IDT 611: ID Final Project Phase I

Beta Test Report

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By

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To

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Major Findings

Dental Radiology Training: Part 1 entered the beta test phase. The beta test was given to six participants from June 13 – June 20, 2019. The test was administered as an Unmoderated Remote Usability Test (URUT). According to Stockwell (2017), URUTs can be administered as diary studies or surveys or testing specific tasks within the prototype. Unmoderated sessions do require careful planning with clear expectations and directions. Stockwell stresses that putting the program through a trial test is helpful to catch issues with the wording of the instructions and the program itself.

Participants were invited to take part in the beta test. Once an agreement of participation was reached, an email was sent with a Nondisclosure and Consent Form modified from the alpha test. The form was published on an online platform. The users could sign and submit the form online, and a confirmation email was sent to the moderator. The second component of the email was a video with instructions for registering for the online course. The participants needed to view the video before starting the test.

Once the Disclosure and Consent Form was received, a second email was sent with the link to the course and the test instructions. The participants were instructed to contact the moderator by phone, email, or text if there were any problems with registration and beginning the test. There were no problems noted by the participants regarding the filling out of forms and course registration.

The beta test gathered data in two ways. One set of data are the results collected from the participants completing the course activities. Each participant completed the course on their own, and their results provided the data. The second set of data comes from journal entries made at the end of each course unit. The journals asked the participants specific questions about their experience with the navigation and the content in the unit. The journals were embedded into the

course so they would not be missed. The journal entries were collected via an online survey tool that took the results and compiled them into a spreadsheet. The question format was either multiple choice or short answer. The purpose of the short answer question was to allow the participants to reflect on their experience or to clarify the response from a multiple-choice question. The open-ended questions will also be analyzed for wording trends using text mining (STHDA, n.d.).

Using a method developed by Matthew Weber (2014), information from the course results and journal entries was recorded on spreadsheets and collated. The data was organized into four areas that were repeated throughout the entire survey. The four areas examined in the survey: 1) usability, 2) aesthetics, 3) content effectiveness, and 4) interactivity.

Usability

When compared to the results of the alpha test, the move from the course authoring tool to the LMS provided the most significant improvement in navigability. There were no issues with participants not knowing how to get around in the course or how to find their way back to the course if they viewed a video or presentation. An orientation video was presented in the announcements section to provide participants with the basic layout of the units. A suggestion from one participant was to divide the orientation into smaller sections and have each section follow the same script to keep the instructions consistent from unit to unit.

The course units were set up to stay on the unit, or instructions were given to get back to the course. A noticeable problem was some course components were either not visible to participants or did not function properly. The components that did not work correctly for all of the participants was the quiz feedback, the unit badges and the certificate of completion. Only one of the participants received some of the unit badges and the certificate of completion.

Aesthetics

The layout of the course changed from the alpha test. The layout provided better organization as the units were in numerical order and well labeled. The layout of each unit was the same beginning with the introduction, which explained the relevance to the goal of the course and provided the unit objectives. The next section was a participant assessment to explore their current knowledge on the unit topic. The next section was the presentations. Some of the presentations were voice over PowerPoints, interactive slide shows, interactive infographics, and video presentations. The next section was the unit quiz followed by the final assessment, which examined areas where they had difficulties with the course or the content. The participants were unanimous in their agreement that the course was well organized with a unified layout from unit to unit.

The unit videos were embedded in the appropriate unit sections. The point was to make the videos visible to the participants and keep them in the course to minimize the number of steps back into the course. An important finding by one of the participants was the videos could not be enlarged, and the link to YouTube would not function, so the participant was not able to enlarge the video to see it well. This finding will cause an issue for anyone with vision difficulties. For the next iteration, the videos will be presented in a format that can be adjusted to the user needs.

Recommendations made by the participants for the final iteration of the course was to add due dates for unit activities which will keep the participants moving through the course promptly. One participant suggested having one component to be a real-time video discussion session. Another recommendation regarded the layout of the quizzes. Some of the quizzes presented the questions all at once, and some of the quizzes presented the questions one at a

time. The participants found they were able to track their progress more efficiently when the questions were presented one at a time. The last recommendation was the cadence of the voiceover be changed to add more energy and excitement to the material.

Content Effectiveness

Syllabus. The syllabus document was well received. The document was rated as comprehensive and well organized into manageable chunks that covered all the requirements for the course. One suggestion was to provide clearer learning objectives that are measurable. A syllabus is a useful tool for participants who are new to online learning by clarifying course expectations.

Unit Presentations. The presentations were static images with interactive content built in or voice-over presentations using PowerPoint. Both presentations were found to be in alignment with the unit objectives. The static images with interactive content were found in Units 2, 3, and 5. The presentation was well received. Animated images were added to the presentations in Unit 2 to provide variety. One participant found the animation distracting because it kept going while you were visiting the page. The interactive components allowed the participants to click on or hover over the labeled areas for more information. The interactivity increased engagement for most of the participants. One participant did have difficulty reading the information. Another participant suggested having a handout the participant could download and review. A final suggestion was to add audio to the interactive portions.

The voice-over presentations were also well received for their alignment to the unit objectives. The voice-over presentations were recorded and embedded in the unit section. As mentioned in the Aesthetics section of this report, the embedded presentations were not able to be enlarged for easier viewing or link to YouTube for enlargement. The second issue was the

need for a more enthusiastic voice doing the voice-over. Addressing these two issues could increase engagement.

Unit videos. The unit videos were used in Units 3 and 5. The video in Unit 3 was a welcome addition to the presentations since they provided extra information showing real teeth on a dental model vs. a diagram. The combination of the video with the voice-over presentation gave the participants a comprehensive lesson that aligned well with the unit objectives.

The Unit 5 video was voiced over animated infographic. While the visual effects provided variety and engagement for a critical topic, the alignment to the unit content needed for the quiz was lacking. The quiz had questions that the unit content did not cover. Adding the content to the presentation or adding another presentation that covered the missing information will improve alignment.

Quizzes. The questions used in the quizzes did align with the unit objectives except in two units: Unit 2 and Unit 5. The Unit 2 quiz had questions on the dental formula for the dog and cat which the presentations did not cover. The participants suggested that the dental formulas be added into the Unit 2 content. Unit 5 noted in the previous paragraph also asked questions about content not mentioned in the presentations. These issues with missing content will be addressed in the course revisions.

The second issue that came up with the quizzes was the lack of feedback on questions answered incorrectly. Feedback was added to each question, whether it was correct or incorrect. The feedback was not given to the participant. An option is to check the settings for each one of the quizzes to make sure that the feedback is coming through with each answer. The quizzes will also need to be tested to ensure the issue has been corrected.

Interactivity

Assessment surveys. The course requested the participants to fill out three assessment surveys: 1) what do you know, 2) muddiest point, and 3) course survey. The "what do you know" survey tested to see where the participants were in their knowledge of the unit. The survey was either not visible to the participant, or the results did not transfer to the spreadsheet. There was not any usable data collected from this survey. The Muddiest Point survey tested to see where the participants were having difficulties in the unit. The questions written for the survey did not upload into the course correctly and did not fit with the unit. There was not any usable data collected from this survey. The unit test journals and the course survey did provide similar information to fill in the missing data.

The course survey asked the participants to reflect on their course experience and comment about the usability, aesthetics, content effectiveness, and interactivity. The data from this survey and the journal entries provided much of the data used to compile this report. The course was well organized and could easily benefit a participant who had little to no knowledge of the course topic. While there were a few areas where missing content needed to be added, the unit activities were found to align with the unit objectives. The unit activities that provided opportunities for interaction were well received and encouraged to be added to more of the units. The extraneous animation was not appreciated. The course revisions will need to make sure all the course components are functional and visible to future participants. Lastly, making the videos adjustable by the participant for easy viewing is essential.

Data Analysis

Implementation

Usability. The participants had difficulties accessing the assessment surveys, the quiz feedback, the badges, and Certificate of Completion. An option would be to find help to ensure these sections of the course were set up correctly, and testing needs to be performed to check that

these sections are working correctly for the participants. The quizzes will also be changed, so they all show just one question at a time for improved participant navigability.

One participant recommended that the course orientation video be divided into one video per unit. Instructions should focus on the essential features of the unit. The video could be sectioned out using a video editor, and each section may need to rerecord audio if changes need to be made.

One participant had difficulty with the embedded videos. The participant could not adjust the video to full screen for easier viewing. The best option is to change the setting of the video to a link to YouTube, where the participant could adjust the video to their viewing needs. To keep the video within the course section, a direction could be set to have the video open on the same tab as the unit section. This adjustment would keep the participant from having to find their way back into the course. Video viewing instructions would need to be changed.

Aesthetics. The extraneous animation in presentations in Unit 2 caused a distraction to one participant. The decision to have it in the presentation was to add variety. Since the animation provided no benefit to the learning process, it will be removed. The interactive components within these presentations when the participant clicked a button or hovered over an image did provide engagement. The one drawback for one participant was the small font and small images. An option would be to revise the presentation to improve visibility.

Content effectiveness. The most significant issue was the lack of content in the presentation but was asked for in the quizzes in Unit 2 and Unit 5. The best option for this issue is to assess the missing content to see if it is relevant to the needs of the participant as they prepare to learn dental x-ray skills. If the content is relevant, the unit objectives will need to be revised and the presentations will need to be revised to reflect the added content.

Dissemination

The modifications that will need to be made to the dissemination process will be focused on usability and content effectiveness. First and foremost, the entire course needs to be tested to ensure all of the units and unit sections are visible and accessible by the student. CourseSites support pages, videos, and chat will be utilized to learn the steps to making these changes possible. The entire course will be tested by the instructor posing as a student to find any residual issues.

All the video presentations will need to be changed to a format to provide more options for participants to meet their viewing needs. The videos will open in the section through a link with specific instructions added on how to view the image and how to return to the course. These revisions will be made to all the video presentations in the course. In addition to the videos, those presentations in Unit 2 and 5 that had interactive components to access additional information, the layout of the additional information will need to be revised in a larger font and increased picture size. If this revision cannot be achieved, a separate handout can be made available for download.

Diffusion

For the diffusion of the course to occur, the usability, aesthetics, content effectiveness, and interactivity revisions will need to be completed. The course will have a final trial test to ensure all the areas of the course are functioning properly. The alterations needed to help a potential participant with visual disabilities view the content better could be assessed for accessibility.

The final piece of the project is the development of an expectation's page. An expectation's page can be made for both students and facilitators. Kossman (2010) explains the importance of course expectations is to give the learner a resource that lists what they need to do

to get the best experience from the course especially if they are new to eLearning. The instructor or facilitator also has expectations that they must follow to ensure that learner has the best experience from the online learning experience. The expectation's page will standardize the layout for the online course so that multiple facilitators can provide the training using the same mode of delivery.

A facilitator's guide would also provide a beneficial experience for the facilitator by providing standardization. In Malcolm's (2016) article, what makes a successful facilitator guide is a context, facilitator expectations, purpose, learning objectives, acceptable activities, and additional resources. Context explains what the program is and why it is relevant for the team. Facilitators expectations are clearly defined for each mode of delivery. A purpose statement allows the facilitator to see what the participant needs to achieve at the end. Learning objectives will need to be specific and clearly defined. Having a list of additional resources will add new dimensions to the topic. Facilitators can add to the list of resources as the needs of the participants become apparent. The addition of a facilitator guide will give a clearer idea of how the course will run, who it will benefit, and its relevance to the needs of the veterinary profession.

Noninstructional Interventions

Identification

Three non-instructional interventions have been identified for this project. They are categorized as performance support interventions. According to Rothwell, Benscoter, King, and King (2016), performance support interventions provide guidance to perform specific tasks or access information. Another benefit of the performance support intervention identified by these authors is the ability to make revisions as the course is updated. These interventions need to be easily accessible to the on-demand use of the employee. The intervention could be available on the

employee's computer or their mobile device. Easy accessibility will decrease the frustration that comes from having to scroll through multiple pages of information and instead provide an application with the needed information or skill set. For this project, there are three identified interventions: 1) a facilitator guide, 2) an expectations guide, and 3) an interactive resource guide.

Facilitator guide. The facilitator's guide will be a set of standardized instructions for facilitating the course: Dental Radiology Training: Part 1. The instructions will be provided to a new facilitator when they take over the course. The facilitator guide, along with the expectation guide provides a job description and a list of responsibilities to support the participants. The facilitator's guide will also provide training with video tutorials that cover course navigation, support resources, and communication guides.

Expectation guidelines. The expectation guide will be a document that provides a list of responsibilities the participant and the facilitator must adhere to have a positive experience in the course. The participant and the facilitator will each have their list of responsibilities which is accessible by both parties. The document will be in Unit 1 along with the course syllabus. A copy of the expectation guide will be part of the facilitator guide.

Interactive resource library. The resource guide will be a stand-alone module in the course. The guide will initially house a glossary of standard terms used in dentistry along with their definitions. Each glossary term will be hyperlinked from the course to the resource module. Additional information about the glossary term will be further linked to outside resources. This intervention is considered an electronic performance support system (EPSS). An EPSS is a technology-based service that is available on-demand with a minimum amount of support from other people.

Justification

Facilitator guide. The project will be supported by the Academy of Veterinary Dental Technicians (AVDT). It will include Veterinary Technician Specialists in Dentistry (VTS-Dent) and external stakeholders chosen by the AVDT. The AVDT (2018) is the organization responsible for educating mentoring and providing a credentialing process for veterinary technicians to obtain their specialty in dentistry. Another facet of the AVDT is the training of veterinary staff in dental skills, predominantly radiology. The goal of dental education is to teach best practices to improve the quality of patient care. If the AVDT wanted to be the source of dental training, AVDT sponsored courses would need to be designed. The members of the AVDT would serve as the course and face-to-training facilitators. The courses would need to be standardized so the trainers would disseminate the same instructions and skills.

Different members of the AVDT could facilitate the course as part of their commitment to the Education Committee. The facilitator would oversee moderating the course as new groups of learners register. The incoming facilitator will need to be trained to moderate the course since there are members of the AVDT who have little experience with online learning or the operation of a learning management system. The guide will help to smooth the transition when the course is transferred to a new facilitator.

Expectation guidelines. The purpose of the expectation guide is to clarify the roles of the instructor and learner in an educational environment. Graham, Cagiltay, Lim, Craner, and Duffy (2001) provide seven principles for effective teaching. One of the lessons made by the authors states that instructors should provide clear guidelines for interaction with students. The guidelines need to cover the type of communication and response timelines for each specific scenario.

Guidelines can also be expanded to include how tasks and activities should be performed to ensure student success. Providing a set of guidelines for each course activity will give clear instructions on how the activity needs to be performed to ensure student success. Student expectations and faculty concerns are best mediated by developing these guidelines.

Interactive resource guide. One of the feedback points made by a participant in the beta test was the need for resource material that could be accessed in the course for further information. Another point made was the ability to download diagrams and images for further use after the course was completed. A solution to these feedback points is the addition of an interactive resource library.

The library would be provided as a module in the course. In the module, the course participant could access materials seen in the course and access them for future use. If participants wanted further information about a topic taught in the course, expanded information would be found in the resource library. Participants would be provided with instructions on how to access the resource library at the end of each course activity.

Design Specification

Facilitator guide. The facilitator's guide provides a storyboard of the training session. The facilitator side has the script for the session, and the participant side shows the content they will see at the same time. The intervention will be presented as an EPSS and accessible on a tablet or laptop. The incoming facilitator will participate in an orientation. The orientation will cover the operation of the learning management system and course navigation. The facilitator guide will be an addendum to the training. A printed version of the guide will be given to the incoming facilitator. Having a printed version of the guide will allow them to make notes during the course if any issues the become apparent and provide feedback to the course developer.

According to Rosenbaum (n.d.), the guide should be in a booklet format. The booklet can be designed in Word or PowerPoint. Using Word or PowerPoint would allow easy uploading into a training website. Rosenbaum explains that when the booklet is opened, the facilitator's guide will be on the left-hand side and the participant's guide will be on the page on the right-hand side. The lessons should be short, so they fit on one or two pages. If the course will be long, a table of contents is needed. Converting the guide to a pdf will decrease the document size to increase ease of sharing.

Expectation guidelines. The expectation guideline will be written in Word and converted to a protected pdf document. The pdf format will be easy to upload into the Blackboard course. The expectation guidelines will come in two versions. The first format will be a listing of general facilitator and participant guidelines that apply to the operation of the whole course. The first version will be found in Unit 1 with the syllabus. This location will ensure that the participant has read the guidelines. The syllabus survey will be expanded to have the participant confirm they have read the guidelines.

The second version will be included in each unit activity. These guidelines will have the instructions for the activity and list what the participant needs to do to accomplish the activity. Along with the participant guidelines, there will be facilitator guidelines that explain how the facilitator will moderate the progress of the participant. The second version will be added to each unit activity.

Interactive resource library. The interactive resource library will be an EPSS that allows the participant access to additional information on topics found in the course. The library will be located in the course as a module. The module will be divided into sections. One section will be a glossary of dentistry and dental radiology terms. BlackBoard (n.d.) has instructions on

how to make a glossary and add it to a course. It best to create a glossary file in a spreadsheet using the formatting instructions found on the help page. The glossary spreadsheet uploads into the tools section of the course.

The second section will have course resources. Diagrams and photos will be accessible for download. One testing participant noted that it would be helpful to have the diagram in the printable form to reference while viewing the other videos and presentations. Another testing participant noted that the diagrams would be easier to see if they could be viewed individually and made full screen. These images would be kept in a section in the resource library accessible by hyperlink.

A third section would provide links to additional information outside of the course offerings. Web pages and documents would be hyperlinked to this section with instructions on how to navigate back into the course. The provided link would provide information that would go beyond what is presented in the course. For the beginner participant that has little to no experience, additional videos and presentations look at the topic in alternative ways. For the advanced participant, the links would present topics that focus more on dental radiology positioning that would prepare them for face-to-face training.

Vision of Change

Veterinary team members are commonly required to take radiographs, both full-body and dental (AVMA, 2017). This practice allows the doctor to spend more time providing diagnostics and treatment. Commonly the veterinarian will assess the radiographs after completion. The development of effective skills and techniques for taking dental radiographs using the proper positioning of the digital sensor will improve the assessment and diagnosis of pathology. Many veterinary staff members have taken little to no coursework in veterinary dentistry either because

working in a veterinary clinic is a new experience, or they have changed roles within the clinic. The scope of this project is to develop dental radiography training for staff members of veterinary clinics. During the initial analysis of the project, surveys collected from trainers revealed a training gap that caused participants to be less successful during the first training and when they apply their newly learned skills. The focus of the training is 1) taking radiographs of all tooth types in the dog and cat, 2) taking radiographs with a minimum of technical errors, 3) prepare participants to start performing full mouth radiographs on anesthetized patients in the workplace.

The course is presented in two sections: 1) the online pre-course, and 2) the lesson framework for face-to-face training. The online course is meant to prepare the participants to transition into their face-to-face training seamlessly. The purpose of providing the online course is to prepare the participants to ensure everyone can enter the face-to-face training with the needed basic dental anatomy and equipment operation knowledge. When the activities are accomplished, the participants in the online pre-course will begin their education in veterinary dental radiology. This tactic can reduce the need to spend time during the face-to-face training catching up participants who have fewer dental skills. The course units provide the learner with dentistry skills and knowledge they can also use throughout their career.

The face-to-face training allows the participants to gain hands-on experience performing dental x-ray positioning of all teeth in the dog and cat. After training is complete, participants will be able to safely perform full mouth dental x-rays on the dog and cat with little to no supervision. According to the American Animal Hospital Association (2013), full mouth radiographs are a part of the comprehensive oral health assessment and treatment (COHAT), and veterinary staff members are responsible for performing the imaging. The images are taken at

the beginning of the procedure so that the veterinarian can make adjustments to the treatment plan. To avoid blurry images and sensor damage from the patient biting the sensor, general anesthesia is necessary for all dental patients. Providing full mouth dental x-rays increases the veterinarian's diagnostic accuracy. Training staff members to perform dental radiographs efficiently decreases the patient's time under anesthesia, which provides a smoother recovery allowing the patient to go home feeling fewer effects from anesthesia. One of the reasons many pet owners refuse dental care for their pet is the fear of adverse reaction to anesthesia (Mills, 2013). Mills also stresses that complete pre-anesthetic screening, including a physical exam and bloodwork, decreases the risk of adverse reaction.

Business Case

In instructional design, as in project management, risk analysis benefits the project. Preparing for the worst-case scenario can lower the stress level should the problem arise and save the project money if resources are allocated to the potential problem. A risk response plan is an important part of the project plan presented to sponsors and stakeholders (Baca, 2007a). According to Yet, Constantinou, Fenton, Neil, Leudeling, and Shepherd's (Yet, 2016) article, though rarely done, the success of large projects is contingent upon careful attention to uncertainty and risk. The sign of an experienced project manager is the ability to be a capable leader. An experienced leader is a strategist during the planning stages to recognize any possible issues involving the project. Then an experienced leader manages problem-solving when issues do come up.

Challenges and Solutions

Standardization. The online and face-to-face course will be taught by multiple facilitators. Teaching dental radiography is part skill and part artistic license. Facilitators that currently teach face-to-face positioning labs each have their unique way of sharing the steps used to accomplish

the position. This practice can be troublesome if staff members are taught different positioning techniques by different facilitators. Participants can become concerned that the technique they were taught is not the best or correct. The solution will be addressed by developing the facilitator's guide and the expectation's guide. The expectation guide will provide the participant with a list of what skills they will be taught and how those skills will be taught by the facilitator. The list will keep the communication clear. The facilitator's guide is designed as the script used to teach both the online and face-to-face course. Following the facilitator's guide will ensure the information and skills being taught is consistent and standardized. Consistency and standardization will remove confusion and concern for the participant.

Relevance to current methods. Relevance is necessary to provide an effective learning experience. The technology and the equipment used to take dental radiographs is an area where upgrades are common. Dental radiology has become digital with digital sensors taking the place of regular dental film. With the emergence of digital sensors, digital dental software training has become required training for any veterinary clinic, which provides dental radiology services. Currently, dental radiology trainers need to become proficient in the operation of multiple digital dental software programs to be able to provide training. In the online portion of this course, instruction on digital dental software is limited to basic concepts and functions that all software programs perform. A solution to the ever-changing role of technology in dental radiology is to establish relationships with all major veterinary digital dental software providers and to request that we are given access to training videos and software updates.

Transfer to job instrument. The next challenge focuses on the ability of the course to remain effective after the training is completed. Summative assessments, according to McDavid (2016), looks at whether the program has achieved its intended objectives. In the case of this

project, the summative evaluation will examine if the skills learned during the online and face-to-face training can be used by the participant initially after the training is complete and after time has passed. The summative assessment takes the outcomes of the program and examines its effectiveness for the participants. McDavid says that summative assessments "ask the tough questions" to see if the program is worth the time and energy put into it. The tool will be a summative assessment using post-training surveys to assess long-term skill retention. Piskurich (2015) discusses the importance of skills evaluation to ascertain if the participant has knowledge mastery and retention. This instrument would be done six weeks after training is completed. These would be performance tests that are conducted by the participant on the job site. A second test would examine whether the job is being performed at a higher level than previously. For this project, the evaluator wants to know if the training addressed the requirements of the job. Are the participants competently taking the dental radiographs? These evaluations can be sent every six weeks for six months to a year. The data collected from these surveys would illuminate and remaining training gaps. During the regular facilitator meetings, the training gaps would be shared, and a plan would be put into action to resolve the problem.

The layout of the survey would list out the steps involved with taking dental radiographs. The participant would rate whether they performed this skill well before the training, do as well currently, or perform the skill better than before the training. If participants are found to be struggling, follow-up support could be provided through a website moderated by a facilitator. A subscription fee could be built into the training fee to pay for the trainer that would be moderating the course.

Resources/Inputs

Online pre-course. To accomplish the activities needed for this project, the following resources are necessary:

- First year's funding ($11,000)
- Veterinary clinics who request training in dental radiography for their staff members.
- A course authoring system for the design and development of the online pre-course.
- Lesson plans for the online pre-course.
- Video and graphics programs for the online pre-course presentations.
- Learning management system that will provide the online pre-course.

Face-to-face training session. To accomplish the activities needed for this project, the following resources are necessary:

- A trainer for the session. The trainer needs to have advanced veterinary dental radiography skills.
- Lesson plans for the face-to-face training session.
- A bound training manual that corresponds with each training unit. Each activity will be presented in a step-by-step format.
- Cadaver specimens of a dog and cat head.
- Dental models in the form of a cat and dog real bone skull and clear acrylic mouth models that show the full tooth.

Cost-Benefit Analysis

Project cost. The cost estimation covers the building of both the online course content, including technologies, support, training, subscriptions and licensing fees per year and face-to-

face training. The face-to-face training includes training materials and travel costs. Table 1 provides the cost-benefit analysis for the project.

Table 1

Cost-Benefit Analysis

	Percentage of Time	**Hours**	
Needs Assessment	3%	12.96	
Prepare Project Plan	2%	8.64	
Conduct Course Content/Learning Analysis	5%	21.6	
Develop Instructional Media Design Package	10%	43.2	
Develop Prototype Lesson	5%	21.6	
Develop Flowcharts	3%	12.96	
Develop Script/Storyboards	19%	82.08	
Produce/Acquire Media (Photos, audio, video)	13%	56.16	
Author Course	30%	129.6	
Evaluate the Course (In-Process Reviews)	10%	43.2	
	100%	**432**	**Total Hours to create a course**
Instructor Prep Time		12	hours
		Labor Cost	
Instructional Designer labor cost		$12,458.88	
Instructor labor cost		$807.52	
Learner's wages		$920.00	
Travel costs		$48,000.00	
		$62,186.40	**Total**
Misc Costs:			
Equipment		$350.00	
Outside vendor		$0.00	
Consultant		$500.00	
Video		$600.00	
Other		$160.00	
		$63,667.40	**Grand Total**

Value Proposition

Currently, dental radiograph training is provided in a face-to-face environment. Each clinic receives four hours of training by a Veterinary Technician Specialist in Dentistry (VTS-D). Once the training is complete, the trainer shares their contact information and offers their availability should the clinic staff have any questions. There is usually little to no follow-up after the training is complete. Common complaints by veterinary staff that has had trainings in the past are they forget the steps of the training after the training is complete and if they want to have further training, the clinic must pay for the trainer to come back and repeat the training.

Furthermore, those members of the staff that are having difficulty efficiently achieving quality radiographs will have access to virtual services where a facilitator could meet with them and review images and provide support in real-time. Common issues could be anything from plate placement and alignment errors due to the loss of training skills. The loss of training skills can come from not performing dental radiographs regularly. Not performing dental radiography regularly can cause the staff member to forget key steps.

What makes this project unique is in the way it will build a community between the veterinary clinic and the training facilitators. Registration for this dental radiography course will also provide a yearly renewable subscription or membership. The veterinary clinic will have access to support and resources to be successful providers of quality dental x-ray services. As clinics have a turnover in their staff, the new staff members can be trained without relying on other staff members to provide the training. Having other members of the staff provide training could potentially fall short of training goals if the remaining staff members are not confident in their positioning skills or are uncomfortable providing training. Hence, this course would enable the clinic to have access to high-quality instruction whenever they needed it.

Summary of Changes

Usability

The participants had difficulties accessing the assessment surveys, the quiz feedback, the badges, and Certificate of Completion. Setting up a meeting with the CouseSites technical support will ensure that the assessment surveys, the quiz feedback, the unit badges, and the Certificate of Completion are accessible to participants. Once these sections of the course are set up, testing needs to be performed to check that these sections are working correctly for the participants. The quizzes will also be changed, so they all show just one question at a time for improved participant navigability.

One participant recommended that the course orientation video be divided into one video per unit. Instructions should focus on the essential features of the unit. The video could be divided out using a video editor, and each section may need to rerecord audio if changes need to be made.

One participant had difficulty with the embedded videos. The participant could not adjust the video to full screen for easier viewing. The videos will instead be presented as a link that will open up on YouTube. The participant could adjust the video to their viewing needs. Directions will be added to show the participant how to open the video and how to get back into the course once the viewing is completed by the participant.

Aesthetics

The extraneous animation in presentations in Unit 2 caused a distraction to one participant. The decision to have it in the presentation was to add variety. Since the animation provided no other benefit to the learning process, it will be removed. The interactive components within these presentations when the participant clicked a button or hovered over an image did provide

engagement in the form of a document that provided additional information. The document was problematic for one participant due to the small font and small images. The documents will be revised with larger images and larger font with more contrast to improve readability.

Content effectiveness

The most significant issue was the lack of content in the presentation but was asked for in the quizzes in Unit 2 and Unit 5. These units will be revised to see if the content that was either missing or not tested for is relevant to the needs of the course. The missing content will be added to the Unit if necessary, so it aligns with the quiz question. The quizzes will be reviewed to ensure that the content of the unit is being tested in the quizzes.

Application of Findings

Course Link

http://www.blackboard.com/coursesites/?sig=2pbTXCBJtq%2FSQZG5%2BPfkGARqNoA%3D&courseId=_364003_1&timestamp=1563407690&inviteId=BB%253FBB_3aRsDANk7RICH%252ByYpJfuSlqyp3HdEwInJxEK9Wu%2FD9wtUG%252B4ivX5IA%253D%253D

Note: This link provides the tools needed to register for the course. If you are not a registered user, a username and password need to be set up.

Usability

Unit surveys, badges, and certificate of completion. A chat session was set up with CourseSites technical support to get help with the settings for the unit surveys and achievements. The achievement awards were not being given out as the test participants were going through each unit. A link was shared with a document that provided the steps.[i] Using support saved time that would be spent searching for these files in their help section. The settings were checked against the document, and this is now functional.

The classroom assessment survey "What Do You Know" found in each one of the units were found to have the wrong questions. When corrections were made, all of the surveys were updated and not just the current survey. The original surveys were removed, and the questions changed from multiple choice to multiple answer. This revision fixed the surveys so they would match the unit topic.

Course orientation video. The original course orientation video was divided into seven sections. This revision was requested by a test participant so the videos would focus on the features of the Home Page and Units 1-5. Each video section was loaded into their respective units. The audio portion was rerecorded on all the sections to focus on the features of the unit and polish the presentation.

Videos. The embedded videos were troublesome for one test participant who noted they were unable to change the video to full-screen or change the volume. Further investigation found that if one hovered over the YouTube logo and clicked on it after the video started, the video opens in YouTube and one can access the features to make viewing more enjoyable. Instructions were updated in the course for all the videos. Closing the video takes the participant back to the class.

Quiz feedback. A chat session was set up with CourseSites technical support to get help with the quiz settings. The participants were not able to see the quiz feedback upon completion. A link was shared with a document that provided the steps.[ii] Using support saved time that would be spent searching for these files in their help section. Some of the quiz settings did not have the feedback box checked. The revision was tested and found to be functional.

Aesthetics

Unit 2 presentations. The presentations in Unit 2 had animated graphics that were distracting to some of the participants. The presentations were reviewed, and the non-essential animations were removed. The second issue was the readability of the linked content in the presentation. The font was enlarged, and the font color was changed to black instead of gray. The removal of the extraneous graphics and the revisions to the linked content should decrease the distraction and improve the readability for the participant.

Content Effectiveness

Quiz and content alignment. In Units 2 and 5, it was noted by the test participants that there were questions in the quizzes that were not addressed in the content. This finding caused the participants to be frustrated as they had to guess at the answer. The quizzes in Unit 2 and 5 were compared to the content. In Unit 2, there were questions about the dental formula for the dog and cat which were not referenced in the unit content. The dental formula was added to the presentations in Unit 2.

In Unit 5, some questions covered exposure limitations that were only briefly mentioned in the presentation. An additional document was found that covered the topic in more detail. This resource was added to the course and instructions were written that recommended that the participant read the resource for additional information that would help them when the participant took the quiz.

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