Papers

Enhancing clinical learning in the workplace: a qualitative study

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Workplace learning (WPL) is seen as an essential component of clinical veterinary education by the veterinary profession. This study sought to understand this type of learning experience more deeply. This was done utilising observations of students on intramural rotations (IMR) and interviews with students and clinical staff. WPL was seen as an opportunity for students to apply knowledge and develop clinical and professional skills in what is generally regarded as a safe, authentic environment. Clinical staff had clear ideas of what they expected from students in terms of interest, engagement, professionalism, and active participation, where this was appropriate. In contrast, students often did not know what to expect and sometimes felt under-prepared when entering the workplace, particularly in a new species area. With the support of staff acting as mentors, students learned to identify gaps in their knowledge and skills, which could then be addressed during specific IMR work placements. Findings such as these illustrate both the complexities of WPL and the diversity of different workplace settings encountered by the students.

WORKPLACE learning (WPL) is an important part of professional training for veterinary students. It is a core part of the curricula of the UK veterinary schools, and includes preclinical extramural placements (AHEMS), clinical extramural placements (EMS) and clinical intramural rotations (IMR) within the veterinary schools. The Royal College of Veterinary Surgeons (RCVS) has recently reviewed the role of EMS, and reiterated the essential role it has in undergraduate education (RCVS 2009). WPL is often informal and opportunistic. In many settings, students work alongside highly experienced veterinary surgeons and learn in a variety of ways from their work experiences (Hager 1998). Such learning is very different from the classroom learning that is controlled, structured and planned to deliver specific outcomes. The informal and opportunistic nature of WPL makes it much more difficult to track exactly what has been learned by individual students (Tynjälä 2008).

The enhancing clinical learning in the workplace project was a collaborative study between the School of Education and the School of Veterinary Medicine and Science at the University of Nottingham (SVMS) and the Royal Veterinary College, University of London (RVC). The project was aimed to produce a better understanding of the experience of WPL from the perspective of the students and those facilitating the IMR work placements. The project focused on IMR, commonly referred to as 'work placements', occurring in the fourth and fifth year of the veterinary course, delivered by the university. IMR work placements, in contrast to EMS, are at the more structured and formalised end of the WPL spectrum. Students work with university staff members to gain clinical experience in first opinion/referral establishments. The two veterinary schools have different approaches to delivering IMR, but share a common vision of the essential nature of work placements in producing high-quality clinical veterinary graduates.

The RVC was founded over 200 years ago. It has a predominantly traditional model (university-owned and managed hospitals) for delivery of IMR, with a limited number of distributed elements. IMR work placements are delivered within the RVC's own facilities and in some cases offsite in first opinion partner practices (eg, Northpoint Joint Venture Practice). Referral centres include the Queen Mother Hospital and the Equine Referral Hospital at the Hawkshead campus, and first opinion hospitals such as the Beaumont Sainsbury Animal Hospital at the Camden campus. RVC students are required to undertake 28 weeks of IMR work placements, the majority in the college's referral hospitals working alongside clinical specialists, residents, interns and nursing staff.

SVMS was established in 2006 and graduated its first student cohort in 2011. It has adopted a community-based, distributed model that delivers IMR work placements predominantly through a small number of privately owned veterinary establishments. These establishments

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TABLE 1: Number of participants in the study from both institutions, across the species areas								
	Student				Clinical staff			
	RVC		SVMS		RVC		SVMS	
Interviews	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Small animal	5	3	2	2	4	4	2	1
Equine medicine	5	5	3	4	2	2	2	2
Farm animal	5	3	2	2	1	1	1	1
Total number of interviews	15	11	7	8	7	7	5	4
Total number of participants		15		8		7		5

RVC Royal Veterinary College, University of London, SVMS School of Veterinary Medicine and Science, University of Nottingham

are termed 'clinical associates' and they work closely with the university to deliver quality-assured IMR work placements by university-employed clinical staff based at each associate. Teaching caseload is of a high throughput and primarily first opinion, but with a proportion of secondary and tertiary referral materials, depending on the establishment. Links with the clinical associates include educational training of practice staff, and their involvement in undergraduate admissions and teaching during earlier years of the course. SVMS students undertake 26 weeks of IMR work placements. Staff involved in teaching include practice and university staff, with a mix of recognised specialists, non-specialist practitioners, residents, interns and nursing staff.

Identifying similarities and differences between the models employed by the two institutions revealed the diversity of the pedagogical approaches used by the veterinary profession in the clinical workplace, potentially transferable to other professions. The goal of this collaborative study was to understand the experience that students gain through different IMR work placements, with a view to identifying good practice that may be applied by the profession to enhance this key component of the training of the future veterinary surgeons.

Methods
Data collection
Ethnography has its roots in anthropology and is the study of interactions and actions in social groups (Kuper and others 2010). It aims to explore and describe a particular social phenomenon through qualitative methods such as observation and interviews (Atkinson and Hammersley 1998). Using this approach allowed the researchers to embed themselves within the learning environment to capture and interpret the very personal experiences of students and clinical staff. Semi-structured pre and post IMR work placement interviews were used as the main method of data collection to capture individual staff and student experiences. A semi-structured interview uses a flexible approach and is framed around themes rather than a rigid set of structured questions (Cohen and others 2000). Observations were used as an additional method to compile a wider view of the experiences of the student groups and clinical staff. Data collection was undertaken across three representative areas of the veterinary profession: equine, small animal and farm animal. Ethical approval for the study was granted by the ethics committee of each veterinary school.

Sampling
The sampling strategy was 'opportunistic', which involved the researchers being flexible and taking advantage of events that arose during the data collection period. The participants included veterinary students in their fourth year of a five-year programme and staff in various IMR settings at both institutions. Interviews and observations began in May-June 2010 and ended in August 2010 while the participants were in their fourth year, during clinical IMR work placements.

Interviews with staff and students before work placements
Interviews with the staff and students lasted between 15 and 40 minutes and were recorded using a digital voice recorder. Informed consent was obtained from all participants. Interviews were fully transcribed. A total of 23 students and 12 clinical staff were interviewed before specific IMR work placements (Table 1). Interviews with the students focused on their experience of prior WPL and their

preparation for, and expectations of, the forthcoming placement. Interviews with clinical staff focused on their expectations of students, their impressions of the workplace as a learning environment and their role in facilitating student learning.

Observations of work placements
The same 23 students and 12 clinical staff were observed across three representative work placements at each institution: equine, small and farm animal. The observations were opportunistic and designed to cover as many different aspects of work placements as possible, including hospitalised patient ward rounds, surgical procedures and outpatient and admissions-related client consultations. Data were recorded using a notepad and a digital video camera. Students and clinical staff were approached and consent was given for the researcher to undertake observations that took place on a daily basis during the IMR work placements. Around four hours was spent observing each student in each work placement. The observations were conducted so as to include the participants' daily routines in the practices, their interaction with others, structured teaching and self-learning sessions. These observations were used as a complementary method to allow the researchers to develop their understanding of WPL, build trust with the participants and to inform the postplacement interviews.

Interviews with staff and students after work placements
Interviews were conducted at the end of each work placement with the same students and clinical staff. Interviews were of 30 to 45 minutes' duration, recorded using a digital voice recorder and fully transcribed. A total of 19 students and 11 clinical staff were interviewed after the work placements (Table 1). Interviews with the students focused on their perceptions of what they had achieved in the workplace, their experiences of learning and the support received from staff. Interviews with staff focused on their impressions of the students on that rotation, the support they gave to the students and what they thought the students had learned.

Data analysis
A process of thematic analysis was employed to identify themes emerging from the data. Interview transcripts and observations were manually and independently coded by the researchers from each institution. An initial list of codes arose from each institution and was viewed by both researchers (K. M. and R. W) and verified by a third researcher (V. H. M. D). After re-reading the list and responses, a master template of codes and descriptors was developed and agreed upon by all researchers. The two primary researchers (K. M. and R. W) then read the interview transcripts and observations again and coded against the new master template. Additional codes which emerged from specific institutions were independently added to the master template.

Results
Five major themes emerged from the thematic analysis of interview transcripts and observations; the clinical workplace as a learning environment, student and staff expectations of WPL, student perceptions of readiness and preparation for the workplace, learning and teaching strategies in the workplace, and factors affecting WPL. Quotes from students and staff at both institutions have been used to illustrate these themes in the results.

The clinical workplace as a learning environment
The clinical workplace was viewed by staff and students as an authentic learning and teaching environment. Staff acknowledged work placements as essential for students being able to apply previously acquired theoretical knowledge from years one to four of the professional veterinary course to practical work-based experience:

'I think they're essential. You can lecture on clinical judgement and clinical skills, but unless you see those skills applied and get

a chance to practice those skills in a clinical environment, then when you go out into practice you end up with a lot of theoretical knowledge, but you can't actually apply that knowledge in a meaningful fashion.' (SVMS staff)

Staff viewed work placements as a transition period that facilitated the students' transformation into practitioners; this entailed developing their ability to think in a systematic, logical manner to make sound clinical judgements and undertake safe decision-making, thus developing their clinical reasoning and diagnostic skills. Staff remarked that all clinical exposure, whether it was conversing with a client on the phone or having case responsibility for a patient, improved students' knowledge, ability and confidence and prepared them for the 'real world' of professional practice:

'I think it is important that during the last year they are exposed to how a hospital works, actually to talk to owners, to have live patients, to be responsible for patients. So it gives them a better view of what to expect when they go outside.' (RVC staff)

Students and staff viewed work placements as a 'safe environment'. Staff supervised the students' clinical and professional development and let them do as much as they felt comfortable with. Students appreciated having staff on hand for encouragement, reassurance and support when required.

Student and staff expectations of WPL

The majority of students had similar expectations of the workplace; they wanted to learn new clinical and professional skills to a level that enabled them to work effectively in the clinical environment:

'I expect to do injections and bloods … I like the practical side for practising doing the bandages and the catheters and taking blood and giving IV injections.' (SVMS student)

Students valued the importance of communication skills and professionalism as much as their clinical skills:

'I think communication skills are more important than most people think, I think people just come into the course and think it is all about animals and it's actually a lot more dealing with clients … I think you are never going to get an animal without an owner really. Someone attached to it. And if you can treat the dog but can't communicate with the owner, it's a package if you see what I mean.' (RVC student)

Interviews with staff revealed they have clear expectations of the students; they expect them to have basic practical, communication and professional skills, an ability to identify knowledge gaps and weaknesses, enthusiasm and the ability to integrate seamlessly into the workplace:

'I'm expecting them to act professionally, integrate into a clinical team and to be identifying areas where they are perhaps weak to improve their skills …' (SVMS staff)

Student perceptions of readiness and preparation for the workplace

Students' perceptions of the transition into full-time clinical training varied. Some viewed it as exciting while others perceived it as daunting. This often led to students being anxious, stressed and underprepared for their transition into full-time work placements. The interviews revealed that most students did not read placement-related documentation before entering the workplace, and they attributed this partly to perceived time restraints. Talking with their peers, who had previous experience of a particular work placement, constituted the bulk of their preparation and was also recommended by staff:

'Students who have been through the rotation talk to the next students coming on to the rotation, it's good. Because at the moment the onus is very much on us. Often we just run out of time. Whereas if there is an … informal way of passing the knowledge on to each other …' (RVC staff)

A few students reported that they strategically prepared for common conditions in a particular species, for example, equine colic:

'… if there's anything that I think that's going to come up … for instance, I knew that colic (or) laminitis would probably come up

during this rotation so I had a quick read of my notes beforehand.' (RVC student)

Previous experience on EMS was also perceived as an influence on students' readiness and preparation for the workplace; if they had a favourable and active experience on EMS, they were more likely to 'hit the ground running' in the workplace:

'I have a couple of practices (EMS) I go back to as they let me undertake responsibility for consults, and that was useful before rotations, built my confidence.' (SVMS student)

Learning and teaching strategies in the workplace

From the students' perspectives, a number of learning strategies were employed in the workplace, which included learning by doing, asking questions/being questioned, observing role models, having case responsibility, and reflecting on case discussions, mistakes and feedback:

'The vets and nurses were just constantly asking questions. I like that as a way of learning, I feel it identifies any gaps I have. I mean if you can't answer there right on the spot, that's when it counts if you need to know the answer.' (SVMS student)

Students also mentioned how they learned through working and collaborating with staff, clients/patients and peers. Students valued this experience as it highlighted the importance of learning through interaction and cooperation:

'I think it's just as much about learning to work with new people and having a new set of nurses and vets every couple of weeks, and just being able to deal with all the different situations, as it is about anything else really.' (RVC student)

Before the early rotations, students expressed concerns about learning how to work professionally with staff in the clinical environment. Over time, students revealed that their confidence in working alongside the staff improved; they became more experienced and better able to manage cases and ask for help from the team if they needed it. Students and staff agreed that working with a client and patient made the experience more authentic and gave the students firsthand experience of what professional practice is like. Interviews revealed that students are initially nervous about communicating with clients, specifically breaking difficult news to a client, and this is normally undertaken by the clinician mentoring the student. Students revealed that being able to be in the room with the clinician when they were handling a difficult topic proved beneficial, as they were able to observe their behavior and approach. Students reported positive aspects of working alongside peers such as the reciprocated emotional and physical support, as well as negative factors such as the competitive nature of some peers and the necessary sharing of learning opportunities which reduced the likelihood of gaining hands-on, practical experience.

From the staff perspective, a number of teaching strategies were employed in the clinical environment. These appeared to be complementary to the learning strategies employed by the students: giving feedback, asking questions, demonstrating clinical skills, modelling professional behaviour and leading case discussions.

Factors affecting clinical learning in the workplace

Several students stated that they wanted more opportunities for practical hands-on experience on work placements. This was often difficult for staff to accommodate; they mentioned specific difficulties with varying caseloads. Caseloads vary across different species, and there was not always an opportunity to perform some routine clinical skills:

'It's always going to be the same … you can't ever know what's going to come through the door and you can't nicely plan every hour of every day and when you're going to be quiet and when you're going to be busy because that's just not how veterinary practice works.' (SVMS staff)

'What we end up teaching the students over the week is very variable, depending on the case load. So sometimes we will have a very busy clinical week revolving around cases we have in. So the

student will get a lot out of it practically. Whereas with quieter weeks we have more time for didactic teaching and can design what we teach them based on where we felt they are lacking.' (RVC staff)

Another difficulty which potentially limited hands-on opportunities was the prioritisation of the clinical requirements of the case rather than the educational requirements of the student; if the case was an emergency, then the welfare of the patient took precedence over teaching. Opportunities for experience were also affected by the clinical setting. Students in both institutions received clinical experience in first opinion practices and referral hospitals. They reported that the clinical setting often affected whether they observed or participated in the handling of a case:

'I know it's a specialist referral place, there's not going to be as much experience doing simple castrations or placing catheters. It's going to be more of a knowledge placement I think – more observation than practising skills.' (SVMS student)

In the referral hospitals, there was a degree of participation for the student in some cases: for example, suturing as an element of surgery. Students perceived that surgical experience in referral hospitals was often more about observation than participation; however, they recognised that it was a valuable learning opportunity to observe good practice at the highest level of clinical expertise.

Discussion

The approach chosen for the project was novel within the context of veterinary education. Semi-structured interviews and observations were used to uncover some of the complexities of WPL experienced by undergraduate veterinary students from two institutions. The independent educational researchers brought novel perspectives in researching the veterinary workplace. This approach has produced rich data, which have enabled the researchers to develop a fuller understanding of WPL in this context.

Value of WPL

WPL is seen as an essential component of veterinary education, as it provides opportunities for students to gain clinical exposure to clients and patients in preparation for entry into the profession as veterinary surgeons (Duncan and others 2011). Across both institutions, students valued the clinical workplace as a learning environment where they could actively put into practice their clinical and professional knowledge and skills in an authentic, safe environment. The authenticity of the clinical setting and active participation in professional practice have been identified as important, strong motivators for students' learning in the workplace (Spencer 2003). The clinical workplace plays an important role in the development of a students' overall competency, and also their confidence, organisational skills and preparedness for practice (Edwards and others 2004). In the field of veterinary medicine, apart from the technical competencies, clinical work placements provide the opportunities for students to develop non-technical competencies, including communication skills and life skills, to better prepare themselves for the profession of their choice (Cornell 2008).

Challenges associated with WPL

Responses from students and staff about WPL were positive in both institutions. However, concerns were reported relating students' transition into full-time clinics in their fourth year and the variable caseload associated with opportunistic learning in the workplace. Interviews, undertaken when students began IMR work placements, indicated that the move into the clinical workplace was perceived to be exciting by some students and daunting for others. Some students perceived that they were not yet ready for this move.

The transition to the clinical workplace is widely viewed as stressful and anxiety-inducing (Alexander and Haldane 1979, Radcliffe and Lester 2003, Teunissen and Westerman 2011). In this study, students reported perceived inadequacies in terms of interacting with colleagues and a lack of 'working knowledge' of what their role should be, as well as a lack of confidence relating to prior knowledge and the ability to perform relevant skills competently; this is consistent with findings in other studies (O'Brien and others 2007, Godefrooij and others

2010). Students have to adjust to being part of a team and are required to display values and attitudes associated with being a professional in an everyday capacity (Prince and others 2005). While a moderate level of stress is considered beneficial for students to perform well, a high stress level can be counter-productive and inhibitive to learning (Van Hell and others 2008).

Despite feeling stressed about prospective work placements, veterinary students in this study did not read the placement-related documentation before entering the workplace. Peer-to-peer preparation was recommended by the clinical staff on the work placements, as it allowed the students to be more certain of what to expect from the clinical staff. Students acknowledged the potentially positive and negative impacts of peer preparation. Peer learning has been perceived as being of benefit to students to help develop their clinical and professional skills in other healthcare disciplines (Chojecki and others 2010). While there are many positives to peer learning, there is the potential for misconceptions of IMR work placements to be passed onto future students if they are the main source of information.

Veterinary education may benefit from developments in academic medicine with regard to helping prepare the students for the transition to the workplace. It has been suggested that sustained early exposure to patients in preclinical years is effective in helping the students prepare for the transition into the clinical workplace (Brennan and others 2010, Godefrooij and others 2010) In the USA, the addition of transition courses before students enter full-time clerkships has been shown to increase their self-reported preparedness for the clinical year of medical school; such courses are designed around perceived difficulties such as performing clinical skills, prior clinical knowledge and 'learning in the workplace' generally (Chumley and others 2005). Integrated courses with early patient contact time and transition courses into a traditional university hospital based clinical training are leading the way in helping prepare students for the workplace.

In this study, students perceived the learning opportunities to practise their clinical and professional skills, on certain occasions, to be limited on account of the varying caseload. Staff acknowledged that the complex and unpredictable nature of the learning environment may have an impact on student learning, potentially limiting the amount of hands-on clinical experience; however, clinical staff took this opportunity to deliver structured teaching sessions.

The number and types of cases presented in clinics cannot be controlled by clinical staff; teaching and learning opportunities in a clinical setting are dependent upon the cases which come through the door (Lane and Strand 2008). Clinical staff often have to balance the student's desire to practise clinical skills on cases presented against the wishes of the client and the welfare of the patient. When the clinics become busy, clinical duties are prioritised as the welfare of the patient must be paramount. Although this makes teaching a secondary priority there is still much to be learned, but the situation requires that students take responsibility for their own learning (Hays 2006).

With opportunities dependent on this unpredictable environment, students acknowledged the important complementary role played by the EMS in giving them the extra case experience to practise their clinical and professional skills. The complementary nature of IMR work placements and EMS in equipping students with the necessary day one skills has been commented on elsewhere (Duncan and others 2011). In accordance with recent RCVS (2009) guidelines, both institutions involved in the study support students in identifying specific learning objectives that they can show to their EMS providers to help them identify what they would like to gain from their experience.

Summary

The RVC and SVMS have different approaches to the delivery of IMR work placements. Despite this, there were substantial similarities in the perceptions of their students and clinical staff, which suggest that the principles and concepts of WPL are transferable throughout veterinary workplaces. All participants acknowledged the significant value of the workplace as a safe, authentic environment where students are able to develop their clinical and professional skills. Challenges relate to the preparation of students for the workplace and maximising their ability to take advantage of a rich source of opportunistic learning. The skill of learning in this way is essential to continued lifelong

learning of the professional graduate. EMS plays a complementary role by equipping students with a more extensive range of the practical experience that they need to become competent practitioners.

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