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|  <p data-bbox="492 348 724 499"> LIFELONG INDEPENDENT VETERINARY EDUCATION </p> <p data-bbox="492 516 638 552"> <small>A ROYAL VETERINARY COLLEGE INITIATIVE</small> </p> | <p data-bbox="954 390 1572 457"> Centre for Excellence in Teaching and Learning (CETL) Programme </p> <p data-bbox="1094 537 1572 569"> 2007 SELF EVALUATION REPORT </p> |
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| LIVE Interim Evaluation Report, August 2007 | <input checked="" type="checkbox"/> |
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| <i>Name of Lead Institution:</i> The Royal Veterinary College, University of London | |
| <i>Name of the CETL:</i> LIVE – LIFELONG AND INDEPENDENT VETERINARY EDUCATION | |
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Table of Contents

| | | |
|------------|---|-----------|
| 1.0 | Executive Summary | 1 |
| 2.0 | Introduction..... | 1 |
| | 2.1 Structure and audience | 2 |
| | 2.2 Connection with other reports | 2 |
| | 2.3 Overview of the evidential base | 3 |
| 3.0 | LIVE – Brief description of the aims and scope of the CETL | 4 |
| | 3.1 Purposes of LIVE | 4 |
| | 3.2 Purpose | 5 |
| | 3.3 Activities | 5 |
| | 3.3.1 LIVE “Flagship projects” | 7 |
| | 3.3.2 Jim Bee Teaching Awards..... | 8 |
| | 3.3.3 LIVE Fellowships..... | 9 |
| | 3.3.4 LIVE Centre – the new building..... | 9 |
| | 3.3.5 Additional Capital Funding..... | 10 |
| | 3.3.6 Partnership with Faculty of Veterinary Science in Liverpool..... | 10 |
| | 3.4 Roles and Participants | 11 |
| 4.0 | Evaluation framework and approach | 15 |
| | 4.2 Reflections on the evaluation process | 17 |
| 5.0 | Findings..... | 18 |
| | 5.1 Student experience – Is there an effect of LIVE on students? | 18 |
| | 5.1.1 Directed Learning | 18 |
| | 5.1.2 The Haptic Cow for the RVC students..... | 19 |
| | 5.1.3 myPad – Developing a mobile notebook for veterinary students “on the go”..... | 20 |
| | 5.2 LIVE connections with external partners | 22 |
| | 5.3 LIVE impact on the institution’s internal strategy | 24 |
| | 5.4 LIVE effect on teaching | 25 |
| | 5.5 LIVE effect on learning design | 26 |
| 6.0 | Lessons learned and future adjustments | 28 |
| | 6.1 New knowledge gained to enrich and enhance student learning? | 28 |
| | 6.2 Emerging teaching practices..... | 28 |
| | 6.2.1 Interactive enthusiasm – Turning Point: | 29 |
| | 6.3 Implications for College systems and practices..... | 30 |
| | 6.4 Amplifying effects by engagement with the wider community | 31 |
| | 6.5 Adjustments and future plans for LIVE | 31 |
| | References | 33 |
| | Glossary | 35 |
| | Appendices | 37 |

Please note: We have included four DVDs with samples of the LIVE CETL’s work to go with each of the four hard copies of this report. After inserting the DVD into your computer, please refer to the ‘Start’ button to start off the DVD in the suggested mode.

1.0 Executive Summary

As a result of achieving 24/24 in its Quality Assurance Agency Veterinary Medicine Subject Review in 2000, the Royal Veterinary College (RVC) was eligible to bid for funding of up to £4.5 million to establish a Centre for Excellence in Teaching and Learning (CETL). The final results in a two-round competition were announced by the Higher Education Funding Council for England in January 2005. A total of 74 CETLs were created, with the RVC gaining the only award focused on Veterinary Education.

After two years, we believe the funds HEFCE provided so far to the College in order to create LIVE (Lifelong and Independent Veterinary Education) have been used wisely and in a very efficient way. LIVE has engaged people involved in the research of the further development of the veterinary profession not only here in the UK, but also in Europe and overseas. Active research and development work, engagement in collaborative projects with educational researchers at other veterinary schools and also on an interprofessional level, the provision of expertise, and last but not least the creation of a state-of-the-art learning facility (LIVE Centre) have brought further acclaim to the RVC from a direction that College senior and academic staff probably did not expect – education and student learning. The following report describes in detail the development and activities which the CETL has been undertaking over the past two years.

Examples are given to demonstrate the realisation of the initial CETL bid's aims to provide opportunities to add variety and depth to the different learning engagements which exist at veterinary faculties in the UK. Educational research results and outcomes are presented to show how to support a self-motivated learner, how to identify learning needs according to personal ambitions and how to create structures needed to support the migration process towards essential lifelong and independent learning (May, Pead et al. 2004-05).

2.0 Introduction

This report is an overall summary of the CETL's work and activities, and aims to review and evaluate LIVE's achievements over the past two years. It is being submitted to the Higher Education Funding Council of England (HEFCE) by Birgit Pirkelbauer, LIVE Centre Manager at the Royal Veterinary College, in response to the electronic invitation sent by Alan Palmer, CETL Policy Officer, Higher Education Funding Council for England, dated 18 June 2007.

The self-evaluation report complies with the information and guidance given by the HEFCE document *Centres for Excellence in Teaching and Learning (CETLs): Approaches to evaluation*.

This report has six sections and a section of appendices. Further details are provided both in electronic and printed formats. A .pdf version of this Interim Evaluation Report will also be made available on our website (www.live.ac.uk). Please note that some of the examples of our work were produced using Flash, video streaming and Adobe software. Upon opening the attached DVD you might be asked to download respective software from the web in order to view some of the listed work.

2.1 Structure and audience

With this report we hope to inform representatives of the funding body, their evaluators, representatives of the profession and the Royal Veterinary College (as our host institution) about the achievements of the LIVE initiative over the past two years.

In the **introduction** of this report, we briefly provide an overview of the actual structure, the purpose of the CETL, and a short insight into the evidence which forms the basis of this report.

The next section (Section 3) contains information on the overall **aims and the scope of LIVE** and discusses the impact which the work of the LIVE CETL has already had on undergraduate and postgraduate veterinary education. One of LIVE's primary goals has always been the research of the kinds of skills that are relevant to lifelong and independent learning in veterinary and paraveterinary students, but LIVE is also looking further forward to the profession in the field. A lot of our education is work-based and veterinary practitioners need to be involved in the further advancement of veterinary education. Through the provision of extramural studies (EMS) and intramural studies (IMR) our students learn from the experts in the field, and will themselves become such experts in the future, so it needs to be emphasised that other professional skills, such as communication skills, are also a high priority. LIVE emphasises the further development of these skills, in the hope that contributing in this way will assist in the development of a graduate with the potential to become a "complete professional", both in their veterinary consultations and also their educational support of future veterinary surgeons, nurses and other paraprofessionals. This section also provides further information on the use of the facilities, the sharing of good practice (underpinning LIVE as a focus point for educational research and development), and an overview of the activities of the CETL. A description of the roles and participants in CETL activities rounds up this section.

In section four, LIVE's **evaluation framework strategy and approach** will be discussed, followed by section five, where the **findings** from the past two years are illustrated in a flowchart diagram, and a more detailed review of results and achievements is also presented.

Our final section, draws on new emerging teaching and learning practices, looks at **lessons learned** and plans for the enrichment of the our learning environment, and discusses the beginning of a wider influence of the CETL, not only in veterinary education but also across disciplines. **Future adjustments** of the CETL's strategy, and reflections on the 'change incubator' concept which underlies the CETL programme as a national strategy, complete the discussion section of this report.

References, figures and tables in the Appendices conclude our documentation of LIVE, which will hopefully be of interest and value to public and professional bodies across the wider veterinary community and beyond.

2.2 Connection with other reports

Our self-evaluation report draws on information from our continuing internal evaluation process, documented in three reports over the last two years, as well as the documentation of numerous LIVE development and research meetings which have been held over the past two years. Away Day presentations and discussion reports also form part of the reflection upon our activities, developments and research. HEFCE may also draw evidence from another

annual report which is being prepared by the Royal Veterinary College's Assistant Principal's Office and submitted directly to HEFCE (HEFCE Annual Monitoring Statement).

2.3 Overview of the evidential base

Based on the results of work over the last two years, it can be reported that the LIVE initiative has had a very good start, as supported by the first three evaluation reports (see Appendix, [The LIVE Initiative, Evaluation Report, Part Three](#)). In 2005, Ian Taylor and Robert Turner from the Liverpool Evaluation and Assessment Unit at the University of Liverpool were asked to undertake the role of external evaluators for the Royal Veterinary College's CETL programme. The expertise of the two evaluators is widely respected when it comes to evaluating educational programmes and have had previous experience with evaluating specific veterinary educational projects such as the work which NUVACS (National Unit for the Advancement of Veterinary Communication Skills) has been undertaking over the past few years.

RVC clinicians and other teaching staff have found the new CETL facilities to be successfully integrated additions to their teaching and have reported this back to our external evaluation team in semi-structured interviews conducted between April 2006 and May 2007. The expansion from one to two clinical skills laboratories, and also the newly provided communications skills rooms, provide attractive teaching opportunities for staff (see references in RVC Annual Report 2004 p. 21 and RVC Annual Report 2005-06, p. 5, 10-11, 14 which are included in the pack sent by mail to HEFCE). The newly appointed education research staff in LIVE have been successfully integrated into the College's teaching structure. Two members of staff are involved in the enlarged professional skills module (starting in September 2007), with one lecturer acting as the strand leader and the other making substantial contributions as a lecturer on the module. Further teaching commitments by LIVE staff include clinical teaching, such as teaching on the final year farm animal rotation, and teaching a systematic approach to rectal examination of the equine abdomen (equine colic simulation). Last, but not least, LIVE staff are heavily involved in communication skills training for students in their second and fourth years.

Detailed information for this Interim Report is being taken from the three completed evaluation reports which were conducted by the evaluation team from Liverpool, from feedback forms following events and workshops organised by the CETL, and from the documentation for the LIVE Away Days held in July 2006 and July 2007. Research plans, symposium abstracts and posters, and questionnaires also form part of the overall qualitative and quantitative data which are used in our analysis of the CETL's progress. Please see Appendices for further details on project plans, ongoing evaluation report details, and further inclusive data used for this report.

3.0 LIVE – Brief description of the aims and scope of the CETL

This section contains a brief description of the aims and activities of the LIVE Centre. It will also take a closer look at LIVE's mission and key goals, together with goals and deliverables achieved in the first two years of this veterinary CETL.

3.1 Purposes of LIVE

The following statement of purpose is taken from the original HEFCE CETL Stage 2 Bid document in order to take the reader back to LIVE's very early days, when the College was still striving to identify key activities which should be supported by a CETL. In 2003, Dr Kate Exley conducted a report on directed learning at the RVC and saw potential "to more clearly address skills development and to put primary concern on the application and use of knowledge". Therefore, the rationale for the focus of LIVE and its relationship to RVC institutional strategies was identified as follows:

- LIVE will act as a cross-departmental powerhouse for the improvement of existing and the development of new learning materials for veterinary and paraveterinary students, and the extension of this best practice to the RVC's other degree programmes and the wider veterinary community.

Building on the recommendations of Dr Exley's report, LIVE seeks to particularly address the following core aspects of education:

- Increasing learner independence, and appropriate switching from pedagogical to andragogical learning modes
- Incremental development of skills, and of student and staff expectations, across the five years of the BVetMed programme
- Optimal use of academic and support staff as facilitators by identifying classes requiring a constant senior academic presence and those essentially based on self and peer support
- Expansion of the Clinical Skills Laboratory and a range of learning materials to promote transition from classrooms to clinics
- Further development of e-learning and assessment materials to facilitate student independence
- Creation of a Professional/Personal Development Portfolio, including electronic reflective diary, extending to placement learning
- Professional and communication skills (utilising the expertise of our collaboration with Liverpool University and with the Veterinary Defence Society through the National Unit for the Advancement of Veterinary Communication Skills (NUVACS))

This initial focus of attention has remained, over the past two years, as our remit for work, and continues to be instrumental in informing future development of the CETL; enabling the College to appraise and clarify how it can take forward what has been achieved over the past

two years in LIVE and providing guidance for our approach to research and development for the following three years.

3.2 Purpose

The RVC recognised that there was a need for more graded, sequential support of its students in early years to ensure fuller achievement of learning outcomes in professional skills, including diagnosis and therapy in the last year of the Bachelor of Veterinary Medicine (BVetMed) Course. This necessitated a reorganisation of the earlier years, including more careful preparation for the challenges of the clinical area. It was clear that the learning programmes which in theory were dedicated to sequential clinical acquisition, though basic and paraclinical science, needed revisiting. Neither the learning potential of the early nor the clinical years was being maximised, and it was also clear that the profession needed more reliable foundations for postgraduate independent learning to be in place by graduation. As a result, the College bid for funds for a Centre for Excellence in Teaching and Learning (CETL), and after being successfully awarded this funding, the College has sought to pursue its aim of providing excellent teaching and learning to veterinary students by making use of educational and professional expertise provided through LIVE.

LIVE seeks to fulfill the programme's objectives by masterminding the incorporation of good pedagogical practice into the following (May, Pead et al. 2004-05):

- 1) The further development of the core area of excellence at the RVC; the development of the RVC directed learning programmes as a stimulus for independent learning
- 2) Extension of this excellence to other areas; later years of the BVetMed, the RVC's other veterinary and paraveterinary degree programmes, other undergraduate courses and CPD
- 3) Dissemination of the work of LIVE across the entire spectrum of veterinary learning opportunities
- 4) A programme of research that investigates the educational soundness of LIVE's initiatives, and evaluates and audits the fulfillment of the objectives

So far, LIVE has invested a lot of effort in the pursuit of these aims and objectives. Results and a further discussion of the findings in this process can be reviewed under section five and also in the Appendix under [Table of Activities](#). As a reflective statement taken from interviews from the ongoing evaluation process, LIVE staff recognise that (Taylor and Turner 2007):

- *A great deal of effort is being made by LIVE to inform practice through the analysis of credible evidence, especially that derived from those engaged in the learning experience.*
- *However, more will be needed than high quality research and evaluation if LIVE is to have a lasting impact on veterinary educational practice.*

(LIVE Evaluation Report, Part 3, 2007)

3.3 Activities

LIVE staff have engaged in numerous activities around veterinary education over the past two years and feedback shows that the College and colleagues in the field have started to recognise LIVE as a resource to them, and that it is opening new doors for people who want to engage in veterinary education research. One of the positive messages we took away from the LIVE Symposium in February 2007 is that colleagues from all UK veterinary schools, as

well as colleagues from abroad, recognised the enormous potential of this CETL as an active and stimulating hub in veterinary education. One can almost say that the initial aim of disseminating excellence to the wider public and our partners in research and development was accomplished in these two days alone. But this would mean that efforts and work would not progress. As stated numerous times by our evaluators, LIVE is a CETL-in-action and therefore efforts will not cease to be made. One can only say that the seeds for LIVE have been sown successfully, and that now it is the time for taking stock before fostering further growth.

The organisation of the official Opening on 20 February 2007 and the LIVE Interactive Veterinary Showcase with a Symposium in the morning of the following day was a great success, with both internal and external participants on both days. Leading educationalists from the veterinary community, honorable guests, and our collaborative partners and media representatives spent two days discussing the great potential of the work which is being conducted at LIVE.

Many thanks for your kind email. I really enjoyed the day and found it extremely stimulating. Your setup at the LIVE centre is really impressive, as was your organisation of the day's events.

Dr Roger Kneebone, Imperial College London

I thought it was a fantastic day. I really enjoyed several aspects of it, very well planned and your team created a collegial atmosphere for many productive discussions

Debra Nestel, Imperial College London

Just to say thanks a lot for putting on an excellent event on Weds - great to catch up with everyone - you had obviously put a lot of work in and must be dead chuffed it ran so well!

Prof Susan Rhind, Director of the Veterinary Teaching Organisation, Royal (Dick) School of Veterinary Studies, Edinburgh

I really enjoyed the day, and thought it was a great credit to you and all your colleagues in LIVE.

Dr Catriona Bell, Royal (Dick) School of Veterinary Studies, Edinburgh

Please pass on my thanks to everyone involved with the day - it was very enjoyable and well organised, and it was a great opportunity to meet lots of different people. I was really impressed with the quality of the posters submitted.

Liz Mossop, Nottingham Vet School

I have to thank you and all your colleagues for your great hospitality for me and for my colleagues as well. The visit was a great success for all of us.

Prof Pieter van Beukelen, University of Utrecht, Faculty of Veterinary Medicine

Can I thank you for the invitation to be present at the Official Opening of the LIVE Centre. It was a great privilege to be there on such a lovely occasion and the organisation was a tribute to you and your staff.

Bryan Hammond, Chairman of Hertfordshire County Council

Further information on the range of activities around these Opening days in February 2007 can be found in the Appendices within the [LIVE symposium abstracts document](#).

The CETL has been set up to initialise and support the transformation of the veterinary and paraveterinary professions by educating professionals who are capable and committed lifelong independent learners from induction to retirement. At its best, it acts as a focus for teachers, educational researchers, veterinary practitioners and students who are jointly passionate about improving learning opportunities at all levels in the profession, and it is determined to better equip students and graduates to recognise and benefit from those opportunities.

No single project will suffice to achieve both curriculum redesign and culture change. Therefore LIVE operates at a number of levels in supporting the RVC to achieve educational change.

3.3.1 LIVE “Flagship projects”

Several new members of staff with expertise in education and e-learning have been recruited. They are responsible for LIVE “flagship projects”, such as a more structured approach to **placement learning and assessment** (extra-mural studies or EMS). In an internal collaboration with the RVC EMS co-ordinator and the PDSA the research focus lies on enhancing theory/practice links and improving the quality of work-based learning.

Another vital part of LIVE’s development and research work is based around the use of mobile electronic assistants in clinical learning (**myPad** project). The myPad project aims to enhance and transform students’ approach to learning. It is a clinical activity tool that uses handheld devices for students to record, organise, access and reflect on the relationship between their theoretical knowledge and practical learning experiences. myPad is an evolutionary, student-led project where responses and research findings are incorporated into emerging design features. The design phase was completed in May 2007 and students have been asked to complete questionnaires in order to provide data for the research phase which is beginning now. The commercial sponsor, Orange SA, expects a report from LIVE by autumn 2007 and it is hoped and envisaged that we will be able to proceed with our research into mobile learning with different trial groups until autumn 2008.

A third developmental and research interest lies in the creation and evaluation of materials for learning in **communication skills**, mostly in conjunction with Liverpool University. This has as its aim the production of high quality, ready-to-use educational material for both undergraduate and postgraduate groups. The project also involves development, utilisation and evaluation of novel teaching and assessment methods, and research into teaching strategies for the development of communication skills in the veterinary context are discussed.

To help prepare veterinary graduates to face new challenges, such as an anticipated new Veterinary Surgeons Act leading to enlargement of the veterinary team and compulsory continued professional development (\pm relicensing) (Royal College of Veterinary Surgeons (RCVS) 2001), research into **lifelong learning** and the motivation behind it is of central interest in the educational research conducted in the LIVE Centre. We aim to investigate the application of adult learning principles to undergraduate and postgraduate veterinary education, and to explore practitioners’ motivation to engage in continuing professional development.

Initial engagement in research on **student attitudes and approaches to their study** has been based on Noel Entwistle’s group’s ASSIST questionnaire (Entwistle 2004) which was distributed to all five BVetMed year groups. The data from the initial, and a further round of

questionnaires is still being reviewed. Early analysis has revealed that all year groups show tendencies for surface learning rather than deep or strategic styles. This would confirm one of LIVE's initial assumptions that work in the CETL, and at the College needs to focus on establishing structures for small-group, team-based (as well as individual), guided independent learning, ideally using clinically-related problems, including during the first three-and-a-half years of the BVetMed course, in order to avoid encouraging unconstructive student learning. The structure and appropriate size of a group task can aid group functionality and outcome, as can its assessment (May, Pead et al. 2004-05).

Further education research is being undertaken into small group/ case-based learning in the '**Pedagogy Planner**' project which is a collaboration with Diana Laurillard's team at the London Knowledge Lab, IOE with the focus on research and development of an online support tool for staff planning to use technology in their courses.

Our other main development and series of research projects involves virtual reality simulators and their use in veterinary education. Probably the best known veterinary simulation model is the "Haptic Cow" which is a virtual reality simulator developed to train veterinary students to palpate the bovine reproductive tract, to perform fertility examinations and to diagnose pregnancy. The simulator uses haptic (touch feedback) technology, which allows a user to interact with a 3D virtual environment through the sense of touch. When being trained with the Haptic Cow, the student palpates computer-generated virtual objects resembling parts of the bovine reproductive tract. The teacher provides instruction and feedback while following the student's actions inside the cow on the computer monitor. The procedures are difficult to teach and to learn using traditional methods and students need plenty of practice opportunities to develop the required skills. When palpating cows, hand movements are not visible, which means the student cannot copy what the veterinary practitioner did and it is also difficult to provide effective guidance. The simulator has been developed at the University of Glasgow as a supplement to existing training methods and uses the PHANTOM (from SensAble Technologies (<http://www.sensable.com/>), which is positioned inside a fibreglass model of the rear half of a cow. The Haptic Cow was launched commercially in the UK in October 2006 and is being distributed by the company Virtualis (<http://www.hapticcow.com/>). The Haptic Cow's inventor has held a LIVE Fellowship since October 2006 (and is about to move on to a Senior Lectureship in Veterinary Education at the RVC), and focus lies on the further research of haptic simulations and their use in veterinary and medical education.

3.3.2 Jim Bee Teaching Awards

To integrate as many RVC staff as possible into the LIVE programme, LIVE approves teaching prizes and projects which allow existing staff to develop new classes, and convert existing teaching materials into more exciting, interactive learning experiences. Projects such as the development of a screen-based computer aided learning tool for immunology "LIME" – Learn Immunology More Easily" (Jim Bee Award winner 2007), or the "Development of a tool for integrating the teaching of clinical skills, clinical reasoning and communication skills to aid transition from student to practitioner" (2005), or the research project "Facilitation of Self and Peer assessment during clinical placements – does it lead to improved learning?" (2005) show the wide spectrum of interests of our staff in educational development and research. A complete list of all the projects funded since 2004-05 can be found in the Appendix under "Jim Bee Teaching Awards 2004 – 2007".

3.3.3 LIVE Fellowships

For academics who need “time out” to devote exclusively to teaching projects or educational research, LIVE funds one-year (or shorter term) fellowships. Currently we have two LIVE Fellows, who came to the RVC from the Faculty of Veterinary Science in Glasgow, engaged in the research around haptic simulations and the application of adult learning theory. In addition, there are two part time Fellows (0.50 and 0.40 FTE), who have been recruited from the RVC – one engaged in research into clinical reasoning and the further development of assessment formats for the BVetMed course, in particular in the introduction and evaluation of clinical scenario-based extended matching questions (EMQs). EMQs are similar to multiple choice questions (MCQs), but because of the greater number of possible answers (6-26 instead of just 5) there is less of a cuing effect (Wass, McGibbon et al. 2001). A paper on the research conducted alongside the introduction of EMQs is being prepared for submission to the Journal of Veterinary Medical Education (JVME) in September 2007. The other part time Fellowship, involving the development of the Day One Skills Framework, has a strong curriculum and skills development focus. This has engaged various members of the LIVE team and has resulted in the production of a guidance booklet for RVC students, containing the complete set of skills a BVetMed graduate should have obtained in order to be a fully competent professional. RVC teaching staff are now preparing for the introduction of this booklet to students at the beginning of the new academic year, and it is anticipated that work leading up to this will also result in an educational publication.

3.3.4 LIVE Centre – the new building

In addition to teaching and learning expertise and development funding, LIVE offers state-of-the-art facilities for professional skills practice by veterinary and paraveterinary students in the clinical parts of their courses. Students can practise consultation skills in rooms dedicated to this purpose, and create videos of themselves for self-analysis and broader discussion. Students can also rehearse a range of clinical skills including suturing, knot-tying, assembly of anaesthetic circuits and positioning of the patient for radiography. Early introduction to some of the fundamental skills, before students embark on intramural or extramural clinical rotations, helps reduce the anxiety many feel on entering the stressful clinical environment, and allows them to better capitalise on opportunities as they present, particularly in first opinion practice.

Clinical Skills Centre (CSC):

The clinical skills centre laboratories are based in the new LIVE Centre and function in various different ways. They are used as classrooms for teaching and demonstrating clinical skills within some of the modules taught at the RVC, but also for continuing professional development training sessions. The labs are also a place where students can come in their free time to practise a range of clinical skills.

Students regard the clinical skills laboratories as a learning resource centre, like the library or computer rooms. They practise a range of clinical skills on models and simulated materials, until they feel confident in their own performance. Based on the registration figures taken from the Clinical Skills Centre sign-in books over the past three years, the busiest periods for clinical training in the labs appear to be between January and March of each year, which ties in with the students’ need to prepare for clinical skills assessments. Students, at that time, want to take every opportunity to prepare for their Objective Structured Clinical Examinations (OSCE), a modern type of examination often used to test skills such as communication, clinical examination, and the interpretation of results, and surgical and medical procedures (Harden, Stevenson et al. 1975). Registration numbers taken from the CSC sign-in books for

the periods January to March 2005-07 show a sustained use over these normally very busy periods for veterinary students.

| Jan – Mar | Registration for CSC |
|-----------|----------------------|
| 2005 | 769 Registrations |
| 2006 | 766 Registrations |
| 2007 | 766 Registrations |

We will continue to encourage the use of the clinical skills laboratories as part of the work of LIVE in relation to the evaluation of clinical skills training and further model development.

The Royal Veterinary College has three clinical skills tutors who work with students and staff, and demonstrate “correct approaches” to the practice of clinical skills (Dale, Mould et al. 2005; Junger, Schafer et al. 2005). The Clinical Skills Centre is supervised by Dr Matthew Pead, who is an influential clinical teacher, and was one of the initiators of LIVE. LIVE’s educational research staff work closely with the CSC team to evaluate and validate the use of models for teaching, and engage with the tutors on various projects relating to model development and skills teaching (Baillie, Shore et al. 2007; Rendle and Baillie 2007).

Communication Skills Rooms:

A key skill in professional life is communication, and this is particularly the case for the caring professions. Much effort has been devoted to improving communication skills for medical students (Kurtz, Silverman et al. 1998), and this has been extended to veterinary education, in response to complaints about new graduates to the Royal College of Veterinary Surgeons (RCVS) and insurance claims reaching the Veterinary Defence Society (VDS). The LIVE Centre is equipped and staffed to support the development of generic communication skills using technology to enhance learning in this area. Three communication skills rooms provide the environment to create clinical scenarios; the rooms can be used as teaching rooms, ideal for smaller groups, for case presentations or interview settings, and all three rooms have also been integrated into the OSCE assessment process. To increase the efficiency of their use, the communication skills training suite was integrated into the College internal booking system on 3 April 2007, and so far the booking of those rooms has been very satisfying, with 68 sessions booked since April.

3.3.5 Additional Capital Funding

Clinical skills do not develop in a vacuum, and require a good foundation in the basic sciences, such as anatomy and pathology, on which to build. The opportunity to bid for, and success in obtaining, extra CETL capital funding in 2006 has meant that, in addition to the LIVE Centre at Hawkshead, LIVE facilities have been created at the RVC’s Camden campus. These include a new Anatomy Museum, and a state-of-the-art practical classroom for safe handling of materials in microbiology and pathology classes (see images of the new facilities in Camden under the Appendix section). Anecdotally, a number of anatomy staff have recognised a very satisfying increase in the use of the Museum compared to the rather inadequate facility which it replaced.

3.3.6 Partnership with Faculty of Veterinary Science in Liverpool

Through our partnership with the Faculty of Veterinary Science at Liverpool we have been pursuing further development of the veterinary communication skills standards (http://www.live.ac.uk/html/projects_communication.html), specifically through the work of Carol Gray, a member of LIVE staff who is based at Liverpool. Carol is a Lecturer in

Veterinary Communication Skills whose position was “resumed” by LIVE funding after her previous contract came to an end. Carol has contributed widely, in close partnership with cross-institutional organizations, to the development of communication skills training for veterinary students (<http://www.bsava.com/congress/science/>). As an important partner in the development of professional and communication skills materials, LIVE carried the costs of the refurbishments of existing teaching space which is used for professional skills training at Leahurst House in the Faculty of Veterinary Science, University of Liverpool. Work on Leahurst House was completed in early 2007 and communication skills training and further development of materials now benefit from the provision of new equipment (video players, monitors, computers, and new hard and software in the newly refurbished space (see images of the [newly refurbished facilities](#) under the Appendix section).

LIVE also supports Carol in her work as supervisor of the curriculum review at the Faculty of Veterinary Science at Liverpool and in this way contributes to the change process of another UK veterinary school.

3.4 Roles and Participants

LIVE, headed by Stephen May (RVC Deputy Principal and Vice Principal for Teaching), is staffed by an inter-disciplinary team comprising academic and support specialists who work collaboratively with nominated and other interested clinical and advisory staff within the RVC and broader veterinary and CETL networks.

LIVE Development Team Meetings are held monthly (18 so far), and used to inform representatives from all the College departments about ongoing issues and projects. During Research Meetings, which are held every two weeks, members of staff take the opportunity to discuss their research and ask for input from their colleagues. The overall meeting structure is set up so that the Centre team is able to meet once a week, either to discuss research or administrative items. Away Days were not considered in the Stage 2 Bid document; however, the CETL has found these to be very fruitful and strategically important for discussing emerging ideas and activities. LIVE Away Days happen once a year and are being used to provide a platform for researchers, management and the support team to present their work and to discuss strategic questions.

To facilitate College cross-disciplinary discussion we have also initiated a monthly Journal Club Meeting in conjunction with the RVC's Director of the Centre for Distance Education to discuss educational research papers.

At present LIVE consists of 13 members of staff:

- 1 FTE Senior lecturer in independent learning;
- 1 FTE Senior lecturer in work-based learning;
- 1 FTE Lecturer in veterinary communication skills development (based at Faculty of Veterinary Science in Liverpool);
- 1 FTE Research Fellow in lifelong learning;
- 1 FTE Research Fellow in development of haptic simulation models;
- 1 0.50 FTE Research Fellow in development of veterinary skills;
- 1 0.40 FTE Research Fellow in clinical reasoning and assessment;
- 3 FTE Technical support staff;
- 2 Software developers
- 1 e-learning developer;
- 1 FTE Centre Manager;
- 1 FTE Centre Administrator
- 1 Academic Director

The following diagram outlines the CETL team.

LIVE (Lifelong Independent Veterinary Education)

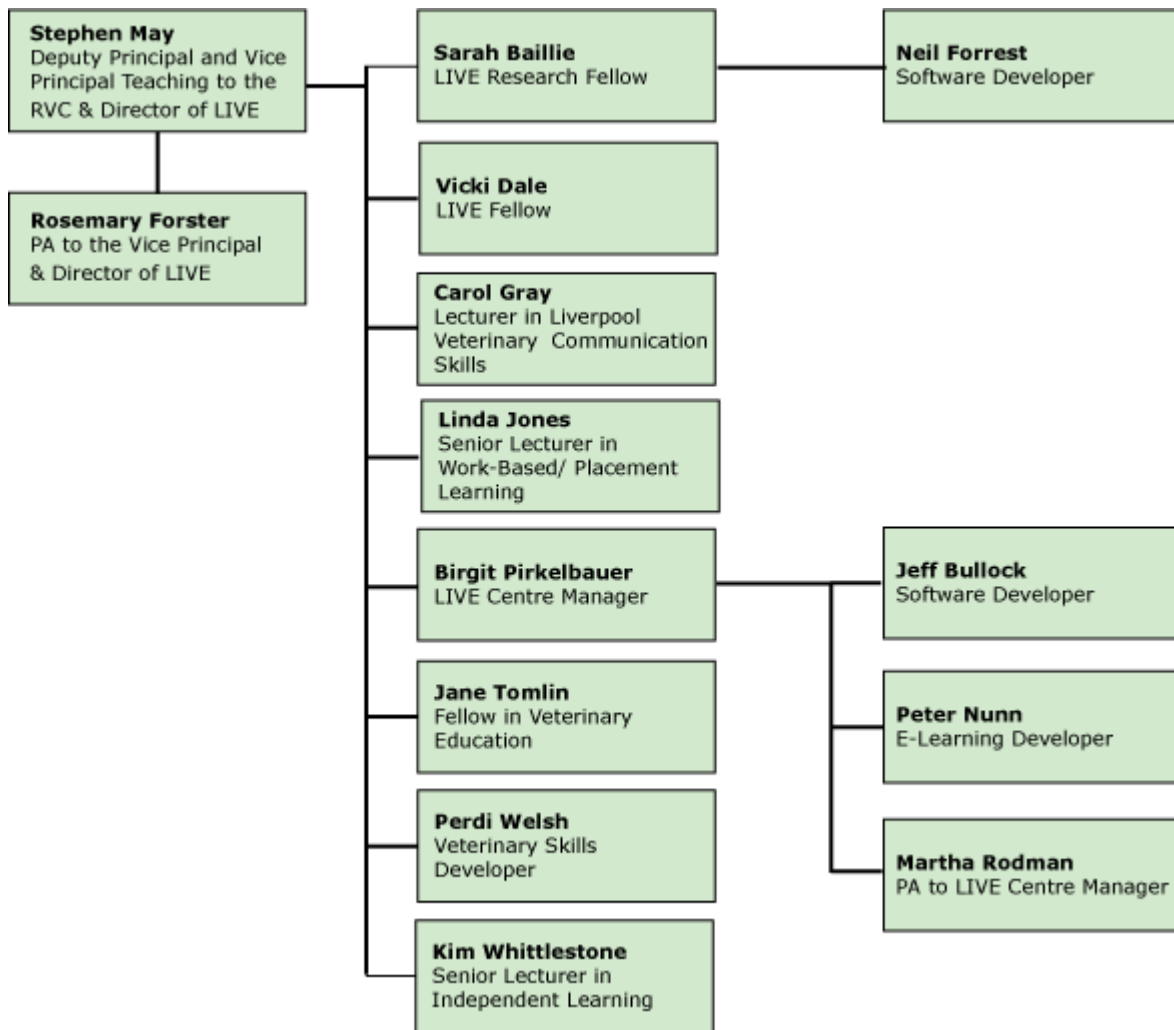


Table 1: LIVE team

LIVE Advisory Board:

The LIVE Advisory Board members meet approximately once per year, timed to coincide with annual reporting or other key events in the timescale of the LIVE Centre.

The Board consists of the following advisers:

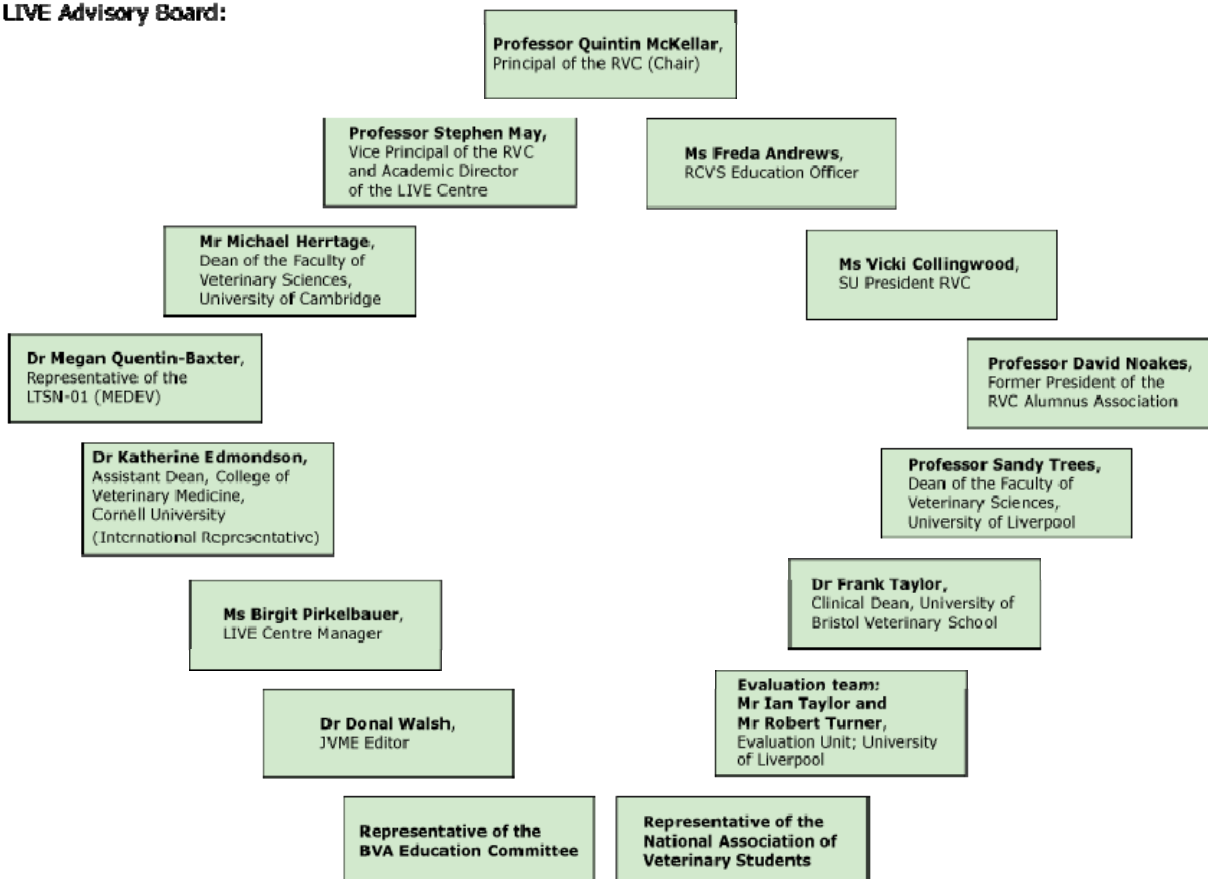
LIVE Advisory Board:

Table 2: LIVE Advisory Board, May 2007

The group represents key sector stakeholders and provides 'reciprocal advocacy' for LIVE by providing reinforcing feedback from the sector to support the LIVE management team in general. Another important aspect of this group is that they take away new knowledge from these meetings, thus promoting the CETL at both a national and also an international level.

The Board was initially set up to provide strategic advice and guidance particularly in relation to the following:

- To provide a forum for strategic consultation and discussion, where issues of relevance can be raised
- To receive and comment on CETL reports and documentation, including annual financial statements
- To monitor the CETL's performance against the objectives set out in the bid - in conjunction with monitoring and evaluation undertaken by HEFCE

- To review evaluation and dissemination strategies
- To determine further funding opportunities and recommendations for appropriate exit strategies

As mentioned before, under section 3.3, a variety of groups within the College work closely with the CETL team, thus helping to integrate CETL activities into the overall RVC structure but also disseminating research interests, funding opportunities and collaboration opportunities to and from the CETL. Specifically, the CETL has a close relationship with the College's Department of Veterinary Clinical Sciences (VCS), in which most of the CETL's activities are embedded, also the Academic Support and Development Department, Finance and Estates, and, through the administration of the Jim Bee Teaching Prize awarded projects, strong ties have been formed with individual members of the Veterinary Basic Sciences Department and also with individuals from other departments.

Close internal collaborations have been established with individual clinical and research staff, as well as with Clinical Skills Centre staff and the College's study support officers. Joint grant applications and close internal collaboration with the e-Media Unit and the College's IT support and software development team show the CETL's (still ongoing) integration into the College systems is on track.

4.0 Evaluation framework and approach

An evaluation process is necessary to enable LIVE to measure its achievements and impact at various levels - within the College, with our professional body, the Royal College of Veterinary Surgeons (RCVS), and other professional organisations, with the wider veterinary community and more broadly with the HE sector. From the beginning, LIVE was committed to an evaluation process based on the principles of openness, self-reflection, data gathering and analysis. Throughout this period we have made every effort to record and disseminate findings from our evaluation reports to LIVE staff and collaboration partners, LIVE's Advisory Board, the RVC and beyond, in order to engage people's interest in the work the CETL has been undertaking over the past two years.

4.1 LIVE's evaluation standards and processes

LIVE has opted for a route of external evaluation, aligning the CETL's evaluation process with criteria following standards established by the Quality Assurance Agency (QAA). Building on self-evaluation documents, shared with the CETL's independent assessors, the external evaluation team collects information from interviews with CETL staff, students and faculty staff from the RVC. When the Royal Veterinary College was awarded a CETL in 2005, Ian Taylor and Rob Turner from the Liverpool Evaluation and Assessment Unit (University of Liverpool) agreed to act as LIVE's external evaluation team. So far the evaluation team has produced three evaluation reports on the work of the RVC CETL; evidence taken from these three reports shows that LIVE has received an overall very positive review from Liverpool's Evaluation and Assessment Unit (also see [Evaluation Report Part 3](#) in the Appendix section).

HEFCE's guidelines for this Interim Report suggested information should be based on a CETL evaluation structure following the RUFDATA model. This model provides a generic context for action, with a recognisable shape (Saunders 2000), but, within this shape, a wide range of actions is possible. LIVE has opted for an evaluation process which broadly follows the RUFDATA concept. However, this report focuses on initial data, and we would like to make the point that impact factors and impact evaluation should be looked for in the summative report at the end of the funding period, in early 2010. Our evaluation strategy has aimed to recognise continuous progress and ensure that our aims and objectives remain valid, achievable and appropriate.

- Why use an external evaluation team?

Unlike the annual QAA evaluation process, LIVE has opted to work with the evaluation team at least three times a year. This has provided opportunities for the evaluation team to join regular LIVE meetings, to run in-depth interviews with teaching prize winners and senior RVC staff, to engage with all members of LIVE staff and also with partners of the CETL at other veterinary schools. As part of LIVE's Advisory Group, the evaluation team is also part of the strategic process and provides guidance in order to

- Benchmark LIVE's work against other CETL projects
- Help disseminate results of our research
- Act as the CETL's critical friends

One of the initial posts which LIVE wanted to fill was a Research Fellowship to conduct research on the work and activities in LIVE. Careful consideration has since led us away from these initial plans, as the relationship and collaboration with our external partners from the Liverpool Evaluation and Assessment Unit so far has produced very valuable feedback and constructive criticism.

So far, the CETL's external evaluation team has produced three evaluation reports, starting with the first in April 2006 and leading to the third in June 2007, in time for this HEFCE Interim Evaluation Report. Key facts from the first two evaluation reports will be provided throughout this report; Appendix 4 contains the latest report '*Evaluation Part 3 – The LIVE Initiative*' for further reference.

The evaluation team's first report was produced in April 2006 and looked closely at the first steps taken by this CETL. Ian Taylor and Rob Turner conducted several interviews with LIVE staff, together with members of various other departments of the RVC, and also joined the group in several meetings to gain an impression of the efforts that LIVE was making at this early stage. Their first report motivated the CETL team significantly, as it provided very relevant and positive feedback.

The second report was issued in November 2006 and described the second phase of external evaluation undertaken on behalf of the LIVE initiative. As with the first phase, evidence was collected through in-depth interviews and structured observation. For the second report, six interviews were held on Monday 11th September and Tuesday 12th September 2006, with staff associated with the project.

The second report focused on the progress that had been made since the first report. It looked at how the team was growing and evolving, and also considered some of the issues that were emerging as new members have been added, including how people's disparate backgrounds could bring new ideas and also tensions to the way the CETL operated.

Quoting from the second report (Taylor and Turner 2006), the evaluation team points out that:

There has been an increase in the size of the team since the initial evaluation was undertaken, with a considerable gain in expertise, especially in relation to educational development and research. LIVE now addresses a range of veterinary education issues through colleagues who bring a range of expertise and a variety of perspectives

The CETL is also able to draw on the research in relation to communication skills undertaken at the partner institution – the Liverpool Faculty of Veterinary Science – and will gain further research expertise from further appointments of colleagues who will engage in specific research projects (e.g. in relation to the take up or otherwise of CPD).

Further paragraphs from the second report summarize the evaluation team's findings on their second visit:

Overall the messages to emerge from this evaluation are very positive. ...Certainly, some of the benefits to be gained from putting together colleagues from different backgrounds have already become apparent.

The CETL is giving very careful thought to raising its profile, and a number of strategies were evaluated. Advantages have already been gained of freeing the Project Manager to engage more actively outside the CETL. Clearly, great store is being placed on the activities which will take place in association with the February 2007 opening of the LIVE Centre. While this will – quite appropriately - be a time for celebration, the potential of this event to raise the 'educational profile' of the CETL has not been lost.

For their third report, the evaluation team also met senior members of staff from the host institution to ascertain their perceptions of the CETL's course, its strategy and output achieved so far. Overall, there are a number of positive messages in this report. There is agreement – clearly backed up by the evaluators' own evidence – that the CETL is already having an impact on practice in the RVC. In particular, the report states that:

LIVE has made a good beginning – what is also heartening is that the messages that emerge from these interviews – the need for high quality, and published research, the importance of collaboration with academics in the development of practice, the need to evolve mechanisms to penetrate more deeply into practice at the Camden Campus – are not lost on colleagues at LIVE. From the evaluation to date, staff at the CETL seem fully aware of what is required, if developments are to be implemented effectively and the CETL is to have permanent impact.

It therefore can be said that LIVE is moving ahead as planned. The building project has now been completed and the final cost calculation on this capital investment in regard to this CETL is due to be delivered at the end of November 2007. The new state-of-art-building now offers learners high-spec multimedia and IT equipment in order to support the core ideas of LIVE.

4.2 Reflections on the evaluation process

Clearly, the choice to use external evaluation to follow the CETL's progress has helped to reinforce the direction of LIVE; it has also provided reassurance to the LIVE team and stimulated self-awareness and healthy self-criticism.

In conclusion, the LIVE team has found the evaluation process to be very useful; it has provided up-to-date analysis which has followed the progress (and setbacks) the initiative has seen during this phase. The external evaluation has provided an opportunity and focus for critical questions, noted difficulties and acted as a catalyst to staff in shaping the path for further development.

5.0 Findings

This section relates to the following initial strategic objectives of LIVE:

- LIVE overall seeks to contribute towards the further development of veterinary education by following the underpinning strategy of providing opportunities for extensive educational research for people involved in the development of the veterinary profession
- LIVE focuses on the provision of further development of learning and assessment innovations
- LIVE provides input towards frameworks and skills, so that students achieve a high level of professionalism
- LIVE contributes to the discussion of the most appropriate learning strategy for the Royal Veterinary College (and beyond)
- LIVE places a research interest on levels of engagement in continuing professional development

Examples of our work, described below, will demonstrate how these strategic objectives for the CETL have formed the underpinning framework of LIVE activities in the past two years.

5.1 Student experience – Is there an effect of LIVE on students?

- “I like it here; it is all very new and modern. I think the Centre works really well.”
Eloise Powell, BSc 3rd Year student

The College focused its CETL bid on the excellent approaches to directed learning which it had developed over the previous 7 years, intending that LIVE would further develop a variety of relevant learning schemes for veterinary students. The desire therefore was (and still is) to promote “deep” as opposed to “superficial” (Marton and Säljö 1976; Marton and Säljö 1997), “transformational” as opposed to “reproductive” (Biggs 1976) and “adaptive” as opposed to “adoptive” (Roach, Blackmore et al. 2001) learning. Active engagement of students in their learning, their reflections and how they theorise about their learning, are all part of the learner-focused research work LIVE has been conducting over the past two years.

5.1.1 Directed Learning

As described under section 3.1, LIVE seeks to build on the excellent educational experience gained by the Royal Veterinary College in previous years. The RVC’s Teaching and Learning Strategy also demonstrates that LIVE’s aims are central to the College’s aspirations for its students. Key objectives are:

- To address skills development more clearly
- To place a primary emphasis on the application and use of knowledge
- To enhance graduates’ employability through promoting independent learning and the skills required for lifelong learning

In addition, it was felt that students required guidance on how to develop generic and professional skills through the use of new professional development portfolios. As LIVE has a focus on researching formative assessment methods and looks into the further development of clinical reasoning skills in students, the CETL is actively supporting the RVC's Strategy for Teaching and Learning.

Much of the development of information sourcing and problem-solving skills in directed learning is contextualized around clinical case examples. The students find this motivating and it provides them with clinical reasoning models when facing similar situations in clinic (Allenspach, K. and Whittlestone, K. (2007), preliminary data presented at KILT Annual Conference, King's College London, 4 July 2007: 'Evaluation of a web-based interactive teaching tool for clinical cases in veterinary undergraduate education'; <http://www.kcl.ac.uk/learningteaching/conference/panel.html>).

In conjunction with one of RVC's Senior Lecturers in Neurology and educationalists from King's College, LIVE has introduced Concept Mapping as a tool which can be used to work with students during their DL sessions (see [Workshop - Concept Mapping](#) in Appendix). The concept mapping method is grounded in Ausubel's theory of assimilative learning (<http://www.davidausubel.org>), following the principle that the learner must learn meaningfully (Ausubel, Novak et al. 1978). The workshop actively engaged teaching staff in the creation of concept maps, and encouraged a lively discussion on how concept mapping makes learning visible and on how to make our learners choose to consciously and deliberately relate new to existing knowledge in a non-trivial way.

5.1.2 The Haptic Cow for the RVC students

At the Royal Veterinary College, the Haptic Cow simulator introduced by LIVE is now used to teach third year students the basic skills: finding and identifying the pelvic landmarks, cervix and uterus. In final year rotations, it is used to run a tutorial: the Virtual Farm Visit (a simulated fertility visit), which is a role playing exercise. The instructor is the 'farmer' and the students take it in turns to be the 'vet' and examine a series of fertility cases. This has been very well received by students. The students get to 'think on their feet' and practise communication skills, in particular, history taking, make a diagnosis and decide on the treatment or action plan. All must be delivered in a way that the 'farmer' understands. This way of using the simulator represents a safe, 'trial and error' learning environment.

- An automated version of the haptic simulator for the RVC students
Recently, a new automated (or self-teaching) version of the Haptic Cow has been developed. An examination performed by an expert in the simulated environment was recorded. When a student first uses the simulator, the PHANTOM haptic device moves the student's hand along the expert's path, one step at a time. Each step is accompanied by an audio explanation, which replaces the teacher's voice. After this part of the training has been completed, the student can explore the abdominal cavity on his or her own and has access to audio 'Help'. The 'object' palpated identifies itself: "You are palpating the pelvic floor" and then information is given about how next to proceed. One of the advantages of an automated version is that students can use the simulator on their own. Work has been undertaken to validate this version of the Haptic Cow. This has shown that training has beneficial effects on students' subsequent performance when examining cows (http://www.live.ac.uk/pdf/baillie/AMEE2006_AutomatedHapticCow.pdf). The automated version is now used by students at the Royal Veterinary College in the clinical skills laboratory in the LIVE Centre. A full report on the work evaluating the automated version of the Haptic Cow will be published in the near future.

5.1.3 myPad – Developing a mobile notebook for veterinary students “on the go”

Another project, which LIVE is actively developing with students, involves the use of personal digital assistants. It is thought that these electronic notebooks should have a positive effect on student approaches to work-based learning while they are engaged in internal clinical rotations and extra-mural studies.

- myPad aims to support one of the most important parts of the veterinary students' learning experience, which is the successful completion of work based placements. While spending time 'on clinics', students observe and take part in many clinical activities which make these experiences very important for their overall veterinary skills learning. Often these experiences are either not recorded or scribbled down on paper rather haphazardly, so a vast amount of experience is not effectively utilised. In order to aid the capture of this knowledge and the students' learning, we set out to develop an electronic clinical notebook that students could use whilst actually out in practice, providing them with an opportunity to recall these notes and possibly expand their learning in a structured and additive fashion.

The first myPad release was distributed to 30 volunteer students at the end of October 2006. The project has now reached the end of phase 1 and the first results of this research project will be presented at the AMEE Conference in Norway in late August 2007. One of the underlying principles of the project is the use of student-identified requirements and comments to design, on an interactive basis, the most effective tool possible – hence the staged release.

myPad has been developed from scratch, and currently consists of several functions:

myEntries is a page where students can:

- summarise, categorise and hierarchically and alphabetically tag a learning event, experience, together with any other files as attachments
- reflect on these actions
- note sources of information, further learning resources and identify activities to deepen their understanding

File attachment is a feature which allows students to attach an image or a video taken with the device, a word document or notes or any other file that is relevant to their learning. In particular, this allows students to visually record clinical signs, to illustrate their notes and support their conclusions, and serially follow the progress of a case, as, for instance, a wound heals.

myResponses is a page for students to notify the research team instantly about:

- their experience of using myPad
- any issues they encounter and
- any ideas for developing the application further

myPad Guidance

A set of pages aimed at helping the students:

- get the most out of this unique way of learning
- to use the functions within the application

myPad Technology

myPad is a web application developed with Microsoft ASP.NET, AJAX, and Microsoft SQL Server technologies. The web application has been built to dynamically render page layout in an optimal way, whether it is accessed by a full desktop browser or a mobile browser. The devices (M3100 and M5000), supplied by Orange SA, allow web access via wireless networks when available but will also “fall back” to 3G and GPRS mobile data connections when necessary. This provides mobile access to myPad from almost anywhere in the UK, or even the world!

Project progress

Preliminary data shows that the trial student cohort demonstrated a huge enthusiasm for the project and for some this has been maintained throughout the whole first year. However, many 4th Year students have struggled to maintain a learning diary whilst not on clinical rotations. Overall, the first completed questionnaires suggest that students are very engaged with the devices and the web application, as their first messages demonstrate:

“Just a quick message to say I’m really loving this machine. I have been on research this block so I’m itching to use it to log cases which I can start next week when I am on EMS. I’m actually really looking forward to using it properly!”

“Hi, have been spending first week in practice with device. The vets here seem quite impressed with it and have all had a go.”

myPad is one element of the larger long term electronic learning and assessment strategy at the RVC which has been attached as a pdf document in the Appendix section as the [RVC learning vision diagram](#). Also attached under the Appendix section is a detailed diagram of the [myPad development timeline](#).

Facilities and other resources

Students are very positive about the new facilities, in particular, the Anatomy Museum in Camden and the clinical skills laboratories; in that sense it can be argued that there has been an almost immediate positive impact on our learners, at both undergraduate and also at postgraduate level. LIVE has played an active role in supporting the development of a tutors’ programme for the B Vet Science in Liverpool. A workshop has been held in conjunction with students working on the Haptic Cow and the Equine Colic Simulator, and, as previously mentioned, a new publication on the Day One Skills has been produced. Also, at postgraduate level, LIVE has had an impact by aiding the improvement of assessment structures for the MSc in the Control of Infectious Diseases in Animals. New technology has been harnessed to assist prospective students to identify the specific qualifications they need to have prior to course entry. The **course calculator** allows students to get a better idea of which course would be suitable for them

(<http://www.rvc.ac.uk/Schools/CourseCalculator/Index.cfm>).

“This is not a static place; there is always something interesting going on in here. Peter develops all these e-learning packages, and they look really cool. The research they do is about models and about how different learners use different pathways in their brains, and whether the teaching addresses these differences. It’s really interesting here.”

Rebecca Parkes, BVetMed 3rd Year student

5.2 LIVE connections with external partners

LIVE has been set up to be both inward and outward looking. It supports the Royal Veterinary College's Teaching and Learning Strategy, and is also, by definition, the CETL specifically focused on capturing and expanding the best teaching and learning practices in veterinary education around the world. LIVE is increasingly seen as a hub for innovation and educational research in veterinary education and is committed to inter-professional collaboration. Collaboration is one of the main themes which has shaped LIVE over the past two years. A key aim has been to extend existing RVC relationships and to build new bonds across the higher education landscape both in the UK and abroad.

This is being achieved on various levels: partnerships exist and are being developed with government departments (DEFRA), various agencies (HEA, JISC), professional associations (RCVS, NUVACS), innovative businesses (Orange SA, Virialis, SensAble Technologies), and other HEI and CETLs (University of Liverpool; Institute of Education/WLE Centre/ London Knowledge Lab; University of Leicester/IMPALA Project; Imperial College London; Royal Free and University College London Medical Schools; University of Reading, Department of Cybernetics; University of Glasgow, Department of Computing Science; all UK veterinary schools and veterinary schools abroad via the LIVE Symposium and the Vet Wiki & Wiki Path events). Please take a moment to review further details on collaborative efforts the CETL has been undertaking in the last two years in the [Table of Activities](#) in the Appendix.

- The following are some images of LIVE collaborative projects in action:



Orange trainer rehearsing the use of devices with RVC students and LIVE staff



LIVE Interactive Veterinary Showcase with representatives from UK and abroad (USA, Denmark, Netherlands)



Practising the use of Phantom technology, July 2007

5.3 LIVE impact on the institution's internal strategy

As already demonstrated, LIVE is now positioned to play a significant role in shaping the future of veterinary education. Content overload has pushed many veterinary students down a slippery slope towards acquisition of knowledge, rather than understanding, and the College is determined to address such issues by making use of LIVE's expertise and LIVE's provision of ideas and good practice examples.

"I think LIVE has raised the profile of education across the whole college. What has started to happen is that some of the work done, the activities,...they have started to influence practice, and staff are feeling the benefit of it..."

I think staff are now more comfortable with the idea of educational research, and of using that to inform their own teaching. Colleagues prioritise their activities with research at the top... I think LIVE has helped push the educational agenda further up the priority list and this has happened for people who are extremely active researchers and who perhaps have considered education as a sort of add-on."

(RVC Principal, 2007)

During the academic year 2006-07, the Royal Veterinary College was determined to focus the institution's marketing and communication strategy on the excellent, innovative and career-promoting teaching and learning opportunities veterinary students find upon entering College life. In their annual report to the College's Senior Management Group (SMG), the RVC's external communication agency presented data to support the rise in the College's external profile to which the CETL has contributed significantly:

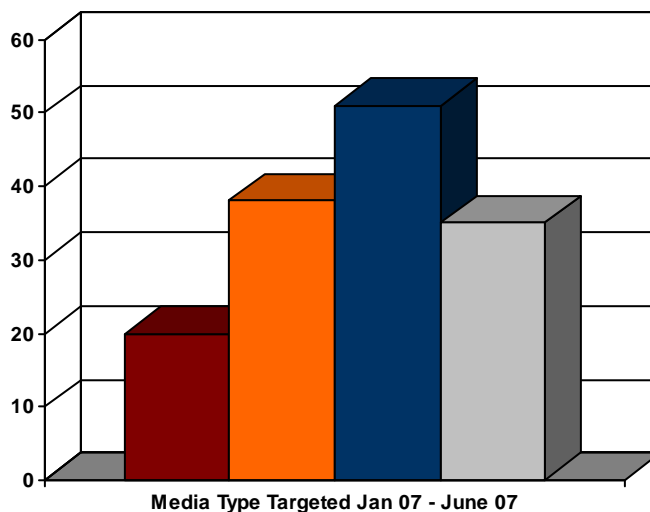


Table 1: Summary of Media Targets and Results

National = 20

Regional = 38

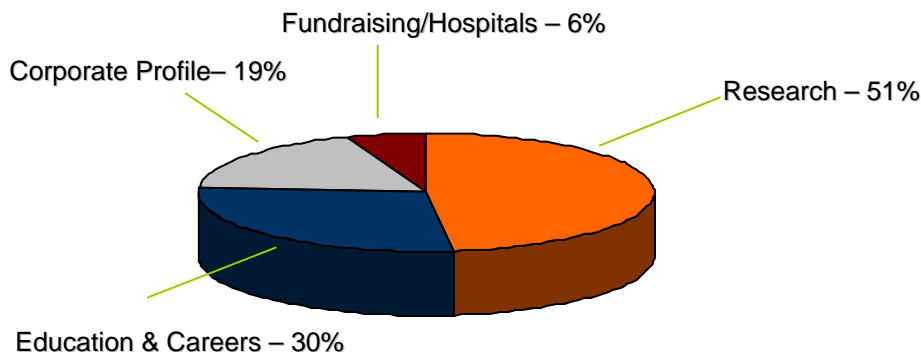
Trade & Sector = 51

International & Online = 35

Media Hits Tracker (Jan 07 – June 07)

The enhanced educational status and opportunities created through LIVE have already had an impact on some of the College's services, through funding of opportunities for RVC staff or through art workshops which were held in December 2006 in order to work with the students on their observation skills. Students were engaged in drawing exercises, practising the use of their hands and their visual senses. 28 students signed up for drawing classes with an external consultant, and their work has been collated for use in the LIVE Centre.

The College's media coverage was considerably increased by the LIVE opening and the LIVE Symposium in February 2007, with coverage of innovative veterinary education reaching national and international audiences (further information on the [LIVE Symposium and Interactive Veterinary Showcase](#) can be taken from the Appendix section).



Primary Messages on the RVC (Jan 07 – June 07)

The College has recently undertaken an extensive re-branding exercise, in tune with its ongoing expansion and reorganisation. The CETL has played its part in this, with the establishment of its complementary but distinct brand which will remain stable now until 2010. The CETL has also allowed the College to reinforce its expertise in one of its four core mission foci – education. The College needs to maximise the learning potential of both the early and the clinical years in order to ensure that strong foundations for postgraduate learning are in place. The CETL has clearly provided an opportunity for the RVC to focus on skills relevant to lifelong learning, and to foster innovative approaches for veterinary and related courses. In this way, LIVE is providing innovation in, and diversity of, learning opportunities in a more speedy and comprehensive fashion than would have otherwise been possible.

5.4 LIVE effect on teaching

As already described, a monthly Journal Club Meeting has been initiated, in conjunction with the RVC's Director of the Centre for Distance Education, to facilitate College internal and interdisciplinary discussions. One of the conclusions of our Away Day in July 2007 was that we could still do more to inform colleagues in the College about the activities of LIVE and the research work on teaching and learning practices in the LIVE Centre. Three further approaches were identified:

- LIVE Newsletter
- Regular slot in the RVC's Research Seminar series on educational research
- Introductory workshops/presentations to College staff on new e-learning developments; initialised via Jim Bee Teaching Award projects

Some of RVC's teaching staff have readily embraced the work of the CETL, as shown by examples given in this report. LIVE supports teachers in their educational research, participates actively in the College's Committee structures and adds value to the discussions around curriculum review. From evidence gathered for this report, we are making progress, as planned, in our efforts to inform teachers and teaching practice at the RVC, and also at Liverpool Veterinary School through the work on the curriculum review which Carol Gray is

undertaking there. Beneficial outcomes for teaching staff have emerged through LIVE, which are now in the process of becoming systematically embedded in the ways that teachers shape their teaching, teaching designs, or the creation of new learning opportunities for the students. One of these initiatives (funded by LIVE) has been the introduction of Turning Point as a new interactive element to classroom teaching.

Another example of bringing change into the classroom is the funding of the creation of new models for the clinical skills labs. Workshops have been held to introduce new educational models and ideas to staff and students, and via the Symposium we have reached out to national and international partners in the veterinary community to share our views on best educational practice. We have taken ideas which were already in existence at the RVC another step further, developing them and validating their use in practice, such as the products of the OCTAVE (Optimising Computer-assisted and Traditional Assessment in Veterinary Education) project. The initial setting around how to evaluate new forms of assessment on a veterinary course has been discussed in the LTSN-Newsletter in 2003 (see http://www.ltsn-01.ac.uk/external_files/pdfs/01_newsletter/LTSN012.pdf). The project leader, Dr Stan Head, has now handed over data which he has been collecting for a period of three years to researchers in the LIVE Centre, for further analysis and publication. LIVE has also supported Dr Head in the completion of the one outstanding element of OCTAVE; the interactive, web-based MCQ database.

5.5 LIVE effect on learning design

For at least 100 years, the problems of content overload have been recognised in professional education, and each generation of educators has tried to address this by redefinition of the “core” and rejuvenation of the curriculum. More recently, the recognition of the stifling effect of content overload on self-directed and independent learning skills has given added weight to the need for regular curriculum revision (van Beukelen 2004), including better approaches to developing lifelong learning skills. To help students deal with this, we have refined our curricula and individual classes so that students are engaged with context-rich learning packages which stimulate them to make personal meaning of veterinary science.

The College is now embarking on a new journey, with a revised curriculum for the new BVetMed student cohort in September 2007. LIVE’s input to these changes, so far, has been rather limited, although further work on delivery will involve the LIVE team. Special attention needs to be given to ensure that our students will not be pushed into a journey of ‘normalisation’, which can create a form of homogeneity (Foucault 1979). As mentioned, under section three, LIVE rather seeks to support independence, competence and professionalism in students, which plays to their individual strengths.

The CETL has contributed in various ways to improve the quality of learning designs for veterinary students. Notably, the work on the Day One Skills Framework has proven to be highly successful, as noted by the evaluation team from the beginning:

The production of the Skills Mapping document is a very impressive undertaking. It has involved the painstaking scrutiny of documentation relating to course modules, coupled with a thorough-going consultation with staff.

(Evaluation Report No.1, p.37)

The work behind the production of the RVC Day One Skills booklet was “the extensive task of gathering data around the definition of skills competencies, following good practice examples

taken from discussions with over 100 clinicians from the RVC". The evaluators continue in their report:

"As a result, the College **has a useful framework** which:

- identifies gaps and overlaps in course provision in relation to skills
- plots the extent progression is established in the development of skills
- informs the process of curricular review

Crucially, the mapping document forms the basis of a tool which can be used by students to inform their own development in relation to skill acquisitions."

(Evaluation Report No.1, p.37)

The preliminary work on the Day One Skills Framework was presented and discussed at the [LIVE Symposium](#) in February 2007. Since then, there has been further evolution of the Skills Map, and its acceptance by the College's Teaching and Learning Committee for integration into the BVetMed curriculum. The original research and development abstract is documented in the Appendices section. Also provided in this section, in electronic and in printed format, is an example of the recently printed RVC Day One Skills Booklet which will be given out to our final year students and also our fourth year students when they enter the clinical phase of their course.

This framework development not only needed to address the requirements set by the Royal Veterinary College, but it also had to comply with the standards set by the Royal College of Veterinary Surgeons. It has been stressed in an RCVS report in 2002 that the competence of the veterinary profession has come under public scrutiny in recent years, following the similar trend in medicine, and that robust confirmation of the acquisition of "Day One Skills" by all students is now even more important.

The RCVS report also emphasised the importance, alongside professional and communication skills, of the development of lifelong learning skills, which should be promoted throughout the undergraduate curriculum. The RVC also recognises this as a major requirement of the undergraduate degree programme, and LIVE will be taking a lead in addressing this challenge by introducing innovative professional skills training to the BVetMed course.

- Although it remains very early days for a number of strands of the LIVE initiative, there is already much that is possible in terms of practice being developed, and in relation to the thinking underpinning these (Taylor and Turner 2006).

6.0 Lessons learned and future adjustments

6.1 New knowledge gained to enrich and enhance student learning?

Much of the work which has been conducted over the past two years in LIVE has centred on learning approaches which are designed to be student-focused and even student-led. Some of the work associated with the myPad project has clearly been driven by student ideas and suggestions, and now needs to be validated to see whether students have indeed had deeper learning experiences and gained from the reflective practice encouraged by myPad. We will know more when research focused on how our students describe their learning experiences around the use of myPad has been analysed.

LIVE is also gaining insight into how our learners learn through the use of ASSIST questionnaires, following Noel Entwistle's approach to surveying student attitudes and their approaches to study. The questionnaires have been reproduced in an optically markable form, and distributed to all five BVetMed year groups. Initial analysis suggests that a significant proportion of our students, *across all five years*, is adopting a surface approach to their studies. As the data formed a snapshot across different student cohorts, we have now received ethical approval to collect longitudinal data with student identifiers (the initial data collection was done anonymously) to relate approaches to learning to student performance. We will be publishing the results of this further analysis.

Still waiting to be collected and analysed are the data coming back from a new model developed for EMS. Collaborations with the PDSA have recently been strengthened, permitting, for the first time, development of PDSA staff to better support learning and assessment. Better student handbooks for these placements have been developed by the PDSA staff themselves, and an improved assessment/feedback form has been developed collaboratively, with multi-site training in its use.

The introduction of haptic simulators to the RVC has resulted in a 'run' on practicals and workshops which are being held in the LIVE Centre around the Haptic Cow and the Equine Colic Simulator. Students have been introduced to using the Automated Haptic Cow and associated Computer Aided Learning (CAL) packages such as the farm animal rotation tutorial, which is part of the final year clinical rotations (2.5 hours every other week; 7-8 students). Another popular example based around the haptic simulation development is the 'Virtual Farm Visit' a role playing exercise based on a typical routine fertility visit where the instructor acts as a 'farmer', while the student as the 'vet' examines series of fertility cases. This has been recognised by medical educators as at the "cutting edge" of the use of simulators in clinical education, leading to the collaborations with medical schools.

6.2 Emerging teaching practices

Changes which have been facilitated through LIVE have already started to be embedded in some of the College systems, or have been recognised as excellent examples for teaching practice and adopted by individual teachers. The use of e-directed learning on a case base, for example, or the use of simulators for practising palpation techniques have already been discussed at length. Many of the changes around teaching emerged from collaborative projects which have been undertaken, e.g. with colleagues from the RVC in providing curriculum support for postgraduate courses, or through collaboration on a tender document submitted in conjunction with Caroline Hewson Ltd. to the World Society for the Protection of Animals (WSPA) on the development of a revised syllabus for teaching in Animal Welfare.

Another example of emerging new practice already mentioned is the introduction of new keypad technology to RVC students and lecturers which allows lecturers to make use of formative assessment in their lectures in a non-threatening, anonymous way. This is discussed in greater detail in the next section.

6.2.1 Interactive enthusiasm – Turning Point:

In support of LIVE's role in shifting the teacher-centred nature of some of our classes towards a more learner-centred focus, LIVE has funded the purchase of new 'voting system' software to encourage lecturers to teach more interactively.

An RVC Senior Lecturer, Mr Adrian Boswood, has become one of the College's most enthusiastic advocates of the use of Turning Point as an interactive learning tool through in his case-based lectures on cardiology. During one of Adrian's lectures, he sought the students' opinion on the more useful format – interactive case studies or DL in small groups?

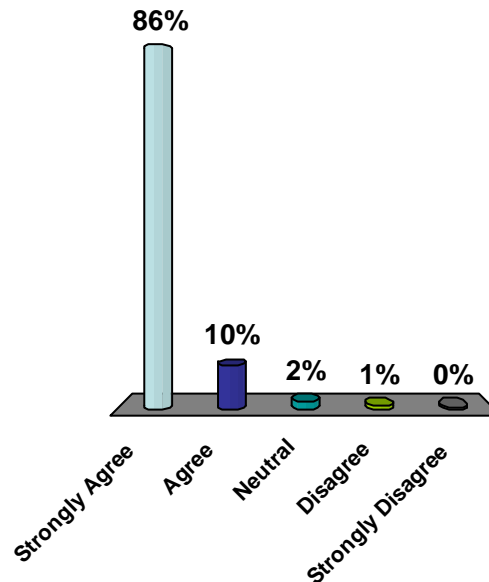
"I had an "interactive" session with the third year again today. At the end of the second case that I presented, in a session that lasted about 70 minutes, I asked the students to agree or disagree with the statement "This format of interactive case studies is more useful than DL in smaller groups". The results are on the slide attached. There were 211 votes cast in this particular vote. This illustrates the fact that 211 of them were still awake and paying attention at the end. It was also the highest single number of votes cast on any of the slides I asked them to vote on today i.e. they all had an opinion they were willing to express. One could apply the maxim "just because they like it doesn't mean it is good for them" but at least it is popular."

(Adrian Boswood, Deputy Vice-Principal for Teaching, RVC)

Slide taken from Adrian Boswood's (RVC Senior lecturer for Cardiology) lecture in May 2007

"Is this format of interactive case studies more useful than DL in smaller groups?"

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



Best practice examples from our vendor, [Steljes](http://www.steljes.co.uk/) (<http://www.steljes.co.uk/>), and research undertaken by the Centre Manager show that the efficient use of voting systems requires appropriate training of lecturers and/or presenters. Therefore, all staff who will be teaching on the new curriculum at the RVC (as of September 2007) are being strongly encouraged to use Turning Point and to receive training on the mechanics of its use and good practice in its use. Two training sessions have already been organised for staff in order to address this issue.

6.3 Implications for College systems and practices

LIVE now has a large physical, as well as functional, presence at the RVC and has already created a dynamic environment for the research and development of teaching and learning practice. With the Royal Veterinary College being the oldest and largest veterinary school in the UK, with the largest portfolio of teaching programmes, opportunities for cross-fertilisation between programmes have already arisen, as envisaged in the bid. One positive outcome is the return of one of our LIVE Fellows to the RVC's Veterinary Nursing programme. Her knowledge of innovative learning methods will result in the course delivery for a new Nursing Diploma being completely online and structured to include best interprofessional teaching practice.

Curriculum support is another one of the key issues where LIVE has had an influence over the past two years. One of LIVE's "flagship" projects, the development of the RVC Day One Skills Framework, will start to have an effect on our students from the new academic year starting in September 2007. Care needs to be taken to evaluate this new framework while the CETL team is still present and able to support the evaluation process. An extensive analysis of this project has been undertaken under section 5.5 - LIVE Effect on Learning Design.

To ensure permanence of the work done in the LIVE Centre, it has also been argued, in the last LIVE Evaluation Report (Taylor and Turner 2007), that it will now be necessary:

“To establish a strategic plan with a clearer set of goals and milestones.”

The RVC's expansion and diversification of its student body and increased range of courses means that, beyond 2009, the RVC-based LIVE staffing roles, further research and development work, and the maintenance of the LIVE Centre, will ultimately be subsumed into the RVC's core budget. Thus, after the first five years of existence, with its value by then hopefully firmly established as a Centre for Excellence in Veterinary Education, LIVE should be able to successfully compete for research grants in the educational arena. Already LIVE has established links which will strengthen outcomes achieved so far. As can be seen from [the table of activities](#) attached in the Appendices, various funding streams have successfully been established and a “feature edition” of the Journal of Veterinary Medical Education in which LIVE figures prominently will publish research carried out by LIVE.

For the RVC, this means that through the establishment of the LIVE Centre, the creation of newly refurbished communication skills facilities in Liverpool and the recruitment of teaching and learning staff, the College has established a leading position in veterinary education.

6.4 Amplifying effects by engagement with the wider community

LIVE offers opportunities for the profession to look beyond the boundaries of veterinary education. It aims to embrace best teaching and learning practice from across the international higher education arena. One of the main focuses of our work is to enhance generic life skills in veterinary communities of practice, and also cognate disciplines, reaching out to medical colleagues in the first instance. This is being achieved via the research being carried out at the LIVE Centre on the use of haptics for medical or veterinary training. However, LIVE is also looking beyond veterinary and medical boundaries in the search for new knowledge which needs to be transferred into veterinary professionalism and the veterinary communities, and relishes the opportunities for cross-disciplinary discussion of best practice which this will create.

6.5 Adjustments and future plans for LIVE

A wide range of services has been developed in LIVE, or with the assistance of LIVE staff. However, it has been impressive to see how the team has benefited from the help of certain individuals who have been hugely supportive of the progress LIVE has made. Initial independent consultants such as Dr Kate Exley and Dr David Baume have worked with College staff (especially Professor Stephen May, Dr Matthew Pead, and Paul Probyn and his department which provides academic faculty support) to create the original framework for LIVE, and similar continued support has helped create a ‘CETL-in-action’ (Taylor and Turner 2007).

- As noted in the third evaluation report, LIVE is now actively engaged in initiatives (e.g. myPad, the use of electronic voting systems for formative assessment and interactive teaching, clinical scholar training schemes) which seek to harness the educational potential of evolving technologies. This raises a number of issues. Staff clearly need to work harder than the current crop of students to become technically proficient. In part, LIVE needs to help colleagues achieve an appropriate level of expertise related to using ‘new’ technology. But more is needed. The LIVE team must also identify and

communicate the appropriate new pedagogy, if colleagues are to fully understand how to use new technologies and realise their full learning potential.

The current state of play is summarised by one senior colleague, thus:

“At this stage LIVE is consolidating rather than disseminating beyond the CETL - now we are bidding for funds to push forward the development of more projects. There is dynamism, getting funds, exploring, making connections.”

It is now felt that the initial growth stage of the CETL has nearly reached completion. Clearly, much exciting development is now taking place in this CETL, as can be seen from the initiatives featured in this report. LIVE is trying to address real ‘problems’ in its work: e.g. the difficulties undergraduates face when ‘learning to think with their hands’, or the constraints on active learning created by large group sizes – in both cases we have turned to computer technology to develop interactive teaching tools.

The developments represented in this report are excellent examples of the CETL-in-action in many ways. LIVE seeks to evaluate development through active and critical exploration of the impact on learning. LIVE is also addressing the implications for implementation, making active use of both staff and students in this endeavour. Our work is based on active collaboration between CETL staff, academic and ‘technical’ colleagues and our students. Thus, crucially, it is evolving practice which can be applied more widely in the undergraduate course.

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Glossary

| Abbreviation | Meaning |
|---------------------|---|
| AMEE | Association for Medical Education in Europe |
| BVetMed | Bachelor of Veterinary Medicine Degree |
| CAL | Computer Aided Learning |
| CETL | Centre for Excellence in Teaching and Learning |
| CIDA | Control of Infectious Diseases in Animals |
| CPD | Continuing Professional Development |
| CSC | Clinical Skills Centre |
| DL | Directed Learning |
| EMQs | Extended Matching Questions |
| EMS | Extramural Studies |
| FDTL | HEFCE Fund for the Development of Teaching and Learning |
| FTE | Full Time Equivalent |
| HEA | Higher Education Academy |
| HEFCE | Higher Education Funding Council for England |
| IMPALA | Informal Mobile Pod casting and Learning Adaptation |
| IoE | Institute of Education |
| IMR | Intramural Rotations |
| JVME | Journal of Veterinary Medical Education |
| KILT | King's Institute of Learning and Teaching |
| LDSE | Learning Design Support Environment |
| LIVE | Lifelong and Independent Veterinary Education |
| LKL | London Knowledge Lab |
| LTSN-01 | Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine |
| MCQs | Multiple Choice Questions |
| NUVACS | National Unit for the Advancement of Veterinary Communication Skills |

| | |
|--------|---|
| OCTAVE | Optimising Computer-assisted and Traditional Assessment in Veterinary Education |
| OSCE | Objective Structured Clinical Examinations |
| PDSA | Peoples Dispensary for Sick Animals |
| QAA | Quality Assurance Agency for Higher Education |
| RCVS | Royal College of Veterinary Surgeons |
| RVC | Royal Veterinary College |
| SMG | Senior Management Group |
| VBS | Department of Veterinary Basic Sciences |
| VCS | Department of Veterinary Clinical Sciences |
| VDS | Veterinary Defence Society |
| WSPA | World Society for the Protection of Animals |

Appendices

[Jim Bee Teaching Awards 2004 – 2007](#)

[Evaluation Report LIVE Initiative - part 3](#)

[Images and plans of LIVE facilities and Leahurst House](#)

[LIVE symposium and showcase abstracts](#)

myPad

[research questionnaire](#)

[timeline](#)

[vet drug software questionnaire](#)

[RVC learning vision diagram](#)

[RVC LIVE papers commissioned for JVME](#)

[Table of activities](#)

[Workshop Concept Mapping](#)

[Workshop Wiki Path](#)

(NB: We have included four DVDs with samples of the LIVE CETL's work to go with each of the four hard copies of this report. After inserting the DVD into your computer, please refer to the 'Start' button to start off the DVD in the suggested mode.)