, most focused on their current group. By coincidence Harry and Alice were in the same group but they participated in different ways. Harry shows throughout his interviews that he enjoys and learns well from debate. Harry feels the group is too quiet and he is not participating with some members.

> 'I just kind of want my cake and eat it because I like quite a bit of banter in the room but then you do want to get the work done but at the moment it's just a distinct lack of banter, it's just very serious writing. There are three girls in the room who are extremely keen; we'll have to go into every little detail. It's like sometimes they're just, you know, working between themselves and sometimes I feel reluctant to… if I'm not really understanding something to kind of ask. ..Yeah, just out of, not out of embarrassment more out of I just can't be bothered, you know' Harry year 1.

By contrast Alice is happy with the way the group works.

> *'Erm, I think if there are similar people in a group, people who are like you, and then you can work with each other on a better level because you understand what people are doing and stuff and how you work together.' Alice year 1*

This demonstrates the importance of congruence between students – social congruence in the ways and motivations to work together, and cognitive congruence to ensure learners have enough similarity of understanding to co-construct meaning, or to even not prevent meaning making.

> *'If your group doesn't get on then that can be negative. I know that it's important to be able to work with all different kind of people and you do, and that is important, because you have to in life, but it can be quite wearing and it is really tough so it can be a little bit negative in that respect.' Juliet year 1.*

It seems that the potential negative impact of a malfunctioning group is that it becomes a barrier to the learning. When speaking to students about why they chose not to work on self-directed learning tasks in the allocated groups, they often refer to making a judgment call about the best way to learn

> *'I just don't come because when I am there I don't tend to learn anything.*
> *Me: Ok has that been right from the start?*
> *'I started off doing it and then I quickly learned that I had to go back anyway and go over it and when I went over it I learned 100% more than what I had done when I was in the groups' Alice year1*

In order to commit to participating in co-construction of meaning, students need to feel that their learning can benefit from their peers.

> *'The problem is it really depends on what people you have who you are within the group because for example my first group that I had this year (2nd) I loved it we had a great time we worked really well together and we all helped each other learn, bounced ideas off each other, and things. But my group now they just want to get it done and over with and I don't feel like I learn well with them so most of the time I end up doing it on my own because I do want to get something out of my SDL sessions and other people really don't care whereas I do care so!' Gemma year 2.*

If they feel no benefit is to be gained from peer learning then learners opt out of the process.

If students do opt out of formal learning groups they sometimes create their own informal learning groups which are cognitively congruent. Lucy describes the way she works with her friends in a self-selected group.

> '*L: I've got a group of friends and we will sit and we write and we go through it together.*
>
> *Me: right so it's almost like a self-directed group really?*
>
> *L: Yeah, we've just made our own group really*
>
> *Me: So that works for you because you're still able to go through it? Do you think you lose anything by not attending the group sessions?*
>
> *L: Erm, no because I am doing it in a group anyway, so if I get stuck I can ask someone else in the group and they all work at the same pace anyway, you know because if you're working with someone really, really clever, they don't want to keep going back to the simple stuff we have had in lectures the week before.*
>
> *Me: Ok, that's interesting, so there's a problem where levels of ability sort of mismatch...*
>
> *L: Yeah. Because if I've gone through the lectures, I do struggle sometimes if someone hasn't, and someone's asking me all these questions, it's just a bit frustrating really because it holds up everything, a lot of people know the answers anyway and I know that this person probably didn't even turn up to the lecture in the first place, so I'm just sort of a bit.. I wouldn't mind if they had tried, really hard, but if they haven't put in the time of day....' Lucy, year 1*

For Lucy.it is vital that she learns with peers who are congruent, as attempting to work with those at lower level of commitment cause her frustration, and slows down her learning. She is self-selecting the community with whom she is sharing her practice.

Students' understanding of the benefits of group work emerge after their first year exams. By this stage they have experienced at least five different groups and gained a wide range of conceptual knowledge which they have measured in assessment. They experience a period of reflection and many change approach in the second year, - this is a resolve which I have seen in practice. Second year groups have higher attendance and tend to be less confrontational and more committed to inclusive task-based discussion (although this is of course a broad generalisation).

Relationships and the way students perceive the benefits of group work was observed to change over time.

'Me: Does everybody opt in more this year than they did last year?

L: Definitely more than they did last year.

Me: Why do you think that is?

L: I think people are just more comfortable with each other and they kind of know a bit more and stuff.

Me: In terms of the subject as well to have something to contribute?

L: Yeah.' Lucy year 2.

Over time as the students make meaning of the horizontally and vertically integrated veterinary curriculum, and especially after the first year of assessment, learners begin to develop in two significant ways – they make stronger links between conceptual learning and better understand how they learn. This is evidenced in data from observations and discussions and is also represented in the data vignettes. Sally is often able to see how her present learning relates to previous sessions or systems. During this journey they also recognise the significance of their peers and the contribution they make to the learning journey. This becomes part of the culture of learning to be a vet at SVMS.

Within formal learning, most obviously in small group work but also in lectures and practicals, students are making shared sense of an area of their learning. Students co-construct meanings of concepts and their application in context with the peers they share this experience with. They do this through discussion, usually reinforcing, questioning, debating alternative viewpoints and sharing the journey of meaning construction. Learning from peers is essentially an act of collaboration. It is a shared experience of making meaning scaffolded by socially and cognitively congruent Similarly Knowledgeable Others (SKOs). Learners are similarly knowledgeable only in so far as they are neither MKOs with advanced course knowledge nor MEOs with advanced professional experience. Although I define them as SKOs, it is only to draw attention to the difference between the types of relationship in terms of congruence.

Any small group comprises students who between them have many differences (Boud, Cohen and Sampson 2001). Despite defining them as SKOs, I recognise that it is in fact their differences and the extent to which they are encouraged to share them in the learning context which benefits learning. In sharing experiences of the practical application of knowledge, peers can situate the context of co-constructed meanings, providing authentic scaffolding for others' learning. The social and cognitive congruence allows them to do this in a way which fits with others knowledge position.

An example of this in practice occurred in a clinical relevance session I observed during the second year cardio module where students were working to identify a specific cardiac irregularity. Students had been learning about a range of irregularities in lectures. I noted

'Student Z started to tell the others about his Grandfather, who had this and he had shortness of breath and sounded wheezy then he went to the doctor and they did tests and found out he had a weak valve. Same thing as this case but in a human! That's handy and the others are interested (Fieldnote: 12th December 2010).

These were useful tools for the group to compare to the case and combined with the prior knowledge presented in lectures led to them ruling out that condition in their group problem solving. Although learners may not have significantly more knowledge than one another, their differences in understanding and their previous experience in the field gives them tools for use in discussions for meaning making. This is a form of scaffolding (Bruner 1977) and is authentic in the sense that it is constructed through working together on authentic tasks where learners co-construct meaning. It can therefore be described as authentic peer scaffolding.

Where learners have additional experiences to share which help learners to situate their cognition they become elevated to the role of more knowledgeable other (MKO). In sharing experiences of the practical application of knowledge, peers can situate the context of co-constructed meanings providing the highest level of authentic scaffolding for others learning. For this reason students with previous relevant experience, such as veterinary nurses or farm workers, can add significant value to their peers' learning experiences. I have already described how Harry prefers discussion and debate as a learning approach. Harry recalls several groups with particular individuals who added value to his learning.

'a few vet nurses in our year and its very interesting that when we are doing small animal things and they will be able to say well this has happened to me at work or a vet worked with told me this or they have seen this procedure done and this technique – I mean I have seen practice, not a huge amount but some, and not on an everyday basis and its really interesting to take all those bits together...so there are always areas where some people are going to be stronger than others but if that works well, well if people are all vocal, and someone is not dominating which we know can happen, if everyone does pull their weight it can be a very effective learning experience'. Harry year 1

All students have social and cognitive congruence with peers but some, especially mature and widening participation students, have additional situated experiences which enhance the situated cognition of learning in the group.

However experienced and knowledgeable a learner may be, they can still gain from learning with peers. Betty is the most qualified of her peers with a Biology based PhD and although others benefit from her additional knowledge, she feels she also gains from the context of peer learning.

> *' a lot of the time I do know the answers, and sometimes I don't know anything at all, but in many ways the most useful time is the bit in between, when I think I know what the answer is but someone else thinks differently - and that's more useful because it's changing the way I think rather than reinforcing.' Betty year 2*

Whilst students clearly need social and cognitive congruence to work together, and widening participation students often add value to learning through sharing their additional experiences, all students can gain from peer learning when ideas are presented, challenged and reinforced. The quality and depth of task set is vital to provoke discussion and engage with prior learning. I observed some sessions where tasks were very straightforward and (depending on facilitation) could be completed by a group all working together in half the allotted time. By contrast I also observed sessions (SDLs) which had so much work they had to be divided up to be achieved. I discussed with Alice the impact of the task content on the approach to learning taken by groups,

> *'A: There will be a umm difference in the quality of the SDLs and some of them you'll look at the night before and it'll be 4 slides and you realise there's no benefit in doing it in a group, umm you know as a group so you can do it quickly on your own or...*
>
> *Me: When do you know that there is a benefit to doing it in a group? Is it determined by the volume?*
>
> *A: Well yeah it can be just a sheer volume thing, you think oh I'm going to have to break this up and I'll do certain sections and then send it round or something, say if it's a load of clinical cases and it's really helpful to talk, because you could be going completely off the wrong, you know, on the wrong line. There was one recently where we were doing with urinary, about the different types of fluids to, certain clinical cases. I think that's very helpful because everybody will have different viewpoints and you can discuss things and hopefully come to a...*
>
> *Me: So things that require discussion essentially?*
>
> *A: Yeah exactly, BUT if it's just like, particularly I know with some of the exotics SDLs that will just be, right you know, question and answer, yeah, stuff that you just need to look*

up in an anatomy book....it's got a right or wrong answer and the only reason that you would do it in a group is the volume of it sometimes' Alice year 1.

Alice confirms that the major benefit of working in a group is a shared experience of making understanding and meaning. The benefits of working together arise from more than just division of task - discussion and conversation, reinforcement and shared experiences are all significant factors in learning in groups.

'Normally they are really big and so you have to do them as a group, so like its way more than I could ever achieve on my own, which is good thing because if I could do it on my own I probably would because it's easier. But generally I go; sometimes I write the notes while other people research stuff

So if you do it all together what's the benefit of that?

Well you get lots of different opinions don't you and with these we often don't get the answers given to us so if there are eight people who think it's right then it probably will be so that's cool' Alice, year 1

When observing a PBL session, I would read the information and imagine how I would approach the task. Observing the group carrying out the task usually involved a far more complex problem-solving approach than I had imagined for myself as a learner. This is because there would usually be lots of presentation and elimination of ideas. Students would debate each idea giving reasons to accept or reject a suggestion, between them co-constructing meanings for new knowledge in application.

'Me: what do you get out of working in a group that you don't get working on your own?

EF: Different people's way of looking at stuff – I mean I can look at something and think I don't really understand that, but sometimes if someone else explains it in a different way than what the lecturer has written down then you're 'oh now I get it' and sometimes if someone else tells you it sits better in your brain and it's easier to remember 'oh yeh so and so told me this' so yeh, other peoples ways of explaining stuff.' Chloe, year 2.

Chloe suggests that co-construction of material is more memorable. These are excerpts from conversations in year 2 and significantly represent a marked change in attitude by both students who opted out of most group work in the first year.

Informal learning is helped by the wide range of relationships amongst students. The more peers are comfortable with one another and have a range of shared experiences (socially congruent)

and a situation to stimulate discussion and have a topic of similar awareness and interest (cognitive congruence), the more these conversations will arise. Consequently the amount and depth of knowledge-based discussions increase over time.

Peer conversations either formal or informal involve greater scaffolding where one student is slightly higher socially and cognitively in the community of practice. This is evidenced by Sally's experience in the vignette with both 4th year facilitators and her third year housemate. This is based on many similar experiences I observed and discussed with students.

> 'If you are looking at , well here's an example, we had a lecture well 3 lectures on molecular genes and stuff and I thought ok I understand this and then I went home to my flat mate and just couldn't answer questions about how things move or anything?' Chloe year 2

This example, and others described in interviews, underpinned by field notes collected from overheard conversations, was the basis for Sally's conversations in the vignette. Students benefit from her older and more experienced peer's slightly greater understanding of the subject than her own. By asking questions the older peer is using the benefit of her social congruence. Because she has recently had the same learning experience she can understand the younger student's learning position – where she is 'coming from', why she needs to know what she needs to know. She also benefits from cognitive congruence – the older student not only knows more than her but has a good understanding of what the younger student does know. Her informal questioning is therefore a strong way to test the way she has made meaning of her own learning. This scaffolds the younger student to identify the gaps in her learning and what she needs to do to progress. By offering advice about the way she made meaning of the concept, the older peer helps the younger to approach her knowledge in a new way. This is authentic scaffolding as it links to her previous and future situated learning experiences.

Students are able to scaffold one another informally, both within a cohort and between year groups. This usually takes place in discussion which reinforces or questions conceptual learning, which helps the learner to make meaning of new learning in context. Cognitive and social congruence benefit learners as they allow peers to offer authentic scaffolding. Furthermore they are able to understand scaffolding and begin to articulate discussion around it which helps them to develop as lifelong learners.

In interviews all students reflect on working informally with peers at revision times. This is typical as revising is when students attempt to commit the most knowledge to memory (using strategies

such as challenges and reinforcing), so the ways that peers interact at this time is significant and likely to affect the way meanings are constructed. Interactions during revision periods are high. During exam periods, you cannot book a small group teaching room as students work in revision groups – sometimes these are their allotted clinical relevance groups, sometimes with additions, sometimes self-created. Informal discussions take place until immediately before, and start again immediately after assessments. These can just be chat between peers who happen to be standing near one another and who share the immediate concern – 'what did you put, what did they put' helps learners to make meaning of their own and alternative interpretations. The web forum is heavily used in exam preparation periods.

Students have talked to me about the way they revise. Informal groups include those which often occur in living situations, where students from the same or different years share a house.

> 'Yeh really, well it was quite good actually because I tend to get really focused on the details but my flat mate who is really good he would make one page of notes for a whole week's worth of lectures so that was really good so we would go through that and all the basics then we would go over mine and which was the finer details and that was a really good approach.' Imogen year 2.

Students in years above add particular value due to being more experienced in 'learning to be a vet' as well as being socially and cognitively congruent.

> 'Me: Is it useful having somebody there who's kind of done that year before you?
> I: Yeah definitely. But just in terms of, actually less in terms of work. I mean maybe 'about this exam last year, did you have to know this certain area?' But really most of the time it's just nice because it's somebody with a different aspect of looking at things' Daisy, Year 2.

However students also recognise the benefits of varying skill and experience levels amongst their own cohort. Students discuss turning to friends to practice techniques they have more experience with – for example Chloe suggests that when it is time for practicals with horses 'it is handy to have a horsy friend'. This is not limited to practical skills – students share academic skills. Cate volunteers during the second year to run lunchtime workshops for peers in exam writing techniques. Her background in social science and experience of essays as a method of assessment give her the confidence to share the benefits of her experience in a semi-formal way with peers. The culture of co-constructing knowledge inspires and supports this activity, and the ability of students to recognise the benefits for their own learning ensures it is a success.

Informal learning between peers is so successful it becomes impossible to separate it from the formal curriculum; - they become entwined in a semi-formal spiral of authentic curriculum based peer learning. Whilst this may be true of most HE courses, it seems to a certain extent to be motivated by the small group and self-directed learning opportunities. These informal experiences with both near peers and older peers are invaluable opportunities for scaffolding in the student learning experience.

Ten Cate, Kusarkar and Williams (2011) present the argument that teachers were historically best at scaffolding because knowledge gave them didactic power. They argue that this power relationship has been significantly affected by two major factors which have changed in the educational environment –the rise of the PBL culture, and the internet. These are both significant themes which emerge in this research and show how peers help each other to make meanings. This analysis shows that as Ten Cate, Kusarkar and Williams (2011) argue, peers (SKOs) and on occasion, computers, can now provide scaffolding as well as teachers (MKOs).

It is very difficult to know the extent to which peers positively affect one another's learning during lectures and practicals. The didactic nature of the scenario does not often facilitate interaction. Students do demonstrate making meaning of basic concepts together through informal discussions observed in relation to lectures. From my observations these usually take place on the day of the lecture, either during the lecture or directly afterwards or during later revision sessions, where these are conducted informally and socially. Observations of these conversations show that they act as a form of informal scaffolding through reinforcement. These conversations are mirrored online (in the webCT discussion forum) and usually occur on the day of the lecture, as students begin revising class work.

> *'What do acoelus and procoelus mean?'*

> *'I think procoelus was the way the invertebrate disks were arranged with no interverteabral disk with cranial end being convex and the caudal concave, ... acoelus has intervertbrae disks between the vertebrae, flat articulation between them I think'*
> *Anonymised online discussion, 16 Nov 2008 year 1.*

This conversation could have taken place face-to-face in a coffee break after a lecture but actually happened online, at 6pm on the day of the associated lecture. Conversations like this also take place in relation to practical lessons and other types of learning experience. They happen in a wide range of scenarios usually close to the teaching session – in corridors, on coffee breaks, in queues as well as later in the same day in the discussion forum. Informal groups with more than

two participants' discussions can be wider ranging and more meaningful. In this way students are co-constructing the meanings offered to them through the experiences of peers who may have constructed their own meaning in a different way.

> 'HELP! Hypoxia is low levels of oxygen in the tissues... so why go you get high levels of CO2? Because I have written down that it's the high levels of CO2 which stimulate the increased ventilation rate, which corrects it (the hypoxia)? If anyone could sort out that jargon I would really appreciate it! xxx
>
> 2nd March 20:12
>
> my guess is that hypoxia can be caused by reduced respiration or transfer of gases across the alveoli which means not only will low levels of o2 being getting into the lungs but co2 will not be being transported out as easily? this accounts for the build-up possibly? xx
>
> 2nd March 20:48
>
> That is exactly the conclusion we came to, but then we got confused! thank you xx'
>
> Anonymised online discussion

Although computers provide scaffolding they do so by providing a medium for discussion with peers, mediated by staff.

Translating meaning amongst peers is a good learning technique for making sense of concepts and language. Learning terminology and making meaning of the use of language in order to apply it to new contexts is only one of the key basic concepts, but is an interesting one as it comprises all key features discussed so far from curriculum to relationships. This is explored in depth in the following section of the chapter.

This second section of discussion has explored the most significant ways that students experience reification through the curriculum and participation through relationships with three important categories of others (MKOs, MEOs and SKOs) in the community of practice. The findings discussed begin to explain the way that learners construct meaning and identity through relationships. Socially and cognitively congruent others help through intervention and contextualisation. Intervention involves the use of pedagogic knowledge techniques including repetition, reinforcement and questioning. Contextualising includes sharing of experiences, particularly using storytelling. Either of these techniques adds some value to the student experience but the combination of both approaches adds significant value.

This final section considers how the process of learning through participation and reification leads to the products of learner meaning and identity.

8   DATA ANALYSIS 2 –TALKING THE TALK AND WALKING THE WALK

8.1   Introduction

The research analysis has so far explored the ways learning is experienced within a community of (learning) practice, through reification and relationships to generate and support meaning and identity in students. This section focuses on drawing together the findings which relate to developing professional identity and uses a cross cutting theme of talk to highlight these findings.

8.2   Talking the talk – what do you say?

A theme which occurred within many sub-sections of the findings was the place and use of language and talk in the SVMS student learning experience. This emerged as a significant theme in relation to two key areas – firstly language and terminology as a tool of the community and secondly the role of storytelling for sharing expertise within the community. Both of these areas, despite being quite distinct in analysis and application, affect the student experience of making meaning and developing professional identity.

Language is a key feature of any community of practice. 'Talking the talk' is related to the language focusing on two key areas - terminology or knowledge of language, and confidence to use language in context. Wenger defines the importance of talk at the periphery.

> 'For newcomers then the purpose is not to learn from talk as a substitute for legitimate peripheral participation, it is to learn to talk as a key to legitimate peripheral participation' (Wenger 1999:5).

There are two key links between language and the community of practice – the knowledge related to language and its use in practice – another inseparable duality which mimics the duality of knowledge in situ. Terminology associated with veterinary science and medicine represents, and in many ways mirrors, the learning of veterinary concepts. There are hierarchical layers of meaning starting with basic and surface concepts such as individual words and their meanings. The second layer of language relates to understanding use of terminology in relation to other words or concepts, in context. It is indeed not enough to know what a condition is called, if this cannot be related back to the client in a useful and non-technical way.

One of the most striking and noticeable changes I observed over time is the way that students use veterinary language. Research in second language education (Gass and Selinker 2008, Hinkel 2011) shows that the way we learn new terminology and its use is bound in contextualised social interactions. Although not a wholly a second language 'veterinary' comprises an understanding of vast range of terminology – medical, biological, scientific and animal – related. *'Legend has it that after medical school, a newly minted doctor has some 55,000 new words in the memory bank'* (Sobel 2005:1945). The use and understanding of this language is a gateway into the community of practice and can give an indication of the learners' position in it. For example, at the start of the first year I felt that, despite my lack of any scientific knowledge, I could follow most lectures and understand most of the problem solving process in clinical relevance sessions. At this level of learning, students would make limited use of terminology themselves, unless repeating terms offered by others. When trying to use new terms, for example in relation to case, students would offer terms tentatively and questioningly 'Could it be the meta-...err the meta-tatrical... errrr?' I felt as though we were all outsiders to the community of practice where the use of this terminology was implicit. However the change happened much sooner than I had anticipated and by the end of the first year, and even more so in the second year, I understood less and less of each session and felt like more and more of an outsider to the community. Although this was not a key category of emergent findings, it overlaps with all key categories. My attention was drawn to its significance in year 2 interviews when a discussion with Harry about the progress of his learning outlined this change from his own perception.

> *'There is a moment I always remember from the prelim and this was early on I think it was about the second week after I had started, and they sent us away and they showed us different journals and different scientific text books which we had to look through and then give a presentation about the different styles and ways that they were written and we did this and they gave us some random journals and stuff and I was just I remember looking through it and just thinking I am never going to cope with all this, I have been doing classics! All the scientific language and jargon I just found absolutely overwhelming but I am sure now that if I look back at it there would still be things I wouldn't understand but most of it that kind of foundation and science terminology yes it has become second nature and I really like that kind of feeling, you know that kind of awareness that when people are talking about things you are understanding. The understanding that you get gives me a real sense of satisfaction you know but it's just a gradual build up I think.'*
> Harry year 2.

Through gaining knowledge and the ability to use it in context and having the opportunity to recognise that through reflective practice Harry gains a sense of confidence in his growing identity in the community of practice.

The way that terminology is taught at the start of the course is like language teaching. Field notes show many examples of individual words thrown into learning scenarios (usually only defined at the very beginning), rote learning of terms and exercises in learning terms by attaching labels to diagrams. However this is a surface approach at learning words rather than language, in the same detached way as learning concepts rather than a culture of concept application in practice. Deepest learning occurs when students are able to make meaning of their new knowledge in authentic contexts and make links for themselves between concepts in practice. Deep learning occurs within a culture of trying out new ideas with others, and co-constructing meaning through repetition, positive reinforcement, and situated cognition. Haneda (2006) emphasises the importance of peers and teachers to help students make meaning of the use of language (concepts) in a community of practice. The role of teachers is to use language in situated cognition and in a way that is socially and cognitively congruent with students' position in the community of practice. Alice highlights what this looks like in context

> *'It's kind of, well a lot of it is assumed really, they'll like use a new term in a lecture and you'll just make sense of it in context but we are given a lot of it as well so like it might be explained in a lecture or given in clinical relevance where we are expected to look it up'* Alice year 1.

Students have responsibility for their learning - looking up words they don't understand and committing to memory. They do this using variety of techniques.

> *'In terms of computers I think it's so helpful that you sit in lectures and they can mention a word and you can quickly Google it and get a one word definition and so I would then copy and paste that and put it into my actual notes and that is so helpful I think. So it's useful for them to use terminology you don't understand'* Fred, year 1.

> *'Yes exactly they don't pander to ignorance and just use colloquial terms, they will use the medical term and they will explain it once but then they will always be using it and you just have to become accustomed to it and then you understand what it means after a while.'* Harry year 1

Computers recur within the theme of scaffolding and although they clearly cannot replace teaching they are able to actively support student learning. Scaffolding is also provided by peers who are cognitively congruent and so use each other to test out new terminology as described in the previous section.

Following the definition of the new word (or concept) is a period of repetition and reinforcement as well as applying in authentic contexts until its use becomes second nature. This mimics the integrated approach of the larger learning cycle of veterinary practice but on a much smaller scale.

> *'I mean we used to get sick in the first year when we would have musculoskeletal that we would go over in SDLs radiographs and anatomy things and you would be like oh god naming the bones again there would be so much repetition everybody would be sick of it by the end but really it was a good teaching method because once you get sick of it then you know you've nailed it, you know you've got I then because it's just like second nature. So I think that repetition is very good and each week you can see themes I mean each week you would focus on a certain aspect, a certain area we would be repeating through lectures, through clinical relevance integrating it and I think it's really impressive actually how they do the clinical relevance sessions with the lectures that we have either just had or are about to have and so you are constantly seeing these words and building your understanding of them.' Gemma year 2*

This is consistent with the models of strong pedagogic practice which suggests new meanings must be embedded in practice within short periods of time in order to become memorable (Olsen and Simmons 1994). It demonstrates clearly the way that there are cycles of learning which build upon one another. As one cycle completes it moves into another, but at each stage is a level of accomplishment and movement from the legitimate periphery towards the centre of the community of practice. There is a combination of language learning through reification and relationships. Meaning is made through a process of initial learning followed by reinforcement or conflict, followed by repetition. It is the experience of on-going participation in all dualities that causes learning to occur and meanings to be made and developed.

The way that talk is used represents knowledge and a learner's position within a community of practice. Learning to talk the talk is not just about knowing the meaning of individual words and concepts, but also knowing how to mix one word or concept with another on demand in a real life context. Similarly, learning is not just about knowing things but also knowing how to behave as a knowledgeable person in a relevant context.

Although I witness the way that students talk developed in confidence, it was important to investigate the student experience of this phenomenon. Talk arose as a significant theme in interview, in responses to questions such as 'Do you feel nearer to being a vet' and 'what does learning to be a vet mean?' The ability to master basic language and concepts helps most students to feel that they are moving forward into the veterinary community.

> 'Do you feel nearer to being a vet than you did before?
>
> I do yeh, I mean sometimes I do think oh my goodness I know all these muscles and I can read a scientific paper and it means stuff, I understand dorsal and ventral and I've got this massive vocabulary.' Alice year 1

Talk is the method through which students can evaluate their position moving forward from the periphery of community of practice.

> 'I think it is a language thing because the way you talk to a vet and the way you talk to a client they are very different things because depending on the knowledge level of the client you usually would speak in a way that you would have spoken before you started the vet degree, and assume that you don't really know anything whereas when you talk to a vet you can use all those big words that you have learned 'lympho reticular cell biology' and know what that means. It's being able to use that knowledge that you have gained and apply it in conversation, I think that personally that makes me feel confident and feel that I've learned something and that I'm gaining' Gemma year 2

Gemma is able to measure the amount she has learned through her changing depth of understanding in practice. She undertakes volunteer work in the same veterinary practice before vet school and at the end of the first year and reflects on the differences between the two experiences. At the end of year 1 she is able to observe and reflect, especially on written terminology.

> 'after my first year I worked at the vets I worked for before I came here and in the summer I worked in the same vets office again when I was home and I was really surprised how much my manner with clients had changed, and my ability to observe an animal coming through the door and think yuuummm ahhhh and have a clue! And then being able to look at the notes afterwards and then be able to say oh I was right or oh I was wrong, I didn't think this. It was really, really exciting to be in that position' Gemma year 2

Her knowledge, abilities and confidence grow even more at the end of the second year:

'I went back to the vets office I had worked at before and it was really, really interesting getting into a change of mind-set because I was getting into doing the same job I was doing before but a client was walking in the door and ... when I went back it was so exciting to be able to see something walk through the door and think oh yes I have a pretty good idea what that's about – you know being able to help out the technician a little but actually knowing things and being able to talk to the vets and sound knowledgeable about things was really good' Gemma, year 2.

By the end of the second year her situated cognition is deep and she is testing out the ability to 'talk the talk' in practice. It is this ability to participate at a less peripheral level which marks learning to be a vet for Gemma.

Several students talk about feeling nearer to being a vet but equally feeling aware that there is a lot left to learn. Operating at the LPP is a daunting experience for some students because as well as gaining knowledge, they are able to see realistically the distance between the periphery and less peripheral veterinary practice. In the first year, Daisy describes a period of low confidence where, although she recognises her gains, this allows her to see the gaps in her knowledge. She is at a stage of a learning cycle where she is still making meaning of concepts and their meaning is not yet implicit.

'Yeah I really enjoyed it actually. It was a mixture, it was enjoyable in terms of the cases that I saw because I started to understand things a lot more and why things were happening and kind of doing mini-diagnosis's in my head during consultations and think 'oh that's probably got that'. But then it also exposed a lot of areas of specifics that I didn't, that I still haven't grasped...yeah I mean it's stuff that I obviously, it was some things that had been taught, I know I remember we have been taught this over the year but it just wasn't there, you know it wasn't right in the forefront of my mind. I really had to either be told by the vet or go back and look at my notes and go oh yeah that's why that happened. So I'm still kind of, things aren't coming naturally......' Daisy, year 1.

But Daisy recognises that learning to be a vet is a long journey and one which will continue long after her SVMS journey.

'I don't even think they'll (concepts automatically available for recall) be there in the first year. I think it'll be a couple of years and something comes in and straightaway you're like, obviously you have to be careful not to say straightaway 'oh that's wrong with that', but you'll know what it potentially, what's the most likely thing it could be.' Daisy, year 2

Meaning and identity are the ultimate duality in learning, inextricably linked in both the process and product of the student learning experience. The students' growing ability over time to manipulate language and to make meaning impacts on their growing understanding of their current and future identity. For example Daisy demonstrates that her grasp of language and making meaning helps her to understand that lifelong learning is a feature of the SVMS culture which impacts also on her formation of identity. This helps learners to understand that they become stronger practitioners with every cycle of learning which continues into practice and beyond. This is another significant overlap with activity in the profession where CPD and lifelong learning are increasing priorities.

Talk is vital in cultural development and there is much use of the "Communities of Practice" model by linguists to explore the way that language develops and changes in practice (Lippi-Green 1989, Eckert *et al* 1999, Mayerhoff 1999, Davies 2005). Wenger (1999) agrees that learning to be at the legitimate periphery of participation involves learning how to talk, and be silent, like a full participant. Talking the talk is about more than language but is closely related to making meanings of new knowledge in contexts for learning to be a vet. Talking the talk is developed within a context of lifelong learning. Talk in the community of practice meets all dualities – it is inherent in reification through defined curriculum and terminology and assessment, and it is inherent in participation in the immeasurable number of ways students learn through talk in relationships with others. Talk is a tool that allows students to measure their learning, since learning is the ability to use new knowledge in context. It also allows them to measure their identity change. Learning, and gaining experience and confidence learning to 'talk the talk' affects the image the learner has of themselves, and their relationship to veterinary practice.

It is important to note that 'Talking the talk' is a term which in the UK is often used to describe someone who makes verbal claims about their abilities. Inferred in this definition is that the claims are possibly, if not likely, to be over inflated. This is shown by use of the comparison with being able to act in a particular manner:

'They can talk the talk but can they walk the walk?'

This research does not use that definition but it is an interesting one to consider. Since the vet school is at the periphery of veterinary practice, it is possible that a student may be able to be an expert learner without being an expert practitioner. There is one example of this given by Alice who in her first year interview admits that she rote learns the answers to a viva exam instead of experiencing the need for on-demand recall. She also admits serious anxieties about her abilities to apply this knowledge in practice and cannot imagine herself working independently. Wenger

(1999) acknowledges this risk in artificial learning environments by 'actors' in the context. This viewpoint changes by the second year when Alice, who is used to being a high achieving student, has to come to terms with the difference between learning and achieving.

> *'I realised that what you need to do to get high grades didn't mean you really knew the stuff or you could use it when you needed it. I still want to get high grades but I'm also really scared about making sure I can do something and not just "talk the talk" ' Alice, year 2*

In conclusion students make meaning and develop a professional identity through and with talk. At the lowest level, talk represents surface learning of terminology. At a higher level, talk represents the know-how to apply that knowledge. The combination of reification and relationships in situated context takes most learners to the second level. However in the early days, it is possible for the systems based approach to allow learning to remain at the lowest level, as evidenced by Alice's negative case in the previous paragraph.

Overall the complex but essential mix of dualities in reification and participation, local and global and planned and emergent factors leads to a process of learning which incorporates the duality of both meaning making and identity formation, when learning to 'talk the talk'.

8.3   Walking the walk

8.3.1   Introduction

The focus of the previous section was on talk learning to be a vet – the concepts and language which students make sense of on their learning journey. I was able to draw parallels with the way students learn to 'talk the talk' and the way they develop a sense of being. This section focuses on learning to be a vet with the emphasis on learning and knowledge in relation to professional identity. In doing so I understand what it means to learn to be a veterinary professional at the periphery of a community of practice.

I acknowledge the limitation that this study only considers learning at the periphery of the community. At the onset of the research I naively considered that I would investigate the first three years of the course during the PhD, and potentially later years of the course with post-doctoral research. I underestimated the time required to complete an ethnographic study. I realise I might also have mitigated this by sampling a wider range of students than one cohort.

This clearly identifies a gap for further work to build on this study by investigating the student experience as they progress further away from the periphery and into the profession, during the later years of the course and early years of practice.

Wenger (1999) clarifies identity as not related to self-esteem but to self-image and an on-going way of being in the social world. All learning affects ways of being and learners are likely to see themselves in new ways with each new experience. Furthermore this changes the learner position in relation to their understanding of learning and knowledge. The focus of this section is the key learning experiences which impact of these on ways of being. This section therefore reflects on the findings presented and the way they can be interpreted as related to learning and identity formation.

Reification and participation both impact on identity. Learners at SVMS benefit from participating an early clinical and integrated professional learning environment. This approach is a gives learners an early chance to participate at the periphery of the veterinary community and begin their identity formation as a vet. Through participation with a range of knowledgeable and experienced others in a range of planned and emergent contexts students learn vital early professional skills in teamwork, negotiation, communication and begin a journey towards lifelong learning. Through this participation they develop not only knowledge and skills but values and attitudes. Talking the talk and walking the walk goes beyond the communication of scientific and clinical knowledge and skills, and relates more widely to a holistic view of being in the profession. The findings of observations, discussions and interviews identify areas which emerge as significant to the formation of professional identity in the student experience. This section explores the way that students learn about tacit values and attitudes about knowledge and learning, both within the formal curriculum and from relationships in the community.

8.3.2   Co-construction of knowledge

Wenger's (1999) communities of practice model allows this research to recognise the importance of (different types of) 'others' in relation to student learning, and their contribution to the formation of identity. Learners co-construct knowledge and their early recognition of this helps them to progress quickly in their learning journey. The data has showed that first year students recognised teamwork as a challenge. Some did not engage in teamwork at all in the first year choosing to 'opt-out' of learning together or as a group choosing to split up a task and therefore subvert the intended team working aspect of a task. By regularly changing the small groups and

enforcing the students to work regularly with new people, SVMS represent the importance of working in a team, a tacit skill transferable to the professional workplace.

Data also showed that over time students were able to recognise the benefits of the co-construction of knowledge in teams. I observed many examples of where strong facilitation helped learners in small groups to co-construct knowledge.

> 'He said to them well what about Student X's idea. If that is wrong, why is that? What do you think? He isn't steering them to the answer, just getting them to think about using the wrong answer to get nearer to the right one. Good not dismissing her because she is wrong but using her idea to get close to the right one. Valuing mistakes' Fieldnote December 2010

SVMS formalise learning from mistakes through reification of personal reflection. This is an approach already used in Medical Education (Davis and Harden 1999) and is now extending to Veterinary Education (David and Ponnamperuma 2005, Mossop 2012). Students are required to complete a reflective portfolio which gives them the opportunity to develop an understanding of the benefits of learning from previous experiences and building on them for continuous professional development.

The above fieldnote gives an example of a small group learning session I observed where both reification and relationships contributed to learning in many ways. Firstly students gained diagnostic knowledge and skills in relation to solving a veterinary problem. Secondly students gained tacit information about the benefits of working together and learning from mistakes and from others opinions. Throughout the task, learners are gaining from the use of veterinary terminology and questioning techniques in language. The contribution of the MKO using strong facilitation skills was a vital example of authentic scaffolding by a non-clinical academic. The contribution of SKOs is also vital in working together to co-construct knowledge through sharing ideas and debate. Through authentic scaffolding of small group learning, appropriate questioning, debate and problem solving techniques, students develop their professional identity in two ways. SVMS learners develop a professional identity firstly as a team member capable of working with others and secondly as a co-constructor of knowledge recognising the value of learning from and with others.

8.3.3   Role models

Overall the relationships between learners and MKOs and MEOs in this study emphasises the importance of role models. I observed many tacit ways in which lecturers would transfer good habits to students. One lecturer for example would regularly emphasise the importance of having a pen about the person at all times. He would regularly call for everyone to locate and use their pen at random times during both sessions held in classrooms, in labs and in practical areas. He would reprimand and draw attention to anyone unable to produce a pen. Students considered this a significant part of the lecturer's professional identity and learned quickly about this tacit requirement. From a point early in the first year, I did not witness any student unable to produce a pen when asked. This is a simple and yet useful example of a non-clinical professional role model which is transferable to other contexts.

This fits Heidegger's argument that in being with others we learn to act and think as they do. Several examples from the data about the relationships between students and MEOs show students who have developed role models, or equally anti-role models.

Alice reflects on her repeated interaction with an MEO at an EMS which she repeats before vet school and in her break between first and second year. She describes the practice as operated by 'mostly older vets who treat the same thing day in day out'. She describes a scenario where a cat was brought in after being hit by a car and was diagnosed by the vet 'very quickly without much consideration'. When she asked the vet how he knew what the problem was he reported 'I have seen this a thousand times.' Alice felt that he was dismissive and had closed down from learning anything new. 'It was like it never even crossed his mind he might be wrong or he ought to look into it further. I never want to get like that'. Alice shows that she has a professional identity as a lifelong learner through her experience with an anti-role model. Anti-role models like this is the subject of several studies on professional identity and are as significant as role models (Elsy *et al* 2000). Anti-role models appear significantly in educational research about identity development in Nursing students. This shows overlap between the veterinary and Nursing professions in the issues raised in this section (Du Toit 1995, Fitzpatrick, White and Roberts 1996).

These examples show the importance of students interacting with a wide range of inhabitants of their community of practice in order to develop their professional identity - both in relation to the kind of person they do, but also do not, want to be.

8.3.4 Knowledge in context

The data shows that students develop a strong sense of the gap between acquiring knowledge and using it. This fits with Wenger's (1999:96) position that knowing and doing are inseparable. This is reified both formally and informally. I saw many examples of curriculum planning which afforded the opportunity for students to apply new knowledge to authentic contexts or scenarios. I have also described the ways that SVMS planning and course management reified links in knowledge. I also observed teaching scenarios which demonstrated tacit links between the usefulness of knowledge and its application – for example in storytelling as a pedagogic technique. As described in the findings MKOs often used questioning techniques or storytelling to help students to locate new knowledge in relation to contexts. In one fieldnote I reflect on a small group teaching session where the facilitator (MKO) used time at the end of a session, when the task had been completed easily, to exploit the gap between knowledge and its use with simply questioning techniques.

> *'She says, do you think it would be useful to try that test on the case you had last week, would that have worked?' They start saying well no and explaining why. This shows they can apply this knowledge to other scenarios' Fieldnote Small group clinical relevance session Dec 2010*

Students develop a clear understanding of their knowledge in terms of its usefulness and develop vital diagnostic skills in a problem solving culture. Through this understanding learners develop a professional identity which is linked to the act of diagnosis over the regurgitation of knowledge. This is significant in a working environment which requires lifelong learning as highlighted in the literature review and impetus for this research.

8.3.5 The nature of knowledge

In the first year students display a need for knowledge to be fixedbut quickly learn that the nature of knowledge is that there are multiple truths. This is reified in many ways, I observed it clearly through several clinical relevance or self-directed problem solving tasks which have multiple possible outcomes. Students working on such tasks come to understand that diagnosis is a process of elimination using their own knowledge, and other knowledge they can access, as an evidence base.

Students also develop a professional identity in relation to the nature of knowledge from debate and discussion in relationships with others. For example I observed students working on a self-directed case based task. They were struggling to complete the diagnostics due to lack of access to the required national evidence base upon which to make a judgement. Students talked about how this might play out in a real life scenario.

> 'Student G said it's not like the client would expect you to have all the answers there and then. I would keep the animal calm, sedate it maybe, and then keep the client happy. Then you have got time to go away and find out, have it tested, look if there is anything similar happening nearby, talk to colleagues. It's not like you need to know everything. Student J agrees and says you don't need to know, just know how to find out. ' Year 2 SDL November 2010

In the above scenario second year learners are aware of how to approach the task and despite being unable to do so they are not daunted by a lack of knowledge. As previously emphasised, knowledge and learning are infinite and the evidence base related to medicine is growing such that lifelong learning is a vital professional skill. The learning undertaken by students in relation to understanding the nature of knowledge is underpinned in the difference between some of the key informants' first and second year interviews.

In the first year Juliet seems overwhelmed by the amount of learning to be undertaken:

> 'A lot because you will see the sort of things that in clinical relevance we will look up a problem you know and at the bottom it will say you know your vet if you have this problems go and see your vet immediately and you are expected to know breeds of animals ALL THE problems, all the treatments and you've got to empathise with owners all different people like businesses' Juliet, year 1.

By year 2 she takes a broader approach and has a better understanding of the importance of confidence and maintain professional image

> 'This is going to sound a bit weird but I think it's more about giving a reassuring impression to a client – so they want to see that you know what you're talking about. But you don't necessarily need to know everything, you just need to be able to say, I know where to find the information. You just need to reassure people, it's a lot about appearance more than anything. I know I don't really like PPS but it does help in that respect, you are taught how to deal with people and you are taught how to make yourself appear professional.' Juliet, year 2

Juliet's answers demonstrate her sharply inclining early learning curve – she has undergone a significant change in approach and values over the first two years. In the first year her professional identity is as someone striving for the impossible - access to 'complete' knowledge. By the second year Juliet demonstrates an understanding that she may never possess 'complete' knowledge but will instead aim to learn to know enough to facilitate her to behave in a professional manner.

8.3.6   Learning as an everlasting journey

The previous sections have highlighted the importance of learning to learn as a vital skill for participation in a community of practice.

Learning to learn is a skill which develops with time and experience. The data shows that the mature learners who were key informants have well developed learning skills. Both previously studied in Higher Education – Betty for a degree and a PhD and Harry a degree in Classics and both demonstrated advanced understanding of their learning. Both learners engaged in every session of group learning, demonstrating their understanding of the benefits of shared problem solving and discussion. Betty shows a strong understanding of the type of learning relationships which benefit her by selecting a research project supervisor based on his teaching style. Harry is able to recognise the benefits of integrated learning by comparing it to his previous non-integrated learning. Both are observed bringing considered contributions to the learning context, and both admit to occasionally contributing to discussions to be provocative and invoke interesting debate. (I observed Harry do this on more than one occasion!) This reinforces the findings of several other studies which demonstrate the added value that mature learners can bring to communities of learning.

The need to maintain up to date knowledge is recognised as a vital skill, especially in human and animal medicine. Learning to learn, and recognising that the journey is an ongoing one, are significant parts of the identity of learning to be a vet. This is evidenced by the BVA/AVS (2008) survey which shows SVMS are most aware of CPD requirements for new vets. This is underpinned by data from key informants as this emerged as a significant response when students were asked what learning to be a vet means.

> 'you have to keep learning because the industry is changing so for example the vets that are practising now won't have learned about ultrasound like we have or endoscopes or anything' Juliet year 1

In the introduction to this section, I presented evidence of several students growing identity through their description of what they thought 'learning to be a vet' meant over two years. Learning to learn is mentioned by several students in the first year and all students in the second year.

> *'I think it's going to be one of those things like learning to drive, you do most of the learning once you have passed, and I think these very wise fantastic old vets yeh they got the knowledge at university but its experience over time that gets them there – I think we've just got to throw ourselves in there and sort of ride out the storm to come out in the right place' Fred year 2*

Several key informants reported that they did not feel they would learn to be a vet during their time at SVMS, and that learning will need to continue into the profession. This indicates that the community of practice at SVMS only ever operates at the legitimate periphery of 'real' veterinary practice. The learning journey will continue at the point of entry to the profession moving away from the periphery in a centripetal movement. Medicine and Veterinary courses recognise they are aiming to prepare graduates with 'day 1 skills' (RCVS 2009) and that the career involves lifelong learning. SVMS aim to help students to develop skills to do this, and as there are so many specialities and career pathways, the course can only give taster of what these areas are. Recognition of, and preparation for this, is therefore an important part of a developing veterinary identity.

8.3.7 Conclusion

At SVMS students develop role model and anti-role models from their community of practice. They understand the importance of talk, but equally of confidence, as an indication of their movement away from the periphery of the community of practice. Learners understand the importance of teamwork and working together to construct knowledge and solve problems. Students learn the benefit of reflection on their own problem solving. They develop their approach to the nature of knowledge, starting from a point where their perception of knowledge is as fixed complete. This approach develops through to learners' understanding of knowledge as an incomplete evidence base with which to engage. Learners recognise the importance of the co-construction of knowledge and of learning to learn. Deep learning occurs within a culture of trying out new ideas with others, and co-constructing meaning through repetition, positive reinforcement, and situated cognition. Students are clearly aware of their position at the legitimate periphery of the veterinary profession. I observed many examples of this in practice – students regularly questioned the value of their learning in relation to their future practice.

Wenger (1999) defines professional identity as the developing sense of self in context. It is fluid, never fixed and under constant development. Walking the walk is about developing a professional identity which incorporates many significant areas, not least of all those discussed in this section. Students learn the early importance of developing a professional identity in relation to knowledge as context bound, evidence based, fallible and learning as a lifelong pursuit.

Professional identity is experienced through participation in reification and relationships, across planned and emergent and local and global dualities. Each person develops in a unique way, as evidenced by the difference in development between each of the key informants. Changes are on-going and fluid, and each interaction in the community has the potential for significant impact on identity formation. Overall SVMS learners develop a strong, early professional identity in relation to knowledge and learning that is useful and transferable.

This chapter has analysed key areas which emerged from the data as significant to the developing professional identity of SVMS students. This suggests a false separation between these areas which does not exist. They are not independent like different flowers which a butterfly may land on. They are instead overlapping components of the same flower, with much in common linking them together and experienced by the butterfly all at once.

As Harden, Davis and Crosby (2009) suggested in reflection on Dundee's original ground-breaking PBL approach, 'the sum is greater than the parts'.

This chapter is my representation, from the data, of key aspects of the complex student learning experience at SVMS. It emphasises the interactions of reification and relationships on the construction of meaning and identity.

In the final concluding chapter I reflect on the learning journey undertaken by both the subjects of my study, and myself as a researcher.

9 CONCLUSIONS

In this research I set out to investigate the learning experience of Vet School students. I intended to follow one cohort of students through their first degree experience of three years during my PhD but due to limitations of time I am only able to report on the student experience of the first two years of the course.

I captured, explored and examined the student experience of the new veterinary curriculum in practice. The context for the study was a unique opportunity to examine a new school, with a new curriculum, implementing a range of evidence-based learning practice. The study takes place a time at which Higher Education is undergoing great challenges and change. As introduced at the onset of the study, there are a range of conflicting demands in the HE sector. There is a demand from students for high quality learning experiences and a demand from employers for high quality graduates. This is juxtaposed with the demand from the government for higher number of students to be taught with fewer resources. This final chapter highlights the key points arising from the findings and considers the implications of these for a variety of key stakeholders.

My work builds on the findings of earlier educational research studies in particular Wenger's (1999) work on "Communities of Practice". This closing section of my work gives me the opportunity to reflect on my findings and the way that they build on these earlier studies and their contribution to current educational practice, not just in Medical Education, but in Higher Education and in educational research broadly.

In this chapter I reflect on the research process and use of the "Communities of Practice" model in a Higher Education context. I use data analysis in relation to the literature to make transferable recommendations for Higher Education. Finally I reflect on the impact of the work on my own learning journey.

9.1 Reflection on research process

This section reflects on each aspect of the research process. In the methodology chapter I discussed the effects of the researcher on the research. In this section I reflect on the affordances and constraints of the decisions I made during the research process and therefore the impact of my role as researcher on the research.

There is no doubt to me that my work is informed by other studies, both in approach and in findings.

'If I have seen further it is standing on the shoulders of giants' Newton (1675).

I feel the work I have undertaken stands very clearly with on the shoulders of Wenger (1999) underpinned by other, largely educational, theorists who have built ethnography and socio culturalism, and studies in Higher Education into a broad and strong research foundation.

The literature review is extensive but this was important to represent the global and local dimensions of the work, an important duality in the community of practice model. I situated my search of the literature in the wider HE environment but also focused in on Veterinary Education and specifically the site of SVMS. This was important to be able to locate the study in relation to established educational theories, which could provide an appropriate context for it. It also allowed me to present key definitions and areas where there are differences of opinions and debates. This was important to explain my position and how I apply and interpret these theories.

There are affordances and constraints in the choice of methods and methodology. I spent a considerable period of time in the field – in both observations and immersion in the literature. One strength of the ethnographic approach is that it allows you to get under the skin of the characters involved, and get a literal feel of the context to help understand and tell a story. The interview process enabled me to understand the student perspective, and not my own. Repeating the interviews over time gave me a broader perspective of strengths and weaknesses with different people. It can be argued that using ten key informants does not limit the study but instead provides depth and detail. I had to remember to refocus the interview data within the broader context of the observational data and concentrate on the key themes. The continuous triangulation process between observation, interviews and literature ensured I remained focused on the student experience of the cohort, and not specific individual features of the ten students that were interviewed. Further triangulation of data is demonstrated in the writing process, which uses an approach of majority cases as well as outliers to explain patterns. Transparency in identifying my position as a researcher, and the methods used, makes the study as 'truth-like' as possible (Miller 1974).

The limitations of the methods in this study relate to decisions made about sampling. Firstly the study is limited to focusing on a small body of students. As mentioned earlier I intended to follow the students through the entire course. Due to the unrealistic nature of this expectation and the limitations of time associated with ethnographic data I only collected data from one cohort of

students in the first two years of the course. I could have sampled more than one cohort to ensure representation from all years of the course. The specificity of this particular student body will impact on the findings of this study and this could also have been mitigated by investigating the student experiences across multiple cohorts.

Secondly the study is limited by my decision to only conduct observations on site. The student experience of participation in external activities such as EMS and in relationships with MEOs is a significant part of the learner experience. This data emerged from key informants who reflected on these experiences. I was only able to report on the student voice about these experiences and so data relating to this area is weaker than in other areas I conducted observations. In data analysis the observations sometimes contradicted or questioned data arising from key informants. (For example p250 where students describe repetition but I observed reinforcement.) This suggests that without observational data to triangulate and underpin, the data relating to learning externally is weaker than the rest of the data in this study. Pope (1995) suggests that sampling is key to rigour in qualitative research and I acknowledge this shows a weakness in the validity of research design and data collection in this study.

There are also affordances and constrains in the choices I made about writing. As I stated earlier, a significant amount of analysis in this study was undertaken through writing. Humphreys and Watson (2009) see ethnography as writing; this is preceded by fieldwork and data gathering, but the analysis unfolds through the writing.

The thesis has been presented in a slightly unconventional fashion, presenting some initial observation data before the main literature. This design was both to help the reader understand the context of the research, and to provide a view through the varying lenses with which I saw the data. The vignettes used were of different types, and needed to be explained and justified. Humphreys and Watson (2009) four-fold typography of ethnographic forms represents points on a continuum, from using thick to representing findings through use of the data in a fictional case using thick description. I use a range of these approaches and acknowledge the potential benefits of each. In essence they are all based on representing the findings in the clearest way for the reader.

Writing which is descriptive and uses a semi-fictional character affords the opportunity to summarise a lot of data in an easy to read format. However the affordance of homogeneity in the writing is balanced by a potential limitation that, firstly, this type of writing reinforces some of the stereotypes and does not allow for the representation of the widest context including

outlying data. Secondly this type of writing runs a risk that the audience are not sure what to believe.

This type of vignette in educational research is well suited to brief an audience with a lack of understanding about a culture – it is an approach used by both Becker (1975) and Wenger (1999) in their books which aim to outline the transferability of their research findings to a broad audience. It is an approach I might use in publishing this work as a book, or outside the field of Veterinary and Medical Education.

Using vignettes was a unique opportunity to use Geertz' (1973:13) *'thick description'*, which is a vital approach to ethnographic writing. Humphreys and Watson (2009) suggest this is not always used by ethnographers,

> *'We tend to sympathize with Bate in his polemic against the 'quick description' that he feels too many would-be ethnographers produce in the place of 'thick description, after they have undertaken a "journey into the organizational bush [which is] often little more than a safe and closely chaperoned form of anthropological tourism"' (2009: 1150).'*

I feel the different types of vignettes I have used, as well as descriptions backed up by evidence from the student voice, makes me less of a 'tourist' and more of a 'resident guest'. Writing the vignettes was a process I undertook to draw out and summarise what I, as the researcher, saw as key areas. This process of iteration also contributed to the development of the research and analysis.

9.2   Transferability

9.2.1   Higher Education as participation in a community of practice

Wenger's (1999) "Communities of Practice" model emerged as a close fit to the data in this study. In particular the model clearly mapped to the complexity of the student experience of learning to be a vet and the theoretical conception of learning as participation relationships to develop knowledge as both meaning and identity formation. The 'communities of practice' model represents the importance of key areas of findings, such as those relating to curriculum and relationships, and also helps to understand the complex way these areas are linked together. In the "Communities of Practice" model there is balance between the importance of curriculum and relationships, and the development of professional knowledge and skills and professional identity. This work builds on that of Lea (2005) by suggesting specific ways that the

'"Communities of Practice'" model is a useful heuristic for analysing the student experience of a Higher Education environment.

My work shows the importance of considering HE as a community which operates at the legitimate periphery of the professional working environment. During the process of learning at the legitimate periphery of professional community, students construct meanings and identity.

This research is undertaken in the unique context of a new. I appreciate that the staff at SVMS were especially lucky to have the opportunity to develop their work on a 'blank white sheet'. The history of existing schools and process of change management are very different to starting from scratch. This is one limitation of this study – the unique approach and chance to start from scratch are unlikely to be replicated. An affordance of this work, therefore, is that this context presents a unique opportunity to use the "Communities of Practice" model to analyse the student experience of Higher Education.

Higher Education is at the legitimate periphery of participation in a very wide range of professional practices. Vocational courses such as law, teaching and business have clear links to their community of practice. A wide range of other academic courses, for example English, Music and Art are less directly related to the communities of practice which their students will inhabit. Nonetheless it is vital that all courses prepare graduates to professional knowledge, skills, values and attributes which ready them for the workplace. This is significant in the current economic and educational environment. My study shows that learners operating at the legitimate periphery of participation in a profession develop early professional skills and identity. My study shows the importance of early experiences and strong professional significant others to enhance opportunities to make meaning and develop a professional identity in relation to knowledge and learning. The outcomes of the study are both timely and relevant to the development of the student experience as a focus point in HE. The findings of this study show how different aspects such as integrated learning experiences, relationships and authentic learning are a major part of the way students develop knowledge and identity.

The original Latin word *"universitas"* from which University derives, refers in general to *"a number of persons associated into one body, a society, company, community, guild, corporation, etc."* (Lewis and Short 1966). This reflects the role of the University from its onset – as a place for people to come together to join in activities of learning. This research shows the importance of bringing together a community of people sharing professional authentic learning and returning towards the original model of apprenticeship. The combination of people in the community

(SKOs, MKOs, and MEOs) and their congruence with students has significant impact on the learning experience.

The overlap between data across categories in this study was initially challenging to analyse and represent, particularly as there were significant changes in the students' experiences over time. The iterative process of analysis and literature review required me to be open-minded and reflective whilst analytical. This approach allowed me to look at the data in detail, comparing it to the literature and categorising data without dismissing outlying findings. This approach enabled themes and the links between them to emerge. The final outcomes are significant since it shows the importance of the links and integration between the findings.

It is important to represent the dynamic interaction between curriculum and relationships, and the development of knowledge and identity, and to recognise that neither is independent of each other. This is where the "Communities of Practice" model works so well, since it emphasises the importance of integration and balance between relationships and reification to making meaning and identity.

The following section outlines key learning points from using the "Communities of Practice" model and makes recommendations for considering the transferability of data from this study to the student experience in Higher Education.

This section has outlined the use of the 'Communities of Practice' model and the ways in which HE broadly is a suitable context for transferability of these research findings. The following sections consider a model for transferability.

9.2.2   Towards a new model – COHELP

The simplification of Wenger's (1999) model described above and adaptation of it to a HE context, along with key findings from my research suggest a new model may be useful to transfer these findings to other HE contexts. Since the context of this study is learning in Higher Education this clarifies the usability of this model – Communities of Higher Education Learning Practice. The acronym for this is COHELP which is positive as it suggests a combination of the words community and help.

So what does the model of COHELP which emerges from my findings look like in detail? The Co-HELP model is designed to consider the student experience of learning (making Meaning and Identity) through participation in reification (curriculum) and relationships. The reification perspective allows consideration of what is designed and how it is experienced. The relationship perspective allows consideration of the way that learning is experienced with others. This model is mapped from my findings, and using this model others should be able to consider their HE provision and its impact on the student experience.

To reify this research requires that I outline the key considerations from my findings which could indicate significance for transferability and future research. The following list of statements is designed for teaching practitioners to consider in relation to their own curriculum or community. The list also summarises key research questions which teaching staff can consider but can also act as research questions for any future study to address the key issues which emerged from this research. This could be undertaken in any HE context.

The following statements and questions comprise the CO-HELP model.

1. Reification (What is the student experience of the learning planned?)

    a. Learning should be integrated vertically to help learners to develop meaning

    b. Teaching should be directly related to practice from day 1

    c. Professionalism should be addressed and reflection promoted from day 1

2. Relationships (What are the key relationships and how are they experienced in both formal and informal settings?) Key relationships may vary between and include:

    a. More knowledgeable others (MKOs)

    b. More experienced others (MEOs)

    c. Similarly knowledgeable others (SKOs.)

    d. In formal teaching it may be useful to consider Schon's (1983) model of pedagogic context knowledge and the impact on learning, including consideration of professional knowledge.

    e. In all learning contexts it is useful to consider the congruence duality within relationships, since this study shows that increased congruence has a positive impact on the student experience in this study.

3. What is the meaning and identity which develops in the community?

    a. Students need to learn to learn, co-construct knowledge and work in teams

    b. Learning occurs through participation with role models and anti-role models.

    c. Students should treat knowledge critically, consider evidence and understand knowledge is not fixed.

    d. Students should consider learning as a lifelong activity

Through an analysis of this data, it should be possible to consider the way in which students learn to walk the walk and talk the talk of a profession whilst still at the legitimate periphery of participation within a HE environment. This evidence may lead to understand about meaning and identity of their chosen profession and how it develops over time in the Higher Education learning. This data could be collected using a range of qualitative methods. This list of questions can act as a prompt for research related to the student learning experience and developing a community of Higher Education learning practice.

The findings have shown, through rich descriptions and analysis, the student learning experience at SVMS. I have shown that learning at SVMS involves participation with others, through which they develop meaning and identity. This participation takes place within a context with many similarities to Wenger's (1999) 'community of practice' model. SVMS represents legitimate peripheral participation in relation to the veterinary profession. The community of practice model has inherent dualities represented in key themes identified from thematic analysis of data. Throughout the findings I have explained the ways that the dualities inherent in "Communities of Practice" impact on the student learning experience. The model of CO-HELP proposed summarises the key points from the findings which are transferable to other HE contexts.

9.2.3   Early clinical and professional experiences

Wenger's (1999) community of practice model is particularly relevant, to both this study and the wider HE environment, because it assumes a learning journey related to enculturation and understanding within a professional context. Wenger's (1999) work shows that people in workplace learning are aiming towards integration in the profession. My research suggests that the motivation of learners in HE is similar. It is important to recognise that a limitation of the study is that Veterinary Education is a small discrete field and the findings represent a specific

group of learners for whom HE is a clear path towards a profession. In less vocationally based courses this may be a less obviously direct path. However as I have outlined from the wider literature, there are high demands upon all sectors of HE to offer courses which incorporate professional skills and produce professional graduates ready for work. This means that the concept of a legitimate periphery is particularly appropriate as it helps us think of learning as a journey in which HE is a path towards professional behaviour. Although many curricula have professional components, they are often not truly integrated, particularly at the level of curriculum design, implementation and change. Innovations are typically add-ons to existing curricula and undertaken by existing staff within existing cultures. This study shows the benefits of a holistic approach to development of curricula and teaching resources.

The connection to the profession is significant. The need to undertake professional placements is relevant to many Higher Education courses from Business to Nursing and Construction. Other more generic arts based subjects such as Art or History may also involve professionally related project work, and ultimately every graduate is working towards a job and building their own unique professional identity. For some HE courses this single work placement or project experience may be the limit of the input from professionals into the course. It may also represent the only interaction between students and their potential future community during their time in HE. At SVMS, practicing professionals have input in a strategically encompassing range of ways from input into curriculum planning, regular external speakers, vets who work as part-time facilitators for small group learning and associates from practice who provide support for teaching. There are also regular connections to the wider community than the future community of practice (vets) – for example to researchers, specialist breeders and handlers and patients and clients. Through opportunities to interact with the wider professionals in the field, students develop both wide knowledge and a wide overview of their future possibilities. This empowers them to develop their own individual professional identity. This needs to be an ongoing commitment. Many courses offer some placement experience but quite often this is limited to blocks of time or sandwich time away from the University environment. The value of early clinical and professional experiences, identified in this study, suggests that a more integrated and strategic contact with the profession is required throughout the HE student experience.

The staff identified as having the biggest pedagogic content knowledge in this study, are all still practicing their profession on a part time basis. Furthermore aspects of the SVMS course are specifically designed to create opportunities for professionals to engage with the SVMS course are specifically designed to be accessible to professionals. For example all facilitation sessions (which uses some professional externals) are scheduled to take place during school hours and

term time. This strategy opens recruitment opportunities, for example from women with children unable to commit to full-time hours. This approach is significantly different to other subject areas, where staff may be encouraged to bring professional expertise to the University but have little encouragement or even ability to continue in their professional practice whilst teaching. Universities encourage teaching to be undertaken by those also practicing as researchers but there are less examples of teaching being undertaken regularly by those maintaining external professional practice. This is a potential area for change and further research. New models of teaching may incorporate teams of practising professionals working part-time within the University community. This would represent the professional congruence required to balance the pedagogic and content knowledge existing in academia.

My research shows that other significant relationships can scaffold learning. Peer learning can have significant benefits if implemented in a cohesive integrated way. Where peer learning is implemented through small group work, both facilitated and self-directed, and this is both vertically and horizontally integrated, there are multiple advantages for student learning. Students develop meaning through discussion and debate. They also develop professional identity in early skills in 'learning to learn' as well as professional skills such as teamwork and negotiation. Furthermore this approach ensures a collegiate community who are willing to help and support one another, and learn together.

The research shows that students can and want to engage in deep learning and development of professional identity from the very starting point of a course. Even in the early years of their HE journey, working at the furthest legitimate periphery of participation, students are developing professional skills and professional socialisation.

I acknowledge that this data is based on a student body with a specific set of characteristics – typically high achieving, ambitious and highly motivated and therefore there may be a limit to the level of transferability to other student groups and most transferability of these particular findings may be most applicable to other vocational courses.

Problem based learning approaches, such as clinical relevance in the first year, is a successful approach to adding the 'situatedness' to the cognition. Tasks based on realistic scenarios, including excess information in order that a realistic problem solving process can be undertaken, develops problems solving skills. The quality and depth of task set in these scenarios is vital to provoke discussion and engage with prior learning. There is evidence that these types of experiences are both motivating and beneficial for learning in the student experience. The

learning which underpins this approach is not only related to the development of problem-solving skills but also to relating theory to practice and developing deep learning. This in turn enhances high order thinking such as understanding and critical thinking.

My work builds on the findings of Schon (1983) who describes the way students learn through reflection. Evidence from my research shows the importance of an early approach to reflection as this takes time to develop and should therefore be in place at the earliest opportunity on the HE learning journey. This study shows that in the first year, students find reflective writing difficult, but by the end of the second year, several students understand the benefits of reflection. All courses, especially those linked to practice, can benefit from incorporating early reflection embedded into curriculum and relationships. It can be anticipated that reflection is a skill, much like conceptual criticality, which needs to develop over time and is unlikely to be understood by first year learners. Becker's (1954) study suggests that by leaving clinical work until the final years, students do not develop skills such as reflection until they are in practice, if at all. In contrast to Becker's (1954) findings, the evidence from this study shows the value of an early reflective learning approach. It clearly demonstrates the need for reflection from the start of the course in order to give students sufficient time to develop reflective approaches.

Many university courses profess to be full-time but require attendance for less than half of a standard full-time working contract. By contrast, during this research SVMS required and measured attendance at classes on a timetable which replicates the professional working environment from 9-5 from Monday to Friday (with one afternoon for enrichment activities). Self-directed learning is timetabled within this 9-5 schedule. This study shows that within this environment which replicates the professional environment, attendance and commitment are high. Universities need to consider how a full time Business degree requiring 12 hours over week attendance is realistic preparation for work in a Business environment. While commitment to placement experience is also high and uses much of holiday time, the rewards are evidenced in this study as enhanced knowledge and professional identity. This point seems to contradict an article in the Times Higher in March 2013, where Gibbs (2013) considers whether increasing contact hours in HE will improve learning. He suggests that contact hours are considered a reference point for value for money and the NUS are pushing for more contact hours but that this doesn't necessarily lead to quality student experiences. He uses evidence from the student satisfaction survey 2012 which puts the OU top despite them having the least class contact of any institution. However my work does corroborate Gibbs focus on the importance of the quality of contact and suggests that quality and quantity of engagement is key to the student learning experience. Gibbs (2013) concern is that simply increasing hours will not guarantee increased

learning and the findings from my study so support this. So, our conclusions are similar – it is a commitment through reification, relationships and strategic implementation that will impact in the largest sense on the student experience. Filling hours with timetabled learning 'for the sake of it' will not achieve this.

This section has outlined the benefits of early clinical and professional experiences in the curriculum and relationships at SVMS and their strategic implementation. I have shown that there is strong evidence for the benefits of integrating these approaches and that they are not specific to the veterinary profession but are generic and transferable, most specifically to other vocationally courses and in some aspects across a wider range of other courses in HE.

9.2.4   Integration of Curriculum and Relationships

The key finding of this study was the importance of integration between curriculum and relationships. There are limited studies which build on Wenger's (1999) work in relation to Higher Education. It is the integration of these two factors which form the focus of the recommendations in this section. My research overlaps with Brown, Collins and Duguid (1989) in believing that learners experience a process of apprenticeship during which they are inducted into a new culture of professionalism. Brown, Collins and Duguid (1989) suggest that authentic learning tasks can lead into this culture and while I would agree, this study shows the importance of a holistic integration into the professional culture beyond tasks and into relationships and identity.

In this study, the data from my observations and interviews provide evidence that integration happens upwards and across both curriculum and relationships. Students consistently and repeatedly report this integration as the main benefit of their learning experience. Integration should be planned into the curriculum, both vertically and horizontally to provide the opportunity for cycles of surface to deep learning. These are the significant findings in relation to curriculum and it is not surprising that they support the evidence which existed before this study which SVMS used to design their curriculum. The evidence however does show that SVMS were successful in meeting their aims for curriculum design in implementation.

Learning hierarchies across all three domains are important (Bloom 1984, Krathwohl, Bloom and Masia 1964, Dave 1975). This study has shown that students learn in all domains simultaneously to make meaning and identity. In the literature review I suggested that the limitation of these hierarchical taxonomies is that has a serial structure which suggests that students cannot effectively move to higher levels until those below them have been fulfilled. My research shows

that students can progress to the highest levels of learning on the hierarchies, within small areas of study, from the earliest part of their HE learning experience. Each learning area represents a mini cycle of learning which is clearly linked to others. Within each cycle of learning the student is achieving high order learning skills, which will positively impact on the next cycle of learning. This research recognises there are benefits of the taxonomies for understanding progression on the learning journey. Evidence shows that the type of learning in the hierarchies is undertaken in a cyclical, rather than linear, process. This removes the limitation of a ceiling on the model as the cycle of learning is never complete but is a process of linking new meaning and identity to old ones. Each ascension through levels of understanding is part of a larger cycle of understanding, so that learning builds over time. The more the cycles are repeated and linked the more the student is to retain high order meaning and identity. This suggests that Higher Education should not be seen as a linear one way journey but an opportunity to begin a process of cycles of learning which help to develop meaning and identity. This evidence suggests a need to support planning of cycles of early, deep, cycles of learning which can be linked together for broader understanding.

This study builds on the hierarchy outlined by Ramsden (1992) who suggests that learning at the highest level is something you do in order to understand the real world. It seems vital that we facilitate learning at this highest level as early as possible in order to build early professional identity. If we offer early clinical experiences we bridge the gap in meaning between 'recall and understanding' that concurs with the work of Light et al (2009).

To achieve vertical integration requires careful thinking from two perspectives - about both the curriculum as a whole, and the links between early and later years learning. This needs to be done when planning a new curriculum or changes to an existing one. This highlights the importance of the role of organisation in order to meet this need. At SVMS this is achieved by module leaders in two significant actions, firstly they meet and discuss overviews of their modules and understand how they link, and secondly they make sure everyone delivering on the module sees the links within the module and to the big picture. Peers can also play an important role in vertical integration – linking classes between early and later year students offers the chance for repetition, reinforcement and collaborative learning, and helps students understand the cycles and progression of learning. It is useful to think of the COHELP model proposed against each year group as they move through their journey and cycles of deep learning. The COHELP questions should be used to consider not only the setup of new curriculum or the first year experience but also the ongoing development of meaning and identity from the start to the end of the course.

Achieving horizontal integration requires tight links between module staff but at a lower level of the hierarchy. This is not between module leaders, but instead is about ensuring that each part of the module team is clearly linked. To the observer, in these sessions it seems like all the teachers have already seen and thought out how they can link. Horizontal integration is also facilitated by the full-time attendance culture which requires students to commit to full attendance in order to gain the most from the horizontally integrated approach.

Evidence from students suggests this is a familiar approach in Medical Education but not an approach currently common on other veterinary courses or non-vocational courses. Fraser and Bosanquet (2006) conducted a phenomenographic study about HE teachers' conceptualisations of curriculum in HE in a large Australian university. Their analysis led to four categories of conceptualisation of the curriculum as: structure and content of a unit or subject (A), or of a programme (B), learning experiences (C), and a dynamic interaction and collaboration between student and teacher (D). My study builds on these findings, suggesting that category A represents horizontal integration within a module, category B is vertical integration in the programme, category C represents a focus on the student experience of participation in learning experiences, and category D represents the significance of relationships to the curriculum. My study builds on category D showing that dynamic interaction and collaboration exists in a number of relationships and not just between student and teacher. We should define and design curricula with all four of these key categories in mind.

I advocate the approach to curriculum development discussed by Bovill (2007:20) which is similar to the model implemented at SVMS. They present several case studies where new curriculum development took the view of identifying core competencies to be developed by graduation, and then understanding the point students are at on entry to the institutions. They present a conceptual map of an 'ideal curriculum design process'. Bovill's (2007) findings focus on the need to engage students, increasing their social and academic integration with the institution and their subject or discipline. Their recommendations are that both of these aims may be best achieved through emphasis on student- centred, active learning tasks that increase independence and collaboration. They suggest both vertical and horizontal integration are vital to link learning together. My work takes this concept a step further and, by using the "Communities of Practice" model, also emphasises the importance of integrations across a range of relationships.

Language and talk are key tools which facilitate participation in both relationships and reification and therefore emerged as a strong theme of the study; language is a key feature of any community of practice. 'Talking the talk' relates to the language for both knowledge (terminology

or knowledge of language) and identity (confidence to use language in context). This fits with the community of practice model, as Wenger (1999) defines learning to talk as an important task through legitimate peripheral participation in any profession. Language and terminology are tools of the community. This emphasises the role of storytelling for sharing expertise within the community. The importance and benefit of this as a tool should not be underestimated and opportunities for 'story sharing' such as through timetabled shared reflections in small groups works well to facilitate peer storytelling. Furthermore, talk is a tool through which students can evaluate their position moving forward from the periphery of community of practice. This demonstrates further the benefit of early and consistent work experiences against which students can measure their progress and understanding of the profession.

The data shows that students engage with semi-formal clinical opportunities more as they go through the course. Evidence from this study suggests that this may be due to a growing sense of identity and confidence, related to the ability to 'talk the talk'. During the first year of the course, students don't have a holistic picture of the gaps in their learning. They also have little confidence in their use of language and experience in the field. By the second year, students start to make meaning of their learning and the importance of connecting their conceptual knowledge. They develop a sense of identity displayed through growing confidence in use of language. While there is much known about the 'first year experience' my research shows the need for further work on the 'second year experience' learning begins to be more linked together. A key limitation of this study is that I was unable to collect data from later years of study for this cohort and see the learning journey in its entirety. This identifies a need for further studies of the student experience which build upon this work and investigate the student learning experience at the later end of the course, but also throughout the duration of an entire course. This would have been an interesting progression to the study as students developed so much in the early parts of the course and it would have been useful to track the rate of change throughout. I could also have sampled different cohorts simultaneously in order to represent a further cross section of student experience.

This study is not a glowing endorsement of the SVMS student experience. Whilst I represent examples of good practice, it is prudent to remember that there are numbers of outlying cases which give evidence about some of the problems and pitfalls of implementing a new curriculum. There were examples of sessions delivered which were well designed in reification but imbalanced by poor relationships and therefore pedagogically ineffective (death by PowerPoint). Although MEOs are closely linked to the course there were examples of external led sessions which did not fit into the reification and therefore failed to maximise on the effectiveness of

integration. These outlying examples also help to provide evidence for the importance of an integrated strategic approach adopted by all within a context, and also to identify some of the potential issues and constraints.

This section has outlined the way in which integration between curriculum and relationships has a major impact on the development of meaning and professional identity in the HE context. Integration involves thinking about curriculum in its broadest sense and planning formal and informal social learning which can help leaners to make links, which develop their knowledge in relation to practice, skills and professional identity. The COHELP model of questions is designed to provoke thoughts about levels of integration both within reification and within the link between reification and relationships.

9.2.5   Combination of colleagues and congruence

This section consolidates an idea which has been touched upon in the previous sections. Students engage in a range of relationships which impact significantly on their learning experience. These are teachers who are more knowledgeable others (MKOs), their peers on the course or similarly knowledgably others (SKOs) and practitioners or more experienced others (MEOs). Throughout the three types of relationships highlighted, the congruence between the student and 'other' repeatedly emerged as significant. It is the integrated experience of these relationships which enhance the student learning experience. The importance of students experiencing a range of different types of relationships is outlined in this section. In this section I began by focusing on early clinical experiences and the link between this and relationships with MEOs. I then considered the importance of relationships with SKOs and the way they relate to integration with the curriculum. Finally I considered the vital teacher-student relationship and the congruence they require to enhance the learning experience.

My evidence builds on the work of Vygotsky (1978) who explored the role of supporting learning with others but focused mainly on teacher supporting students and only briefly mentioned that students can support other students. My research suggests that external professionals can also significantly contribute to the student learning experience.

MEOs feature strongly in the interview data, and it is clear that they make a significant impact on the early clinical and professional experiences of students. A limitation of this study is that data about MEO encounters is reported only by key informants and was not observed.

Students gain from the professional congruence of more experienced others, helping them to develop meanings and identity, from the start of the course. Departments should offer opportunities for early and sustained encounters with professionals, and support students to use these as an opportunity for shared discussion and reflection. MEOs whom students come into contact with on work placements can offer authentic scaffolding. They do this using spontaneous techniques including those of storytelling and contextualising. The role is significant since MEOs are often regarded as role models, or anti role models, from whom students develop professional identity and learn about the type of professional they do and don't want to be. Students should always be encouraged to reflect on interactions with MEOs. Staff should share these, timely where possible, to help them to understand how to maximise learning opportunities arising from these experiences. Storytelling is a key technique which is relevant to any area of HE and should be encouraged. Sharing practice stories can be developed in a range of scenarios from involvement in PBL planning and placements, to regular visits by guest speakers and visits out to external sites. HE should recognise the value and importance of such techniques, and the variety of sources they may originate from. The students in this research spend far less time with MEOs than MKOs, and yet in the data this experience is disproportionately represented. I accept that this may be due to student concerns about sharing experiences which relate to staff. I feel this outcome is likely to be mostly because these experiences which represent the interactions with MEOs and the profession are unique and valuable and give external validity to the students' development of meaning and identity.

This study shows that relationships with SKOs can also impact positively on the ways students develop meaning and identity. This research builds on Blackmore's (1999) suggestion that learning at the highest level involves the ability to teach others since as learners progress they are able become SKOs and support their peers as they have cognitive and social competence. IF we promote cycles of deep learning then building on Blackmore's (1999) work we should build early opportunities for peer learning. We should design and support learning opportunities with SKOs which are integrated into the curriculum. This can be carefully managed in conjunction with the curriculum to maximise understanding through, for example, peer assisted learning in a vertically integrated curriculum. Working in small peer groups develops inter-personal skills as well as being a method to access a higher level of learning. The unique approach to teamwork and working with peers at SVMS has both affordances and constraints. Each time group participants are changed and a new group is formed, it is subject to the stages of group development. The constraint of this approach is the potential for learning time to be spent in unsettlement and disagreement. The affordance of this approach is that all students gain experience of working with all others on the course, and consequently a sense of community builds. This alone is a good

technique to create a spirit of working together, and recognising problem solving as important. First year, where settling in is significant, is a good time to begin group work so benefits can clearly be seen by the second year. It does however involve a period of settling and conflict before gains can be seen. My study shows that PBL also affords the opportunity to develop skills in teamwork.

Working in groups to co-construct meaning is not a new concept, and my findings build on many studies which find benefits in this approach (Boud, Cohen and Sampson 2001, Harden 2011). Embedding small group and self-directed learning into formal learning throughout a course ensures that the importance of relationships is reified in the curriculum. The study shows the success of implementing PBL as an integrated approach to develop problem solving skills and an identity as a co-constructor of knowledge. My study shows that using PBL approach can facilitate deep learning within one domain which can be linked to other domains of learning later.

Some groups suffer from a lack of participation which clearly leads to reduced learning for participants, and so the facilitation role is vital. In order to commit to participating in co-construction of meaning, students need to feel that their learning can benefit from their peers. There is limited evidence of this in the first year, but progress is demonstrated over time. The first year sees many students undergo significant changes to their knowledge and identity. My findings show that while the first year experience is important, it is often not representative of the entire learning journey. My findings support the view that the first year experience should be seen as part of a long process and not decontextualized from the entire student experience. Harvey, Drew and Smith 2006)

Sharing experiences of prior learning in group sessions emerged as an important way in which the students make meaning in the early years. In this study, mature learners add value to the cohort through the large background of experiences which they draw from. The findings also suggest that however experienced and knowledgeable a learner may be, they can still gain from learning with peers. This gives great added value to the argument for widening participation. At the moment, much debate around widening participation focuses on social justice and access to education. My findings lend support to the idea that involving learners who are outside the traditional demographic of a course, and come from alternative to the 'A level route', could be a strategic approach to enhance the learning potential of any cohort.

Within this research context, the relationship between peers was integrated with the curriculum, and integrated with the relationships experienced with teaching staff. This research found that a level of expert teaching depends on the depth and type of congruence MKOs have with their

students. Schon (1983) proposed models of congruence, claiming that educational research treated subject knowledge and pedagogy as distinct and mutually exclusive domains. Schon (1983) believed that the role of the teacher combined both abilities in a combined 'pedagogic content knowledge' My research builds on this work by accepting that expert teaching showed evidence of pedagogic content knowledge. However my study further builds on Schon's (1983) work by proposing an additional congruence – that of professional congruence which relates to the way a teacher can relate subject knowledge and pedagogy with professional experience to add value to the student learning experience. This is a unique adaption of Schon's (1983) model which has been reused but not been redeveloped in the literature in this way. This shows the importance of early clinical experience and MEOs in HE and I suggest that others may find it useful to consider HE teachers as needing pedagogic professional content knowledge (PPCK). This represents Schon's (1983) model with the additional category of professional knowledge or congruence. Socially and cognitively congruent others use techniques of intervention and contextualisation. Intervention involves the use of pedagogic knowledge techniques including repetition, reinforcement and questioning. Contextualising includes sharing of experiences, particularly using storytelling. Either of these techniques adds some value to the student experience, but the combination of both approaches adds significant value. Furthermore professional knowledge adds a further value to learning relationships. This study shows the benefit of departmental or institutional commitment to the enhancement of learning. Others could replicate this approach through opportunities for regular teacher training, encouragement of action research and opportunities for dissemination of good practice. Staff should be given time and space to improve their approaches to learning and commit to using pedagogic techniques in practice. Furthermore institutions can support good pedagogy in practice through financial and technological support. For example, this study showed the benefits of using automatic response systems for anonymous public questioning. Where departments can make this type of resource and associated training available, they underpin support for individual members of staff to develop pedagogic techniques. I acknowledge that these are already the aims of many development initiatives in Higher Education, but are in contest in competitive environments with existing demands on time for academic practitioners.

The limitation of these pedagogic techniques is that repetition and hierarchical learning require an understanding of the location of the learning in the curriculum. Those with cognitive congruence understand how to look at the knowledge they hold from the perspective of the learner, and therefore use that to understand the need to contextualise, and to link. This is difficult or more difficult for newcomers, postgraduates or externals. Within my study, it took some time, as an external to the context, to understand learning and the way it links together. To

help the development of congruence in staff, it could be a useful exercise for departments to undertake an annual review event to simplify the curriculum. This would be an opportunity to bring together module leaders and staff to outline the key areas of each module and overlap between modules to facilitate clearer learning links in the entire community. Taking time to ensure all staff, including part time and external, have the opportunity to understand and contribute to curriculum reification is important as it impact on the cognitive congruence with the students.

The staff at SVMS, like the first cohorts of learners, to a certain extent had to be risk-takers. It is important to reflect on the type of staff required to support learning innovations and ongoing development. This approach to taking risks with educational innovations in order to elicit positive outcomes should be encouraged – it can be a limiting factor with existing staff who are reluctant to change, but could be encouraged in new recruits. This also serves as a warning to SVMS of the importance of maintaining the culture of attraction academic staff who are inspiring and innovative.

This section has considered the importance of the relationships aspect of the "Communities of Practice" model, and the way that various types of individuals impact on the student learning experience. Again the complexity and overlap between these relationships shows that it is the integration of a range of individuals operating within a unique culture which impact on the student learning experience.

9.2.6   Building Professional Identity as a learner

The findings show the way that SVMS learners develop their professional identity as a learner. Whilst I recognise the limitations of this study, the findings have most transferability here since students on all courses share an identity as a HE learner. As mentioned previously, all courses have a responsibility to develop students professional identity as co-constructors of knowledge, critical thinkers and lifelong learners. This is something the evidence shows that SVMS do well and this is transferable to the widest of HE contexts.

The evidence shows that SVMS learners develop the ability to co-construct knowledge through participation with others, particularly through facilitated small group learning. I recognise that this is also facilitated by the small size of the course and campus and may be more difficult to achieve on a larger scale. Nonetheless recognising the importance of learning how to co-

construct knowledge and the impact of reification and relationships on this learning aim are transferable to other contexts. This is represented in the Co-HELP model.

This 'Communities of Practice' model bridges the gap in identity that Dall'Alba's (2009) suggests exists between HE and 'being' a professional. This study builds on the work of Barnett (1997) by offering evidence to show students developing as a professional identity as critical persons. They develop criticality through participation in a range of reification and relationships. Barnett (1997) suggests that learners should be able to critically engage with the world and with themselves as well as with knowledge. This represents the balance between developing knowledge and identity shown in this study. I agree with Barnett's (1997) suggestion that a 'critical being' should be the aspiration and achievement of a university educated person and Universities should help learners to aspire to this aim. We need to be clear that students understand and share this aim for their learning journey. This is represented in the CO-HELP model by the statement that 'students should treat knowledge critically, consider evidence and understand knowledge is not fixed.'

Developing as a critical learner helps students to develop a professional identity as a lifelong learner. This part of the professional identity develops over time but is embedded in several ways in the SVMS culture, through emphasis on early reflection, learning from mistakes and an evidence-based culture.

Both reification and relationships contribute to the development of professional identity. MKOs and MEO acting as both role models and anti-role models are key to the development of identity. This shows the importance for HE staff to demonstrate themselves as fallible expert lifelong learners.

Overall this section on transferability has highlighted, with an understanding of the limitations, the ways in which the findings of this study may offer 'useful' considerations to others involved in HE teaching and learning.

9.3 The End....or Just the beginning

This research fills a gap for qualitative evidence about the student experience with a broad focus, identified by Ertl et al (2008). Evidence should be widely disseminated and work which brings together reviews of educational ethnographic studies in a particular area, such as Atkinson and Pugsley (2005) is useful and should be regularly repeated to keep the profession abreast of developments.

This study was a unique opportunity to investigate the advantage of working within a new learning context, using a 'blank white sheet' as the starting point, to analyse the student experience of Higher Education. The findings show the balanced importance of reification and relationships in the student experience.

On a theoretical level, this research is important to educational researchers and those working to make educational advances in Higher Education. This work shows the affordance of ethnographic studies into the student experience in order to truly understand what it is like to be a student and how they learn. Using the Communities of Practice model shows a useful way to think about the relationship between Higher Education and professional employment.

On a practical level, this research is relevant to anyone studying or working in Higher Education. I expect my work to be of particular value to those considering implementing curriculum change and development. Through an understanding of one cohorts' student experience in a brand new learning environment, it is possible to see the benefits of using specific approaches to teaching and learning. I have shown the significance and benefits of integrated, clinical and professional approaches in the curriculum. I have also shown the significance of relationships with MKOs, MEOs and SKOs. Each of these significant findings can have implications for improving teaching and learning. The combination of these factors has the potential for the maximum impact on the student learning experience.

My research shows the benefits of undertaking an analysis of the student experience in each professional or subject area. The answer to my original research questions generated a series of research questions (the COHELP Model) which may be used by those researching the student experience in other environments. Furthermore I offer a list of recommendations for action, to sit alongside the CO-HELP questions, and they are summarised here.

Recommendations

Higher Education as legitimate peripheral participation in a Professional Community of Practice
We should consider learning as a journey in which HE is a path of legitimate peripheral participation (LPP) heading towards professional practice. I advocate an outcomes based approach to curriculum development which represents the model implemented at SVMS.

Early clinical and professional experiences

There should be a significant connection between HE departments and the relevant profession or professions. Professionals can be strategically integrated in an encompassing range of ways from involvement into curriculum planning, linked or associated external speakers, professionals working part-time to facilitate small group learning, and associations with external practices and professionals who provide support for teaching. This network of professional involvement provides strategic integrated connections to the wider community for the students, and an understanding of professional identity in the community. This contributes to the development of an individual's knowledge and professional identity.

Integration of Curriculum

Early integration of reflection links to deep learning and helps to embed links between theory and practice. Integration of deep learning helps the development professional identity in the early years of a course. Problem based learning approaches in the first year is a successful approach to link theory to practice. First year, where settling in is significant, is a good time to begin group work so benefits can clearly be seen by the second year. Some techniques, such as group work, take time to develop and therefore should be implemented early in the course to afford this development opportunity. This also contributes to the development of an individual's knowledge and professional identity.

Combination of colleagues and congruence

The student centred culture of the Vet School means that every member of staff from administrators to technicians focuses on the student experience. Opportunities should be sought for all HE staff to understand the importance of the student experience. Furthermore systems which support a relationship based approach to learning should be implemented. Interactions with MEOs should be maximised as these relationships impact significantly on the student experience. Relationships with staff and peers are also significant. Managing relationships should be a focus of the learning journey. Peer learning can have significant benefits if implemented in a cohesive integrated way. Students develop meaning through discussion and debate. They also develop professional identity in early skills in learning to learn as well as professional skills such as teamwork and negotiation. Peer mentoring and peer assisted learning schemes are a good example of systems which bring students together in a way with benefits for meaning and identity. This can have a massive impact on a sense of belonging and identity which creates

positive engagement with learning. Language and terminology are tools of the community and opportunities for 'story sharing' such as through timetabled shared reflections in small groups works well to facilitate peer storytelling. . Sharing practice stories can be developed in a range of scenarios from involvement in PBL planning and placements to regular visits by guest speakers and visits out to external sites. All relationships are significant within the SVMS context, especially those with MEOs. Students should always be encouraged to reflect on interactions, particularly those with MEOs. Staff should share these, timely where possible, to help them to understand how to maximise learning opportunities arising from these experiences. My findings suggest that attracting a section of learners who are outside the traditional demographic of a course and come from alternative to the A level route should be a strategic approach to enhance the learning potential of any cohort. Intervention involves the use of pedagogic knowledge techniques include repetition, reinforcement and questioning. Contextualising includes sharing of experiences, particularly using storytelling. Either of these techniques adds some value to the student experience but the combination of both approaches adds significant value and contributes to the development of an individual's knowledge and professional identity. These techniques are transferable to any HE context.

Building a professional knowledge identity

Students develop their professional identity throughout their learning journey from both formally though reification and tacitly in relationships. . My research shows that learning occurs through both formal and informal participation with role models and anti-role models. At SVMS learners develop their identity as co-constructors of knowledge in many ways but most often through carefully designed task-based learning delivered in facilitated small groups. Participation with SKOs, especially mature learners and MKOs, especially facilitators are key contributors to this identity development. Students at SVMS also develop an approach as critical learners and evidence based practitioners. Practicing early reflection, and experiencing it through formal and informal storytelling can contribute to the development of an identity as a lifelong learner – an aim for all HE courses.

I present the CO-HELP model of questions and these linked recommendations in order to stimulate innovative thinking about new curriculum development. The study also identifies several areas of potential future work which may build upon and develop the findings from this study. Staff need to have a risk taking approach to education in order to enhance the student

experience. Further research into risk taking habits of teachers and enhanced student experience would both corroborate this point and disseminate good practice. This also serves as a suggestion to HE, as well as a warning to SVMS, about the importance of maintaining a culture of attracting academic staff that are inspiring and innovative. While there is much known about the 'first year experience' my research shows the need for further work on the 'second year experience' and beyond, where much learning begins to linked together. I suggest we could learn more about HE as a community of practice through ethnographic study of students in their third, fourth and fifth years and on into their profession in order to understand the holistic learning journey.

In conclusion, this research serves a multiple purpose. At the surface level, the findings show the student experience of learning in one particular HE environment. At a deeper level it has potential impact across many areas of HE. My research suggests ways we can progress current curricula to match current economic and pedagogic environment using the "Communities of Practice" model. My recommendations summarise the main findings and how these may be applied by practitioners and management in HE. Finally I have recommended the way that this research opens up ideas about further research in this field.

I have undertaken a massive personal learning journey through my doctoral work and it is useful to reflect on this in relation to the study undertaken. I have worked at the periphery of the research profession. I have learned in the HE environment by relating theory to practice. The way I have been supported to do this is through the reification process of writing the thesis, and through support from a range of individuals. In reflecting on this, I realise the parallels with findings from my study. I feel that as a result of my student experience I am moving from the legitimate periphery of participation (LPP) into full participation in the research profession. Equally, I realise that my learning will continue from this point forward and that the completion of one cycle of learning indeed only leads onto the start of another cycle.

I came to the PhD to become the most knowledgeable person I could. As a consequence of what I learned about learning, I realised that a better aim would be to become the best learner that I could. I am now confident that the end of the PhD is not in fact the end of my learning, it is only the beginning.

The End

Or just the beginning.

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11 APPENDICES

11.1 Appendix 1- Timeline of PhD Work

Date	Data collection and analysis	Literature Review	Writing
10/2008	100% observation of teaching	School documentation Secondary data	Observational fieldnotes
11/2008	60-80% observation of teaching	School documentation Secondary data	Observational fieldnotes
12/2008	60-80% observation of teaching	School documentation Secondary data	Observational fieldnotes
01/2009	10-20% observation of teaching Thematising data	Initial literature review	Observational fieldnotes Reflective theming notes
02/2009	10-20% observation of teaching Thematising data	Initial literature review	Observational fieldnotes Reflective theming notes
03/2009	10-20% observation of teaching Thematising data	Initial literature review	Observational fieldnotes Reflective theming notes

Date	Data collection and analysis	Literature Review	Writing
04/2009	In-depth interviews	Initial literature review	Transcribing interviews
05/2009	In-depth interviews	Initial literature review	Transcribing interviews
06/2009	In-depth interviews	Initial literature review	Transcribing interviews
07/2009	Initial analysis by theme	Ongoing literature review	Drafting vignettes
08/2009	Initial analysis by theme	Ongoing literature review	Drafting vignettes
09/2009	Initial analysis by theme	Ongoing literature review	Drafting vignettes
10/2009	10-20% observation of teaching'Refined observation'	Ongoing literature review	Drafting literature review
11/2009	10-20% observation of teaching'Refined observation'	Ongoing literature review	Drafting literature review
12/2009	10-20% observation of teaching'Refined observation'	Ongoing literature review	Drafting literature review
01/2010	Data saturation	Following themes	Drafting literature review
02/2010	Data saturation	Following themes	Drafting literature review

Date	Data collection and analysis	Literature Review	Writing
03/2010	Data saturation	Following themes	Drafting literature review
04/2010	Second year focused interviews	Following themes	In-depth analysis through writing
05/2010	Second year focused interviews	Following themes	In-depth analysis through writing
06/2010	Second year focused interviews	Following themes	In-depth analysis through writing
07/2010	Interview analysis	Communities of practice	Drafting methodology chapter
08/2010	Interview analysis	Communities of practice	Drafting methodology chapter
09/2010	Interview analysis	Communities of practice	Drafting methodology chapter
10/2010	Overall data review	Broad literature review	Drafting findings chapter
11/2010	Overall data review	Broad literature review	Drafting findings chapter
12/2010	Overall data review	Broad literature review	Drafting findings chapter
01/2011	Overall data review	Focused literature review	Drafting findings chapter

Date	Data collection and analysis	Literature Review	Writing
02/2011	Overall data review	Focused literature review	Drafting findings chapter
03/2011	Overall data review	Focused literature review	Drafting findings chapter
04/2011	Overall data review	Focused literature review	Drafting findings chapter
05/2011	Overall data review	Focused literature review	Drafting findings chapter
06/2011	Overall data review	Focused literature review	Drafting findings chapter
07/2011- 01/2012	Maternity leave		
01/2012- 06/2013 (part-time)	Overall Review	Reviewing and updating	Overall thesis drafting

11.2   Appendix 2- Information sheet for participants

Information Sheet for Student Participants

My name is Claire Mann and I am a student.

I am working towards a PhD in the Vet School.

I am sponsored by the Vet School and School of Education who are keen to understand and evaluate teaching and learning here.

What is your research about?

My research is into the student experience of the vet school.

I am particularly interested in the new curriculum being taught and the use of technology in teaching.

I am focusing on the experience of your cohort and am interested in following your experiences from your entry this year through your next three years here.

How will you do your research?

My approach to this research is ethnographic which means I want to understand the whole context – the 'big picture' of the student experience. In order to achieve this, I want to use a range of techniques. I will be shadowing your induction, attending a lot of your classes and will even get access to a student laptop the same as yours! I will have access to your workspaces, including shared resources and chat forums. I hope to observe some teaching sessions and keep

copies of teaching materials – I may even record some sessions on video. I will arrange interviews, often in groups, sometimes one-to-one to get your reflections on the things I have observed. I may also ask you to complete feedback questionnaires.

How will you protect my identity?

The data I collect, such as observation or interview notes or video will be stored in the university or in my personal care. The only people who will see it will be me or my supervisors. I promise to anonymise the data I collect and you will not be identified in anything written about the project. I will write a thesis for my PhD but it is important for you to understand that I reserve the right to disseminate my work in any way. This might mean I write about your student experience for academic publications, conferences, books or teacher development courses. This may include using examples of things I have observed or things said in interview, although I promise that you will never be named in the research

What do you want from me?

Very little! I actually want you to continue your studies exactly as you would have done if I weren't there so that I can capture a truthful picture of the experience you have as a student.

In order that I don't have to ask you each time I am involved in a session I hope you will give me your overall permission for me to conduct the research I have outlined above. If at any time you are not happy about the research you can confidentially contact me and discuss your concerns.

What now?

Please give me your consent! Sign the consent form and return to me.

If you have any queries please contact me clairemann@hotmail.com

You will see me in some of your classes. Feel free to talk to me, or not!

Thanks so much for your help in making this work!