

Part One – Statistical Information

a. *Name of CETL*

LIVE – LIFELONG AND INDEPENDENT VETERINARY EDUCATION

b. *Name of Institutions(s)*

The Royal Veterinary College, University of London

c. *Contact names (someone likely to be in post until July 2010)*

BIRGIT NARAYANAN (nee PIRKELBAUER) – LIVE Centre Manager, LIVE Centre for Excellence in Teaching and Learning (CETL), Royal Veterinary College, University of London
Email: bpirkelbauer@rvc.ac.uk

STEPHEN MAY, LIVE Academic Director, LIVE Centre for Excellence in Teaching and Learning (CETL); Deputy Principal and Vice-Principal for Teaching of the Royal Veterinary College, University of London
Email: smay@rvc.ac.uk

d. *Name of person submitting the self-evaluation*

BIRGIT NARAYANAN (nee PIRKELBAUER)

e. *Start date of CETL*

In late December 2004, we received confirmation from HEFCE that we had been successful with our bid, and with effect from 27th January 2005 made a start by announcing, via an official press release, that the RVC had been granted the only CETL with a focus on veterinary education.

f. *Anticipated end date of CETL (if known, i.e. will it end with the money, when, will it continue in some recognisable form?)*

The College will continue to support LIVE as a centre for veterinary educational development and research at its current level of activity until the end of July 2011. Beyond 2011, LIVE will need to be successful in securing external funding to match core College resources equivalent to half the original HEFCE funding.

g. *Lead Director(s) and **dates** associated with CETL*

- **Professor Stephen May**, LIVE Academic Director, LIVE Centre for Excellence in Teaching and Learning (CETL)
- **Official opening** of the LIVE Centre by HRH The Princess Royal: 20th February 2007
- **First conference “An Interactive Veterinary Showcase”** hosted: 21st February 2007
- **First Advisory Board Meeting:** 21st February 2007
- **LIVE Symposium “Learning to teach and teaching to learn: New pathways for veterinary education.”** 1st & 2nd September 2010

h. Total amount of award: capital and running

£2.5m (total recurrent), (£2m (capital). In 2006, the RVC also obtained additional capital funding of £400,000, from HEFCE, from the residual capital allocation.

i. Briefly describe what the capital was used for

The newly built LIVE Centre at the Hawkshead Campus houses LIVE staff offices and clinical skills centres. These centres are used as classrooms for teaching and demonstrating clinical skills, for continuing professional development training sessions; and as learning resource centres where students practise in their own time a range of clinical skills, preparing for their Objective Structured Clinical Examinations (OSCE). OSCEs are used to test communication, clinical examination, the interpretation of results and surgical and medical procedures (Harden et al 1975).

In the three LIVE Communication Skills Rooms, staff and students practise communication as a key skill in professional life. The effort devoted to improving communication skills for medical students (Kurtz et al 1998) 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 Defense Society (VDS). The LIVE Centre is equipped and staffed to support the development of generic communication skills using clinical scenarios and technology. The rooms are used for teaching (mainly for smaller groups), for case presentations or interviews. The rooms have been integrated into the OSCE assessment process, and are integrated into the College internal booking system.

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.

LIVE has also been able to capitalise on expertise at Liverpool in Veterinary Consultation Skills. As outlined in the original bid document, a small portion of the capital funding was used to refurbish and equip a parallel range of communication skills teaching rooms at Liverpool Veterinary School, in Leahurst House.

j. What will these facilities be used for in the academic year 2010-11?

All LIVE facilities will continue to be used in the same way from 2010/11 onwards. The clinical and communication practice and assessment facilities will meet the ever-growing need for students for practice, peer learning and clinical learning in a safe environment. From January 2010, the clinical skills labs have been open one evening each week. Office space is in high demand at the College, so the LIVE building will continue to be a hub for activity.

k. Average number over lifetime of the CETL of persons employed at any one time.

Two part time LIVE Fellows were recruited internally, before the College initiated a more substantial recruiting process in 2005. The Centre Management position was filled in 2005, and this was followed by a steady flow of new staff into the CETL over the following two years. LIVE has continuously employed a total of 11 staff in an overall CETL-related team of, on average, 10 to 15 members of staff since 2005.

At present, the LIVE team consists of 14 members of staff and one related PhD student:

- 1 FTE Senior lecturer in independent learning;
- 1 FTE PhD student (research on hidden agenda in the veterinary curriculum);
- 1 FTE Senior lecturer and Director of the MSc in Veterinary Education Course;
- 1 0.40 FTE Course Administrator for the MSc in Veterinary Education;
- 1 FTE Lecturer in Veterinary Communication Skills Development (based at Faculty of Veterinary Science in Liverpool);

1 FTE Lecturer in Lifelong Learning/Work-based Learning;
 1 FTE Senior Lecturer in Veterinary Education, specialist in development of haptic simulation models;
 1 FTE Research Assistant in development of haptic models;
 1 FTE Research Assistant in clinical learning;
 1 FTE 6 months Internship (business strategies for haptic models on the market);
 1 FTE Software Developer;
 1 FTE e-learning Developer;
 1 0.60 FTE Centre Manager;
 1 0.60 FTE Centre Administrator;
 1 Academic Director

l. What are staff employed by the CETL towards the end of its HEFCE funded life going to do when this funding ends?

Two members of LIVE staff are on permanent College contracts. Our PhD student is funded via an ESRC grant. From July 2010 onwards, both RAs will be funded through external grants. Staff whose fixed term contracts come to an end in 2010-2011 will continue in their positions until their continuing roles are discussed nearer to the termination time (see section f. for details of continued RVC funding in 2010-11). The lecturer based in Liverpool will become a University of Liverpool budget responsibility from the start of the academic year 2010/11.

m. Number of 'spin out' projects funded: List projects by title and amount awarded, and name institution if other than host.

From the start, LIVE supported RVC staff-initiated teaching and learning projects via the Jim Bee Awards (now the LIVE Teaching Development Awards). LIVE approves teaching prizes and projects to allow existing RVC staff to develop new approaches to teaching and learning, and to convert existing teaching materials into more exciting, interactive learning experiences. The annual call for applications offers up to £10,000 for each project, and, since 2004/05, the College has made 3-6 awards annually. These projects are conducted under the auspices, and with the support of, the LIVE Centre. Including the 2009 awards, 17 such projects have been funded, and, as the work has been completed, are being embedded in the College's teaching programmes. For 2010, we plan to fund another 3 Team projects with awards of up to £10,000 each.

Projects include the development of a screen-based computer aided learning tool for immunology "LIME" – Learn Immunology More Easily" (Jim Bee Award winner 2007), and the "Development of a New Curriculum in Veterinary Ethics" (LIVE Teaching Development Award winner 2009). A complete list of projects funded since 2004-05 can be found in the LIVE Portfolio (Annex A), p.54-68.

LIVE has one educational technology 'Core Skills Trainer' which is being exploited through licensing and joint work with a commercial company. This is Dr Sarah Baillie's haptics expertise. The Core Skills Trainer uses haptic computer games designed to help students improve their dexterity and perceptual skills in preparation for clinical work. It was developed with a 'proof of concept' grant from Heptagon (£72k) and is now being commercialised in partnership with a Swedish company SenseGraphics, who have provided some of the ongoing development funding. This partnership has also led to two ORBIS interns being placed with Sarah Baillie's haptics group at the RVC. ORBIS is the "Overcome Recession: Bioscience Investment in Skills" programme, funded by HEFCE through its Economic Challenge Investment Fund. This programme has been developed by the London Bioscience Innovation Centre with RVC, so these placements show a CETL, a commercial company, a partly HEIF-supported initiative and an ECIF-supported programme together creating opportunities for further training of recent graduates with limited workplace experience and unemployed bioscience sector specialists.

A further, large 'spin out' of the work in the LIVE CETL is the MSc in Veterinary Education course launched in September 2009. Currently nine students are enrolled on the diploma level

component of this course, mainly young RVC lecturers. The course will use the LIVE Centre to develop individuals as professional veterinary and para-veterinary educators.

Further information on the course is available in the LIVE Portfolio (Annex A) or on www.rvc.ac.uk/MScVetEd.

n. *Number of peer reviewed outputs published that relate to CETL work – list in Annex A.*

Over the programme period, LIVE staff published 28 journal and peer reviewed publications, of which one particular published series of articles should be highlighted here: The *Journal of Veterinary Medical Education* published a whole series on the theme of “LIVE: A Veterinary Education Academy” in their Winter 2008 issue. This was the first themed section related to the collective activities of a single “Veterinary Education Academy”, which we think is unique in the world. The nearest equivalents are the Medical Education Academies located within some of the medical schools in the USA.

For more details on our publications, presentations, and grants please refer to pp. 74–76 in the LIVE Portfolio 2010, attached as Annex A to this report.

Up to 5 other outputs not peer reviewed:

RVC BVetMed Day One Skills booklet used to support student learning at RVC (http://www.live.ac.uk/documents/DOS_handbook.pdf); also in use to inform curricula in other universities in the UK and USA.

A Guide to Assessment Methods in Veterinary Medicine (with Edinburgh University); in use in the RVC and other veterinary schools in the UK and USA.

Handbook of Veterinary Communication Skills (2010) Eds. Gray, C and Moffett, J. Wiley-Blackwell.

Cox, B, Macharia, R, Short, N and Whittlestone, K (2008) Exploiting existing teaching and learning resources through podcasts. In: Salmon, G and Edirisingha, P. (Eds.) *Podcasting for Learning in Universities*. Open University Press, Maidenhead. Pp. 103-112.

Computer-aided learning materials published on MERLOT: e.g. Veterinary Drug Administration - <http://www.merlot.org/merlot/viewMaterial.htm?id=424215>

o. *Number of events held to develop or disseminate work beyond the CETL in the last three years internally; externally. Please also draw attention by means of a short paragraph each to 3-5 events that have been especially important or noteworthy, e.g. title, date, size, type of attendees, purpose, why it was important.*

Over the programme period LIVE was responsible for organising 14 workshops, of which eight were run at the Royal Veterinary College. The remaining 6 events were held at various conferences in locations around the world, facilitated or organized by LIVE members of staff.

For more details on the dissemination of our work over the programme period, please refer to pp.85–88 in the LIVE Portfolio 2010, attached as Annex A to this report.

In particular, the following events show LIVE’s commitments to innovation and networking:

(i) WikiVET workshop

LIVE hosted the first workshop, which brought WikiVet to life, in April 2007. WikiVet is a collaborative initiative involving UK veterinary schools, and is supported by the Higher Education Academy, JISC, the RCVS and Pfizer. It initially aimed to create a comprehensive online knowledge base covering the entire veterinary curriculum. This online tool now provides a reliable reference source to supersede Wikipedia for veterinary, paraveterinary and animal science

students and graduates anywhere in the world. WikiVet contains thousands of pages of detailed content including text, images, video, Powerpoint presentations and self-assessment exercises.

Much of this material has been developed by students and recent graduates working between different schools, and peer reviewed by subject experts. The project has received over £25,000 from the HEA and JISC, and now has secure recurrent funding of £50,000 p.a. for the next three years from Pfizer Animal Health. <http://www.wikivet.net/>

(ii) Royal Society Summer Science Exhibition 2009: Do You Feel Like A Vet?

After months of preparation, the Royal Society Summer Science Exhibition (RSSSE) took place from 29th June – 4th July, 2009. A total of 5,492 visitors attended the RSSSE during the week. This included the first ever Saturday opening with over 950 members of the public attending. The RVC team consisted of 24 volunteers who were able to demonstrate the haptic tools on display as well as discuss the work of the LIVE Centre and its ongoing projects. Our research was therefore made available to a wide audience – not only members of the public, but also invited VIPs at the two evening soirees.

The exhibit was titled “Do you feel like a vet?” and consisted of interactive demonstrations of the Haptic Cow, the Core Skills Trainer (haptic computer games), a quiz relating to the informative posters on display (with prize giveaways), the haptic cat (work in progress), and a hand coordination skills station. This range of activities provided an opportunity for visitors of all ages to become involved. The Core Skills Trainer recorded 743 visitors and the Haptic Cow around 1500.

For further information on this week, interviews, videos and photographs, please see www.live.ac.uk. More information on the Royal Society Summer Science exhibition can be found on <http://www.summerscience.org.uk/>

(iii) LIVEArt and Artist in Residence Programme:

The teaching of a diverse set of skills to veterinary students, and to students who will pursue careers in veterinary-related professions, focuses mostly on traditional, quite didactic, learning methods. However, in recent years, teaching staff have also started to introduce more innovative methods into their teaching. For example the introduction to palpation skills through haptic simulators has increased student confidence in making use of their tactile senses and abilities when confronted with live animals as patients.

With the introduction of the ‘artist in residence’ programme, in early 2010, the College now supports and promotes student development of tactile skills in a different way. The LIVE Centre Manager, in close collaboration with the College’s Development Office, has drawn up project guidelines and deliverables for this innovative learning project, and in February 2010 we started working with the artist Camilla le May under the assumption that for vets and ‘would be’ vets the use of hands and eyes is critical. Camilla le May is a renowned artist with a passion for sculpting and will work with RVC students and staff to explore their broad creative potential.

Drawing, making and sculpting are not only enjoyable pastimes, they also develop observation and tactile skills and confidence. Our students will hopefully get to grips with the basics of clay modeling from a live model, guided by our artist in residence. Camilla specialises in animal and wildlife sculpture in a traditional representative style where underlying anatomy supporting the subject’s surface appearance is of key importance.

LIVE has promoted art events in its Centre’s space since early 2009. The *LIVEArt* series has so far provided three events where RVC students and staff have had the opportunity to showcase their artistic work in the LIVE Centre. With the ‘artist in residence’ programme, LIVE continues to support innovation in veterinary learning, as this is the first initiative of its type in any UK veterinary school.

It is our hope that the artist in residence programme and events like the LIVEArt series will encourage creative thinking and learning amongst veterinary students and staff whose teaching and learning environment is normally heavily science-based. Any natural science student should greatly benefit from an improvement of their visual-spatial thinking and a more experienced use of the 'mind's eye' (Matthewson 1999). A further benefit is the corporate spirit of well-being the opening of each display generates. This has helped LIVE to reach out in a different way to individuals across the full spectrum of College staff, to the enjoyment of all.

For further information on the LIVEArt series, please visit the LIVE website www.live.ac.uk.

- p. *If any appropriately experienced member of your CETL team wishes to participate in a peer review scheme of CETL self-evaluations, please provide their names and contact details, especially email.*

Dr Vicki Dale is our contact for this purpose.

Vicki is a Fellow of the Higher Education Academy, a council member of the Association for Veterinary Teachers and Research Work (AVTRW), a founding member of Veterinary Education Worldwide (ViEW) and used to be a Fellow of the Centre for Excellence in Professional Placement Learning (2008-9).

Dr Vicki Dale can be reached at:

LIVE, The Royal Veterinary College,
Hawkshead Lane,
North Mymms,
Hatfield,
Hertfordshire, AL9 7TA.
Email: vdale@rvc.ac.uk,
Tel: 01707 666439, http://www.live.ac.uk/html/team_dale.html

Part Two – Evaluative Reflection

Question 1

Please reflect on how effective your CETL has been in contributing to the objectives set out for the CETL initiative when it started. Be concise and do not exceed 1,000 words for the whole of the question

i. To reward practice that demonstrates excellent learning outcomes for students

After achieving 24/24 in its QAA Subject Review in 2000, the RVC bid for funding from HEFCE to establish a CETL around the core educational themes of skills relevant to lifelong learning, with a focus on professional and clinical technical skills in particular. The RVC was successful in being awarded the only CETL with a disciplinary focus on research and development in veterinary education.

The CETL was seen as a reward for a nucleus of curriculum designers who had pioneered new approaches to the delivery of veterinary education and its assessment from the mid-1990's to 2003. This included redevelopment of the clinical BVetMed programme, as well as educational portfolio diversification in paraveterinary areas with "firsts" in Veterinary Nursing (with Middlesex University) and Veterinary Physiotherapy.

The reward has continued through staff development activities and teaching prizes, and via LIVE teaching development projects as teams applying for these must include at least one teaching prizewinner as well as a member of core LIVE staff to give added support.

ii. To enable practitioners to lead and embed change by implementing approaches that address the diversity of learners' needs, the requirements of different learning contexts, the possibilities for innovation and the expectations of employers and others concerned with the quality of student learning

LIVE staff have successfully made bids to the VetNet Lifelong Learning Network for several projects related to learner diversity and widening participation (e.g. "The Development of an On-line Writing Resource to Support Students from a Vocational Background" and "So You're Interested in Animals", aimed at helping schoolchildren understand career opportunities; see LIVE Portfolio, Annex A). They have also been leaders in several work-based learning projects (e.g. "An Electronic Case Recording System for Students on Clinics" and Evaluation of an Employer-led Student Appraisal System to Support Self-Directed Learning in the Workplace", see LIVE Portfolio, Annex A), and, most recently, the development of a new blended learning approach to induction and support of veterinary work-based learning.

Some approaches to clinical skills development have been highly innovative, as demonstrated by Sarah Baillie's winning Times Higher Education "Most Innovative Teacher of the year". Paul Ramsden, one of the judges, encapsulated LIVE's approach to teaching development in saying: *"Innovative teaching, like excellent research, should influence others to do better. Merely doing things differently isn't enough. Success depends on your idea being adopted elsewhere - preferably internationally. That's why Dr Baillie is the clear winner."*

Finally, the development, which involved academics and also practising veterinary surgeons, of a day one skills framework and related assessment methods, has helped meet an increasing industry demand for demonstrable practical competence, relevant to day one employability (Welsh et al 2009; BVetMed Day One Skills Booklet, available from the Veterinary Nursing Administration Office at the RVC).

- iii. *To enable institutions to support and develop practice that encourages deeper understanding across the sector of ways of addressing students' learning effectively*

LIVE staff have developed a focus for educational development and research at RVC, and been involved in a wide variety of workshops, both internally and externally in the UK, and international conferences (see LIVE Portfolio, Annex A). Two LIVE members, in particular, have contributed to the development of day one skills and assessment methods in the USA through the Association of American Veterinary Medical Colleges' Veterinary Education Collaborative, directly building on LIVE's pioneering UK work.

- iv. *To recognise and give greater prominence to clusters of excellence that are capable of influencing practice and raising the profile of teaching excellence within and beyond their institutions*

LIVE has helped coordinate clusters of excellence across courses and departments at the RVC, through developments such as the initiation of regular Departmental Teaching Coordinators' meetings by LIVE's Academic Director, and the creation of an educationally-themed and well-attended Journal Club, coordinated by another member of LIVE staff, as well as in other universities in the UK and abroad, as detailed in (iii).

- v. *To demonstrate collaboration and sharing of good practice and so enhance the standard of teaching and effective learning throughout the sector*

LIVE has collaborations and is involved in sharing of good practice with veterinary schools in the universities of Bristol (e.g. veterinary versions of Objective Structured Clinical Examinations), Liverpool (in particular via Carol Gray, LIVE Lecturer in Professional and Communication Skills), Nottingham (most recently through Vicki Dale's input to the joint RVC-Nottingham NTFS Project) and Edinburgh (e.g. various joint RCVS grants) in the UK, and, through the AAVMC, with the 28 US veterinary schools. LIVE also has close links with the veterinary schools of Utrecht, Hanover, Budapest and Bucharest through its EU-funded NOVICE Project (Network of Veterinary ICT in Education - <http://www.noviceproject.eu/>).

- vi. *To raise student awareness of effectiveness in teaching and learning in order to inform student choice and maximise student performance*

LIVE has helped develop the new Professional Skills Strand for "Curriculum 2007" of the BVetMed programme. This includes improved (better contextualised!) basic introductions to learning theories and learning skills development. This is the start of a scaffolded approach to the development of lifelong learning skills. The strand also has a major new element focused on Professional and Veterinary Ethics, which will be one of the themes at the First International Veterinary Ethics Conference to be hosted by the RVC in London in 2011.

Concluding Reflective Comment

LIVE has a greater discipline focus than many other CETLs, and therefore (given that there are only six other veterinary schools in the UK apart from the RVC), the number of obvious UK collaborations has been smaller than those available to more generic CETLs. However, LIVE has benefitted from the Royal Veterinary College's size (the oldest and largest veterinary school in the UK) and its unique breadth of educational portfolio (e.g. two degree programmes in veterinary nursing – FD and BSc – and specialized programmes such as its MSc in Veterinary Physiotherapy) to maximise its educational impact to the benefit of the whole veterinary team. From the start, LIVE recognised that it could also utilize the discipline focus to have an international impact, and its contacts with Europe and the USA are now major channels for educational development and research, to the benefit of veterinary education and animals, their owners, and society, in this country and abroad.

Question 2

Please set out the aims and objectives specific to your CETL at the start; and for each one reflect how well these have been achieved. Be concise and do not exceed 1,000 words for the whole of the question.

The specific aims of LIVE (CETL Bid Stage 2, p.3) were as follows:

- 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 classroom to clinics
- Further development of e-learning and assessment materials to facilitate student independence
- Creation of a Professional/Personal Development Portfolio, including electronic reflective learning diary, extending to placement learning through newly installed Blackboard Virtual Learning Environment.
- Professional and communication skills (utilising the expertise of the Liverpool University and Veterinary Defence Society project).

LIVE has built on a comprehensive evaluation of student approaches to learning to help develop a "Scaffolded Active Learning" structure for the RVC's BVetMed programme. The LIVE team has worked hard, through workshops and individual support, to reduce content in all the RVC's educational programmes, and increase individual learner choice in programme elements (working in parallel with the College's e-Media Unit which has supported the development of the Virtual Learning Environment).

LIVE has encouraged a move away from detailed learning objectives to course-specific learning outcomes which have progressive year-on-year learning outcomes in relation to lifelong learning, professional problem-solving and reasoning, clinical technical and communication skills, with associated core discipline-related content.

LIVE has helped produce various teacher/learner development programmes, including work with staff acting as academic and clinical tutors, and work with students on peer-facilitation of learning. The latter is an important area, that has already resulted in publications, which, particularly in relation to clinical technical skills, has huge potential benefits for both peer tutor and tutee, as recognised by feedback from the students themselves. Student tutees have been surprised by their response to peer tutors, whose empathy and recognition of their problems is enhanced by the immediacy of their own introduction to the same skills.

The Clinical Skills Laboratories and CAL computer cluster (as well as the new Anatomy Museum and Microbiology Practical Classroom in Camden) are a huge improvement on the previous facilities. The Clinical Skills Laboratories support both valid and reliable practical skills assessment (via Objective Structured Clinical Examinations) and learning of those same skills. The relevance of these skills has been highlighted by a LIVE Fellow's development of the RVC BVetMed Day One Skills Booklet (http://www.live.ac.uk/documents/DOS_handbook.pdf) which is now supplied to all students, with an appropriate introduction, in their first year.

LIVE has contributed to the development of novel assessment methods aimed at driving appropriate learning linked to high level, course-specific learning outcomes. It has also developed a number of CAL programmes now shared with veterinary schools in the UK, USA and Australia, both directly and via "Merlot". In support of some of the newer approaches to learning, such as communication skills, LIVE has developed DVDs (soon to be distributed in the UK, USA and the rest of Europe) targeted on teachers, to help with both assessment and their teaching.

A major LIVE project has been the development of MyPad which has evolved to VetConnect for capturing student learning in clinical work placements. The next challenge is to combine this with PDP in the earlier

years of the BVetMed to provide progressive self-directed capture of and reflection on individual student experience at both individual and group levels.

An important area has been the development of Professional and Communication Skills, through the LIVE-supported lecturer at Liverpool, Carol Gray. This has allowed training of a large group of academic and academic-related staff as facilitators for communication skills classes, which, particularly for the academic staff, has had knock-on benefits for their other small-group teaching. Carol Gray has also been responsible for production of the first textbook dedicated to Veterinary Communication Skills, and the teaching and assessment of DVDs mentioned above.

The RVC introduced a major new strand into its BVetMed Curriculum in 2007 – the Professional Skills Strand. Two LIVE-led projects, in particular, are worthy of note here: “Business Skills for Veterinary Undergraduates” and “Veterinary Ethics”, as well as a further Edinburgh Veterinary School and LIVE joint project which involved the development of an “Extramural Studies Driving Licence” which addressed key skills for optimal learning in the clinical workplaces. All of these, together with other projects on learning skills, have contributed to what is probably the largest and most logically developed professional skills component in any veterinary programme in the world!

In addition to all the above development, expansion and embedding activities, which cover the first two areas in LIVE’s programme of work (RVC CETL Bid, Stage 2, p.12), LIVE has fully engaged in the third and fourth aspects of the programme relating to dissemination, and educational research in parallel with the developments. The LIVE Centre’s educational ‘influence’ is felt throughout the College, and LIVE staff have also been actively involved in national and international educational groups and collaborations which support and influence a wider educational community in veterinary education. Among these are:

- Royal College of Veterinary Surgeons
- Veterinary Education Worldwide
- National Unit for the Advancement of Veterinary Communication Skills
- Association for Veterinary Teaching and Research Work
- European Association of Establishments for Veterinary Education
- Association of American Veterinary Medical Colleges
- Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine
- Journal of Veterinary Medical Education Editorial Board

The educational research is a little behind the teaching development work, but peer-reviewed publications are now appearing at an increasing rate (see LIVE Portfolio, Annex A). These are establishing the credentials of LIVE core staff as educational researchers focused on the veterinary discipline, and the NOVICE project was a first collaborative EU-funded initiative in this area. A further collaboration with Imperial College is approaching submission to EPSRC, and two Leverhulme project grant applications are currently being worked up.

Question 3

Please add any objectives that emerged as the CETL developed, and reflect on these as for question 2 (500 words maximum).

One specific further objective emerging over the last five years was the idea of establishing a new Masters degree in veterinary education at the College – LIVE seemed to be the right place and had the right people to start the process in 2008. After Dr Ayona Silva-Fletcher joined the LIVE team in 2008 she started to progress the idea further and together with the CETL’s director and the LIVE team she soon established that an MSc in Veterinary Education would have great market potential, as it would seem to be the first one of its kind worldwide. The course started to enroll students in September 2009 and is currently teaching nine young lecturers, mainly from the RVC. It was also agreed that some of the modules should be made available to a wider audience as they would be of significant importance to a variety of staff. For example, Module 2, with its focus on large group teaching, has proven popular with a wide range of academic staff at the RVC and has therefore been opened up to a wider audience.

Another objective which has grown is that related to Professional Skills. Veterinary surgery and veterinary nursing both have high employment rates (close to 100%) and are shortage areas. This

means that “employability” has not received much emphasis, and is frequently confused anyway with “employment”! Originally the LIVE focus was mainly on communication skills (hence Carol Gray’s involvement, and the CETL secured her position at Liverpool after her original project funding ceased), but it became clear that the needs were much greater. As this is a very new curricular area for veterinary disciplines, it would have been very hard to develop “de novo” without specific support. The resultant Professional Skills Strand, and related learning materials, has created a model for inclusion in other veterinary curricula and is already being seen as the international leader in this area.

As explained in the earlier sections of this evaluation report, other objectives which have only recently emerged have been based on the view that our students need to be exposed to more creative learning methods, and in the view of senior College staff exposing students (and also staff) to the arts could be one way to achieve opening up the minds of veterinary students to other influences. The CETL initially started to run creative workshops for students in 2006/07, but only in 2009 initial proposals of facilitating art workshops and showing artwork created by both staff and students started to become more concrete.

Question 4

Irrespective of your answers to questions 2 and 3 above, please reflect on, and draw out the achievements and benefits of the CETL (1000 words maximum) (Think about different audiences, types of output, impact internal and externally, on professional/staff development, on student learning, work over an extended period, use of money for facilities development etc.)

The objective of LIVE is “*to transform the veterinary and paraveterinary professions by educating professionals who are capable and committed lifelong independent learners from induction to retirement*”. Our CETL has aimed to support the development of students’ independent learning skills during their time at the College, and to equip them to be effective lifelong learners throughout their careers. These aims are consistent with the College’s long-term Learning, Teaching and Assessment (LTA) Strategy. In terms of the CETL as a workplace, LIVE has attracted a strong team of key academic and support staff, and its work is steadily continuing to expand. The Centre’s main areas of work include:

- development of haptic simulators
- assessment in veterinary education
- mobile learning environments
- peer assisted learning
- work-based learning
- development and application of adult learning theory within different educational contexts
- development of communication skills in the veterinary context
- motivating factors for practitioners’ engagement in Continuing Professional Development
- production of the BVetMed Day One Skills Handbook
- interprofessional learning (veterinary and nursing students learning together)
- coordinating the development of academic staff
- development and coordination of the new MSc Course in Veterinary Education

Internally to the RVC, the CETL has thus directly benefitted academic staff (teaching prizes, teaching development funding and staff development, now to MScVetEd level) and RVC students in terms of pedagogically robust curricular design, delivery methods, learning materials and more valid and reliable assessment methods. Externally, the RVC is seen as pioneer of new approaches to veterinary learning in this country and abroad, and LIVE staff are regularly consulted by Associate Deans for Teaching on education-related matters. In addition, the Centre has received positive comments from external evaluators, most recently a joint visit to the College from 22-26 February 2010 by the Royal College of Veterinary Surgeons (RCVS) and European Association of Establishments of Veterinary Education (EAEVE). LIVE was specifically commended as one of the College’s outstanding areas of expertise and recognised as a leading centre of educational research in the sector.

The CETL award also included £2 million for capital development. This money was used to construct the LIVE Centre, which incorporates two state of the art clinical skills laboratories and a communication skills suite. Although clinical skills laboratories are the norm in modern medical schools, the prototype clinical skills centre which the College opened in 2004 was the first in a UK veterinary school. The LIVE Centre built on this experience to provide a facility in which students can develop clinical skills in a safe environment, thus supporting their development as professionals (as outlined above). LIVE regularly

welcomes visitors from all over the world to view these facilities and discuss their use in relation to skills development within veterinary curricula. The LIVE Centre has therefore acted as a model for other facilities of this type, particularly in the USA and Australia.

Question 5

Have there been any disappointments in how the CETL has developed/what it has achieved. What are they, why did they happen? (600 words maximum)

Two areas of disappointment come to mind which should be mentioned here: the anticipated take-up of short-term sabbatical opportunities that LIVE offers to College staff, which has failed to achieve the numbers we had hoped to reach over the five years of the programme, and the failure to fill a lectureship post for work-based learning research adequately.

The idea of offering sabbatical periods to College staff for them to work on an educational development and research project of their choice while CETL funding provided the opportunity to cover ongoing duties and costs of their day to day routines, had initially a lot of support and seemed to be a very good idea in 2004-05. However, the uptake among staff at the College was extremely disappointing. A sabbatical programme seemed to be a logical choice to offer clinical staff – either as individuals or as a team – with the opportunity to develop innovative teaching concepts by providing them with a desk in a quiet office, with the space and time to reflect/develop a project of their choice, and the possibility of liaising with LIVE staff for their input/advice on the project. As indicated above, this attracted a lot of interest in the planning stage, but only one genuine applicant emerged over five years of the programme. This was a disappointment, especially as LIVE staff continuously come across people at the RVC with fantastic ideas about how to improve the way they currently teach. Staff just never seem to have the time to take those ideas forward, and it is suspected that Academic Heads of Department, although approving the concept, ultimately found it too difficult to manage transitions in and out of LIVE for their academic staff.

In the end, one sabbatical was successfully completed during the HEFCE funding period. This was very successful, and the CETL received very good feedback from this member of College staff:

“I believe LIVE has been providing a focus for those who wanted to bring educational developments in the College; it enabled those who were willing to make changes to do so. In comparison to other institutions, I think the RVC is quite unique in offering professional staff members like myself the opportunity to take on opportunities such as the LIVE Sabbatical to pursue ideas – you won’t find this in many other places! I think the way I did my Sabbatical, by taking out bits of time from my day job over a period of four months, to work on this project, worked very well. I had very good administrative support and thoroughly enjoyed my conversations with every single interview partner.” (RVC, 2009)

As mentioned above, more extensive research in veterinary work-based learning, adult learning and continuing professional development was initially drafted into the CETL bid; however, it soon became clear that it would not be easy to find the right person for this challenging lectureship position. An initial appointment at Senior Lectureship level quickly exposed clashes in philosophy (social work versus veterinary work) and difficulties of aligning working practices and approaches (despite LIVE being a team with very diverse backgrounds). Thanks to a young, non-veterinary lecturer, who came to LIVE from the University of Glasgow, the CETL has made considerable progress over the last three years, even though long term research projects around CPD could not be carried out as initially anticipated.

Question 6

Please reflect on the difficult and easier aspects of getting the CETL going and of getting your messages across. For example: Has action/change followed; where and why did you meet success or resistance. What worked, how did you discover this, how do you know it worked? (1000 words maximum)

As our Academic Director put it, “establishment of a CETL-institutional equilibrium was more difficult than originally anticipated” and in many ways it was early recognition from the outside of the College which really opened colleagues’ eyes to the benefits of their CETL, focusing on veterinary education development and research. Specifically the departmental and RVC’s two-campus structure made it quite difficult in the beginning to get “buy-in” from staff on both sites. Without the physical presence of the new LIVE Centre building at the College’s Hawkshead campus, in the early days, the recognition of a new group who spent extensive time on educational research, rather than clinical work or clinical research, raised more eyebrows than it received praise.

The official “opening” and the various launch events during a whole week in February 2007, involving the Princess Royal and the College Council, helped emphasise, in the eyes of College staff, the importance the Senior Management of the College attached to the CETL, and progressively more individual staff members joined the CETL team in their various research and development efforts. The monthly CETL development meeting was also opened to more key members of staff who could then report back to their various groups about any actions or activities of interest to them.

Also, in 2008 a very successful LIVE Away Day was introduced and along with the usual LIVE Centre contingent, a selection of staff from other departments were invited to attend, in order to open up dialogue with colleagues at the delivery end of teaching and learning. The day helped further improve communication with colleagues “working at the coal face” of teaching and building on these Away Days, we have striven to maintain this dialogue in order to focus work in the CETL on solving “real world” problems in teaching and learning in veterinary medicine and the allied professions.

Overall, we believe the following points help demonstrate to our funding body that LIVE is steadily managing to achieve our main aim, *to ensure that veterinary education meets the needs of capable committed, independent learners, from entry to retirement through an innovative programme of educational development and research.*

- Recognition of the College, by HEFCE, as a Centre for Excellence in Teaching and Learning (CETL) has provided additional resources, both recurrent (£500,000 per annum) and capital (£2.4m in total), to support innovative educational developments, the construction of the new Clinical Skills Centre and anatomy and pathology teaching spaces.
- Academic staff are trained to teach effectively through mandatory induction programmes accredited by the Higher Education Academy (HEA), and CPD workshops, and since 2009/2010 members of staff are able to enrol on the unique Postgraduate Diploma and MSc in Veterinary Education.
- Staff publish in educational journals and present at conferences such as those of the Association for Veterinary Teaching and Research Work (AVTRW), Veterinary Education Worldwide (ViEW) and the Association for Medical Education in Europe (AMEE).
- LIVE has undertaken extensive research on a range of assessment methods seen as relevant to veterinary education, looked into staff and student attitudes towards Extended Matching Questions (EMQs) as part of the Final BVetMed Examination, and examined alumni perceptions of Open Book Examinations (OBEs) on one of RVC’s postgraduate courses. Further information on assessment research, evaluations and survey based research can be found in the LIVE Portfolio, Annex A, pp.40-53.
- As mentioned earlier, the College is currently in the middle of introducing a new BVetMed curriculum, based on sound educational principles, designed to produce independent, lifelong learners with a full range of sound Day One Skills and strong professional attributes. Details of the extensive research LIVE undertook around the Development of Day One Skills materials for our students, can be reviewed on our website under http://www.live.ac.uk/html/activities_DOS.html.

Concluding reflective comment

Working in a science discipline, it is important to create an evidence base to justify innovations, and, with senior management support, communicate and disseminate the evidence base, in this case for pedagogical development, in a compelling way. The sector is now recognising the importance of educational development which is clearly contextualised in disciplines and communicated in ways that are intelligible to the discipline, and the LIVE CETL has been a major support for this at the RVC.

Question 7

Has your CETL adopted/used/been based around any specific theories, e.g. of change, or of student learning? If so, what, how have these underpinned your work, have they been useful? (1000 words maximum)

The College focused its CETL bid on the approaches to “directed learning” which it had developed over the previous seven years, intending that LIVE would further develop a variety of relevant course modules and units for veterinary and paraveterinary 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 et al 2001) approaches to learning. Active engagement of students in their learning, their reflections and how they theorise about their learning, are all part of the learner-focused development and research work LIVE has been conducting over the past five years.

As outlined in the section on aims and objectives, LIVE was seeking to particularly address this theme in a series of complementary ways:

- 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 an 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))

What has then emerged over the past five years is an extensive research and development output around these initial thoughts. For instance, many LIVE research and development activities have also been included in the new MSc VetEd Course modules dedicated to the development of veterinary and paraveterinary educators:

- Veterinary education in practice
- Contemporary perspectives in veterinary education
- Enhancing teaching and learning with technology
- Teaching the basic sciences in a clinical context
- Assessment and feedback
- Essential skills - communication and clinical
- Clinical reasoning and patient based teaching
- Small group teaching
- Lecturing and large group teaching
- Integrated curriculum design and practice
- Educational research methods – qualitative and quantitative and evidence-based veterinary education

A further example, related to continuing professional development and lifelong learning, is the College's new, and unique, Graduate Diploma in Professional and Clinical Veterinary Nursing. This leads on from the FD and BSc in Veterinary Nursing, and, with both vocationally oriented and more academic elective elements, provides different tracks for nurses moving on to advanced clinical practice, those moving into practice management, or those wanting to gain MSc degrees and higher qualifications. To aid participation by nurses from all over the UK, and abroad, the Graduate Diploma is delivered completely online and structured to include best interprofessional teaching practice. See <http://www.rvc.ac.uk/VNDiploma/Index.cfm> for more information on the course structure and requirements.

A third example which highlights the need to support students in making connections between academic theory and the workplace, to optimise the value obtained from work placements, is a one-week induction course for third year BVetMed students in order to prepare them for a successful Clinical Extra-Mural Studies (ClinEMS) experience. Students spend much of their ClinEMS time at first opinion small animal, equine, farm animal and mixed practices. Although most students' placements occur within the UK, ClinEMS also provides a wonderful opportunity to experience veterinary life throughout the world. See www.live.ac.uk/documents.New_letter_web_10.pdf for more information on the Introductory EMS Week developments.

A final area, in terms of professional development, is the capture of unique workplace experience for further reflection, and later discussion. One of the regrettable deficiencies of work placements in the past has been the loss of such rich experiences, and the inability to share them between students. One of LIVE's "flagship" projects, the development of VetConnect as an online community of 'noticeboards', is designed for students and staff to record, share and discuss thoughts, questions and files (text, pictures and videos) amongst themselves. VetConnect and its main component, the myLearning platform, are not currently a part of the students' electronic toolset. It has been trialed for use with students since June 2009, and currently 30 cases are being shared amongst the students. VetConnect is also being introduced as a tool for use in this year's "Preparing for EMS" week. There are also trials in place for its use as a tutoring group communication and recording tool.

The myLearning platform was created August 2008, and currently has 992 users, 561 of which have used VetConnect (March 2010 figures). The platform consists of VetConnect, the haptic core skills programmes, and other computer-aided learning programmes. More information on one of our biggest research and development projects can be found in the LIVE Portfolio (Annex A), p. 31-32.

Workplace learning support is also being extended to qualified veterinarians through the NOVICE project, funded by an award granted under the EU's Lifelong Learning Programme. This aims to investigate the role of web 2.0 technologies (for example, wikis and blogs) in supporting informal, lifelong learning. NOVICE has only just started; its website www.noviceproject.eu will become the central point of the community, with links to Web 2.0 technologies that will facilitate discussion and the exchange of knowledge between members from different countries and with different levels and areas of expertise.

All these examples clearly demonstrate how the RVC's focus on lifelong, independent learning is being realised through different but complementary projects.

Question 8

Reflecting on the last five years what other important messages are there that you want to convey about your CETL - its successes, difficulties, impact etc. (1000 words maximum)

The five years of funding is the minimum period which could be allocated to support an ambitious initiative of this type. If all had gone well – immediate recruitment of staff, completion of the new building, and progress in projects with full academic staff cooperation – LIVE would be in a much stronger position as a Veterinary Education Academy with a vibrant discipline-related educational research programme. Unfortunately, staff recruitment took longer than anticipated, and none had "perfect profiles" in terms of clinical qualifications, technical qualifications and educational research experience. This was anticipated, but it took longer for these enthusiastic individuals to develop the confidence to withstand the challenges from more traditional veterinary academics in both basic and clinical science. The slow build-up, the lack of any similar "Veterinary Education Academies" anywhere else in the world, and the need to establish credibility in the relatively undeveloped field of veterinary pedagogy all mean that successful external funding applications (beyond small grants) are only now starting to be fruitful. The RVC is generously

supporting 50% of the original recurrent funding, going forward, but this means that LIVE is a little precariously positioned for the next two to three years. The economic situation meant that CETLs had early indications that there would be no continuity funding, but it is disappointing to see such important activity disappearing in some institutions, and in jeopardy at others.

In June 2009, at her inaugural speech as the newly appointed Professor of Veterinary Education at the University of Edinburgh, Professor Susan Rhind reiterated the importance of collaboration – across departments as well as institutions, nationally and internationally. She then also described the LIVE Centre of Excellence in ‘Lifelong and Independent Veterinary Education’, based at the Royal Veterinary College, as a ‘successful model of a veterinary education research centre’ (Rhind 2009). However, the networking required to achieve this accolade has required a huge amount of time and energy from a small number of staff. As mentioned previously, in 2009, LIVE and RVC staff from the Electronic Media (e-Media) Unit were successful in obtaining EU funding as part of a collaborative European team for the Network of Veterinary ICT in Education (NOVICE) project. Up to €450k under the EU’s Lifelong Learning Programme have been awarded. The RVC team will be working with colleagues at other European veterinary schools in Utrecht (the lead site), Hannover, Budapest and Bucharest. The project commenced with a meeting of ICT educationalists in Utrecht in January 2010; a core group of 10 students and 10 practitioners from each participating institution will initially be invited to take part in this new cross-European online community of practice. More information about the project is available at www.noviceproject.eu. Coordinating this has not been straightforward, and LIVE has played a pivotal role in keeping the project on track.

Similarly, LIVE staff have been important in the recently started, collaborative RVC-Nottingham project, on Enhancing Learning in the Clinical Workplace (ECLW), with LIVE staff joining clinical experts from the College, as well as clinical and educational colleagues from the University of Nottingham. The project is funded under the HEA-NTFS scheme, and aims to identify best practice in the clinical workplace and to disseminate that information among educators and professional bodies in the healthcare sector. Work involves observing clinical teaching in the small animal, equine and farm animal clinics, as well as interviewing students and staff (as placement providers) before and after specific placements. The website, www.eclw.ac.uk, offers more details on this two year research project.

In 2008, the *Journal of Veterinary Medical Education* Winter 2008, Volume 35(4) had a section of themed articles: “LIVE: a Veterinary Education Academy”, together with related articles from collaborative partners (see Portfolio, p. 76 for the complete list of articles). Once more, these demonstrate the synthesis which the recurrent funding has facilitated, and the larger educational achievement of a dedicated team working together. However, the difficulty which continues to plague LIVE, like other educational development units, is the measurement and recognition of the intangible benefits of our work. With research, such benefits are often assumed through the presence of individuals at research conferences and the like. This has a reputational benefit to “individual scores” in the Research Assessment Exercise, and contributes to the QR funding of universities. Regrettably, Subject Review failed to lead to any “QT” funding! This means, given the lack of a ring-fence to HEFCE T, there is no variable “added value” T funding that units like LIVE can look to as a reward for its efforts and a further justification of such efforts in the eyes of science research-focused colleagues.

Question 9

Reflecting on the last five years what important messages are there that you want to convey about the experience of being part of a wider ‘movement’/experience of other CETLs. (600 words maximum)

LIVE’s development and research efforts have predominantly arisen from topical issues within veterinary medicine. Therefore, it has been logical to use these networking opportunities to share best practice in the veterinary community, and to then extend our shared generic educational expertise to other disciplines. For instance, questions about the essential criteria for students to become successful professionals are being raised in various educational circles, and not surprisingly are also a focus for several CETLs. There is heightened interest in educational research in professionalism, and these discussions are already impacting on the wider UK higher education community (Pirkelbauer 2008). This strategy means that the veterinary education research has since led to stronger pedagogical links with

other veterinary schools, and close ties with medical research, as well as information technology and computer science research.

In the areas of professionalism and placement/workplace learning, LIVE has collaborated successfully with the Centre for Excellence in Professional Placement Learning (CEPPL) at the University of Plymouth, from whom we received funding for two of our research projects and where one of our lecturers also held a Fellowship during 2008-9. Another CETL whose work was helpful to us and where we formed a close relationship with is the Work-based learning for education professionals CETL at the Institute of Education, University of London.

Over the years LIVE has also built a network of contacts with other educational support structures and initiatives in the higher education sector in the UK. These include the Higher Education Academy, in particular LTSN-01, the Subject Centre for Medicine, Dentistry and Veterinary Medicine and the VetNet LLN Network, who have funded two of our projects via VetNet LLN Institutional Development Grants (www.vetnetlln.ac.uk). These have allowed us to synthesise our subject knowledge and pedagogical expertise to create unique websites and learning materials to support paraveterinary learners, stimulate awareness of career opportunities, and encourage widening participation.

It was reassuring to see that LIVE was not unique in experiencing early setbacks. Involvement with the CETL network revealed active discussions of various “problems”, such as difficulties with the host institution, communication issues, high staff turnover, and a perceived lack of feedback and guidance from the funding body. While LIVE staff recognised some of these, it also became clear that LIVE has benefitted from active leadership provided by the College’s senior management team, and a robust “critical friend” approach to external evaluation.

One point to raise here (already mentioned) relates to information on ‘scaling back’ strategies. A CETL network and HEFCE dialogue to develop and disseminate best practice in this area would have been helpful. It might have been a good idea to have some provision in place to reward CETLs which were close to full sustainability with an additional, though reduced, funding opportunity, to ease the transition. This way, some funding could have been in place to successfully ‘phase out’ the HEFCE funding stream without imperiling ongoing research and development work being conducted in the CETLs. Other CETLs may have gleaned more from conversations on this subject. However, as far as LIVE was concerned, no meaningful discussions on alternative funding strategies emerged in any of the later CETL meetings, nor did any alternative routes for funding come through via the electronic CETL communications.

Question 10

Please reflect on work emerging from your CETL that has been ‘transferable’, i.e. useable beyond the home audience for which it was originally developed. (You may wish to comment in terms of materials produced, a community created, understandings that CETL work has illuminated and which are useful to others, etc) (1000 words maximum) It would be useful to hear ‘messages’ and lessons learnt that you would like to continue to be disseminated.

A major focus of LIVE, in the last 12 months, has been the reporting of all its activities and their documentation. LIVE has been a major contributor to ViEW and AMEE, and is also supportive of the growing pedagogy-focused programme at AVTRW. The documentation has resulted in the LIVE Projects Portfolio, attached as Annex A.

Successful national and international dissemination has been achieved for OSCE-related materials, the Day One Skills lists, the “haptic cow”, and we are currently active in developing and promoting our approach to professional skills development.

LIVE has also contributed to discussions on workplace learning with both academic coordinators and placement providers, and is collaboratively, with placement directors in other UK veterinary schools, working on common induction materials (the EMS Driving Licence developed by Edinburgh and LIVE, and other RVC-based learning support), common information sheets for placement providers, and feedback forms.

The most surprising success on which LIVE has capitalised has been the level of international interest and impact, in the USA, Europe and Australia. It is hoped that this will continue so that the work of LIVE

can benefit the creation of modern veterinary curricula on all continents, and contribute to stimulating learning materials, to the benefit of individual learners. A recent example is the success in relation to the "Veterinary Drug Administration" computer-aided learning programme. In September 2009, we received a request to use it in the veterinary course at the University of Queensland, and this month we have just received a request to use it at Macomb Community College, Michigan, USA. This raises a concern over the continued dissemination of CETL legacy materials by the sector, once CETL foci are lost in some institutions. It is to be hoped that their host institutions will be able to take on this responsibility.

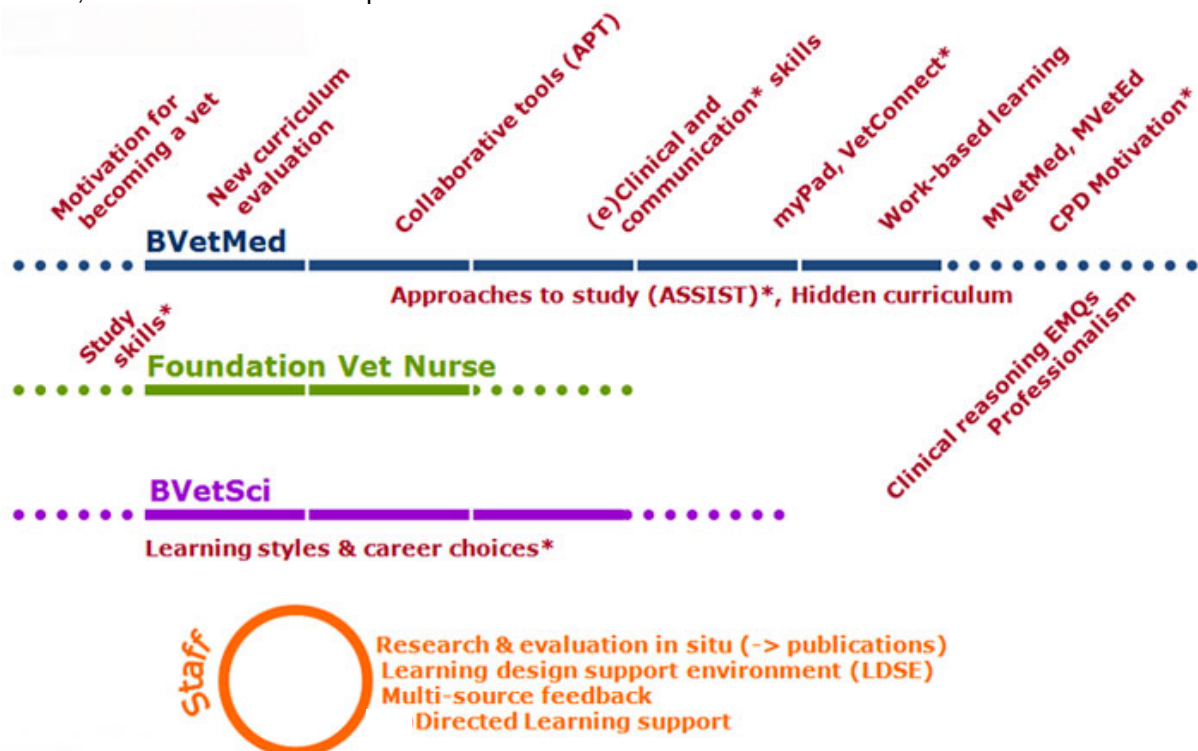
Question 11

How will the work and achievements of your CETL continue after HEFCE funding ends (1000 words maximum)? Please reflect on how far you think CETL work has become embedded in your institution or discipline and indicate if any structures have been put in place to ensure its legacy is not lost (1000 words maximum)

Integrating LIVE into the fabric of the RVC, and embedding educational research and development in the various College programmes, has been a central part of discussions between CETL staff and RVC management, and these discussions have become more focused as the end of the funding period has approached, and as the difficulties of the current economic situation have become more significant for all HE institutions in the UK.

Veterinary Education currently faces the challenge of ever increasing public expectations of veterinarians, which have led to the need for better-designed, more integrated curricula with an increased attention to communication and other professional skills, as well as elective elements foreshadowing individual specialization (May 2008).

As mentioned already, in response to Question 6, the staff of LIVE have continuously tried to illustrate how LIVE projects can beneficially be embedded in the various RVC programmes. Examples include CAL programmes, clinical skills materials, the development of a mobile learning environment for students working on clinical rotations, new online learning resources for veterinary nurses, and the research into the concepts of inter-professionalism and inter-professional learning amongst veterinary surgeons and nurses, and educational development in these areas.



Kim Whittlestone's LIVE-Line, revealing LIVE projects and their link to various RVC taught courses, 2008.

The College is in the middle of the implementation of a new BVetMed curriculum and it is evident that, until this period of change has been completed, there will be an abundance of work for members of the CETL, sharing their expertise with clinicians and other academics, as well as documenting and scrutinising the success of the new curriculum. This task will not have been completed by the end of the HEFCE funding period, and this, together with the successful implementation of the CETL as a hub for veterinary educational research, is one of the main motivations for continued College support in the short to medium term.

LIVE has always been in the fortunate position of having strong support through its Academic Director, who is also the Deputy Principal and Vice-Principal for Teaching and Learning at the Royal Veterinary College. This has allowed, in contrast to some of the other CETLs, smoother and faster communications with the senior management of the institution, and while not all College staff were fully supportive of LIVE in the early days, an increased number now value the educational input the LIVE group provides to the RVC and the reputational benefit the RVC derives from the increasing external visibility and credibility of LIVE. The RVC Principal was early to recognise the excellent marketing and PR opportunities LIVE offers as a centre of educational innovation at the College, and has been a strong supporter from his appointment which almost coincided with the start of LIVE. This led the Principal, in 2009, to offer some core institutional funding for the LIVE Centre, in order to continue this unique CETL, and to smooth the transition and embedding process once HEFCE funding ceases.

Question 12

Do you think there are any emerging aspects of your CETL activity that will have greater importance in the future? (600 words maximum)

One area in which LIVE has contributed widely, has come via Carol Gray's work in Liverpool. In close partnership with other veterinary schools and professional organisations, the development of communication skills training for veterinary students has been further extended over the past five years. Carol has established herself as an internationally recognised expert on veterinary communication skills training and has very recently published a *Handbook of Veterinary Communication Skills* (Gray and Moffett 2010).

Another unique educational innovation is the haptics research conducted by a small team led by Dr Sarah Baillie. Dr Sarah Baillie and her research focused on life-like simulators, such as the Haptic Cow, and the educational value of these have attracted attention worldwide. Students use the simulator, positioned inside a fibreglass model, to feel a haptic model of a cow's reproductive tract. The teacher follows the examination on a computer monitor to provide feedback.

The simulator meets a real need in the veterinary field; teachers find it difficult to provide guidance when using live animals as they cannot see what is happening internally, and opportunities to practice have become limited as student numbers have increased. It also promotes animal welfare, ensuring university teaching herds are not used too heavily or manhandled by novices in the important "Reduce, Refine and Replace" agenda for animal use in education as well as research.

Dr Baillie has also developed the Haptic Horse and Core Skills Trainer. The Haptic Horse helps prepare students to treat abdominal complaints such as equine colic, while the Core Skills Trainer is a series of haptic computer games designed to help veterinary students improve their dexterity and perceptual skills. A shorter version of the game is taken out to schools and exhibitions (most recently those at the Royal Society and Royal Institution) to inspire and engage students in science.

As a result of her dedication to teaching and research, Sarah won "Most Innovative Teacher of the Year" at the Times Higher Education Awards 2009. She was one of six academics shortlisted for the award thanks to her outstanding work in the field. Very recently, Sarah has also been named one of six "Women of Outstanding Achievement" for 2010 by the UK Resources centre for Women in Science, Engineering and Technology. Given that the College BVetMed intake is now 80-85% female, she is an important role model for undergraduates and postgraduates alike. More information on this work can be found under http://www.live.ac.uk/html/team_bail.html.

A further aspect of LIVE which should succeed in having a profound effect on (postgraduate) education in the very near future is the introduction of the MSc in Veterinary Education. The MScVetEd offers teaching

and learning in educational theory and practice for anyone involved in veterinary and para-veterinary education. It is run as a flexible programme of study targeted at both new and experienced staff with multiple entry routes and alternative progression pathways. More information regarding this programme can be found on the RVC website under www.rvc.ac.uk/MScVetEd.

LIVE's 'flagship projects' and LIVE Team Award teaching projects, as well as the successful completion of a LIVE sabbatical and our LIVE Fellowship programme, have all contributed to improved pedagogical expertise here at the College, and in this way the sum total of our work represents a significant contribution in support of the College's ambition to deliver better-prepared graduates to enter the veterinary and related professions. In particular, clinical skills teaching and sound assessment methods are embedded in the College's programmes in veterinary surgery and veterinary nursing, and have been commended by professional visitors; so it is difficult now to envisage courses without these innovations.

Question 13

Any other comments (600 words maximum)

This self-evaluation report is an overall summary of the CETL's work and activities over the past five years. It is being submitted to the Higher Education Funding Council of England (HEFCE) by Birgit Narayanan (nee 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 September 2009.

The report complies with the information and guidance given by the HEFCE document *HEFCE Guidance: Final plans for CETL Impact and Evaluation Work*.

We have presented evidence of active research and development work, engagement in collaborative projects with educational researchers at other veterinary schools, in this country and abroad, as well as statutory bodies and representative organisations within the veterinary professions, and developing interprofessional engagement. All this shows that funding of this type, well-used, encourages appropriate risk-taking and innovation. This has supported change in veterinary education, making the RVC an international beacon of good practice, to the credit of the RVC and UK veterinary education in general.

This report has two sections (Part One and Part Two) and a section of appendices. A .pdf version of this final evaluation report will also be made available on our website (www.live.ac.uk).

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Edited by Mrs Birgit Narayanan (née Pirkelbauer) and Professor Stephen May
Design: Peter Nunn

Contact Details:
LIVE Centre
The Royal Veterinary College
Hawkshead Lane
North Mymms
Hatfield
Hertfordshire
AL9 7TA
UK

tel +44 (0) 1707 666657

email bpirkelbauer@rvc.ac.uk, or info@live.ac.uk
web www.live.ac.uk

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
EAVE	European Association of Establishments for Veterinary Education
EMQs	Extended Matching Questions
EMS	Extramural Studies
FTE	Full Time Equivalent
HEA	Higher Education Academy
HEFCE	Higher Education Funding Council for England
IoE	Institute of Education
IMR	Intramural Rotations
JVME	Journal of Veterinary Medical Education
LIVE	Lifelong and Independent Veterinary Education
LKL	London Knowledge Lab
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
QAA	Quality Assurance Agency for Higher Education
RCVS	Royal College of Veterinary Surgeons
RVC	Royal Veterinary College
VBS	Department of Veterinary Basic Sciences
VCS	Department of Veterinary Clinical Sciences
VDS	Veterinary Defence Society