Veterinary Clinical Sciences

Preparing Students for Clinical Work with a Case-based Simulation Tool

This project afforded an opportunity for Dr. Byron and team to develop a tool, named Case Manager, for building and deploying interactive decision-based simulations of clinical scenarios. Instructors were able to design scenarios so that various initial conditions (e.g., symptoms, budget) and decision-paths on the part of students resulted in realistic outcomes. These cases were deployed as applications, which students accessed through a variety of devices, and which prepared them for later clinical experience. The Digital Solutions team in the Health Sciences Library provided development support.
Overview

There is an increasing need for technology that engages students, teaches and reinforces clinical reasoning, and is easy for both instructors and students to use. In addition, accrediting bodies are asking for more concrete documentation of essential clinical skills by students. Current options are either inefficient or cost-prohibitive. With the support of the Impact Grant and the Department of Veterinary Clinical Sciences, we developed a learning tool, named Case Manager, that meets these needs and performed a pilot test with 37 veterinary medicine students as part of their Small Animal Internal Medicine 4th year clinical rotation.

Outcomes

Students reported the Case Manager increased their engagement with the material, improved diagnostic and problem-solving skills, and broadened their exposure to a variety of cases. In addition, they felt it was superior to the more traditional, less interactive, presentation format.

Process analysis

Veterinary Medicine team members came to this project without a clear understanding of the process and with different visions of a final product. Through the guidance of our project lead, Robert Griffiths, we were able to come together on concept and plot out a path to completion. The use of a Project Charter was new to the team and, while cumbersome at first, became the core of the project. We are pleased with the outcome of the pilot and are now poised to move forward to seek external funding to bring more of our ideas “into scope.”

Result, in a sentence

The Vet Med team created a learning tool, Case Manager, which prepares its students for clinical experience, improves critical thinking and clinical reasoning skills, and is easy for both instructors and learners to use.
Project Committee

Veterinary Clinical Sciences

Project Leads

- Julie Byron—Associate Professor-Clinical, VCS Project Lead
- Susan E. Johnson—Professor, Veterinary Clinical Sciences

Project Contributors

- Clare Allen—Clinical Assistant Professor, Director of Educational Design and Systems, College of Veterinary Medicine
- Jennifer Simmons—Director, Instructional Technologies, College of Veterinary Medicine
- Cathy Bindewald—Director, Chief Information Officer, College of Veterinary Medicine
- Rustin Moore—Department Chair, Veterinary Clinical Sciences
- Debra Henrichs—Financial Officer, Veterinary Clinical Sciences
- Jean Schelhorn—Technology Commercialization and Knowledge Transfer Office
- Jessica Page—University Libraries
- Teresa Johnson—University Center for the Advancement of Teaching

Office of Distance Education and eLearning

Project Lead

- Robert Griffiths—Director, Digital Scholarship and Development

Project Contributors

- Henry Griffy—Faculty Development Support

HSL Digital Solutions

Project Leads

- Cheryl Brilmyer—Project Manager
- Tammy Thompson—Team Lead

Project Contributors

- Drew Dulgar—Developer
- Phoebe Kim—Developer
- Emilie Meade—Developer
Executive Summary

Problem

The American Association of Veterinary Medicine’s (AVMA) Council on Education’s Standard 11 outlines nine areas of Clinical Competency that must be assessed as outcomes for each professional student as a requirement of veterinary program accreditation. This standard requires students to be able to apply information to clinical problems, using the cognitive skill of clinical reasoning. This is a particularly critical skill in the AVMA’s Competencies 1, 2, 5 and 6. Currently, in the OSU Vet Med curriculum, clinical reasoning skills are modeled and taught predominately during the 4th year clinical rotations. Because of this, students sometimes struggle with moving into clinical rotations because new skills are being required without adequate practice or guidance. This can be particularly challenging since acquiring these skills competes with other educational and patient care activities required of the students.

With this project, we proposed to provide students with additional learning opportunities to experience and practice clinical reasoning throughout the OSU College of Veterinary Medicine professional program, while reducing faculty time and resources required to produce examples. To do so, we created an interactive, case-based learning tool that allows quick instructor customization and repetitive experimentation by Vet Med students, ideally starting earlier in their studies.

Opportunity

Several specific areas of concern with the traditional content-based didactic curriculum at OSU CVM have been identified:

1. OSU CVM students struggle with developing the clinical reasoning skills desired by employers and patients. While they graduate with some of these skills, more can be done to encourage their development earlier and more frequently in the curriculum.
   a. Provide students a tool accessible anytime/anywhere to spend time working through cases designed to enhance clinical reasoning skills.
2. Current curricular design and large class size does not offer enough student practice with case-based learning.
   a. Develop a best-practices model showcasing how a case-based learning tool can be incorporated into a Carmen course can provide additional opportunities for students to work with cases.
   b. Implement case-based learning earlier in the Vet Met professional program.
3. OSU CVM students graduate without enough exposure to and practice with varied experiences to address real-world cases.
   a. Develop a breadth of clinical cases to pilot in the case-based learning tool.
4. Creating case-based learning opportunities require too much time and resources for faculty.
a. Build a program interface with a user-centric design that quickly guides faculty to provide the content, options, feedback, and media necessary to create cases.

Project Goals and Objectives

• To allow students to develop and demonstrate clinical and higher-order reasoning skills through realistic case management and problem-solving.

• To enrich the student experience by increasing engagement with the material, enhancing self-directed learning, and providing immediate feedback.

• To create a platform in which instructors can effectively and efficiently use case-based material to deliver and reinforce course material and concepts.
Impact Grant Assessment Highlights

Outcome summary

Traditionally, 18 cases have been provided to the students in the Small Animal Internal Medicine rotation to be completed on their own and discussed at the end of the two-week clinical rotation. In the pilot study, 9 of these cases were placed in the Case Manager platform so students would have an opportunity to use both formats. Thirty-seven students participated in the pilot study of Case Manager during the first four rotations of the Class of 2014 senior clinical year. Overall, responses to the learning tool were positive and enthusiastic.

Students reported the Case Manager:

- Increased their engagement with course content
- Increased their motivation for current and life-long learning
- Improved their diagnostic and problem-solving skills
- Increased their exposure to a wider variety of cases than they might have seen in the clinic
- Was easy and intuitive to use

Participants also reported that the realistic progress of the case was superior to the traditional presentation of case material.

Based on these responses and the high level of interest shown by departmental faculty members, the Case Manager will be expanded to other areas of the department, and additional funding sought to expand its capabilities.

Analysis of data from pilot assessment

Data from surveys, focus groups, other pilot-specific feedback

Pre-use survey – 37 respondents

- 100% (37/37) of students agreed or strongly agreed that technology helps them achieve their academic outcomes and that they were comfortable using the technology described for the course.
- 95% (35/37) of students felt they learned best in courses with some online components.
Mid-use survey – 23 respondents

- 100% (23/23) of students agreed or strongly agreed that the Case Manager helped them to engage with the content of the course and to learn, and the Case Manager was intuitive to use.
- 96% (22/23) of students agreed or strongly agreed that the feedback the Case Manager provided helped them to further understand concepts and provided them with an opportunity to practice real life case examples.
- 96% (22/23) of students disagreed or strongly disagreed that the Case Manager was difficult to learn.

Post-use survey – 17 respondents

- 100% (17/17) of students agreed or strongly agreed that the Case Manager helped them engage with the content of the course, helped them learn course concepts, increased interest in the academic area, and provided a wide variety of case exposure.
- 94% (16/17) of students responded that they agreed or strongly agreed that the Case Manager provided them with initiative and motivation to learn the material.
- 94% (16/17) of students responded that they agreed or strongly agreed that the Case Manager provided them with diagnostic skills.
- 88% (15/17) of students responded that they agreed or strongly agreed that the Case Manager provided them with a basic understanding of structure, function, and disease.
- 88% (15/17) of students responded that they agreed or strongly agreed that the Case Manager provided them with problem-solving abilities and skills in developing a treatment plan.
- 88% (15/17) students responded that they agreed or strongly agreed that the Case Manager instilled a commitment to lifelong learning.

Focus group feedback

- Students felt that the instant feedback, explaining why a particular answer was right or wrong, was the greatest strength of the Case Manager.
- Students felt that the greatest weakness of the Case Manager was the lack of feedback on all possible choices.
- When asked how the Case Manager compared to the more traditional presentation of cases on Carmen, students remarked that while they liked the realistic practical approach of the Case Manager, the open-ended nature of the questions in the traditional cases provided them with more opportunity to learn details about a specific topic. They suggested adding such open-ended questions, rather than all multiple-choice, would improve the program.
Project Goals and Objectives Outcomes

Project

Goals Achieved

- Build a case-based learning tool.
  - Build a case-based learning tool that reduces creation time on behalf of the faculty.
  - Build a case-based learning tool that does not cause an undue administrative burden through low maintenance costs, simple design, and good documentation.
  - Build a case-based learning tool that does not reduce the level of case delivery opportunities as currently provided (e.g., multimedia, including outside resources).
  - Build a case-based learning tool that requires Shibboleth authentication, with program access privileges based on roles.
    - Meaning, build a tool that integrates into OSU’s already existing identity management structure.
- Pilot a case-based learning tool for OSU CVM students enrolled in Internal Medicine Rotation.
  - Pilot 9 cases in the case-based learning tool for the OSU CVM students.
  - Nine cases directly relate to AVMA’s Competencies 1, 2, 5 and 6.
    - comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management
    - comprehensive treatment planning including patient referral when indicated
    - anesthesia and pain management, patient welfare
    - basic surgery skills, experience, and case management
    - basic medicine skills, experience, and case management
    - emergency and intensive care case management
    - health promotion, disease prevention/biosecurity, zoonosis, and food safety
    - client communications and ethical conduct
    - critical analysis of new information and research findings relevant to veterinary medicine
- Build an online, self-directed, asynchronous, integrated course experience for the case-based learning tool within the Carmen Learning Management System.
- Establish a learning format where each individual will be responsible for assessment of case-based learning experience.
- Make the Case Manager experience motivating for students to complete.
- Increase inter-collegial collaborations.
Demonstrate the program to other departments at OSU.
  
  o Showcase best practices to Vet Med instructors for implementing a case-based learning tool.
    
    ▪ Increase departmental awareness/use/understanding/perceived value of case-based learning experiences.
  
  o Increase class time dedicated to reflecting on those clinical reasoning skills that are lacking.
    
    ▪ Program will provide the data to help instructor shape learning experience.

Goals Partially Achieved

  
  o Build a case-based learning tool that provides expert feedback to students at every decision point.
  
  o Increase the breadth of cases delivered to students.
  
  o Collect data usable for analytics to prepare future cases.
  
  o Determine the administrative ownership and maintenance of the case-based learning tool.
    
    ▪ Identify long-term hosting solution.
    
    ▪ Identify a faculty advisory group for future approval process for placing cases in the tool.

Goals Not Actively Pursued

  
  o Build a case-based learning tool that provides student access to external resources and library links.
  
  o Increase inter-collegial collaborations.
    
    ▪ Ability for students to work in small teams to solve the cases.

Student

Goals Achieved

  
  o Student feedback indicates sufficient opportunities to interact with a wide variety of cases.
  
  o Students apply their knowledge to problem-solving, diagnosing, and interpreting real-life clinical situations.
  
  o Students felt the case based program activities were effectively integrated into the course (connection to Carmen and other tools).
  
  o Anytime/anyplace access to practice cases is provided to and utilized by students.
  
  o Student feedback indicates the program provided case studies in a motivating way.
  
  o Students would recommend the program’s use to others.
  
  o Student feedback indicates program had them practice applying knowledge in ways consistent with a clinical setting.
Student feedback indicates case feedback was appropriate to help them learn concepts.

Student feedback indicates an appropriate learning curve to use the program.

Student perception that technology utilized aids learning.

Student feedback indicates appropriate level of documentation to complete course activities within the program.

Students could access the program without difficulty.

Students could easily open attached case media.

Students are given appropriate privileges after authentication.

Student feedback indicates program is an active way to study case study material.

Goals Partially Achieved

A majority of students demonstrate clinical reasoning skills and ability to use clinical concepts to analyze issues related to course content.

Goals Not Actively Pursued

Providing appropriate access to related, outside resources.

Students indicate greater self-efficacy making clinical decisions.

Student perception of course and student course satisfaction are the same or greater than historical.

Instructor

Goals Achieved

Instructor perception that the case based learning tool is integrated into the course and curriculum.

Instructor feedback indicates cases relate to relevant AVMA competencies.

Instructor perception the program prepares students for clinical reasoning skills.

Instructor would recommend the program’s use to others.

Instructors indicate the user design allows intuitive program navigation.

Instructor feedback indicates appropriate level of documentation to complete a case study in the program.

Instructors could access the program without difficulty.

Instructors could navigate the program without difficulty (e.g., dropdown menus).

Instructors are given appropriate privileges after authentication.

Support staff are given appropriate privileges after authentication.

Data is stored securely and behind appropriate authentication system.

Maintenance and upkeep (general administration) isn't a burden on support staff.
Support staff indicates appropriate level of documentation to complete a case study in the program.
Support staff could easily support faculty to access the program without difficulty.
Support staff could easily support faculty to navigate the program without difficulty (e.g., dropdown menus).
Commercialization Office has been contacted for licensing/ownership.
Vet Med Team makes at least one presentation to other departments/organizations at Ohio State.
Vet Med Team makes at least one demonstration to Vet Med colleagues.
Students rank the case-based learning program highly compared to other course activities.
Instructor perception that program facilitates better instruction due to program feedback.
Instructor perception that students receive adequate feedback in the case based tool.
Instructor perceives the program supports course goals/objectives.
Instructors indicate the program increased confidence in their course scaffolding skills.

**Goals Partially Achieved**

- Instructor perception that creating cases in the program is not burdensome.
- Instructors could easily attach supporting case media to students.
- The program allows reporting such that Vet Med can easily demonstrate work toward AVMA core competencies requirement.

**Goals Not Actively Pursued**

- Instructors indicate the program data export affords strategic ability to shape future course experience.
- Instructors could export data or reports easily.
- Support staff could easily support faculty to identify anticipated case skill level requirements.
- Instructor perception that students were better prepared during case study discussions.
- Instructor perception that student asked more sophisticated questions about cases.
- Instructor perception that instructional time was spent on more meaningful activities and less on administrative functions.
- Support staff could easily support faculty.
- The program has been reviewed by Ken Petri and the WAC.
- Peer review approval process in place.
2012 Impact Grant Pilot Experience

Description of the Implementation

The Impact Grant was awarded to the Veterinary Medicine Team June 22, 2012. We began the project by working under the guidance of Robert Griffiths in developing a Project Charter over the course of the summer. We also met with a project manager, Cheryl Brilmyer, from Health Sciences Library Digital Solutions (HSL DS) and began putting design ideas together. In September we finalized the charter and, along with HSL DS, made final decisions regarding the scope of the pilot project. During this time, the Vet Med Team participated in the first of several Idea Labs, which outlined the resources and policies which affect Impact Grant recipients, including Institutional Review Board procedures, Copyright policies, and Accessibility requirements. An “Origination of Idea” document was filed with the Technology Commercialization and Knowledge Transfer Office (TCO) through the College of Veterinary Medicine TCO liaison, Jean Schelhorn.

At the beginning of October, HSL DS presented a set of wireframes of the Case Manager application. After a series of modifications, HSL DS began development of the program. Development of our assessments of the project occurred from October 2012 through January 2013. IRB approval was also granted during this time under a larger project with Robert Griffiths as project lead.

In January, 2013, HSL DS presented the project team with the Administrator View of the Case Manager and conducted a training session for its use. In early March, the Student View of the program was presented. Susan Johnson and Julie Byron began placing case material into the Case Manager and working with HSL DS to troubleshoot and refine the program.

In December 2012 we submitted an abstract to the Ohio State University INNOVATE Conference and were accepted for a panel discussion of the Case Manager. The Conference took place March 26-27, 2013. The presentation was well attended and we received positive feedback from the audience, as well as several suggestions for areas of improvement in the next iteration of the program.

On April 10, 2013, Julie Byron presented the Case Manager as part of a Faculty Development Seminar to the Department of Veterinary Clinical Sciences. Intense interest was expressed in using the program and several faculty members were identified who were willing to beta test the program after the pilot was completed.

On April 29, 2013, the pilot of the Case Manager was launched as part of the Small Animal Internal Medicine clinical rotation (VMCOLL 7700.03). Students taking the rotation during the first 8 weeks of their senior year were asked to participate in the pilot and complete assessments of the program. The pilot ended on June 14, 2013. This assessment and final report was prepared in July 2013, to be submitted at the start of August.
A presentation of the Case Manager and the outcomes of the pilot will be given to the Department of Veterinary Clinical Sciences in mid-September 2013.

**Students Affected by Pilot**

The Case Manager pilot was conducted during the first 8 weeks of senior rotations for the Veterinary Medicine Class of 2014 (April 29, 2013 to June 14, 2013). Thirty-seven students assigned to the first four blocks of the two-week Internal Medicine rotation were asked to participate.

**Anticipated Number of Students Affected by the Case Manager in 2013**

The Case Manager will continue to be a part of the Internal Medicine clinical rotation during the 2013-2014 academic year. Approximately 140 students will have the opportunity to use the Case Manager during this time. It is anticipated that other instructors will also begin using the Case Manager in their clinical rotations and courses, increasing the number of students using this course tool.
Time Investments

Veterinary Clinical Sciences Faculty and Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Time Commitment</th>
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<tbody>
<tr>
<td>Julie Byron</td>
<td>5 hr/week</td>
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<tr>
<td>Susan Johnson</td>
<td>3 hr/week</td>
</tr>
<tr>
<td>Clare Allen</td>
<td>1 hr/week</td>
</tr>
<tr>
<td>Jennifer Simmons</td>
<td>1 hr/week</td>
</tr>
<tr>
<td>Cathy Bindewald</td>
<td>0.5 hr/week</td>
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HSL Digital Solutions

<table>
<thead>
<tr>
<th>Role</th>
<th>Estimated</th>
<th>Actual*</th>
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<tbody>
<tr>
<td>Design / User Experience</td>
<td>$2,225.00</td>
<td>$2,635.00</td>
</tr>
<tr>
<td>Development &amp; Testing (Administrative View)</td>
<td>$14,520.00</td>
<td>$24,650.00</td>
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<tr>
<td>Development &amp; Testing (Student View)</td>
<td>$8,800.00</td>
<td>$22,440.00</td>
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<tr>
<td>Project Management</td>
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<td>$7,650.00</td>
</tr>
<tr>
<td>Website Setup Fees</td>
<td>$1,275.00</td>
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</table>

TOTAL $28,500.00 $57,375.00**

* The difference in the estimated versus actual cost for development of the Case Manager were due to multiple factors which are discussed in more detail throughout this document.

** The Health Sciences Library contributed an additional $25,000.00 beyond the actual cost of the project reflected above. This contribution covered the ramp-up efforts toward the server architecture and Ruby on Rails development. Ruby on Rails is a current and popular code framework.
**2012 Impact Grant Experience**

**Impact Grant Project Implementation Process**

The role of Robert Griffiths as project manager was essential in getting this project off the ground and moving ahead at an acceptable pace. His expertise in all aspects of social science research allowed us to not only work on developing the Case Manager, but to keep in mind the process of its assessment. We do not feel the project would have been as successful without his guidance and encourage the ODEE to continue to assign a Project Manager to the grant recipients. “Everyone needs a Rob.”

The financial support provided by the Impact Grant allowed us to utilize the expertise of HSL Digital Solutions to design and develop the Case Manager application. In addition, the matching funds by the department for release time of the Vet Med team members, especially Julie Byron and Sue Johnson, allowed us to spend the necessary time in development and testing of the Case Manager application.

**Reflections on the Grant Process—What Went Well**

We were a disjointed group from several areas of the college when the Vet Med Impact Grant Team was first formed. Throughout the process we grew closer in our efforts and developed a strong team.

The collaborative benefits from this project are enormous. We have formed a close partnership with HSL Digital Solutions, an excellent on-campus resource for custom application design and development. Not only were they instrumental in the development of the Case Manager, but they also developed a closer tie to the ODEE office throughout the lifecycle of this project. ODEE and HSL Digital Solutions have begun collaborating on how best to integrate HSL Digital Solutions’ skillset into the Impact Grant process moving forward.

**Reflections on the Grant Process—What Did Not Go Well**

This was a major learning experience for the Vet Med team, since most did not have a clear understanding of the amount of work and cost of our ideal Case Manager platform. As the Vet Med team worked with HSL Digital Solutions to develop the software, it became clear that there were several items which were “out of scope” of the first iteration of the program. This was primarily due to changes in workflow of the application that could not be developed under the original estimate of cost or the 1-year time span of the Impact Grant. For instance, this first iteration did not include the ability to return to prior decisions after learning more information about the case to hone in on final answers. Instead, students reflected what should change rather than actually making the change.
Unanticipated Risks that Negatively Impacted Project Success

There were two major, unanticipated adverse circumstances at the start of the project. The first was the need for one of our team members, Clare Allen, to step away from the project for a significant period of time while she focused on completing her doctorate. We were supportive of her decision and included her in communications to keep her abreast of our progress. Her ideas and input are valuable to the team, and we hope that we will be able to reap the full benefit of her background and skills now that her program has been successfully completed.

The second was the need for HSL Digital Solutions to build the Case Manager using a programming language that was unfamiliar. While the decision to do this was necessary to allow the Case Manager to be marketable and meet the long-term goals of the project, it did create a few delays as challenges in developing in this new language were overcome.

Key Lessons Learned

Two major areas in which we could do better with the next stage of the project were identified. The first is the need for a more detailed discussion with HSL Digital Solutions about costs and timeline prior to submission of a grant application. While we did have a project discussion before submitting the Impact Grant application, the project needs were not fully developed until we had completed the project charter with ODEE. The initial document in which HSL Digital Solutions provided an estimate of cost, therefore, was based on an insufficient level of detail. This led to overages in development cost and time delays which, while overcome, could have been avoided with more thorough discussions prior to submitting the Impact Grant to ODEE.

We would also benefit from more openly communicating our individual understanding of the process as well as the scope of our vision in the next iteration of Case Manager. Each member of the Vet Med team came to this project with a different vision for the end product, and it was a challenge to get the group “on the same page” regarding its initial scope. The process of using a project charter as a roadmap for the project was also unfamiliar to some members of the team, and this caused some additional delay and confusion. We need to be open about what we do not understand about the process and plainly ask for clarification when needed.
Next Steps

We plan to continue to offer the Case Manager as a self-directed learning tool for the students in the Small Animal Internal Medicine clinical rotation (VMC 7700.03). In addition, we plan on expanding the use of the platform to two other services: Emergency/Critical Care (VMC 7700.15 and VMC 7700.16), and Food Animal Medicine and Surgery (VMC 7700.06). The Team Leaders for each of these clinical rotations, Dr. Ed Cooper and Dr. Andy Niehaus, have expressed interest in transforming their document-based teaching cases to the Case Manager and integrating them into their courses.

We have begun discussions with the Technology, Commercialization and Knowledge Transfer Office (TCO) regarding a pathway for others, both within OSU and at other institutions, to use the Case Manager. We are also exploring opportunities for external funding of the next version of the Case Manager, which will expand on the current model and add a number of features such as iterative problem solving and diagnostic testing, quiz options at each level of the case, and improved media uploading.

We are interested in publishing a manuscript in the *Journal of Veterinary Medical Education* based on our pilot study results. We plan to have the manuscript submitted by January 31, 2014.

Suggestions for Future Recipients

The most valuable resource from this grant was access to Rob Griffiths and the rest of the Impact Grant staff. I would advise a future recipient to take full advantage of their expertise in developing and “fleshing out” a project, especially if the team has not been involved in similar projects in the past.

Do not be intimidated by the process of creating a project charter. It is a daunting task at first, but you will really appreciate it later. I think I may do such a thing for all major research projects in the future. It is also important to keep communication open among the group so that everyone understands each other. On our team we had members with experience in technology, veterinary medicine, or educational research, but not all three. Often, at least one person in the room did not have any idea what was being said, simply because they were not familiar with the terminology used. It was really important to clearly explain everything and ask questions if you don’t understand the discussion.

Finally, be flexible and open-minded. The final product from your project may not look or perform exactly as hoped, but “different” is not always “worse”. Throughout the development of the Case Manager, we found that a number of our original ideas and expectations were not realistic; but in exchange, we found better alternatives.
Three Words to Describe Working with the ODEE Team

1. Educational
2. Supportive
3. Guidance

Ah-ha Moment of the Grant Process

A real ah-ha moment came when we realized that a Project Charter, with which most of the Vet Med team had not worked before, was a really useful tool to define our ideas and keep us on track as the project progressed. It also kept our priorities straight so that as decisions needed to be made about placing certain ideas on the shelf for future consideration, we were able to look at where they fit in the priority list and whether their importance had changed.

Working with the ODEE staff

Please indicate how strongly you agree or disagree with the following statements:

1) I am satisfied with the communication I received from the ODEE staff.
   a. Strongly Agree
2) I am satisfied with the grant project contributions I received from the ODEE staff.
   a. Strongly Agree
3) I have learned the skills necessary to continue related work on my own.
   a. Agree
4) I found the ODEE staff approachable.
   a. Strongly Agree
5) The lessons learned during this pilot will guide future course design.
   a. Strongly Agree
6) Additional comments or feedback

One suggestion for the future is to provide more structured guidance on how to work on the project charter, early in the project. As stated above, we found this one of the most challenging, but, ultimately one of the most useful aspects of the project. However, it took us some time to really make progress on this task, and we could have used some more support on how to proceed at that stage of the project.

Part of the challenge was the lack of understanding of the purpose and process of a project charter by several of the members of the Vet Med team, having never used such a document before. In the future, a more thorough understanding of the background and experience of the team with this type of process should be considered when first sitting down to plan the project.
Statement of Impact

Responses by Rustin Moore, DVM, PhD, Diplomate ACVS; Bud and Marilyn Jenne Professor Associate Dean for Clinical and Outreach Programs

Changes for Department Faculty

• Created idea exchanges and discussions among the faculty for using “game-based” learning tools.
• Increased awareness across the faculty about the use of case-based teaching tools, as well as who already has experience using various tools and programs.
• Grant project was important work considered for Dr. Byron’s promotion to Associate Professor-Clinical.
• The grant project promoted collaboration, cooperation, and creative solutions across a diverse departmental group, which will need to more effective cross-departmental projects in the future.

Impact on Employee Efficiency

• Decreased the time required to create cases compared with Carmen or other available platforms.

How Pilot Affects Future Departmental Work

• Our department plans increased use of self-directed learning and game-based learning in the veterinary curriculum.
• Our department plans future projects with Digital Solutions, which will become more efficient and effective due to the solid relationship and foundation created by this project.
• Our department plans to investigate how to make Case Manager a licensable product, which could result in more people benefitting from it and revenue generation.
• Our department plans to provide students consistency across courses by using the same teaching technology tool which will:
  o Enhance students’ learning experiences.
  o Provide greater efficiency of faculty time.
  o Be more efficient and cost-effective for personnel support.
ODEE Experience

Vet Med had a diverse project team, and each member had a different set of expectations for what the Case Manager could and should do. At the beginning, it was a challenge to get the team focused on a project planning process, as well as to negotiate what the Case Manager should accomplish during the pilot. About two months into the overall project, though, the team and the process jelled and everyone knew what was in-scope and out-of-scope which made the remainder of the project much easier.

As seen in this final report, there were many goals and objectives from the student, faculty, and project process perspectives. However, the overarching goal of the project was to bring the case management product in-house because external products were either prohibitively expensive, had such a steep learning curve, or required so much time to insert data that they were not used.

Further, the project aligned itself well with college and AVMA goals. The alignment of cases with discipline competencies is built into the Case Manager, which will help in reporting during accreditation reviews. Just as important, it will play a vital role in developing a culture where faculty make direct connections from the course to discipline competencies.

While the members did well to retain focus for in-scope and out-of-scope, as shown by a few goals not actively pursued, the initial project plan still included more work than could have been reasonably accomplished during the project period. It is the goal for the faculty leads and ODEE to gain additional external funding for the project.

Approximate Time Spent by ODEE Staff on the Revision Project

Robert Griffiths, 50 hours, project manager, assessment oversight, and coaching.

Reflections on the Grant Process—What Went Well

Veterinary Clinical Sciences, HSL DS, and ODEE had strong communication and collaboration throughout the entire grant process. All three parties were committed to project success, were motivated by enhancing the student experience, and wanted to work through common expectations.
Reflections on the Grant Process—What Did Not Go Well

Despite working with HSL DS to obtain a quote estimate for proposed work to create the Case Manager, when Veterinary Clinical Sciences, ODEE, and HSL Digital Solutions entered the project-planning phase of the grant process, the scope of the program expanded beyond the original. The scope increase, coupled with the requirement that HSL DS learn a new programming language, caused the project to overrun anticipated costs, which was offset by additional Impact Grant funds. Thankfully this did not interrupt the student experience. However, this is not a sustainable approach for similar project types.

Three Words to Describe Working with the Veterinary Clinical Sciences Team

1. Determined
2. Motivated
3. Fun

Ah-ha Moment of the Grant Process

Oftentimes during the grant projects, faculty and staff do not enjoy the project-planning portion of the experience. In fact, active resistance may be a more appropriate way to describe the reaction some teams have for moving through the defined Impact Grant process. An ah-ha moment in this project was during the final weeks of the project planning stage when the project planning clicked for this team and they understood the importance of defining scope, deliverables, expectations, and timelines. The collaboration became easier because we all understood when a project idea was placed into Phase II which allows us to maintain focus on the main objectives of the project. This held throughout the remaining time we worked together and that document helped bring the various teams together to a common understanding. I don’t think this project would have been nearly as successful if we hadn’t had that collective ah-ha moment.

Changes to Our Processes from this Grant Experience

Much of the changes to our grant processes will come in the way we collaborate with grant applicants who are considering creating a program, application, or website. We’re working with the Digital Solutions team in the Health Sciences Library to define a better estimation for work in future projects.

For future programming projects with the potential for university-wide benefit, ODEE should strongly consider investing funds up-front in a fully-developed proposal and timeline from HSL DS. This will help the Impact Grant recommendation committee be better informed of the likelihood for a successful project completion.