IDT 607: Evaluation of Instructional Systems

Evaluation Plan

Submitted in partial fulfillment of the requirements for the degree of

Master of Science in Instructional Design and Technology (MSIDT)

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Learning Processes and Outcomes

The purpose of the evaluation is to examine the effectiveness of programs. According to McDavid (2013), evaluations provide information to the program development team and their stakeholders. A successful program must accomplish its planned outcomes. Programs are evaluated using a series of data collecting tools whose results examine the incremental effects of the program.

In a study that focused on medical education, Fromer's study (2017) evaluates the effect of concept based vs. a traditional curriculum in a clinical setting. Concept-based curriculum vs. traditional curriculum decreases the number of concepts taught but provides more in-depth coverage of the covered concepts to bridge a theory-practice gap found in nursing education.

Since the instructional strategies were similar, the subject of the study gave insights that would prove useful for the design and development of the assessment tools used in this MSIDT project. Fromer (2017) states that concept based learning which uses a student-centered approach is derived from the theory of constructivism and based on cognitive learning theory. According to this theory, learning involves the processing of information. Learners become actively involved in the learning process when the lesson material has meaning and connection to their experience. The learning environment allowed learners to process information at both the factual and conceptual levels. The environment helped the learners make connections and develop a deeper level of understanding. Fromer's study found this learning environment reported positive though not statistically significant student outcomes through increased engagement, motivation, and clinical competencies.

Instructional materials and delivery for this MSIDT project were chosen to emphasize and increase participant engagement, motivation, and clinical competencies. The assessments

that will be designed for this program will measure participants success in achieving course outcomes and request feedback on their experience with both online and face-to-face training.

Assessment Methods

Piskurich (2015) states that the importance of evaluation is examining if the program provided what it set out to do. He discusses that one evaluates for two reasons: 1) because someone wants to make sure the program was effective, or 2) because the instructional designer wants to know. What is important is knowing what to evaluate and what will be done with the results of the evaluation. For this project the targets of the evaluation are: 1) online course navigation, 2) online course feedback, 3) online course knowledge testing, 4) training feedback, 5) participant assessment during training and 6) skill retention after training is completed. Formative and summative assessments will be the tools used to collect the data needed for evaluation of the program.

According to McDavid (2013), formative assessments or evaluations are used to provide feedback and advice to which is used to improve the program. Spector et al. (2016) note that the purpose of formative assessment is to support learning. The integration of formative assessments into teaching brings about an improvement in student performance and promote learner skills (p. 58). Formative assessments are critical to an instructor's ability to adapt lessons and check for student understanding. Adapting lessons and checking for student understanding is necessary for evaluation of this MSIDT project as this will turn into a data collection point in the summative assessment to see if skills are retained in the short and long term.

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.

For this MSIDT project, the data will be collected using three types of assessments. The first tool will be in the form of diagnostic assessments specifically a self-instructional reaction evaluation to check for issues with course navigation, and the difficulty of the unit materials a post-course survey for feedback on the participant's experience. The second tool will be formative assessments using participant feedback of their evaluation of their progress, rubric-based observations to grade their completion of the course outcomes, and unit quizzes. The third tool will be a summative assessment using post-training surveys to assess long-term skill retention.

Formative Assessment

Online Pre-Course

Self-instructional reaction evaluation. A self-instructional reaction evaluation such as the one developed by Piskurich (2015, pp. 321-324) would be used at various points during the course when the questions would provide a comprehensive response. This evaluation will examine the difficulty of course navigation and course materials. Questions in this evaluation focus on usability, engagement, and content.

The evaluation would examine the usability of the course, challenge level, engagement, and motivation for the participant. Usability questions can be asked both at the beginning and the end of the course. Early responses on usability can allow the designer to make changes when the course is live and determine if those changes brought improvement for the participant.

Engagement questions can be used after each unit to determine the level of interactivity and motivation the participant experienced. Results could cause changes to the content and technology used to teach the participant. Content questions can be used at the end of the course to decide if the material brought the right amount of challenge and were easy to understand.

Progress evaluation. At the end of each online unit, the participant will be asked to reflect on their interaction with the course material. Angelo and Cross (1993) developed a handbook on classroom assessment techniques (CATs). CATs allow instructors to observe their student's learning through the collection of frequent feedback. The purpose of the feedback is for the teacher to learn about how their students learn and how those students respond to particular teaching approaches. Though these techniques were designed for in-classroom use as they would be during the face-to-face session of this project, but can also be utilized with online students. In Li's research (2018) interviewed both traditional and online faculty in their use of CATs. The results of the study found that both traditional and online faculty found improvement in student performance and the ability to locate areas of needed improvement in course content and delivery. The two that would provide the most useful results would be Muddiest Point and Background Knowledge Probe (Angelo, 1993, pp. p 121, 154).

For this project, CATs would be filled out at the end of each unit. The two that would provide the most useful results would be Muddiest Point and Background Knowledge Probe (Angelo, 1993). As the name suggests, Muddiest Point would ask the participant to provide feedback on what concept from the unit was the most confusing. This feedback would mean revisiting the unit and making the adjustment to remove the confusion. Background Knowledge Probe has the participants share their previous or personal experience with the unit topic. This feedback would be requested before they begin the unit and would ascertain the participants

experience with the unit topic. The results could lead to increasing or decreasing the depth the unit topic would cover.

Unit quizzes. At the end of each unit, a multiple-choice quiz would be given to test for knowledge retention. The quizzes will be kept open until the participant achieves a score of 100%. If the number of retakes is high, this could mean the material is too complicated, or the question is not substantiated in the course material, or the question is badly written. The result trends will be examined to see if any connections can be made.

Face-to-Face Training

Observation with rubrics. The face-to-face training gives the participant hands-on experience learning how to take dental radiographs. The trainer will demonstrate each view and grade the participant using a rubric-based checklist. The steps will be listed out with a corresponding grade. The total for all steps completed will be 100%. Grading each step will allow the evaluator to see what steps are causing difficulty for the participant and will be addressed at the time of the training. The added training will provide an additional review opportunity for the rest of the participants.

Post-course survey. The survey will ask questions that will gain insight on the participant's engagement, content, and their experience with the live demonstrations. The engagement questions will examine the participants feedback on the level of complexity and engagement. This information will be used to see if there are dead spots where there is a lack of interest due to irrelevance to their current situation, or the learning curve was too high making the material too complicated. The content questions will examine if the content showed cohesiveness from one unit to the next. Lastly, the participants will get feedback on their

experience working with live demonstrations. The results will show the evaluator if any steps are missing or could be explained better.

Summative Assessment

Transfer To Job Instrument

Piskurich (2015) discusses the importance of skills evaluation to ascertain if the participant has knowledge mastery and retention. This instrument will be administered six weeks after training is completed. The performance tests 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 dental radiographs on a regular basis? These evaluations can be sent every six weeks for six months to a year.

The layout of the survey will 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 struggling, follow-up support could be provided through a website moderated by a trainer. A subscription fee could be built into the training fee to pay for the trainer that would be moderating the course.

Assessment Alignment

Assessment methods are the tools, strategies, and techniques used to collect the information that shows the learners are demonstrating the desired learning outcomes. Well-rounded assessments use multiple ways to achieve results that are more meaningful, valid and reliable (WSSU, n.d.). The WSSU article recommends a combination of direct and indirect assessment methods. A direct method such as a test, an essay presentation requires the student to demonstrate a task. An indirect method such as a survey or an interview has students reflect on their learning. Using

either a direct or an indirect method limits the assessment to only a part of a learner's achievement because they are insufficient in measuring the learning outcomes of the program. A solution is choosing multi-modal assessment methods that not only measure learner performance but also assess the program.

When choosing an assessment method, it should provide the most useful and relevant information about the performance. More importantly, the chosen method should align the learning objective. A mapping process ensures that all the objectives will be assessed using a variety of methods and can develop a comprehensive and effective assessment plan. In Krathwohl's 2002 paper on revising Bloom's taxonomy, there are examples of taxonomy tables. A taxonomy table is a two-dimensional table that places the Knowledge dimension on the vertical axis, and the Cognitive Process dimension forms the horizontal axis (Krathwohl, pp. 216-217). Course objectives are classified in the taxonomy table in one or more cells that corresponds to the categorizing cell. The taxonomy table analyses the unit objectives and provides an indication of the complexity of knowledge and cognitive processes involved.

Kozikoglu (2018) examined the alignment between a national assessment and an English language curriculum using the revised Bloom's taxonomy. He noted that objectives needed to align to the instruction and be expressed clearly to avoid wasting time and money. Academic success, according to Kozikoglu, is not related to what a student can remember but how they can integrate their new knowledge and skills to their prior knowledge. To ensure learning is achieved at the higher levels of complexity, metacognitive skills need to be developed. Aligned teaching and assessment enable learners to move from retention to transfer of knowledge. Both the assessment and the objectives should address all levels of Bloom's taxonomy to provide a wide range of cognitive processes (p. 71).

The training course will be presented using the three principles of experiential learning. The three principles are 1) Framing the experience, 2) Activating the experience, and 3) Reflecting on the experience (Hirumi, 2016). InterPLAY is an instructional model that integrates universal principles of experiential learning and includes elements of Story, Play and Game. The use of story, play, and game/simulation increases participant engagement and learning (p. 1305). Each one of these elements integrates with the experiential learning principles. Story can be represented through characters, worlds, and events. Play can be represented through stimulus, response, and consequences. Game is represented through goals, rules, and tools. It is crucial to remember that when the instruction is integrated into the story, play or game/simulation and the instruction is enhanced.

For this course we will be using the grounded instructional strategies for InterPLAY – Expose, Inquire, Discover, Create, and Experiment (Stapleton, 2014). Tasks are exposed during the online and training session. Inquire validates the success of the lesson in the online course and the demonstration in the face-to-face session as the participant creates a mental image. Discover enhances problem-solving techniques as potential challenges are found and solutions found to resolve them. Create occurs when there is interactive engagement with the subject matter. Experiment occurs when success is measured through feedback or evaluation. The strategies will be aligned with each one of the learning outcomes. The assessments that will be used to measure the progress and success of the participants is also aligned with the learning outcomes. When outcomes, strategies, and assessments align, it will increase the reliability and validity because it specifically measures what it learned (Morrison, 2012).

The objectives for this project were also classified in the Revised Bloom's Taxonomy Table. The results show that in the online course the objectives are classified as lower order

thinking skills. These results make sense because the online course is preparatory with basic skills being taught. As we move into Units 6, 7 and 8, the participants are in the face-to-face session. The face-to-face session is hands-on which require higher order thinking skills. Tables 1 and 2 will map out each learning objective, measure cognitive processes using the revised Bloom's taxonomy with an appropriate assessment method.

Table 1

Online Pre-Course

Unit 1: Oral Anatomy of the Dog and Cat **Revised Bloom's Taxonomy: Metacognitive Knowledge: Remember**	
Performance Outcomes	Identify the oral anatomy structures of the dog.
	Identify the oral anatomy structures of the cat.
Rationale	Correct identification of the oral anatomy ensures placement of the digital x-ray sensor plate.
InterPLAY Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Unit quiz Summative: Self Instructional Reaction Evaluation

Unit 2: Charting the Oral Cavity Using the Modified Triadan Numbering System (MTNS) **Revised Bloom's Taxonomy: Metacognitive Knowledge: Remember**	
Performance Outcomes	Label the dog dental chart using the MTNS.
	Label the cat dental chart using the MTNS.
Rationale	The MTNS labels dental x-ray images. Completion of this unit ensures the images will be labeled correctly when the participant uses the dental x-ray software.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Unit quiz Summative: Self Instructional Reaction Evaluation

Unit 3: Radiographic Equipment **Revised Bloom's Taxonomy: Metacognitive Knowledge: Remember**	
Performance Outcomes	Identify the parts of the dental x-ray generator.
	Describe the function of each part of the dental x-ray generator.
Rationale	Knowing the structure and function of the dental radiograph generator shows that the participant can fully and confidently operate the equipment.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Unit quiz Summative: Self Instructional Reaction Evaluation

Unit 4: Radiation Safety in Dentistry **Revised Bloom's Taxonomy: Procedural Knowledge: Remember**	
Performance Outcomes	Describe the steps necessary to practice dental x-ray safety.
Rationale	Radiation is a hazardous substance in veterinary clinics. Radiation safety needs to be practiced to keep staff members safe while they are taking dental x-rays.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Unit quiz Summative: Self Instructional Reaction Evaluation,

Table 2

Face-to-Face Training

Unit 5: Online Pre-Course Review Quiz of Units 1-4 **Revised Bloom's Taxonomy: Metacognitive Knowledge: Remember**	
Rationale	Confirms the participants have completed the online course and measures their retention of the course material.
InterPlay Instructional Strategy	Expose, Inquire, Discover
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Unit quiz Summative: Instructional Reaction Evaluation

Unit 6: Troubleshooting the Dental Radiographic Image
Revised Bloom's Taxonomy: Conceptual Knowledge: Analyze, Evaluate
Revised Bloom's Taxonomy: Procedural Knowledge: Apply, Analyze, Evaluate
Revised Bloom's Taxonomy: Metacognitive Knowledge: Remember

Performance Outcomes	Identify the solutions to technical errors found on the finished dental radiograph.
Rationale	Teaching the participants how to evaluate a finished image improves their troubleshooting skills and improves outcomes.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Rubric Summative: Instructional Reaction Evaluation, Transfer to Job Instrument every six weeks up to six months or a year.

Unit 7: Sensor Placement
Revised Bloom's Taxonomy: Procedural Knowledge: Apply

Performance Outcomes	Identify the appropriate tooth or teeth and set up the correct location of the sensor.
Rationale	Proficiency will demonstrate the participant is confident navigating the oral cavity and the participant recalls the steps of the demonstration and understands the interrelationship between correct tooth identification and placement of the sensor.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing Anecdotal Records	Formative: Progress evaluation using CATs, Rubric Summative: Instructional Reaction Evaluation, Transfer to Job Instrument every six weeks up to six months or a year.

Unit 8: Tube head Angulation
Revised Bloom's Taxonomy: Procedural Knowledge: Analyze

Performance Outcomes	Confirming correct placement of the sensor, set up the correct angulation of the tube head.
Rationale	Proficiency will demonstrate the participant is confident navigating the x-ray tube head and the participant recalls the steps of the demonstration and understands the interrelationship between correct tooth length and the angle of the tube head.
InterPlay Instructional Strategy	Expose, Inquire, Discover, Create, Experiment.
Assessment Method Direct testing	Formative: Progress evaluation using CATs, Rubric

Anecdotal Records	Summative: Instructional Reaction Evaluation, Transfer to Job Instrument every six weeks up to six months or a year.

Interventions Implementation

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. 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, and 3) prepare participants to start performing full mouth radiographs on anesthetized patients in the workplace.

The core delivery will be in two sessions – pre-coursework and face-to-face sessions. The pre-course work will be delivered in an online classroom. The purpose of the pre-coursework is to prepare the participant for the face-to-face training session with units that cover the oral anatomy, record keeping, radiographic equipment, and safety skills. The online course will be monitored and assessed by the assigned trainer for technical issues with delivery and problems experienced by the user. Data will be collected using formative and summative assessments which will measure the participant's progress with the learning objectives, their experience navigating through the course, and their experience with the content. The results will be analyzed once a group has completed the course. Revisions to the software and delivery will be made before the next group begins the online course.

The clinic will be contacted by email at the time of registration to fill out an inventory of the dental x-ray equipment and its functionality. The clinic will also provide details on where the training will take place in their treatment area. The face-to-face session will be taught in the requesting clinic by the assigned trainer. The session will cover dental x-ray positioning in the dog and cat and troubleshooting common technical errors. The face-to-face classroom is the best choice because the learning will require the participant to interact physically with the equipment. This session provides skill building through interaction with the dental x-ray equipment under the supervision of a trainer.

The delivery of the face-to-face course will provide a condensed review of the pre-course work, and then the participants will be given activities to perform. Each activity will be demonstrated by the trainer. The participants will then repeat the activity. Data will be collected using formative and summative assessments which will measure the participant's progress with the learning objectives, their experience navigating through the course, and their experience with the content. The results will be analyzed once a group has completed the course. Revisions to the delivery will be made before the next group begins the training.

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 is needed for the design and development of the online pre-course.

- Lesson plans for the online pre-course. A standardized lesson plan will be designed and developed by the program manager and the stakeholders. This lesson plan will be required for use by all trainers involved with the course. The lesson plan will be revised on a yearly basis. The review will look at assessment data and training.
- Video and graphics programs for the online pre-course presentations.
- A 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 needs to have advanced veterinary dental radiography skills. A list of qualified trainers can be retrieved by permission from the Academy of Veterinary Dental Technicians
- Lesson plans for the face-to-face training session. A standardized lesson plan will be designed and developed by the program manager and the stakeholders. This lesson plan will be required for use by all trainers involved with the course. The lesson plan will be revised on a yearly basis. The review will look at assessment data and training observation.
- A bound training manual that corresponds with each training unit. Each activity will be presented in a step-by-step format. A standardized manual will be designed and developed by the program manager and the stakeholders. The manual will be given to all participants in the course to use within the session and once training is complete. The manual will be revised on a yearly basis. The review will look at assessment data and training observation.

- Cadaver specimens of a dog and cat head. These specimens will be purchased by the clinic through either Skulls Unlimited or NASCO. The specimens provide the most life-like example of working with a patient.
- Dental models in the form of a cat and dog real bone skull and clear acrylic mouth models that show the full tooth. Dental models will be provided by the trainer.

Intervention Dissemination

Project Timeline

Design Time/Milestones. Performance analysis and an analysis of the target audience for each training assignment will be completed in two weeks. The objectives will be written to address the needs found in the performance analysis and the target audience analysis. Material development will take two weeks. A beta test and pilot of the project will bring the development of the completed design in two months.

Chapman Alliance. The Chapman Alliance (2010) published a research study on how long it takes to create a mode of learning. The study broke the modes of learning down into four types: 1) instructor-led training, 2) level 1 eLearning basic, 3) level 2 eLearning interactive, and 4) level 3 eLearning advanced.

Instructor-led training is a typical face-to-face environment. The average project requires a 43:1 ratio of development hours for one hour of class time. Level 1 eLearning basic are one-way presentations from online instructor to learner using content pages, graphics, simple audio/video, and test questions. The average project requires a 79:1 ratio. Level 2 eLearning

interactive adds about 25% more exercises that require interaction from the learner with the material. The average project requires a 184:1 ratio. Level 3 eLearning advanced is highly interactive with possible simulations or game-based learning. The average project requires a 490:1 ratio of development hours for one hour of class time.

Following the Chapman Alliance study, this project will utilize both classroom-led training during the face-to-face session and level 1 eLearning. The components of the Chapman Alliance study provide a list of the areas of development the course must travel and how long each area takes in development time. Table 3 is a delivery analysis integrating components from the Chapman Alliance study.

Table 3

Delivery Analysis

Delivery Method	Days/Hours
Virtual Classroom/Learning Environment– LMS, LCMS Online Pre-Coursework The pre-course work prepares the participant for the face-to-face in-clinic training. Total number of units covered – 5 units Total class time – 7 hours	Home Page Orientation One hour of class time = 1 hour Unit 1 – Two Sections Each section is one hour of class time = 2 hours Unit 2 – Two Sections Each section is one hour of class time = 2 hours Unit 3 – One Section One hour of class time = 1 hour Unit 4 – One Section One hour of class time = 1 hour Total class time = 7 hours Chapman Alliance Level 1 Basic ratio = 79:1 Total Development Time = 553 hours/8 hours/day = 69 days
Face-to-Face Training This session is a hands-on continuation of the online pre-course work. There is the addition of live demonstrations provided by a trainer	Unit 5 – One Section One hour of class time = 1 hour Unit 6 – One Section One hour of class time = 1 hour Unit 7 – One Section

and hands-on activities performed by the participant. Total number of units covered – 4 units Total class time – 4 hours	One hour of class time = 1 hour Unit 8 – One Section One hour of class time = 1 hour Total Class Time – 4 hours Chapman Alliance Instructor-Led Training Ratio = 43:1 Total Development Time = 172 hours/8 hours/day = 22 days
Demonstration equipment For the face-to-face training, the dental x-ray generator and the sensor will be present for the participant to practice taking dental radiographs and gain confidence using the equipment.	0-1 hour For in-clinic training, the equipment will already be on site. Phone time to confirm.
Demonstration models Demonstration models will be used during the active training session to point out anatomy and assist in demonstrating positioning techniques	0-2 hours The trainer or the clinic will provide these materials. Phone time to confirm
	Total Hours – 646-649 hours Total Days – 80-81 days

Target Audience

The target audience will be a combination of credentialed veterinary technicians, certified veterinary assistants, and on-the-job trained staff. The staff members will either be currently performing dental procedures or the in the process of being trained to perform dental procedures. In some cases, veterinarians will participate in the training.

Challenges and Solutions

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's article (2016), 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. Table 3 shows the project challenges and solutions.

Table 3
Project Challenges and Solutions

Project Objective	Delivery Method	Challenges	Solutions
Development of practical skills and techniques for taking dental radiographs using the proper positioning of the digital sensor. Rationale: Learning to take dental x-rays in the dog and cat has a steeper learning curve than when learning to take them on people due to differences in oral anatomy.	Virtual Classroom/Learning Environment– LMS, LCMS Rationale: The pre-training session will be an online course. The platform for the course will be on an LMS or an LCMS.	Research to find the system that is easiest to navigate and inexpensive. Expandable to allow content from outside sources. Large enough memory to handle multimedia files. Testing software included. Compatible LMS system to run the course.	Post a question to the Ashford University IDA LinkedIn group. Present the needs for the project and have them suggest a list of options for LMS programs that would work best.
	Multimedia Materials; Video Video clips will be used during the pre-training session to demonstrate features of the anatomy and provide a preliminary positioning training.	Reused materials will need permissions. New clips will need to be recorded	Online Search: Template permission forms for copyrighted educational materials. Search sites/topics: Google Copyright law E-Learning sites Make a list of needed clips and schedule time and for videotaping. Video presenter should be a VTS-Dentistry

Project Objective	Delivery Method	Challenges	Solutions
Improve the assessment and diagnosis of pathology. The participant is required to understand what constitutes a diagnostic dental radiograph. Producing radiographs that are diagnostic before the veterinarian reads them expedites the procedure.	Printed materials Handouts will be provided to the participants as part of the active training session. Each handout will contain instructions and a list of activities.	Handouts will be hard copy and electronic. Search query: Providing accessibility options for both hard copy and electronic materials	Post question to Ashford University IDA group: When providing both hard copy and electronic handouts, how does one incorporate accessibility options?
	Demonstration equipment For the active training, the dental x-ray generator and the sensor will be present for the participant to practice taking dental radiographs and gain confidence using the equipment.	Dental x-ray unit provided by the clinic, the manufacturer or distributor. Dental x-ray software and a corresponding digital sensor provided by the clinic, the manufacturer or distributor.	Get information about how the equipment is acquired by the clinic.
	Demonstration models Demonstration models will be used during the active training session to point out anatomy and assist in demonstrating positioning techniques	Dental models acquired from the veterinary supply company. Skulls acquired from an osteological supply company. Clear acrylic models acquired from a veterinary supply company. Cadaver specimens of the dog and cat acquired from a shelter or science educational supply company.	Inquire through a VTS-Dentistry where models can be acquired.

Intervention Diffusion

Effect on Stakeholders

The stakeholders for this project are what is known as insider stakeholders as they are involved in the field of veterinary medical education with connections to dentistry. The stakeholders support and are involved with dental education in unique ways. The stakeholders were chosen to evaluate the various levels of the program with the possibility of being involved with the course once it formally begins.

The role of the stakeholder will be three-fold: 1) course development, 2) course evaluation, and 3) the yearly review. The stakeholder's role in course development is to ensure that the material is up-to-date with current texts and treatment protocols. The stakeholder's role in course evaluation is to review the assessment data and make suggestions for changes and improvements to both courses. The stakeholder's role in the yearly review is to analyze the changes made throughout the year, examine and update the references for relevance. This research will culminate in the yearly review that will measure the effectiveness of the courses and make any necessary changes to content and delivery.

Impact on Project

Online pre-course. If the activities are accomplished, the participants in the online pre-course will begin their education in veterinary dental radiology. 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. Rose (2017) states that cross-training provides an opportunity for staff members to understand another's duties and to better grasp the mission of that clinic.

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 adjust the participants so that everyone can enter the face-to-face training with similar skill sets. 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.

Face-to-face training. If the activities are accomplished, the participants in the face-to-face training will retain the learned skills to be able to start taking radiographs on their dog and cat patients. 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 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. The patient is under general anesthesia to avoid blurry images, and sensor damage should a patient bite down on it. The impact of providing dental x-rays increases diagnostic accuracy. The impact of having trained staff is the ability to perform the dental radiographs efficiently which decreases time under anesthesia.

The 10% of participants that are unsuccessful with the training require additional training support which will be investigated if the evaluation proves the statement is true. For participants that are struggling after training is completed, an interactive online service could be set up to provide support. The service could be provided through a website with a paid subscription or service fee. Resources would require the employment of a trainer and administrative staff to provide services.

Summary of Revisions

Week Four

1. Further elaboration of the post-training surveys is necessary to help validate the reason this assessment tool would be helpful to measure the skill retention of participants that completed the training.
2. The next revision is to compare Piskurich's (2015, pp. 321-324) self-instructional reaction evaluation with Kirkpatrick's Level 1 Evaluation Model (2000) which is Reaction. The reaction level looks at how the participant feels about the various aspects of the training program. If participants do not have positive feelings about the training will not take in the full benefits and not see the experience as valuable. Seeing the experience as positive can set the parameters for the experience for future participants.

Week Five

1. The increased use of active language would take the writing to the next level by making the points clearer.

2. After training is complete and the participant has returned to their place of work, define the struggling participant. The struggling participant requires additional training after completion. A metric is necessary to determine at-risk or struggling trainees.
3. Review and integrate Donald Clarke's, "The Three Domains of Learning" into the section that looks at cognitive taxonomy.
4. Become familiar with APA style tables and change the current tables into this format. Move the tables into an appendix at the end of the document.

References

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