Making Connections: Veterinary Medicine Student Perceptions’ of Clinical Readiness

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Students’ perceptions of clinical readiness typically derive from their educational immersion. Training occurs within a bifurcated curriculum, one that is marked by a distinction between didactic courses and clinical training in the veterinary teaching hospital. This study describes students’ perceived preparedness or readiness for clinical rotations. Three focus group meetings comprised of different groups of second-year veterinary students were conducted. Students were asked to describe their comfort in talking with clients, veterinary staff, and colleagues; skills they felt prepared to explore; how they acquired necessary knowledge and skills; how their veterinary school learning experiences prepared them for applying medical information to patient care; and apprehensions about entering clinical rotations. Data were initially open-coded by each author. Pairs of authors categorized their codes and then the full team identified emerging themes. Six main themes emerged: apprehension about clinic performance, folklore about clinical experiences, learning relevancy, wanting authentic evaluation, identified skills, and learning outside the college. Identifying students’ perceptions related to their preclinical educational experience offered insight into student readiness for clinical education and provided guidance for improving veterinary medical educational experiences.

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Veterinary students must meet certain criteria and standards to enter veterinary school including but not limited to (a) exposure to both large and small animal clinical practices, (b) shadow or work with a veterinarian, (c) research experience, (d) good undergraduate course grades, (e) strong verbal and mathematical Graduate Record Examination (GRE) scores, and (f) up to 500 hours of veterinary experience. The clinical background and experience that enables students to achieve this entry can be quite varied. In the first years of most veterinary school curriculums, classroom education is where students acquire the foundational information and building blocks for later clinical training. Often the first years of the curriculum do not provide instruction in clinical skills (i.e., medication administration, animal handling, basic nursing skills). Owing to the separation of didactic and clinical instruction, healthcare professions continuously struggle with how to integrate these two critical facets of student learning (Flood & Robinia, 2014; Hare, 2007; Jarecke, Taylor, & Gusic, 2013; Lane & Strand, 2008).

Students characteristically gain obligatory skills that prepare them for the clinical portion of their training from a variety of sources. They may work as veterinary technicians, or participate in extracurricular clubs during their preclinical training. Engagement in wide-ranging experiences results in students arriving at clinical training with different amounts, types and qualities of the experiences. Their experiences may be very different from the training that goes on in the teaching hospital setting where students are held to the same standards and programs that integrate teaching with clinical performance (Hare, 2007). Moreover, the preclinical curriculum tends to be almost completely outside of the supervision of the clinical teaching faculty. Though this educational preparation is somewhat unintentional, it can cause dissonance between classroom and clinical teaching and outcomes (Flood & Robinia, 2014).

According to a 2011 report by the Institute of Medicine (IOM), success in the human healthcare professions requires an overhaul of the education and training of healthcare professionals. Since veterinary medical education curricula are modeled after the human educational system, veterinary education will likely follow a similar process (Ironside, McNelis, & Ebright, 2014). In a national study of nursing programs, faculty reported making every effort to engage students in quality clinical experiences during their time in professional school (Ironside et al., 2014; McNelis, Fonacier, McDonald, & Ironside, 2011). In this study, as in other medical disciplines, there was little evidence to conclude that quality clinical experiences led to better clinical practices post-graduation.

Complicating the need to link didactic and clinical education is who is teaching. How prepared and skilled are faculty to teach or to assist students in making the necessary linkages between textbook learning and clinical practice? Many clinical faculty members who are hired based on the performance of their clinical duties end up learning how to teach on the job. These faculty hires may have difficulty coupling students’ didactic training with clinical experiences (Flood & Robinia, 2014; Lane & Strand, 2008). Ideally, professional healthcare teaching facilities would integrate didactic courses with relevant clinical opportunities or experiences and engage the faculty who are trained to create that structure in this process. However, this is not the norm. As a result, little is known about the consequences of this fragmented approach to learning patient care or student perceptions of their readiness to enter clinical training or clinical practice (Flood & Robinia, 2014).

As shown across health care science fields, there is a paucity of qualitative literature focusing on students’ perceptions of readiness for clinical clerkships. Ironside et al. (2014) showed that little is known about the ways in which teaching and learning support the acquisition or development of clinical skills. Lane and Strand (2008) pointed out that “factors [which] influence teaching and learning in the [veterinary medicine] teaching hospital are largely unknown, and [that] the resulting outcome may be inadequate” (p. 397). Students perspectives of clinical education in nursing (Ironside et al., 2014; Killam & Heerschap, 2013) and medicine (Stark, 2003) revealed a lack of mentorship, anxiety, and incivility. Sanchez, Kwiatkowski, Zimmel, Abbott, and Behar-Horenstein (2016) reported that students’ perspectives of the effectiveness of a veterinary curriculum were sparse.

Jarecke et al.’s study of veterinary faculty and student perceptions about readiness
revealed three themes: (a) defining professionalism within a hierarchical system, (b) challenges associated with applying knowledge to new environments, and (c) the role of the faculty in facilitating and encouraging active learning. Students reported that readiness for a completely new environment was unattainable. Differences in faculty and student conceptualizations about readiness were reported. The authors pointed out a need for enhanced communication regarding expectations for students as they enter clinical clerkships.

One of the challenges in training veterinary medical doctors is helping students transition from the didactic classroom to the clinical learning environment. Upon making this transition, they are expected to rapidly and effectively apply synthesized knowledge in a wholly new and often unfamiliar setting. Making the connection between didactic classroom knowledge, while using it effectively, within the context of patient care is often a considerable leap for students. Considering that pre-clinical settings are vastly different from classroom learning brings this dilemma into sharp focus. The predictability of the classroom lies in its control, structure, and planned delivery of specific outcomes. The informal and opportunistic nature of clinics makes it much more difficult to anticipate what the structure and specific expectations for learning will be (Tynjälä, 2008). Clinical rotations, in contrast, are provided to ensure that prospective veterinarians develop and demonstrate practice specific technical competencies, including communication skills and life skills, to better prepare themselves for the profession of their choice (Cornell, 2008).

The research question in this study was: How well prepared are veterinary medicine students for entry into the clinical educational setting? Using focus groups of sophomore veterinary medical students, the overall purpose of this study was to better understand to what extent, and in what ways, the students felt that the didactic portion of the curriculum had prepared them for entry into the clinics. Currently, it is relatively unknown how preclinical veterinary students who are taught in a system that is comprised of two separate and distinct educational experiences, didactic courses and clinical training, perceive their readiness to enter clinics. Also, how and if differences in students’ background and experience influence perceptions of clinic readiness is undocumented.

Method

Participants

Second year veterinary medicine students \((n = 114)\) from a doctoral research-intensive university were invited via email to participate in the study. During the recruitment process, students received a description of the study and were instructed that the focus group would last up to 90 minutes, and that there would be no monetary compensation. Twenty-two students, including 19 females, 2 males, 2 Hispanics, 1 Asian, 1 student who reported more than one race, and 18 Whites participated. Three separate focus group meetings were scheduled to maximize participation. Prior to the scheduled meeting, students that agreed to participate were sent the focus group questions and the informed consent. Each individual was assigned only once to one of three focus group meetings. Each meeting included 7, 9, or 6 students. The same questions were used for each focus group (see Table 1). The university’s institutional review board (IRB # #2014-U-0943) approved the study.

Data Collection

Prior to commencing each focus group, the last author explained the study’s purpose. Signed consent and consent to audiotape were obtained before the last author, who also served as the moderator, began asking questions. Focus groups were held in a private conference room of the school during a lunch time hour. Participants were provided with lunch. No faculty involved in the veterinary curriculum participated or were present during the focus groups. The moderator instructed the participants to speak one at a time and asked them not to interrupt another speaker. As the moderator asked subsequent questions, she restated what participants shared and sought clarification by probing or asking participants to elaborate. Before moving onto subsequent questions, the moderator paused and asked if anyone wished to offer additional commentary. Prior to the close of each focus group, the moderator asked once again if anyone had anything else that she
The purpose of the focus groups was to elicit participants' perceptions of their preparedness for clinical education. Participants were asked to describe (a) their comfort in talking with clients, veterinary staff, and colleagues, (b) the skills they feel prepared to use in the clinic, (c) where and or how they acquired the knowledge and skills needed for clinical rotations, (d) the training, preparation, and learning experiences that have prepared them for applying medical information across species and to patient care in the clinics, and (e) their apprehensions about entering clinical rotations and working with a new group of classmates on each rotation.

The research team for this study comprised five professors, one experienced qualitative researcher from the Colleges of Education, Dentistry Veterinary Medicine and Pharmacy, four professors from the College of Veterinary Medicine, and their Educational Coordinator. Linda Behar-Horenstein conducted the focus groups. To assist in identifying emergent themes, a College of Veterinary Medicine staff member (the Educational Coordinator), not directly associated with the research initiative, recorded notes and served as a peer debriefer. Interviews were audiotaped and transcribed verbatim by another individual not associated with the analysis. Each of the five authors analyzed the data using open coding. Examples of open codes are shown in Table 2. Next, two pairs of authors met to categorize their open codes followed by a meeting of the full research team, led by the senior author, to identify emergent categories and themes across the three groups of analysts. To ensure the rigor of the data analysis, the authors applied several of Creswell’s (2012) recommended strategies including triangulation, thick, rich descriptions, peer reviewers, and an audit trail. Triangulation was achieved by having multiple authors analyze multiple focus group transcripts. Thick, rich descriptions were developed by including quotations from the transcript to convey findings. A peer reviewer discussed the emergent themes with the last author following the focus group meetings. Following data analysis, the first four authors also served a peer reviewers. They also met with the senior author where they reviewed and reached consensus on the final set of themes. An audit trail was developed to depict the relationships between transcript excerpts and initial coding.

### Table 1

#### Focus Group Questions

1. What skills do you feel prepared to use in the clinic? (For example: speak to clients, enter information into electronic medical record, perform physical examinations – if so, what species, handle large animal patients, perform basic procedures – venipuncture, administer medications, write prescriptions, etc.)
2. Where and or how do you think you acquired the knowledge and skills needed to be successful in clinics?
3. What is your comfort level when explaining diagnostic and/or treatment plans to owners? Share an experience that demonstrates your current comfort level.
4. How comfortable are you in asking staff (veterinary technicians, animal technicians) questions about your patients?
5. How comfortable are you in approaching clinicians (faculty, residents, interns) about case-based concerns? Other concerns?
6. What training, preparation and learning experiences have helped prepare to apply medical information across species? Describe specific experiences.
7. What training, preparation and learning experiences have helped you apply information to which you were exposed during the first two years of coursework to patient care in the clinics? Describe specific experiences.
8. What apprehensions do you have about entering clinical rotations? Please describe.
9. What are your apprehensions or concerns about working with a new group of classmates on each rotation?
### Table 2
*Initial Coding Samples*

<table>
<thead>
<tr>
<th>Transcript Excerpts</th>
<th>Initial codes: Line-by-line</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus Group 1, lines 105-107</strong></td>
<td>LEARNING BEFORE VETMED SCHOOL</td>
</tr>
<tr>
<td>I personally think that the large majority of my knowledge and skills for technical things, I learned before vet school as a technician</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Group 2, lines 129-133</strong></td>
<td>NEEDING PRACTICE</td>
</tr>
<tr>
<td>We can’t get practice if we don’t practice it. I appreciated that they were being helpful by wanting to make sure that we got the right information, but we didn’t get all that we should have.</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Group 3, lines 968-974</strong></td>
<td>WORRYING ABOUT MAKING MISTAKES</td>
</tr>
<tr>
<td>I am definitely worried about the repercussions for making a mistake. Not as much the repercussions of the animal itself because I know that the technicians will hopefully help me to correct the mistake, but the repercussions to me by being yelled at or being like feel like embarrassed or just any…</td>
<td></td>
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</tbody>
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### Table 3
*Strategies Used to Check Accuracy of Findings*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>How the Strategy was Applied</th>
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<tr>
<td>Creditability Triangulation</td>
<td>Multiple sets of focus data from the participants and multiple analysts were used. Five researchers independently open coded the data.</td>
</tr>
<tr>
<td>Using thick, rich descriptions to convey findings</td>
<td>Thick rich descriptions were preserved and used to convey shared experiences.</td>
</tr>
<tr>
<td>Employing peer reviewer</td>
<td>By reviewing and assessing the data, four of the five authors served as peer reviewers. They corroborated findings to determine if similar conclusions of themes were created from in vivo coding, process coding, and data analysis. The analysts met together and reached consensus on the emergent themes.</td>
</tr>
<tr>
<td>Dependability &amp; Confirmability Audit Trail</td>
<td>An audit trail that describes the data collection, coding and decision making processes in detail was developed.</td>
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</table>
Data Analysis

Each focus group transcription was analyzed separately before proceeding to the next transcription. The researchers employed Charmaz’s (2014) recommendations to engage in line-by-line coding, initial coding, process, and focused coding to ensure emergent identification of themes. Other coding techniques, such as coding by paragraphs only, could have been utilized; however, this coding technique was not used because it can lead to omitting important details, which are more readily apparent when researchers engage in the line-by-line coding. The researchers’ application of line by line coding was undertaken to ensure that they developed a deep understanding of the data with the aim of (a) looking and listening for cues about feeling and meaning, (b) looking for how, when, and why people act, (c) looking for what people do as well as what they say, and (d) taking a critical stance toward the data, rather than the participants.

As advised by Charmaz (2014), the researchers further engaged in initial coding, a provisional and comparative process, grounded in the data, that keeps researchers close to the data. Consistent with the practice of process coding and as recommended by Saldana (2013) gerunds were used to note the action in the data. This process led to the focused coding stage where selected significant initial codes were tested against extensive data. By incorporating the constant comparative method, better fitting codes were moved to other categories or themes. As a result, themes coalesced or expanded during this process. After finalizing the

<table>
<thead>
<tr>
<th>Themes</th>
<th>Conceptual Definitions</th>
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<td>Apprehension about clinic performance</td>
<td>Fear about their performance on rotation, anxiety about negative or intimidating faculty response to their performance, fear that mistakes might anger clinician, and concern about learning in a potentially disrespectful environment.</td>
</tr>
<tr>
<td>Stories we’ve been told (Folklore)</td>
<td>Drawing upon previous experience and historical events shared by others, students expressed concern about working with particular clinicians who were reputed to be unapproachable.</td>
</tr>
<tr>
<td>Making learning relevant</td>
<td>Desire for better integration between didactic instruction and practical application and for understanding the relevance of why certain material is taught.</td>
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<tr>
<td>Wanting authentic evaluation</td>
<td>Yearning for specific and immediate feedback from clinicians.</td>
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<tr>
<td>Identified Skills</td>
<td>Clinical procedures and tasks in which students felt ready or not ready to perform immediately once they began clinic rotations.</td>
</tr>
<tr>
<td>Learning outside the college</td>
<td>Students’ perceptions that they learned the majority of their clinical procedures and technical skills outside the college of veterinary medicine and from previous work related experiences.</td>
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categories, the relationships within and across the categories were depicted. This systematic approach ensured that this process yielded representative findings.

Efforts to establish trustworthiness were aided through attention to credibility, transferability, and confirmability. Credibility, or confidence in truth of the findings, was established through triangulation and peer debriefing. Triangulation was accomplished through the use of five analysts and three focus group transcripts. Transferability, or the degree to which results of qualitative research can be generalized or transferred to other contexts or settings, was addressed by using the same protocol for each of the three focus group interviews (Lincoln & Guba, 1995). Confirmability was achieved by using more than one person to analyze data. Validation of the analysis was enhanced by the presence of an experienced qualitative researcher with extensive knowledge in teaching and learning in professional education and four veterinary faculty members with extensive knowledge of the didactic and clinical learning environments.

Results

Six themes emerged from the analysis: apprehension about clinic performance, stories we’ve been told (folklore), making learning relevant, wanting authentic evaluation, identified skills, and learning outside the college. A conceptual definition was provided for each theme. Subsequently, themes were exemplified with quotations extracted from the dataset. In this section, the researchers elaborate upon the meaningfulness of particular findings.

Apprehension about Clinic Performance

Apprehension about clinic performance refers to the (a) fear students expressed about their implementation of skills and knowledge during rotations, (b) anxiety about negative or intimidating faculty responses to performance, (c) worry that their mistakes might anger clinicians, and (d) concern about learning in a potentially disrespectful environment. One participant described how faculty doubted students’ intellectual capacity. Some of the faculty communications included condescending remarks and potentially injurious remarks. Several doctors inferred to students that they would not have any idea of how to perform particular procedures. Heidi reacted to these accusations with wonderment: “Why haven’t you taught me that?” Remarks about what students were incapable of accomplishing in the future only served to heighten their unease. Were they supposed to fend for themselves when they were not knowledgeable of a subject? Why did some faculty assume this position towards training students? Perpetuating doubt and verbally intimidating students only served to undermine student confidence.

Students were aware that faculty did not always share the same opinions about how to implement a specific procedure. While applying a particular method of suturing that students had been taught, Orin described an upsetting experience. As he was closing an animal’s wound during surgery “[the professor] came over, ripped the sutures out and made a big deal of it. [He] came over again and ripped the sutures out again after he was the one that told [us] how to do it.” The professor’s reactions confused Joan, Jane, Bob, and Orin because reasons for removing the sutures went unexplained. They recognized that there was more than one right way to complete a procedure. Moreover, they desired faculty to embrace a broader acceptance of different approaches. Students’ magnificent intellectual insight highlighted the loss of important teachable moments. Faculty who used different suturing methods could have presented a seminar on suture techniques and explained the pros and cons of each approach. During such a seminar, students would have had opportunities to explore, ask faculty to demonstrate, and listen to their explanations related to why they used different sutures, and under what circumstances they used particular suture techniques.

Overall, students seemed to accept that feelings of apprehension prior to rotations were normative. Angie shared, “I am going to be slightly embarrassed and or mildly ashamed of myself for a while but I would rather be a little bit embarrassed now than to make a big mistake later.” Even after two years of veterinary school, Harold was afraid of looking witless: “I might look like an idiot because I don’t know anything about horses or cows.” Another participant, Kelly, reported feeling nervous about having a clinician probe her with questions that she could not answer correctly. She feared that
faculties would criticize her rather than strengthen her application of knowledge in the clinical environment. “I might look stupid if I don’t know what I am supposed to be doing.” Stan was terrified to ask questions, pointing out that some faculty were “very intimidating.” The pressure to answer questions correctly in front of peers and the dread of failing the professor’s expectations can result in a student’s (a) inability to recall essential information, (b) misinterpretation of what information they have acquired, or (c) failure to weigh alternatives with intellectual thoughtfulness.

Other participants testified that their apprehension stemmed from not knowing the flow of the clinic day, worry about completing their responsibilities adequately, and wondering if they would have time for lunch or if they should arrange care for their own pets. Heidi worried about getting everything done and not forgetting things. Orin vowed to demonstrate professionalism and emotional capacity even when the clinician tried to cause students to break down and cry.

Anxiety can cause the brain to go blank. During this experience, individuals become frozen, incapable of attending to, processing or problem-solving, because they are overwhelmed with anxiety. Carley reported that the combined stress of multiple tests, personal issues, and feeling overheated in the operating room caused her to suffer a panic attack during her first surgery. In this circumstance, she was immobilized, unable to think about the patient’s needs and incapable of performing capably as a prospective veterinarian. Others, less concerned about how faculty responded to the potential correctness of their answer, remained focused on how well they served patient needs. Terry was “more concerned about messing up and affecting my patient.” However, despite the overwhelming sentiments of anxiety and worry, most participants voiced feeling a sense of camaraderie with house officers. They felt a sense of kinship with those individuals because they had experienced a culture of helpfulness among the staff. Thus, it seems as though staff buffered their apprehension about faculty interactions.

Stories We’ve been Told (Folklore)

Drawing upon their previous experiences as well as historical events shared by other students, “stories we’ve been told (Folklore)” refers to students’ concerns about working with clinicians whom they experienced as, or were otherwise reputed to be, unapproachable. At times, participants who had experienced instructor disapproval in the classroom were reluctant to ask instructors questions; they just did not feel comfortable. Orin admitted that exhibiting intellectual curiosity was devalued. From older classmates, Joan learned what students should and should not be doing during rotation. Although she was looking forward to working in the clinic, she remained mindful about these admonitions. She assumed that interactions with faculty were crucial to how she and others would be graded. Joan believed that interactions would determine students’ course performance including passing the course. Evie reported that when students did something wrong, clinicians became upset and made them want to cry. She explained if a student communicated sweetly, that instructors would perceive their demeanor as a vulnerability and would “attack you” verbally. Dreading rotations because of a previous experience, Donna confessed that a faculty berated her and made her cry without a second thought. Stan described how unsatisfactory paperwork engendered unprofessional faculty communications. “Our group got a very, very nasty phone call, yelled at [and] multiple nasty emails.” Based on their own or others’ experiences with particular clinicians, participants were acutely aware that they should not personalize improper behaviors exhibited by few faculty. These types of interpersonal communications call into question the professionalism of faculty. Faculty are charged with the responsibility to model appropriate interpersonal communication. Moreover, they are expected to bolster students’ technical competencies and abilities to interact with clients and their owners. Displaying these behaviors without hesitation in the presence of a student group suggests that faculty may have been experiencing undue stress. Perhaps there were organizational or workplace issues that warrant administrative attention. Aberrant, non-educational behaviors are not an acceptable form of
communication, particularly in a school of professional education.

Making Learning Relevant

Making learning relevant refers to desiring better integration between didactic instruction and practical application to promote the relevance of why certain material is taught. Students reported the difficulties they experienced when doctors interrupted their execution of procedures and took over the process. Bob complained about the lack of practice opportunities. “We can’t get practice if we don’t practice it.” Participants pointed out how a lack of modeling prior to a surgical procedure left them feeling unassured about their technical expertise. While doing surgery, Amy, Jane, Evie, and Amber reported asking if what they were doing was normal and if they were feeling the right thing. Training without an intention of ensuring students’ capacity for success is unethical or perhaps controversial. It is a disservice to students and, more importantly, has the potential to place the patient at risk for an adverse event.

Bob described how a deliberate attempt to relate didactic teaching to practical application solidified his understanding. Zoological medicine lunchtime rounds, in particular, were integral in making those connections. Faculty presented a complete case and integrated all aspects of clinical care that were relevant to diagnosis and treatment including, “Clin[ical] path[ology], radiographs, [and] whatever else they did. [They] took you with this animal through presentation, history, [and] what test do you want to do.” The faculty member encouraged students to ask questions, look at the results and to share their thoughts.

Several participants described the benefits of those classes in which instructors integrated case studies. For example, Harriet explained how having bloodwork results was helpful. The use of laboratory results allowed students to see the practical connections between diagnostic testing, differential diagnosis, and treatment planning. In other situations, there were expected disconnections between student learning and application when didactic instruction lacked an experiential learning component. However, working under the direct supervision of faculty in the surgery lab course kept the risk of something going wrong low. Additionally, it solidified the transfer of learning. Terry explained that learning how to properly place a catheter and the laryngoscope became imprinted in these circumstances “because the risk factor has jumped up so high.” While attending a didactic class where there was no associated risk, she found it difficult to bridge the gap between listening and visualizing how to place the catheter and the laryngoscope to ensure the survival of an animal.

Others pointed out how learning without sufficient practice left them feeling uncertain. In spite of exercises with client simulations, Kelly reported having had no first-hand experience interacting with a client. She had “never talked to anyone about how I am going to treat their patient.” Even after an entire year of learning, opportunities to engage in provider-client communication were absent from her veterinary medicine curricular experiences.

Participants did not appreciate why they were required to take certain courses. Specifically, Stan, Harold, Donna, Orin, Joan, Carley, and Evie criticized classes that required extensive memorization and relied on regurgitation, such as having to memorize 80 diseases for microbiology or virology. They reported that these experiences left them with little opportunity to demonstrate what they had learned. In particular, they questioned the usefulness of classes that lacked patient application. They asked why they had to take courses that they opined had little to no relevance to the practice of veterinary medicine. They also questioned the utility of other courses as well such as embryology or neurology, that focused on miniscule details. Apparently, the faculty had not taken the time to explain their clinical relevance. Thus, not surprisingly, students were unable to imagine their application to differential diagnosis or treatment planning. Evie pondered why they were required to take two courses in theoretical concepts with patient care might have mitigated their resistance.

Wanting Authentic Evaluation

Wanting authentic evaluation refers to the yearning for specific and immediate feedback
from clinicians. Participants conveyed that a lack of timely feedback or expert faculty judgment resulted in an inability to notice an animal’s condition. For example, while prepping a dog, Amber noticed that the dog had dermatitis although she had not noticed this during the physical exam. She suggested that having a doctor present might have averted not initially noticing this. Offering constructive feedback or questioning student reasoning during the patient’s physical examination would have reassured students that their techniques and findings were accurate.

Students described the likelihood of receiving feedback following practical examinations ranged from none to quite a bit. Their frustration heightened when they could not understand why they received a particular grade or were unable to review their performance on examinations and identify what they got wrong or right. Carley, who was unsure of her answers, did extremely well. She reported feeling confused by the contradiction between her perceived performance and her grade. An inability or unwillingness to provide feedback leaves students without evaluative information that might assist endeavors to reconcile faculty and self-assessment.

Sometimes the failure to offer feedback was situational owing to the high number of students, the insufficient number of available animals and having only one instructor present. For example, when students worked in groups of four or five on one dog, often they were stymied about the correctness of what they were doing. Although students often had questions, the likelihood of the faculty getting around to their work stations to monitor their progress or check their comprehension was arbitrary. However, participants expressed considerable appreciation for courses that applied didactic information to cases, when faculty took them though the whole process of diagnostic treatment, showed them how concepts applied to diagnosis and treatment or offered immediate feedback.

Some learning experiences did not promote deep learning or permit feedback. Illustrating this point, Lydia confessed that while in the operatory, the first thing she heard was faculty urging her to pick up the pace. She was perplexed because she had “never neutered a dog.” Experiences like this failed to provide experiential learning or promote retention.

**Identified Skills**

Identified skills refers to clinical procedures and tasks in which students felt ready or unprepared to immediately perform particular skills once they began clinic rotations. Participants described in detail (a) their level of comfort, (b) where they felt skilled and unskilled relative to talking with clients, (c) performing physical examinations, (d) explaining treatment plans to clients, (e) coming up with diagnoses, (f) writing prescriptions, (g) drawing blood, and (h) using the clinic’s electronic record keeping system. Most of the participants felt skillful as they performed physical examinations on small animals although this was not universal when it came to large animals. Orin reported feeling “comfortable with [doing physical examinations] and some of the technical stuff from being a tech like venipuncture, small animal stuff.” However, he had had minimal experience with large animals. He shared that students had received “some hands-on things in our diagnostic work, but not enough to feel comfortable.”

Nearly all participants were comfortable speaking with clients. Donna felt “pretty confident because we have gotten a lot of that.” Carley wished that they had learned how to describe medical terminology in lay terms so that they could discuss it at a level that was respectfully understandable to owners. Overall few participants had experiences with or expressed confidence in using the client’s electronic record system (ERS), Cornerstone. Angie and Amber were comfortable because they had the opportunity to use it during their experience as club officers. Some participants were fearful about using ERS. Jane explained that because she did “not know Cornerstone” that she was terrified. Others, such as Judy, Stan, Patricia, Kelly, Orin, and Karina, wished that they had had used Cornerstone during their first two years prior to entering their rotations. Karina admitted that she knew nothing about electronic medical records. She explained that the didactic portion of the curriculum was of little help because they had only “breezed over a few things.” Most participants also reported a dearth of experience and
skills in writing prescriptions and in performing large animal physical examinations.

Learning Outside the College

Learning Outside the College refers to students’ perceptions that they learned the majority of clinical procedures and technical skills outside the college of veterinary medicine or from previous work related experiences. Most participants had not yet learned how to develop a diagnostic and treatment plan. Notably, many were comfortable explaining it once it had been agreed on. Bob described how working in a hospital prepared him to explain treatment plans to clients. Lydia summarized the type of learning that characterized their collective experience. She pointed out that they learned some technical skills and interaction practices during previous work experiences.

Most of the participants enrolled in extracurricular activities such as Helping Hands, Pets Are Wonderful Support (PAWS), and Zoological medicine. They depicted how these experiences aided their learning. Several participants reported how the turtle catching program helped them integrate didactic learning with patient care. Observing a turtle x-ray of a broken clavicle, on a radiograph made quite an impression on Terry because she realized that it was a broken bone. Kelly recognized that a turtle was pregnant while taking a few of the female turtles to a local clinic and viewing the radiographs. Although she did not fully understand, seeing the eggs on the image, coupled with her “knowledge of opacity” helped her realize that the turtle was pregnant.

Discussion

The findings showed that almost all participants reported feeling competent in performing small animal physical examinations, engaging in basic client communication, and applying their knowledge across species. Prior employment and extracurricular activities provided a common resource for the participants to develop their technical skills. Lab activities, although less frequent, were also a source of learning technical skills.

In juxtaposition, participants reported substantial apprehension as they were embarking upon the clinical educational portion of the curriculum. They felt intimidated by some faculty, found others unapproachable, and were frightened by the possibility of persecution by a minor number of clinicians. They feared backlash for lacking specific knowledge, a requirement that overwhelmed them. They were frightened that their mistakes might endanger a patient or worse, anger clinicians. The level of anxiety and distress expressed by the students suggests that there is need to explore faculty-student classroom interactions. Perhaps observing the nature of instructional practices, faculty to student communication, and the nature of classroom experiences would provide additional insights.

Not knowing the structure of their days and responsibilities on particular rotations induced distress among students. Faculty could have easily resolved this concern by providing an orientation and discussing expectations for students. Similar to Jarecke et al., our findings elucidated some of the challenges that students experienced while applying knowledge to the new clinical learning environment. For example, several participants had heard about or experienced clinicians who held conflicting viewpoints on topics. They worried about how they would cope with a clinician’s predictable reactions and the potential of disrespectful learning environments. These findings suggest that students were educated in a culture that (a) fostered adversarial learning and interactions, (b) simultaneously dismissed intellectual curiosity and (c) promoted insecurity and self-doubt (Cornell, 2008). The findings also concur with the lack of positive role models reported in nursing clinical teaching environments (Pearcey & Elliott, 2004). Negative experiences, although confined to a few clinicians, exert an undesirable effect upon many students. Stark (2003) reported instances of “teaching by humiliation” in a medical school clinical setting. Unproductive interactions, as described in this study, have no educational purpose in a learning environment. Similarly, Killam and Heerschapel (2013) reported similar experiences among nursing students in a clinical setting. Professional schools need to ensure that students have knowledgeable and facilitative educators (Gidman, McIntosh, Melling, & Smith, 2011) who are dedicated to their professional growth.

Overall, however, participants reported that their comfort with clinicians was person-dependent. Often their viewpoints were influenced
by previous experiences as well as what they had heard from other students. At no point during the focus group did the participants portray their school’s culture as one of collegial respect. This finding suggested the there was a hierarchy whereby students, even those who were about to enter the clinic, were not going to be treated as budding professionals. The level of angst communicated by the participants points to the considerable self-doubt and insecurity students experienced. If those feelings had become a daily event or customary students’ educational experiences, it might have led to depressive symptoms or worse (Cornell, 2008).

Participants opined that, in general, didactic courses did not aid their ability to make connections to practical application unless instructors integrated case studies. Summarily they viewed the first-year curriculum as largely irrelevant and redundant, partly because its relevance and applicability were ambiguous. Students desired more hands-on application, clinical correlations, and greater pre-clinical exposure to the school’s electronic record keeping system. They discovered that learning experiences outside the college and extracurricular activities were particularly advantageous in helping them see the connections between biomedical content and patient care.

Cornell (2008) identified five essential components of the preclinical education experience: (a) treat colleagues with respect, (b) patient care, (c) client care, (d) intellectual curiosity, and (e) self-care and balance. Her framework offers a concise compendium of expectations to help students realize what to expect. This framework can also help faculty codify the nature of the learning experiences that they should provide. Cornell elaborated upon several points that are related to the findings here. First, she emphasized building a foundation of respect that is based on getting to know something about each other’s backgrounds, goals, and styles in order to understand differences and treat each other with respect. Building trust is fundamental to successful team work especially since team work is commonplace in veterinary practice. Without it, veterinary professionals suffer self-doubt and insecurity, which can lead to an adversarial work environment and job dissatisfaction. Second, she remarked on the importance of educating clients about their pet’s condition, explaining conditions in lay terms and fostering a relationship with clients grounded in dialogue rather than explicating disease process in ways that are uninformative. Third, she recommended fostering a nurturing learning environment that invites intellectual curiosity. Although she acknowledged that knowing the right answer is important, she emphasized that teaching students the process of getting to the right answer is more crucial. During clinical rotations, veterinary medical students are expected to integrate history-taking and findings from the physical examination with the medical knowledge base obtained during their didactic training. Transitioning from fact-based memorization to clinical application to the patient can be challenging. Patient rounds should encourage students to apply and integrate knowledge as they provide differential diagnoses and therapeutic plans based on physical examination findings and test results. Urging how to think in action is essential to enhancing a student’s ability to reason through problems. Also, it is an indication of his or her ability to perform under pressure as well as their clinical skills. Fourth, faculty are urged to discuss the necessity of life balance and self-care. These skills, although considered crucial, typically are not discussed in veterinary medicine. The incidence of suicide in the veterinary profession is four times that of the general population and twice that of other health professionals, including dentists and physicians (Kinsella, 2006; Mellanby, 2005; Miller & Beaumont, 1995). The amount of distress and anxiety that contributes to this statistic develops long before graduation. As evidenced by the findings in this study, students complained considerably about the distress they experienced in the classroom. Although nothing is known about the participants’ mental health, the constancy of daily stress eventually takes its toll on the vulnerable human psyche. A report based on the Center for Epidemiological Studies Depression Scale showed that 32% of first-year veterinary students surveyed reported experiencing clinical levels of depressive symptoms (Hafen, Reisbig, White, & Rush, 2006). Veterinary educators must better prepare students to cope with life- and work-related stresses (Cornell, 2008).

A central aim of clinical education is to ensure that prospective veterinarians develop and
demonstrate practice-specific technical competencies. The development of competencies requires persistent practice that is guided by authentic feedback, coaching and modeling. Clinical learning environments offer students an opportunity to develop technical competencies as well as communication and life skills to better prepare them for professional careers (Cornell, 2008). However, there has been little research concerning student transition from the didactic classroom setting to the clinical learning environment. By providing rich descriptions of student experiences as well as their concerns and fears, veterinary school administrators can be better prepared to effectively tailor students’ transitions. Moreover, they can counsel students prior to entering the clinical learning environment and present the intellectual, professional, social, and emotional factors that may influence their learning. Building a knowledge base about transition can be informative to other health professions that use this educational model as well.

Using qualitative research methods, the perceptions of focus groups of preclinical students were identified. The use of focus groups of students allowed flexibility and free expression of ideas in gathering information while giving credence to students’ experiences (Stark, 2003). This inquiry generated findings about students’ preclinical experiences that otherwise would be unknown.

**Limitations and Future Research**

Focus groups, while beneficial for soliciting varied viewpoints and permitting exploration of participant commentary, are not without disadvantage. Findings from the current study are contextual and temporal and related only to the focus group individuals that participated. The gender and ethnicity of the sample population closely mirrored that of the class as a whole. This observation is important given that gender and ethnicity may impact perceptions of behavior in a clinical setting (Oancia, Bohm, Carry, Cujec, & Johnson, 2000). The degree of consistency among the themes expressed across the focus groups is suggestive of their representativeness. All students participated during each focus group. Nonetheless, some participants may not have felt comfortable voicing their opinion in front of other students or they may have felt pressure to conform to the group consensus opinion. Based on the diversity of viewpoints shared within each focus group, the researchers do not believe that this was the case. Other limitations inherent to the use of focus groups (e.g., dominant voices, moderator influences, difficulty in generalizing to the larger student body) as well as the general lack of literature on the rigorous analysis of the conversational processes are also potential limitations.

Study strengths included inter-analyst verification of reported themes and the experience of the interviewer. The author who conducted the focus group did not have prior interaction with the study participants, thus limiting the potential for bias. The use of focus groups allowed for thick and rich description and acquiring insight based on the students’ descriptions of their experiences. Use of focus groups permitted opportunities to learn about the contextual components that impacted student experiences. Survey research or other forms of quantitative methods do not afford this type depth and breadth.

Identifying students’ perceptions related to their preclinical educational experiences is a step toward understanding their readiness for clinical education. Findings from this study offer insights that can guide curriculum revision and including the need to provide timely and pedagogically authentic feedback and greater opportunities for experiential learning. Feedback is believed to be a powerful component in improving learning and performance (Hattie & Timperley, 2007; Kluger & DeNisi, 1996). When focused on how improved performance can be achieved and offered proximately, it can lead to enhanced learning outcomes.

Efforts to decrease student apprehension about their entrance into clinical rotations are recommended. One suggestion is to have each service prepare a brief orientation manual. The manual could describe the normative practices that characterize the rotation and include information pertaining to working hours, the schedule of rounds, grading practices, the flow of patient care, expectations for entering juniors, and a code of conduct that governs faculty student interactions.

Findings from this study also suggest that interventions aimed at decreasing their anxiety and reactivity to faculty interactions or workplace behaviors are warranted. Future studies
should focus on observations of clinical interactions between faculty and students during clinical rotations and include conducting individual interviews with participants and faculty. Expanding inquiry into the clinical learning environment may help clarify whether the findings reported in this study are unique or elucidate a culture that does not promote professional training as effectively as possible. Given the dearth of studies in the clinical learning environment in general (Behar-Horenstein, Dolan, Courts, & Mitchell, 2000; Flood & Robinia, 2014; Ironside et al., 2014) and specifically in veterinary medicine (Hare, 2007; Lane, & Strand, 2008; Sanchez et al., 2016) there is much that can be learned about the quality of education and efforts aimed at the transformation of prospective practitioners.

References


