IQP: An Investigation on the Effect of Interactive Multimedia Video on Student Engagement and Learning

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After creating interactive multimedia videos that accounted for the shortcomings of the standard video, in addition to providing a niche for every learning style, researchers surveyed class sections and individual participants to determine if the interactive multimedia videos enhanced their learning experience. As hypothesized, the interactive multimedia videos did indeed improve student engagement, while enhancing the amount that they learned in a shorter time span and their overall learning experience. After having observed firsthand the use of video as a learning tool in the classroom, namely the biology lab, this Interactive Qualifying Project investigates the learning enhancement proffered by a more robust interactive multimedia model.

Worcester Polytechnic Institute

Purpose of the Study

The purpose of this investigation was to compare standard video to interactive multimedia video.

Study Hypothesis

The researchers hypothesized that interactive multimedia videos were superior to traditional instructional videos in improving student engagement while enhancing learning outcomes in a shorter time.

The Research Method

The method used to test the research hypothesis was three-pronged. A multimedia video was produced to simulate a specific biological lab procedure. A survey was conducted to solicit feedback from participants who viewed the video to determine its effectiveness. Focus groups were used to supplement the survey results.

Limitations

1. The discipline of biology was used.
2. A selected biological lab procedure was used: the dissection of a fetal pig.
3. One undergraduate college class was used: a beginning-level sophomore biology class.

Steps in the Process

1. The researchers constructed a video script.
2. A storyboard was constructed by the researchers.
3. The video was filmed and edited.
4. A survey questionnaire was constructed.
5. The class was surveyed and the results tabulated.
6. Two focus groups were interviewed.
7. The data were collected and analyzed.
8. The results were tabulated and conclusions drawn.

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Introduction

Educational Paradigms of Old

Technology is rapidly evolving and is advancing faster than even its developers can find application for. Contrastingly, the methods of teaching in the most traditional and commonplace forms have remained relatively static (Barr and Tagg). In, "*From Teaching to Learning: A New Paradigm for Undergraduate Education,"* the authors discuss a change in the generally accepted belief of the purpose of higher learning institutions. The authors assert that for a long time the higher learning institution and all of its constituents believed that its sole purpose was to teach (Barr and Tagg). The researchers suggested that this was indeed a flawed line of thought and that the sole purpose of such an institution was for the students to learn. In support of this assertion, the paper goes on to illustrate that reforms in higher education are being made in the teaching and learning exchange.

For instance, if a sizable number of students were struggling to exhibit the critical thinking skills, the previous practice was for educators to address the disparity by teaching a mandatory class on thinking. Heeding such revolutionary ideas as those of Peter Senge, campuses all over the United States are attempting to restructure departments and curriculum to accommodate the learning styles of the students instead of trying to conform them to "one type" of learning. At the departmental level, campuses are trying to form interdepartmental communications so that they are all working towards a common goal and implementing the methods that prove to be successful when feasible (Barr and Tagg). Barr and Tagg in their paper quote a statement from a paper of Alan Guskin. Profoundly, it is one of the most compelling arguments of their entire paper. Guskin asserts that the 50-minute lecture in a classroom, a passive form of instruction, was perhaps the worst possible learning environment (Guskin). In

the two-part article Guskin addresses other similar grievances that he has with the modern higher education system. Guskins observations may not be true for every student but other researchers (Mehlinger) support his opinions. In recent decades, there has been a movement in education towards the adoption of technology into the classroom (Mehlinger).

Technology in Education

In an article from the *Journal of Research of Computing in Education* entitled *Teachers' Views of Computers as Catalysts for Changes in Their Teaching*, Dexter, Anderson and Becker conducted a study to measure the changes that computers had on the learning of the students as well as the teaching practices of the instructors. The study included the observation of classrooms of students from K-12 in addition to interviews and surveys of the instructors who taught the classes. The researchers observed that the use of technology (such as a computer) in the classroom switches the paradigm of education such that the student becomes his own instructor, while the instructor serves to facilitate the student's learning. (Dexter, Anderson and Becker) In the *Horizon Report (2008)*, the publishers describe what they call "Grass Roots Video." As the publishers actually describe, the name of the coined term itself suggests that the paradigm of quality video production has moved from the production companies to the layman. (The New Media Consortium & EDUCAUSE Learning Initiative). The ease with which video may now be produced by the layman has caused a production influx of grassroots video, and dramatically increased its presence in education and its potential as a teaching tool. Furthermore, the rise of the mobile device as a means to distribute and view content has also served as an impetus behind the rise of video as a viable teaching medium. (The New Media Consortium & EDUCAUSE Learning Initiative). In this edition of the *Horizon Report*, the publishers predicted

that within the next year or so, video would become an increasingly more prominent tool used at universities and in education in general.

Even before the grassroots video phenomenon occurred, a common but effective tool used by educators was video. Video is used for many things today such as entertainment, communication, and of course education. There are certain aspects of video as a medium that make it a great teaching tool already, and some things that when added to it make it a much more powerful teaching tool. While it is not a commonplace feature of video yet, interactivity with video is a powerful combination, as it keeps the viewer even more engaged. Interactivity is observed when the learner or viewer is prompted to respond by some aspect of the presentation that they are witnessing (Interactivity and Multimedia). If not implemented properly, video can become a redundant reproduction of immoderately employed techniques, which do not adequately cater to the needs of the varieties of students with vast and diverse learning styles. To enhance the use of video, it should be coupled by interactivity. For the tactile learner, one of the only current mainstream ways of incorporating an analogous feature to virtual interaction is the manual interaction experienced by clicking objects with an input device like a mouse. In an effort to utilize video effectively in the classroom, it is necessary to delve into the fundamentals of learning styles and the ways of accommodating those styles. An understanding of learning styles is necessary, as it will allow the producers of the video to incorporate a variety of ways to reach the students, so that there will be something in the video for everyone. In this effort, it is hoped that everyone will come away with more knowledge, after having the material presented to him or her in a variety of ways.

Student Learning Styles

According to Fleming and Mills of Lincoln University in Canterbury, New Zealand, there are four main types of learning styles: visual, auditory, reading/writing and kinesthetic. Visual learners are able to better comprehend material when they can see a demonstration. Auditory learners retain information through what they hear. Reading/writing learners take in information best through reading and writing. Lastly, the kinesthetic learners need a hands-on approach to absorb information. They respond best to doing activities and experiments themselves (Fleming and Mills). The goal of the interactive video is to appeal to the learners of every learning style. The combination of video and audio, by which video is identified, appeal to the visual and auditory styles of learning. These styles of learning deal with the most basic part of learning, the element of the learning process, where the student's perception of the information is a focal point (Felder). The interactive component of the video is an effort to simulate the kinesthetic style of learning. The kinesthetic style of learning has to do with multiple parts of the learning process including the perception and processing of the information presented to the student (Felder).

Research has highlighted some of the challenges that students may face in the classroom. One prime example is the disparity between teaching styles and the way that students learn. Humans learn innately by way of induction, while humans innately teach deductively. Deduction and induction refer to the ways that people acquire and demonstrate information, while visual, auditory and kinesthetic are the ways of which learning occurs. Induction is a method by which a student learns by figuring things out on their own through observation and implementation of the digested and processed information. Deduction is the process by which students reprocess what has already been thoroughly processed and explicitly presented to them. (Felder). This disparity often leads to a decrease in student attentiveness, test scores and overall confidence. This triggers negative feedback from professors, resulting in a vicious circle of

unproductiveness (Felder). The majority of students of undergraduate age learn best visually, while the majority of their classes are instructed verbally (Felder).

Interactive Multimedia Video

The interactive video addresses many ways of learning. The video has the ability to present information both inductively and deductively. For instance, an interactive video for a physiologic fetal pig dissection, quiz questions, and narration account for the deductive component of learning. The video demonstration of the dissection techniques allows the student to see proper techniques, process what they saw and then implement what they learned in their own dissection in the lab, thus strengthening and confirming what they learned. The "Kolb Learning Cycle" theory states that all of the learning styles have both negative and positive aspects, but when they are combined, people are better able to learn. When appealing to a single sense, students retain 10 percent of what they read, 26 percent of what they hear, and 30 percent of what they see. Independently, the percentage of retention per learning style is not very high; however when combined the percentage of retention across all of the learning styles collectively is staggering. The percentages are as follows: 50 percent of what they see and hear, 70 percent of what they say themselves, and then 90 percent of what they say as they do something simultaneously. (Kolb, 1967)

Interactive Video in the Classroom

The use of video in the classroom is beneficial in aiding student learning. In Huang and Aloi's analysis of student performance, high school students earned higher grades after the implementation of video technology. An unpaired t-test was done on the grades of the past 11 semesters before adding computer and video interaction, with the grades being A, B,C, D, F and W (withdraw). Overall, the grade averages grew significantly with 18 percent of the students

receiving an ‘A’ as opposed to the previous 6 percent. The number of students receiving a B raised 11 percent to 32 percent of the class, and those students receiving a C raised 16 percent to 36 percent of the students. Comparatively, the D range decreased, while the F percentage stayed the same (Huang and Aloi). Such results suggest that the students that were already trying in the class were able to better understand the material and those continuing to receive poor grades are being inhibited for some other reason.

In other similar cases, the use of video aids has been proven beneficial to the learning process. For example, in a high school biology course - a year-long experiment was conducted using two focus groups, one used the traditional textbook and the other video. It was found that the students who used the video did much better in comprehension and even individual study for some advanced students. The students who were given the additional visual aid earned an average score nine percentage points higher than those students without that opportunity when tested on their comprehension of the material (Huang and Aloi).

In terms of interactivity, there needs to be feedback between the user and an application. The more feedback that there is between the user and the application the more effective it can be (Interactivity and Multimedia, 2006). Another aspect of interactivity is control over the presentation of material to address the various learning styles. Since each student learns in a different way, or a combination of ways, the interaction needs to be in line with the style of learning to be most effective. This increases the attention span of the user because the learning is easier for them (Interactivity and Multimedia, 2006).

Creation is another point of focus in interactive multimedia. When the user is involved in creating something, like a mock-up of a cell for instance, he retains what he has learned much

better because he must remember the parts and layout of the cell to make it. A final aspect of interactivity is communication. Since humans are social creatures, there needs to be some way for the user to talk and discuss with other users. This promotes interaction between people, which also increases the retention of the user due to having to access the information again to discuss it.

Internet classes are becoming very common and the use interactive elements are essential. The student must relate the material to the topics being discussed on their own with little to no personal involvement with the teacher. The teacher is unable to have a discussion on the connections that should be made, so the teacher provides websites or creates their own applications that help the student and are more interactive than materials like paper articles given to students in physical classrooms. For interactive learning materials to be effective, they must be well designed (Vess, 2004).

One important study of interactivity's effect on education was done by Wichita State University's Psychology department. By having middle school students use a number of websites with varying degrees of interactivity, they found that interaction can increase learning effectiveness (Brady, 2008). The main reason why interactivity works to increase learning is in the fact that when interaction is involved, more attention is needed from the user, so they tend to retain more information.

Methodology

The elements of a successful interactive multimedia video were gleaned through research. The group brainstormed to determine the elements needed to produce a multimedia video that was an improvement upon regular videos.

Why Shortened Interactive Multimedia Video?

An attempt was made to use interesting angles and close-ups when shooting the footage of the dissection of the fetal pig. In the same way, the use of lighting, and panning create a sense of intrigue to the audience. To appeal to the student's auditory engagement, an attempt to be enthusiastic in the reading of the script was made, with the logic that the narrator's enthusiasm will help to make the viewer enthusiastic as well. As a result of findings and some research concerning student attention spans, and student engagement times in ratio to learning, the video was cut down to a timeline that fit the these times.

A paper entitled, *Teaching and Learning with the Next Generation* asserts that today, instructors are teaching a new student called the "Net Gen" student. This student has spent the vast majority of his time on the web and computer related activities like checking email. Students of the digital age required various forms of communication to learn because they are easily bored. Similar studies showed that the Net Gen student use several types of media and technologies at the same time. The author further noted that these students have been observed using the computer, in conjunction with web surfing, playing videogame, listening to music and talking on the phone all at the same time. Using this variety and number of technologies all at once allowed the students to pack "8.5 hours of media use into 6 hours" (Barnes, Marateo and Ferris).

Multitasking abilities make contemporary forms of education (such as lecturing) mundane and bland, making it more difficult to pay attention for extended periods of time. Another interesting observation is that activities that the students engaged in simultaneously correlate with different ways of learning. For example, in the aforementioned activities, the student's visual and auditory intake were stimulated in all activities. Kinesthetic skills were

stimulated by playing videogames and web surfing. Reading and writing intake were stimulated by the web surfing, the videogames, and most likely the telephone. Due to this research the videos were significantly reduced in length but packed with content so that the student would be engaged for the entire duration of the video while still retaining the ability to learn the information presented to them in the video, as the video did not exceed the time limit at which learning was no longer optimal.

Preparation for Filming

At the onset of the filming process, the process started out as any conventional film starts out. A script was drawn up. A script contains the words that move the story of the film forward and gives an indication of what should be presented or visualized. After the script was acceptable, a very rough storyboard was developed. This was done so that a reference for the filmmakers would exist, reminding them what needed to be accomplishing when they were actually behind the camera. The storyboard reminded them when to pan or zoom in or out to make the video component of the film interesting to the viewer. In this case, the aim was to have the viewer feel close to the dissection almost as if it were there hands in the video. After the storyboard, the filming was rather simple. The filmmakers essentially just captured by camera what had been intended per the storyboard layout. However, while there was a storyboard in existence, when the filmmakers actually began editing the video, they faced some problems with software.

Video Editing

Camtasia

When video editing began, Camtasia version 7.0 was used. After an update version 7.1 was used. Camtasia is primarily software designed for screen capture and then video editing as a second priority.

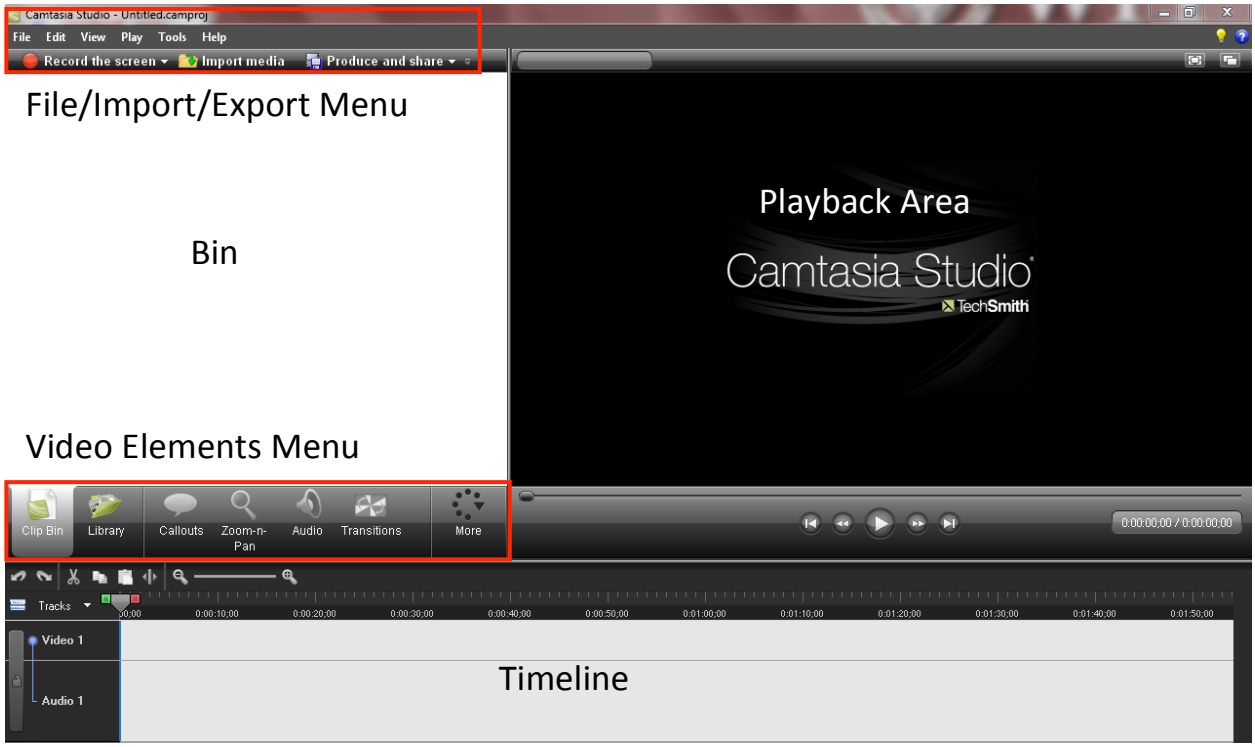

Figure 1: Camtasia User Interface

While the software is user-friendly and rather simple, it was not robust enough to create seamless transitions between scenes. After completing the editing of the video in Camtasia, and then attempting to add transitions, it was observed that after adding the transitions, the video still felt like a poorly edited film to the filmmakers as viewers.

Adobe Premiere

If the video appeared this way to the filmmakers, as creators, it would definitely be a distraction to the perception and learning of the viewing student. Due to this editing was restarted using Adobe Premiere, a more robust editing software, of a professional grade. After final Cut Pro, which is exclusive to Mac, Adobe Premiere is an industry standard video editing software

produced by Adobe System.

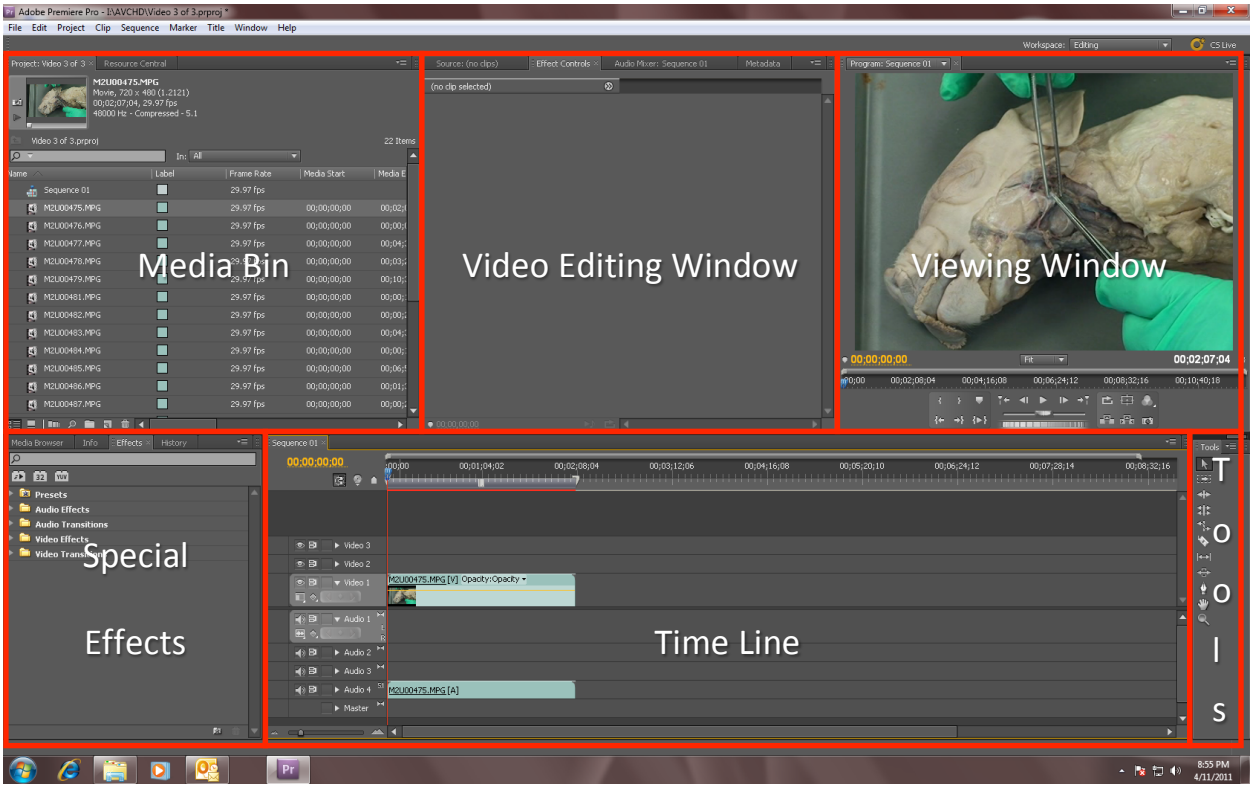

Figure 2: Adobe Premiere User Interface

They make and release a whole suite of multimedia editing software that is released each year. While the software was more complicated, it was still fairly intuitive allowing the filmmakers to have more accurate edits and seamless transitions that made the film more aesthetically pleasing to a viewer. Version 5.0.3 was used, which was the most current at the time of editing.

To begin editing, the video clips taken with the camcorder were imported into the application using the "File>Import function" which is equivalent to dragging and dropping the clips into the multimedia bin as seen in Figure 2. Different from Camtasia (where there are different category bins for the different types of media,) in Premiere all of the media goes into the same bin. However, identical to Camtasia, to begin editing, the media must be dragged into the timeline. The "timeline", is the area where the video must be organized how the creator

wishes for it to be played before a viewer. Once a video clip is here a combination of the selection tool (depicted by an arrow,) and the cutting tool, (depicted by a blade,) are the primary tools used to edit and trim down the clips. As these tools are used quite frequently in the editing process, it would behoove the editor to memorize the keyboard shortcuts, 'v' (selection tool) and 'c' (cut tool). The clips can also be shortened by using a combination of the play head, and dragging the ends of the clips to snap to the play head position. This practice is preferable, when transitions are going to be used, so that the application has excess video to overlay, when transitioning from one frame to the next. This prevents the unpolished appearance of stark black frame appearing before transitions.

After the video clips were edited down as desired, transitions were added by selecting the appropriate 'transition' from the effects panel and dragging it over the intersection of the two target clips. Further alterations could then be made to the transition, using the transition editor, by right clicking the transition (PC) or command clicking the transition (Mac) and selecting 'edit transition.' While editing, the editor tried to preserve clips that showed the prospective viewer close ups of the techniques that needed to be mastered. After the technique or concept was conveyed, the rest of the clip was deemed superfluous as it would become mundane to the viewer (as most practices in a dissection are highly repetitive). If the technique was a difficult one to master or there were many variations of one maneuver, the clip was sped up to approximately 300% its original speed to show the whole procedure at an accelerated rate, as to hold the viewers' intrigue.

As the editing of the film progressed, the script was kept at the forefront of the filmmaker's mind, so that there would be a visual representation that coincided with the

narration of the script. The integrity of the connection between the auditory and in visual would then be preserved. The video file was exported as an mpeg4 video, encoded with h.264 technology for maximum quality and compression.

Adobe Soundbooth

After editing the video down, vocal recording was begun using Adobe Soundbooth.

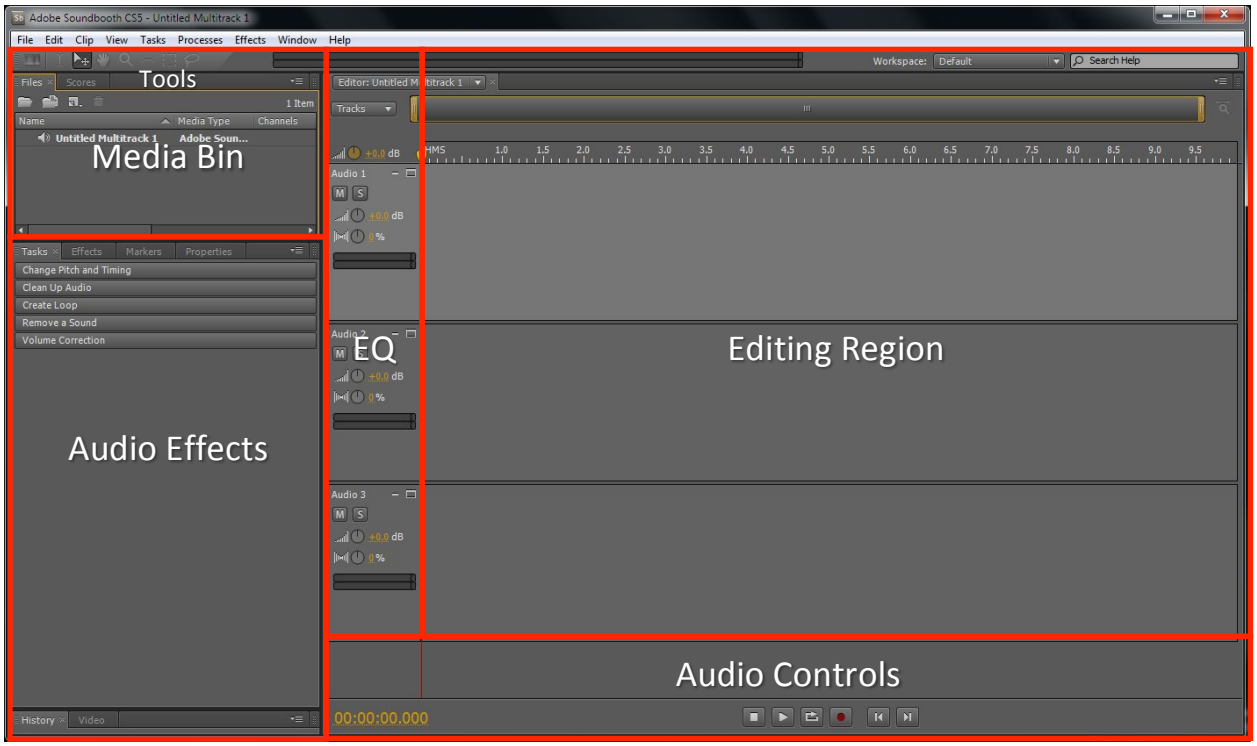

Figure 3: Adobe Soundbooth User Interface

When recording the vocals, a studio microphone paired with a digital audio interface was used to more accurately capture the highs and lows of the speaker's voice and to ensure a more realistic speaking voice for the viewer as he watched the video. A digital audio interface converts the analog waves transmitted by a microphone into “midi incidents”, or bytes that a computer can understand and manipulate. As the narrator read the script, he attempted to keep a smile on his face to convey a more enthusiastic tone throughout the reading. After the reading of the script

was complete, the narrations were run through the application Adobe Soundbooth, an audio editing software, to remove audio impurities, such as hissing and crackling. This process was done using the audio filter effects, seen in the 'audio effects' section of Figure 3. In addition to applying these filters to the audio tracks, the tracks were edited by removing durations of silence from the beginning and end of the narrative. Figure 4 shows the product of an edited sound clip. An unedited sound clip with silence at the ends converges to nothing at the ends of the clip and trails on. To cut away the silence from the clips, the "cursor tool" seen in the 'tools' section of Figure 3 was used to highlight the desired region. It was then removed by clicking the "delete" or the "backspace" button.

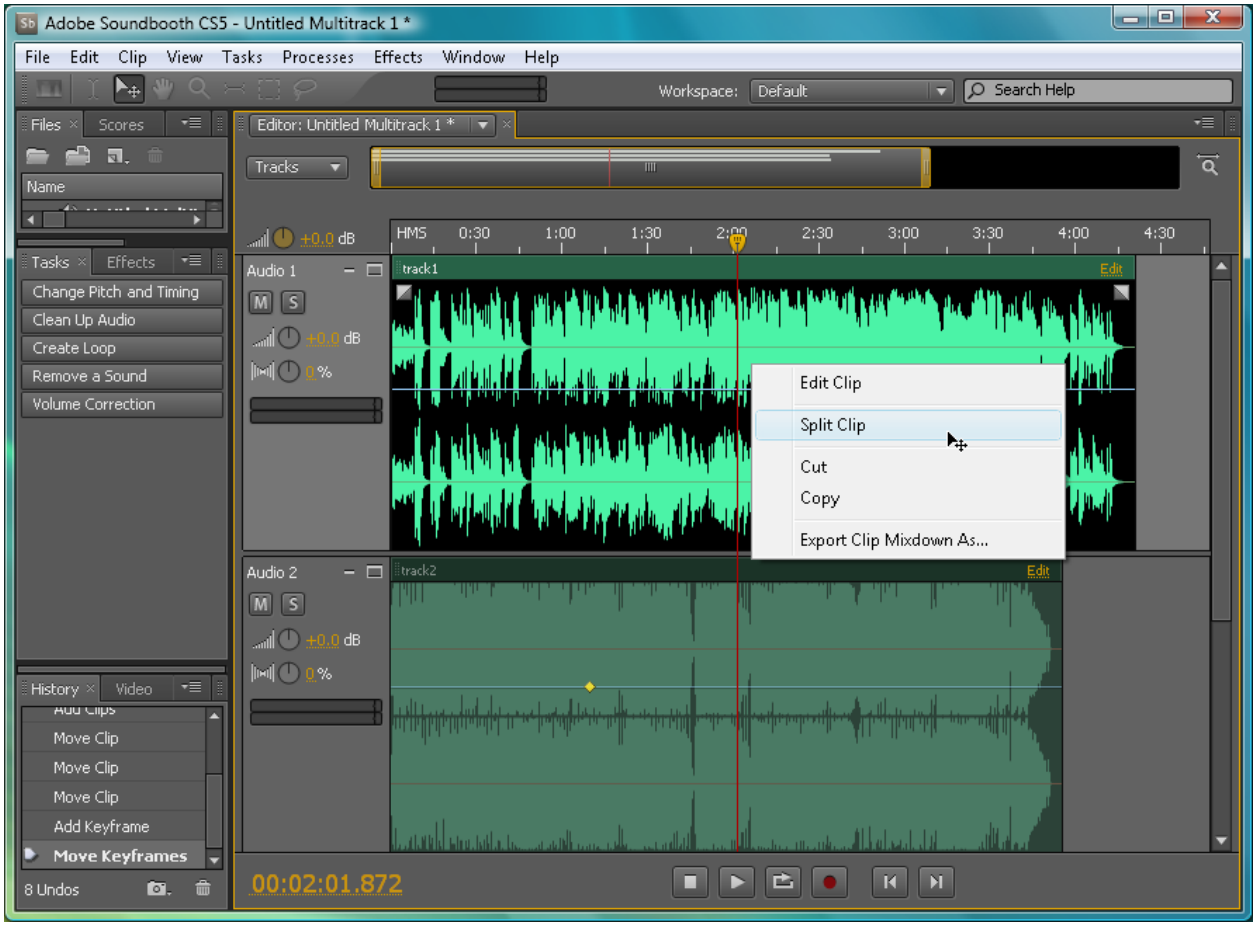

Figure 4: Audio Editing in Adobe Soundbooth

Before adding the narration to the video, the filmmakers went through the 105 narration takes to determine ones with the best quality. The best narrations were then matched to their respective video representations.

When the editors were satisfied with the matching of the audio and video tracks, the tracks (audio and video,) were exported as a video file from Adobe Premiere. The audio files were exported as wav files maximum (CD quality) quality without compression.

Camtasia: Multimedia and Effects

After editing, the video file and the audio files exported from the Adobe applications were imported into Camtasia, a good application for adding callouts, quizzes, and other visual effects that hold the viewers interest. In addition to the audio and video files, images from the dissection manual were imported into Camtasia. These images were used to make a connection from the student viewer's text for the course to the video tool that was being created. Hence the

student's observations and learning would be reinforced and reaffirmed by the video.

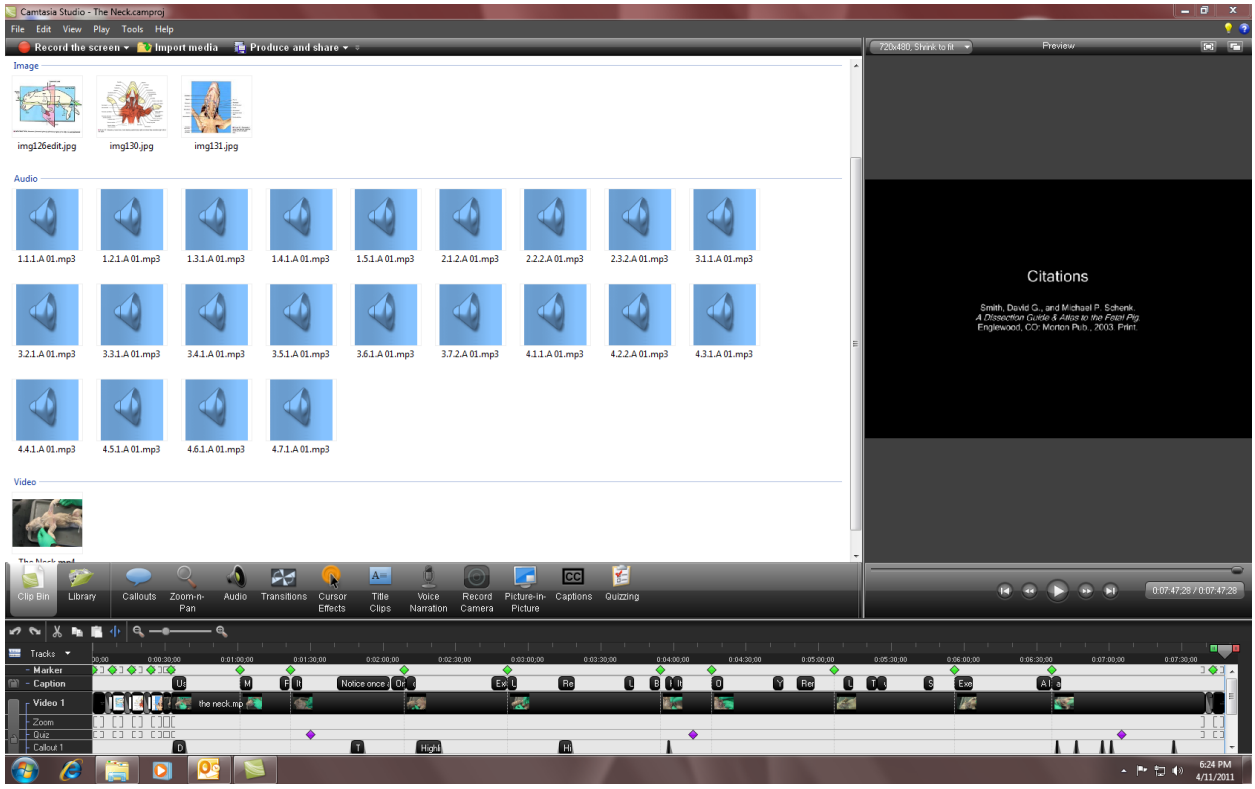

Figure 5: Camtasia Project

Seen in Figure 5, in the bin, are the dissection manual images at the top, the audio files from Soundbooth in the middle and the video file exported from Premiere at the bottom.

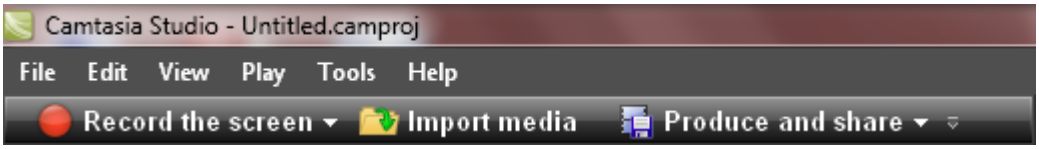

Figure 6: Camtasia File and Import/Export/Capture Menu

To import files into Camtasia, one must click on the 'import media' icon from the user interface or File>Import Media (Windows short cut : Ctrl+I). From here, one may import audio ,video, or image files to his project. Once the files are imported into Camtasia, they will remain in the bin. From there they can be dragged to the timeline for editing or the application of 'video element.'

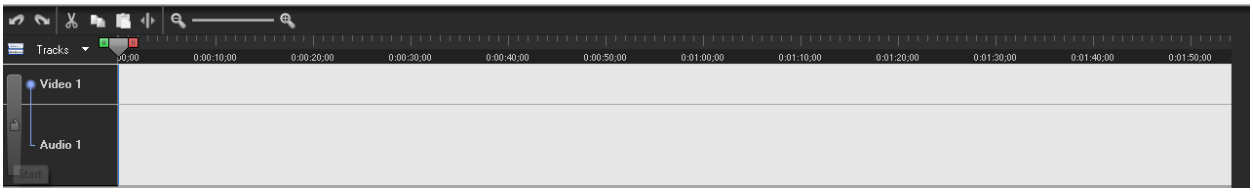

Figure 7: Camtasia Timeline

Once the files were imported and dragged to their proper position in the Camtasia timeline, the first features that were added were callouts. A callout is a 'video element' in Camtasia. Video elements can be added by using the "Video Elements" menu. From this menu, elements such as transitions, callouts, quizzes and closed captioning may be added.

Figure 8: Video Elements Menu

Callouts, such as arrows and circles, were used to highlight various points of the process (such as dissection starting points) and other noteworthy aspects to the viewer's attention. The circles were used to circle the exact region. Callout were also used to inform the viewer of the various parts of the anatomy that being addressed at different times in the video. Due to the panning and close-ups used to enhance the visual aesthetics of the video, it would be possible that the anatomy of the fetal pig may become ambiguous to the viewer at any given time because they would not have a clue what they were looking at.

In the second video, arrows were drawn along the path of an incision to show the view which direction to make the cut on the specimen. Quizzes were added to the video, approximately two to three minutes apart to quiz the students on information that they had heard prior to the quiz checkpoint. This was done to keep them engaged, involved, and listening closely during the session. If the student answered the question wrong, the quiz would bring

them back to the frame of the video that showed them the correct answer, or the answer would be displayed before them, and the video would continue. Close captioning was added to the video so that students who learn best by reading and writing could actually read along with the close captioning while hearing the words. The text, displayed as subtitles, could be cut, copied and pasted as notes for the student. The close captioning would also help the students who were hard of hearing. The video was sped up in places during the viewing where there was "repetition of technique", but where it was felt that the students might benefit from seeing the whole procedure. For example, in the first video, were there is a demonstration of skin removal, the process of using the fingers and wooden dowel t o probe the skin away from the muscle is repetitive. As a result, after showing the technique at the default (1x) rate, the skin removal parts of the video were sped up.

After the video production was completed, the group turns its attention to constructing instruments for data collection. The questionnaire was the instrument; the survey method selected by the research team.

Data Collection

It was concluded that a survey would be the best solution to collecting data concerning the BB2903 students' reception of the video. The survey questionnaire was made available to all students taking the lab course, which pertained to the video.

The researchers had several problems to address at the outset of the data collection: the content of the questionnaire; the incentive to be offered to the survey participants; compliance with campus regulations for using students as subjects.

The Survey Questionnaire

The researchers discussed two possible ways of conducting the survey. One way was to use Survey Monkey; the other way was to use "myWPI site." The initial plan was to use Survey Monkey as a means of creating the list of questions. Using the website, however, posed two main problems – protecting the anonymity of the respondents and restricting the number of questions to less than 10. This is one of the caveats typically encountered wit using a Survey Monkey free account. Survey Monkey, then, was not used to construct the questionnaire. The group turned to the "myWPI site" and drafted a list of possible questions to submit to the advisor. The "first draft" included mostly open-ended questions designed to determine whether the interactive video enhanced student learning. Specifically, the focus of the questions was on how the video's interactivity and overall composition affected the students' ability to learn the material. Evaluative criteria included: the use of quizzes in the video; the use of voice inflection; and shorter time-span (under 10 minutes) to complete the form. The advisor suggested a 10-item questionnaire - 6 Likert questions and 4 open-ended questions. Before actually presenting the questionnaires to the student's two different versions of the questionnaires were developed; one for the online survey and another for the focus groups. The changes were made; the final questionnaire was submitted to the WPI's Institutional Review Board (IRB); and approval of the survey instrument was granted.

A copy of the questionnaires follows:

Table 1 Survey Questions Available to Students on myWPI

Question Number	Survey Questions Available Students of BB2903 of Online at myWPI
	Opinion Scale/Likert Questions
1	In comparison to a straightforward video, being quizzed in the video helps to highlight the important points from the procedure.
2	The use of pop-ups was useful to call attention to important aspects of the video.
3	The length of the new video was appropriate.
4	The narration was easy to comprehend.
5	References made to the Dissection Manual were helpful to the overall process of learning lab procedure.
6	I learned more by watching the new dissection video
	Essay Questions
7	What specifically did you find helpful in this particular video?
8	Were the video quizzes helpful?
9	Were the pop-ups/call-out additions helpful?
10	Was the length of the video appropriate?
11	Was the narration easy to hear and understand?
12	Were the references to the Dissection Manual helpful?
13	Traditional vs. multimedia video: which one increased learning outcomes?

*Questions 1-6 were answered online at myWPI using a likers scale with the following responses available: Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Not Applicable - (Unanswered)
** The Students were able to openly respond to the essay questions with an unlimited amount of characters.

Table 2 Questions Available to Attendees of Focus Groups

Question Number	Survey Questions Available Students of BB2903 Who Attended Focus Groups
	Opinion Scale/Likert Questions
1	In addition to the standard video, the quizzes were helpful to focus on important aspects of the video.
2	The use of call-outs (i.e. arrow pointing to injection site) was useful to call attention to important aspects of the video.
3	The duration of the video was too long.
4	The narration was easy to comprehend.
5	References made to the Dissection Manual were helpful to the overall process of learning lab procedure.
6	I learned a lot by watching this lab video.
	Essay Questions
7	What's your major? Why are you taking this lab?
8	Was there anything in particular that you really liked about the new video?
9	Did you watch the original video from beginning to end?
10	Would you prefer other instructional lab videos to be similar to this video? Why?
11	Did you think that the new video was better than the old video? If so why and in what ways was it better? If not, why not?
12	Did the video keep you engaged? If so why/how? If not why and what would keep you engaged?
13	Did you learn anything from the new video? If so what?
14	Did you learn more from the new video or the old video?
15	Did the narrator's enthusiasm help to keep you attentive?
16	Any other comments or suggestions for further improvements?
17	How was the audio/video quality and cinematography in the video?

*Questions 1-6 were answered online at myWPI using a rating scale of cardinal numbers 1-10
** The Students were able to openly respond to the essay questions with an unlimited amount of

It was agreed that some type of incentive would be offered to the participants, such as a few bonus points, if the professor would allow it. In the end, students who participated in the focus groups were awarded a $10 gift card to Dunkin Doughnuts. This would encourage student participation to provide feedback, which would allow the focus of the project to be evaluated. There are certain regulations that must be followed when using as subjects in a survey. Such restrictions include protecting the identity of participants, ensuring that no harm will come to the students. The use of the "myWP site" as a tool to construct the instrument helped the researchers to comply with the University regulation.

Data Analysis

myWPI Survey & Focus Group 1

The purpose of the survey was to acquire feedback from the students concerning their thoughts on the quality and effective ness of the video as a standalone product but also in comparison to the original version of the instructional videos for this lab. The survey posted to myWPI and the questions presented during the focus groups, prompted the students to provide this feedback. While data that showed the new video to be more helpful and stimulating than its antecedent, which was somewhat helpful, it was necessary to point out and underline the differences between the videos that made the new one superior.

The advisors posted the survey on myWPI and eighty-nine students filled it out. The same survey was presented to the first focus group of two people. For the second focus group of eleven students, a slightly longer list of survey questions, including open response questions, was created. In all cases, our first six questions used a Likert scale responses. The first question inquired as to whether the quizzes in the video were a helpful aspect that was added.

Question 1: In comparison to a straightforward video, being quizzed in the video helps to highlight the important points from the procedure.

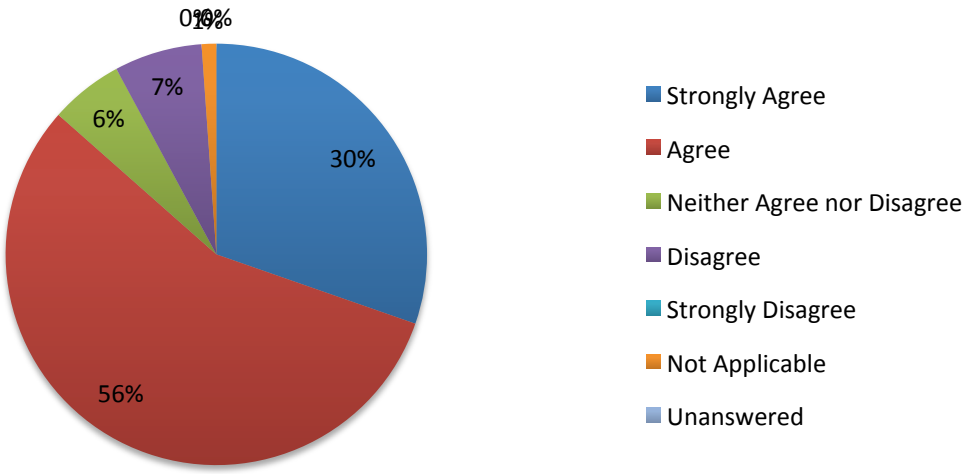

Figure 9: Pie Chart of Likert Scale for Question 1 Responses

Over 85% of the people surveyed agreed or strongly agreed that the quizzes were a helpful new addition.

The second question asked if the pop-ups/call-outs were a helpful addition to which over 90% of those surveyed agreed.

Question 2: The use of pop-ups was useful to call attention to important aspects of the video.

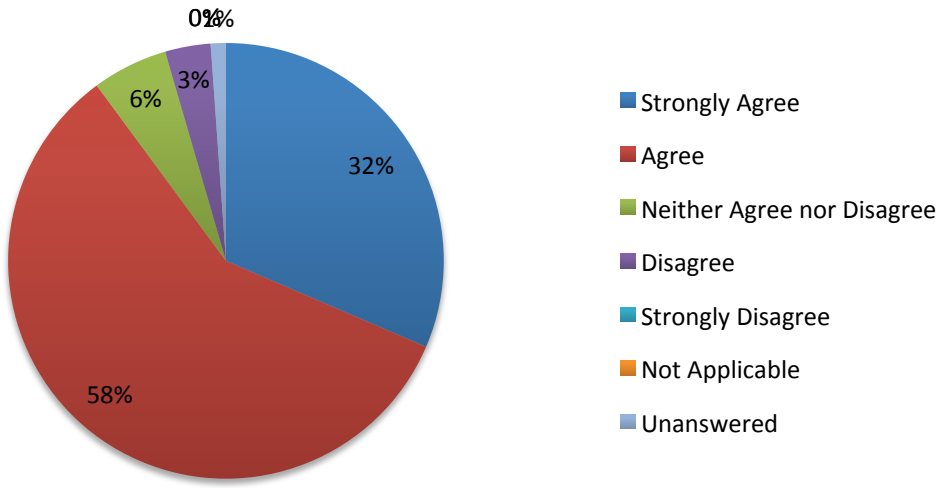

Figure 10: Pie Chart of Likert Scale for Question 2 Responses

The third question asked if the length of the new video was acceptable. The responses to the question were more spread out with answers having only about 75% agreeing or strongly agreeing and an additional 23% of the people answering neutrally.

Question 3: The length of the new video was appropriate.

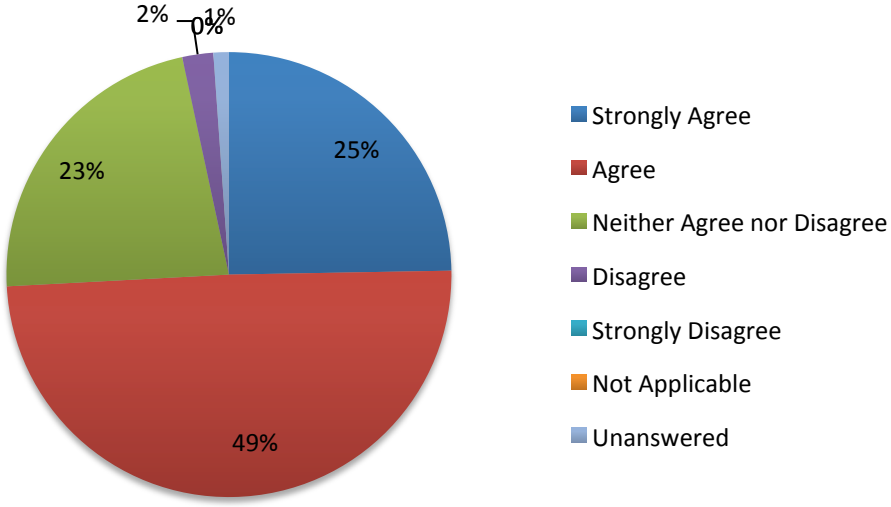

Figure 11: Pie Chart of Likert Scale for Question 3 Responses

The fourth question asked if the narration was easy to hear and understand. Over 85% of the answers were in the affirmative.

Question 4: The narration was easy to comprehend.

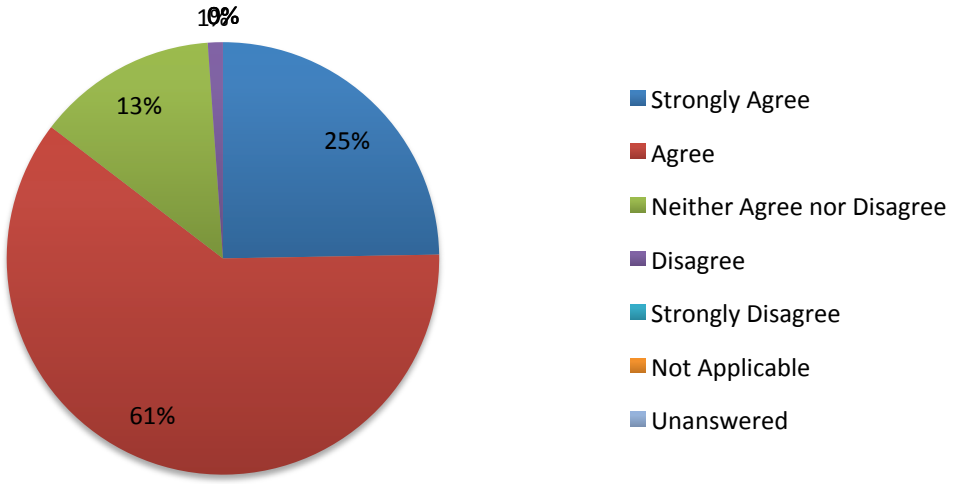

Figure 12: Pie Chart of Likert Scale for Question 4 Responses

The fifth question asked if the references to the dissection manual were helpful to learning. Over 75% of the people surveyed agreed or strongly agreed while 17% were neutral.

Question 5: References made to the Dissection Manual were helpful to the overall process of learning lab procedure.

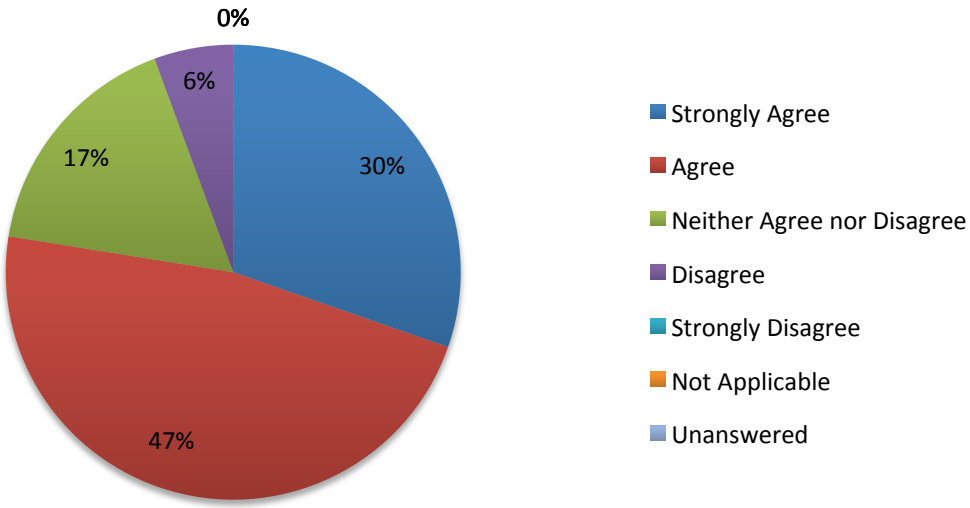

Figure 13: Pie Chart of Likert Scale for Question 5 Responses

The final Likert scale question asked if more was learned from this new, shorter video. Over 80% of the respondents stated more was learned from the new improved dissection video.

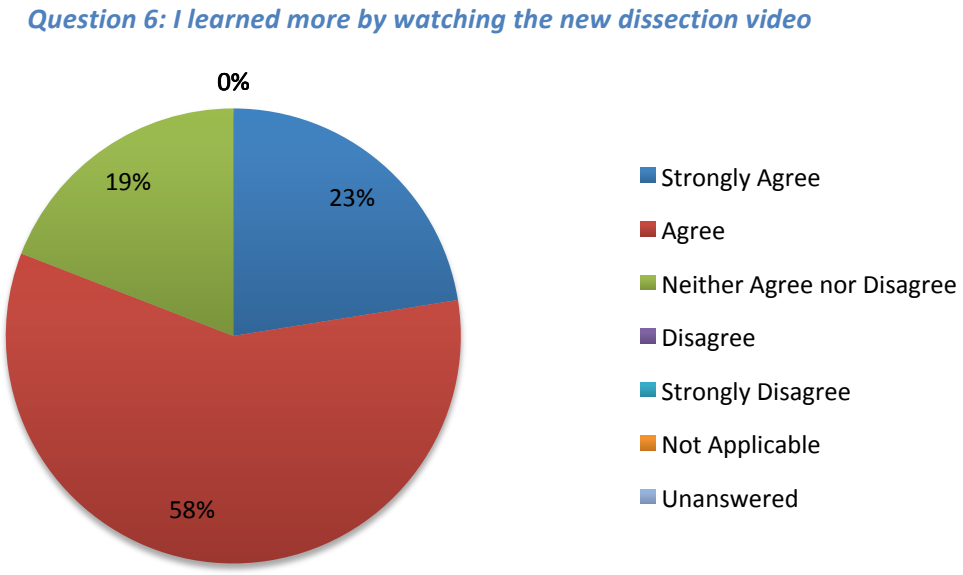

Figure 14: Pie Chart of Likert Scale for Question 6 Responses

The open response questions from the "myWPI survey" and the first focus group were a bit different than the second focus group. The first question online asked what was helpful in the new video. All of the features that we added to the new dissection video were mentioned. Students found the pop-ups, quizzes, table of contents, improved narration, and the condensed length very helpful. The next question asked how the new video compared to previous laboratory videos the student has seen. Students, overall, believed this new video to be of better audio and visual quality. They appreciated the shorter length and liked the more enthusiastic narration and the switching between narrators. The new video was clear and concise. The following question asked if the student experienced an automatic rewind after answering a quiz question wrong. About half did experience one. Most would have liked the choice to manually rewind and review the answer but this was not possible using Camtasia. Most found this feature helpful anyway. Our final question asked for any other comments or suggestions. Some suggested that more

audio be added to the video so there were less times of silence. Others stated that background music could have been helpful, but when creating the video the researchers could not find any music that appropriate for the background of a pig dissection and appeal to a wide variety of students. There was some criticism of the narration stating that the voices were "edgy" or too enthusiastic at times.

The Averages

As shown in Figures 15 and 16, on average, over 80% of the students who watched the interactive multimedia videos, felt that they were superior to the original video available to them.

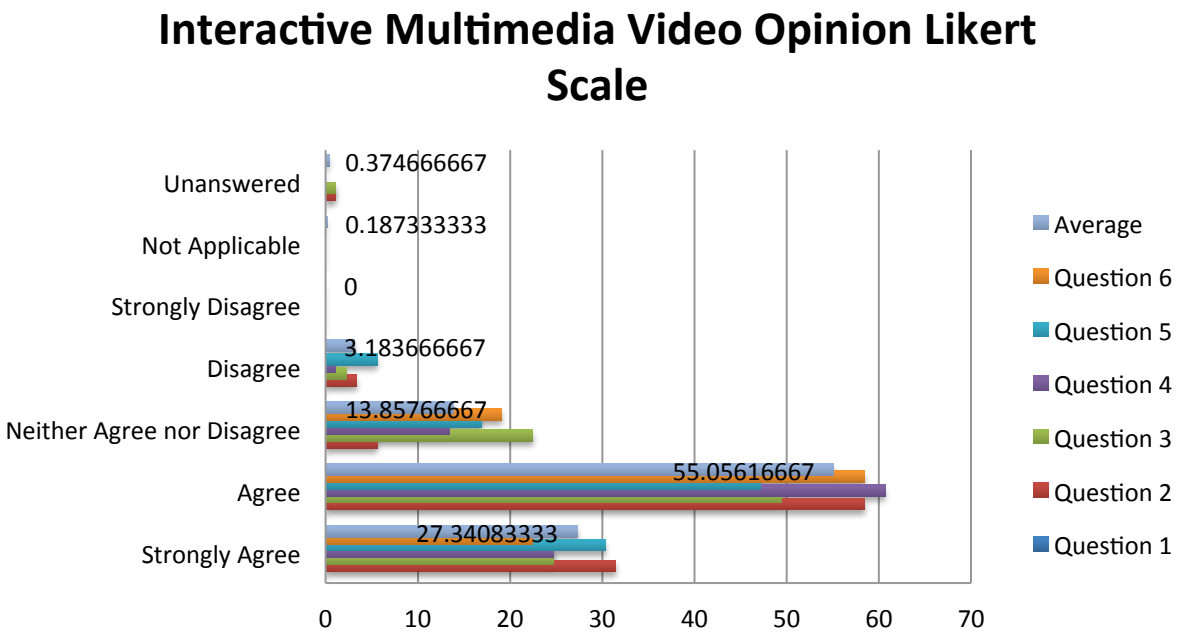

Figure 15 Bar Chart of Opinion Likert Scale Averages

As seen in Figure 15, nearly 30% of the students reported that they "strongly agreed" with statements suggesting that the new videos were superior to the old. In addition to this number roughly 55% of the students "agreed" that the new video was superior to its antecedent.

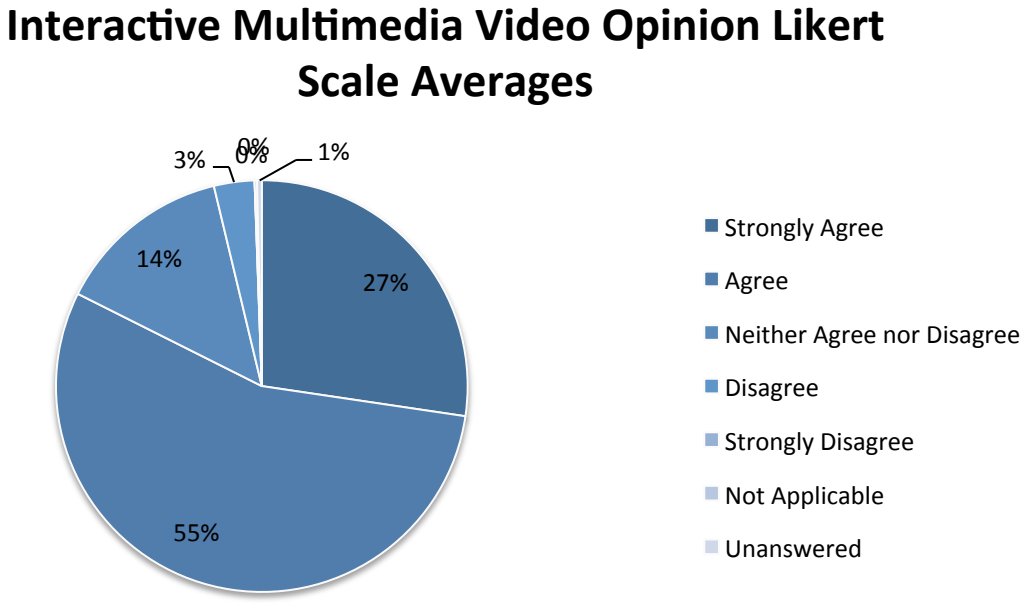

Figure 16 Pie Chart of Opinion Likert Scale Averages

Only 14% of the students who participated in the survey were neutral in their feelings about the benefits of the new video over the old. A staggeringly low 3% of respondents felt that the new type of video was not any more beneficial than the original video.

Focus Group 2: Open Responses

The second, larger focus group had 4 additional questions that were added. Question 7 (after the six Likert scale questions) asked about the student's major. All were biology, biotechnology, or biomedical engineering majors. This was asked as it may influence their perception of the experience. Question 8 asked what was liked about the new video, similarly to the myWPI survey. They referenced the table of contents, the shortness of the video, the quizzes, and the closed captions. A few also mentioned they liked the speeding up of the more monotonous sections of the video to reduce the display time. Question 9 asked if the student watched the old pig skinning video in its entirety. Most students only watched some of the video

since it was rather lengthy (over 30 minutes). A few did actually watch the whole old video. Question 10 asked whether the student thought the other lab videos should be made to be similar to this one. Everyone answered affirmatively. They all liked the interactivity of this new video and believed that it could improve the learning gained from the other videos. They especially thought the other videos would benefit from quizzes, table of contents and better narrations. Question 11 asked which video was better, the new or the old, and why. The unanimous decision was that the new video was better. Their reasoning was that the quizzing and shorter length helped keep the attention of the viewer. Question 12 asked if and how the video kept the student engaged. Almost all said the quizzes were responsible for keeping their attention. A few said the better narration kept them engaged. Question 13 asked if the student learned anything new from the new video in comparison to the old video. Almost every answer was that they did not previously know that the skin was called a cape when removed in one piece from the pig. A few others learned that they are supposed to begin the dissection at the injection site on the pig.

Question 14 asked whether the student learned more from the original video or from the improved video. Nine students felt that the new video helped them to learn more and the reason was, for the most part, that the new video was more able to keep their attention. Two students felt the old video helped them learn more. One was because he saw that video first, but the new video had all the facts they learned from the old. The second student said that the fact that the older video was longer meant it had more information. This is not necessarily true, but this was his opinion. Question 15 asked whether the narrators' enthusiasm helped keep their attention on the video. Almost all believed the enthusiasm of the narrator helped tremendously. One felt the female narrator's voice was too high pitched and quick but still thought the enthusiasm helped out.

Question 16 asked for comments and suggestions. A couple said more quiz questions would help cement more ideas in the mind of the viewer. Another student said to be sure the video could play in all formats so there are fewer restrictions on watching the video. This student suggested putting the video online instead of having to download it. The final question asked about the audio and video quality of the new video. All of the students in the second focus group said that the quality was good. Some said the quality was better than the previous video.

According to the vast majority of the participants, the newly produced videos were very successful. When asked what they particularly liked about the new video, they responded with various interactive elements that were added like the table of contents, the quizzes, and the time scroll bar. These are in accordance with the hypothesis that interactive elements help students learn while watching lab videos. One student stated that "the quizzes made it easier to follow along" and another said "[the quizzes] made the video more interactive and helped point out key parts." Others responded that the new video was more entertaining and engaging.

Responses to "what was better in the new lab video" referred to the interactive elements that were added. Many more respondents stated that they watched this whole video and not the old one. This could be attributed to the length of the new video being considerably shorter than the old one since many of the respondents noted comments like "the [old] video was way too long to watch in one sitting" and "the original video was too long and I started to fall asleep a quarter ways through."

Another question posed was if the video kept the participants engaged, and if it did, what specifically kept their attention. Many of the answers referred to the quizzes saying they "required that I pay attention to the video." Participants were also asked if they learned anything

new from this video. Nearly all of them answered, they "learned that the skin that was removed from the pig was called a cape." Indicating that the students learned something new from the video. This was one of the questions implemented in a quiz, which shows the quizzes help to instill knowledge into the viewer's mind.

Focus Group Likert Scale Survey Data

As seen with the numerical data, the answers are congruent with the initial hypothesis. In regards to the first question, the first question is asked to determine if people found the quizzes to be helpful.

Table 3 Focus Group Likert Scale Data

Question Number	Answer Range, Outlier	Percent Approval
1	8-10	92.3%
2	7-10	88.4%
3	1-5, 9	25.3%
4	8-10	90.0%
5	2-10	76.1%
6	5-10, 5	83.1%

*The focus group attendees gave a response tot the first six questions with a rating using numbers 1-10

The majority found that this was in fact helpful. There was an average of 92.3% for this, with the scores ranging between 8 and 10.

The second question also had a high average of 88.4% with numbers ranging between 7 and 10. Neither had any outliers. Question number 3, however, had more variation, with the average being 25.3% and a range of numbers falling between 1 and 9, with all but one between 1 and 5. In this instance, it is possible that a single person felt strongly in the opposing view, but it

is also possible that the individual simply misread the question. Either way, the response was not common, and the majority felt the video length was adequate.

The fourth question followed the same pattern as the first two with an average of 90% with scores ranging between 8 and 10. The next question had a variety of answers with a range between 2 and 10 with an average of 76.1%. While there was one shockingly low number, there were respondents who rated the video highly for this question, so while the average was still relatively high, the question left some with a feeling indifferent, signifying this was beneficial to some and to the others it was not helpful, purporting the video did not hurt or help their performance on the course work. Finally, question number 6 had an average of 83%1 with scores falling between 5 and 10. Again, there were two outliers, which were the 5s, the rest were between 8 and 10. A 5 signifies apathy and because of the question asked, there could have been several interpretations. It is possible that the subject that gave the new video low ratings, was not familiar with the information present in the old at the time of viewing, but when watching the new video, after having already watched the old video and having completed the lab, the student already felt competent in the subject matter and therefore had little more to learn from the new video, thus skewing their opinion.

Conclusion

What Was the Purpose?

When the project began, the idea to remake one or more of the biology laboratory videos that students are meant to watch before they begin the lab was the starting point. It was felt that the old videos were laborious to view and consequently learning from the videos was not optimal. Before remaking the videos actually improved learning tools; research was necessary. To improve the new videos to be created, it was necessary learn about the different types of

learning styles that people can have so that they could be incorporated into the video. This was done in an effort to cover all the bases.

It was determined that there are four main learning styles of students: auditory, visual, reading/writing and kinesthetic. After looking at these styles the researchers determined that videos, by nature, only fulfill two of these styles at most. A video's audio helps auditory learners while its pictures and movies help visual learners. A way to maximize the number of students that would find the lab videos helpful to their learning process was sought out.

Additionally, it came to the researchers' attention that it might be difficult to appeal to the kinesthetic learner. This began a quest to make the videos appeal to the kinesthetic learners and out of this was born the idea of interactivity with some input device. By making the video interactive, the investigators would require feedback from the students via clicks of a mouse to keep the student engaged with some tactile action.

The next stage of research involved looking into learning from past videos. In other words, research on what makes a quality video that students will find interesting was examined. It was determined that the visual components of the video need to be stimulating (i.e. static images and constant feeds of a single action should not be used). Breaking up the monotonous video with different camera angles, zoom, and other techniques would be beneficial to the learning process of visual learners. The audio components needed to be just as compelling and interesting. A narrator, if there is one, needs to show emotion in his voice. If the narrator is bored with the material, the students will be bored as well. Silence can also become boring if there is too much of it, so background music is a good thing to include if it fits in with the video. Basically, the audio and visual parts of a video have to work together well to make a good learning tool.

The final stage of research involved looking into kinesthetic learning and how to consequently incorporate interactivity into the new video. It was decided that to make an interactive video with subtitles, so the video would be helpful to students of all styles of learning. Different ways to incorporate interactivity were assessed. The researchers decided to add in pop-ups that would highlight important information. Another feature the researchers considered was some way to ask questions during the video. The researchers sought any way that would force the user to become an active participant in his learning.

Hypothesis Accepted

The feedback received from the participants of the study survey as well as the focus groups supported the research findings that the investigators found in other studies. The combination of features that would appeal to multiple learning styles did indeed increase the learning, the experience and the interest of the student viewers. The study hypothesis was definitely accepted. Some points that were not really addressed by the survey included the fact that the survey did not directly identify the participant's learning style and whether or not the video appealed to their learning style allowing them to learn better. While this level of specificity was not addressed in this particular study, the student responses suggested that the researchers' effort to appeal to all learning styles was successful.

In the Future

In the future, after determining the participants learning styles, it can then be inquired, which features helped the students learn more effectively. In this particular investigation, "interactivity" seemed to be the targeted feature that engaged the students, and if that feature alone did not help the students learn, it stimulated them and primed them to be alert so that the other features could actually help the viewing student learn.

The present research did not investigate if the use of figures from the dissection manual for the course, helped bridge the gap between the text and the lab. One of the major efforts of the researchers was to bring the text to life in the lab. Often in the lab, the practical application of the text is overlooked in the lab or classroom.

When writing the script and making the storyboard, the researchers attempted to adhere to the lab as close as possible to solidify and reinforce the content in the manual. In addition to the script and the storyboard images from the manual were shown in the video to clarify its content the students what they had read and that now it is time for them to do it on their own and this is how it should look. At the same time, this video is here as a supplemental resource. The researchers neglected to make address the effects of these aspects and efforts on student learning. In the future, investigating theses connections and their efforts on student learning may be beneficial to lab instructors.

Recommendations for Further Research

In the present investigation, the researchers examined the extent to which interactive video enhanced learning outcomes. Findings showed that interactivity did, in fact, improve student learning. Future research could explore several areas: (a) the effect of individual learning styles on student learning using interactive video; ((b) the "interactive" features which contributed most to student learning; and (c) and the effectiveness of the use of figures from manuals (as add-ons) in interactive video; the effectiveness of the use of images from manuals (as add-ons) in interactive video production. Additional research could also be done on the comparative effectiveness of various software for the video production of selective biological lab procedures.

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Appendix A: Survey Questions

1. How does this laboratory video compare in terms of quality and content compare to the other laboratory videos you have seen? Please be as specific as possible.
2. Were the quizzes/questions contained in the video helpful to you?
3. Were the pop-up facts/ callouts contained in the video helpful to you?

4. Did you experience any moments where the video rewound to review a section when you answered a question wrong? Did you find this helpful?
5. Was the video a good length? How does it compare to other laboratory videos you have seen?
6. How was the quality of the audio? How easily did you understand the narration?
7. Was the video useful in helping your learning process during the pig dissection? Were any gaps filled, etc.?
8. Was it useful to you when the video directly referenced the dissection manual?
9. Do you have any ideas how this video could be improved in the future?
10. In the process of watching this video, did you learn anything you did not know previously?
11. Any other comments or anything else you would like to say?

Appendix B: Focus Group Questions

Rank on a scale of 1 to 10 (10 being strongly agree)

1. In addition to the standard video, the quizzes were helpful to focus on important aspects of the video.
2. The use of call-outs (i.e. arrow pointing to injection site) was useful to call attention to important aspects of the video.
3. The duration of the video was too long.
4. The narration was easy to comprehend.
5. References made to the Dissection Manual were helpful to the overall process of learning the lab procedure.
6. I learned a lot by watching this lab video.

Open Response Questions

7. What's your major? Why are you taking this lab?
8. Was there anything in particular that you really liked about the new video?
9. Did you watch the original video from beginning to end?
10. Would you prefer other instructional lab videos to be similar to this video? Why?
11. Did you think that the new video was better than the old video? If so why and in what ways was it better? If not, why not?
12. Did the video keep you engaged? If so why/how? If not why and what would keep you engaged?
13. Did you learn anything from the new video? If so what?
14. Did you learn more from the new video or the old video?
15. Did the narrator's enthusiasm help to keep you attentive?

16. Any other comments or suggestions for further improvements?
17. How was the audio/video quality and cinematography in the video?

Appendix C: Focus Group Open Response Results

Focus Group from Tuesday the 15th

Question 7:

1. The quizzes that stopped the video and forced me to pay attention and actually take something away from the video. The speed up parts were also much appreciated.
2. It was more inter-active and highlighted the most important things. Also the quizzing helped me learn about the dissection more.

Question 8:

1. It was much more succinct, and I actually paid attention. Basically, better information in a third of the time = win-win.
2. It is clearer vocally and more explanatory with the use of pop-ups and quizzes. Also well organized.

Question 9:

1. Yes and yes. It forced me to pay attention and get something out of the video.
2. Yes I did. I found it helpful because now I found out what was correct.

Question 10:

1. Good job! Much better than the current video.
2. The shortening of the video was good and made it easier to grasp.

Focus Group from Monday the 21st

Question 7: What's your major? Why are you taking this lab?

- Biology – taken as a requirement
- I am a biotechnology major. This is a required lab for me
- My major is biotechnology; the lab is required for my major
- Biology/Biotechnology- Needed for major

- My major is biology, and I am taking this course because it is a required course for that major
- I am a Biology major (pre-veterinary). I am taking this lab as a requirement for my major
- My major is BME and I'm taking the course as a requirement for it
- Biomedical Engineer- fulfills my lab requirement
- Biology/Biotechnology and I am taking this lab because it is a major requirement
- Requirement.

Question 8: Was there anything in particular that you really liked about the new video?

- The table of contents makes it easier to watch specific parts instead of having to guess which part is where using the time scroller.
- The shortening of the video was good and made it easier to grasp.
- One thing I particularly enjoyed about the new videos was the quizzes. Also, it was helpful when things were pointed out and minor details were given. It's much better to be able to click on a part of the video on the side instead of having to scroll through the entire thing looking for one specific little detail, at least there are chapters to point you in the right direction in this video.
- I truly enjoyed the navigation-style table of contents located in the sidebar. The ease of use presented by this additional technological feature will surely serve as a beneficial contrivance for future viewers of this video.
- I really liked how the actually skinning was sped up and didn't take an hour to watch. Quizzes kept you paying attention for the entire time. The side panel provided easy navigation for sections throughout the video.
- I liked that this video was shorter in length than the original, which held my attention span better. I also like how the guide was included on the side so you could pick a particular point in the video to go to.
- The sped up camera work helped us see the entire skinning without having to painstakingly sit through an hour of the same procedure. I also liked the option of the closed captioning. This way, in case something is said too fast or mumbled the audience would have no trouble understanding what the procedure wants them to do.
- It went much faster than the old one, it was more interesting, and had more narration and features that indicated the important aspects of the dissection. Therefore, these characteristics make this video much better than the existing ones.
- I liked the closed captions and the table of contents, very useful. I especially liked the fact that if you get a question wrong on one of the quizzes it goes back to the footage pertaining to the answer.
- I liked the quizzes, the table of contents, and the length.

- The quizzes after the section were helpful, because I know that I was paying attention and understood what needs to be done in lab
- It was short and to the point

Question 9: Did you watch the original video from beginning to end?

- No. I watched them in pieces, chapter by chapter. The video was way too long to watch in one sitting.
- I did not watch the original video from beginning to end, but did watch most of it. The old video was just way too long to focus on and the narrator hardly ever talked and when he did it was extremely monotone and boring and nothing interactive at all. Basically, the old videos were terribly tedious and annoying and most students didn't end up watching them for those reasons.
- I managed to watch the required sections of the original video, but opted out of viewing the extra material that was not required. The long format of the original deterred me from choosing to watch more.
- No, the original video was too long and I started to fall asleep a quarter ways through.
- Yes
- No, it was much too long to sit through!
- Yes, though it was long, boring and lacked adequate narration, I did in fact watch the entirety of the old lab video.
- Unfortunately, yes I watched the old video.
- No, I only watch the original for the first half.
- Yes
- No

Question 10: Would you prefer other instructional lab videos to be similar to this video? Why?

- Yes. The quizzes made it easier to follow along and can skim the protocol instead of reading it
- Yes, I would prefer future videos to be more like this one. The video was more interactive and easier to understand from than past videos have been. Also, making it interactive helps one learn the material better
- Yes, this video was much shorter and more entertaining
- Yes, the flashy transitions and the narration were much more engaging than the original video. I prefer this over the old style
- Yes, it picks out the important parts and students can actually get through the entire video. It looks much more modern and up to date
- Yes because I liked how it still covered all of the important material but was much shorter. I also liked the quizzes, they made the video more interactive and helped point out key parts to really focus on

- Yes, because it is much more student-oriented, because it was made by peers. Also, the short length aided in keeping my attention. Also, having the table of contents on the side is a very convenient tool. This way you can get to the exact part that you are looking for without having to blindly skip through the video like you had to in the old video
- Yes, I would prefer other instructional lab videos to be similar to the new one that I viewed. I learned so much more and was able to pay attention for the entirety of the video, since so many tactics were used to keep me focused
- Yes, because reading the entire lab procedure can be tedious to some people who are not read/write learners
- Yes because it was short, gave different views of the pig, and had table of contents so I could go back to important parts. However the talking was too fast
- Yes, I feel that I could truly understand what was going on. I was able to focus more because it wasn't as long and it forced me to pay attention to understand the key concepts with the quizzes
- Yes. This video was simpler. I could actually stand to watch it instead of watching a 2 hour movie

Question 11: Did you think that the new video was better than the old video? If so why and in what ways was it better? If not, why not?

- Yes. It had a table of contents, quizzes (if you got it wrong, it sent you to the part of the video that said the answer.
- The new video was better for reasons previously described. The quizzes help you stay focused, and help you learn better. I really like the idea of how it goes back to where you can find the answer to the question if you get an answer incorrect. The arrows pointing out things help with understanding what the person is directly talking about
- It is better, as the old video is in real time, which is unnecessary for demonstration of this procedure. The shorter version is sufficient
- Yes, it was shorter but had the same information. The old video was too long and my mind started to drift through it. Also, while in lab, a shorter video would be better to keep playing while dissecting the pig, rather than trying to find certain parts of a much longer video. The side panel with the chapter selections also makes it much easier to find certain parts in the video. Less time in lab would be spent towards finding parts of the video rather than actually dissecting the fetal pig
- Yes, for the reasons stated above such as the quizzes, its length, and the 'menu". I also liked how if you got a question wrong it would jump back to the part of the video where that answer was from, unlike how in the old videos you had to scroll through yourself to get to a specific part.
- Yes, it was shorter yet just as informative

- It was definitely better than the old video. It was much faster paced and less boring. I learned much better because it held my attention, and quizzed me as I went along.
- Yes, the new video was better because it was a lot shorter and pointed out the important aspects of lab; the close captions were also helpful if one does not understand the English language pronunciation well
- The new video was much better because of all its features. If Im confused of something, I can just click of the table of content, instead of searching through the whole thing. I also like the fact that if you get the answer wrong on the quiz it goes back to that part
- The new video was much better than the first, because it was shorter and many students have trouble staying focused in lecture and watching a long video will be even more difficult for them to stay focused. The quizzes at the end of each section were also helpful to understand the important concepts that needed to come across before entering lab, and allowed you to refocus because you had to do something other than watch
- Yes. It was much shorter and easier to understand. Don't want to waste too much time watching a video when I could just watch this for ten minutes and be done with it

Question 12: Did the video keep you engaged? If so why/how? If not why and what would keep you engaged?

- The quizzes kept me engaged
- Yes, the video was very engaging and interactive. The most prominent engagement tool was the questions asked – those really helped
- Yes, the quizzes made sure you paid attention and knew what was important that was pointed out.
- Yes, it kept me engaged through the quizzes and the pop up bubbles. The old video moved too slowly and there was no reason to pay attention
- Most of the times, there were a few parts that dragged on a bit too long. Maybe have some sort of elevator music to not bore the audience…?
- This video kept me engaged the entire time. The narration and the quiz questions kept me focused on the important parts of the procedure. In particular I feel as though being quizzed engrains things in my memory, since I have to get the right answer and recognize that the others are wrong
- Yes the video kept me engage. Especially the quizzes because it required that I pay attention to the video. It's much more interactive than the old video
- Yes, the video kept me engaged with the quiz. In order to answer the quiz question I had to really listen and watch carefully; it kept my attention
- This new video kept me more engaged than the first, because there wasn't as much dead air time with no audio and if I started to lose focus the quizzes pulled my attention back to the video. It was interactive which made it more intriguing to watch

- Yes. There was always something going on with no waiting around. Talking and referencing the lab book helped to keep me engaged

Question 13: Did you learn anything from the new video? If so what?

- The skin is called when completely removed from the new video
- I learned from the new video where to start an actual incision. It was a different spot than I had previously thought
- I learned that the skin is called the cape when it is mostly removed from the pig's body
- Yes, I learned to start the dissection at the injection site. I didn't know that from the first video
- I learned the skin was called the cape. I feel like since I already watched the old video I knew most of this material, but if I hadn't watched it yet I feel as if this movie would have provided me with all the necessary information and more
- Yes, that the whole removed skin of the pig is called a, "Cape".
- I learned many new things from this video, which is kind of sad considering that I already watched the old video and completed the lab. I learned the correct terms for the things we were observing during the dissection. For example, I learned that the skin that was removed from the pig was called a cape. I learned this specifically from answering a quiz question about it
- Yes, I learned that the entire skin is called a "cape".
-) I learned the name of the skin after its completely off and where to start when cutting the skin; I didn't not catch this in the original video. The original video was to slow, boring, and monotone. Also the quality of the new video was much better, thus I could see and hear it more clearly
- I did learn something new from this video. When watching the first and doing the skinning in lab, I didn't start at the injection site and that was new for me because I didn't know that I should have started at the injection site
- I learned what the cape was, and best way to make one

Question 14: Did you learn more from the new video or the old video?

- The new video teaches more than the old video. It goes over some of the prelab questions that the old video doesn't, which is much more convenient
- I learned more from the old video because I watched that one for the first time. The new video I still learned stuff but most of it was review
- I believe I learned more from the new video
- I learned more from the new video because it kept my attention for the entire time
- I learned more from this video than the old video. It was easier to pay attention to this movie and I paid closer attention so that I would be able to answer the quiz questions correctly

- Old, only because it was longer hence had more information. Plus the old one had many more diagrams which came in handy when the time came to identify the parts of the pig
- I learned more from the new video since I was more engaged. The old video was so boring that I found myself surfing the web while I should have been watching. There was hardly any narration, so I could not just follow and learn by watching the person dissect without explanation
- I learned more from the new video than the old video because I did not doze off in the middle of it
- I learned more from this video because it was short and to the point. I also liked that it had captions so I can see it in writing too, just in case I couldn't understand the speaker
- I learned more from the new video because it kept my attention. It was shorter and I wasn't dreading how much more of the video there was left to watch. Also, the quizzes helped make sure that I gained the important information that I would have forgotten by the time I got to lab from just watching the video
- New

Question 15: Did the narrator's enthusiasm help to keep you attentive?

- Yes, the narrator's enthusiasm kept my attention
- The narrator helped a little bit. The guy in the previous video was so monotone and boring
- The narrator's enthusiasm was entertaining, but not really in the "I sure am glad I'm learning this" kind of way. It was more so a "that narrator sure is excited about ripping the skin off a fetal pig" kind of attention-grabbing spirit that is certain to stay buried in my memory
- Yes, it was a better narration than the first video and didn't put me to sleep
- Yes
- Yes, the narrator's enthusiasm helped keep my attention. However, I do suggest toning down the volume of the narration, and also the (no offence) high pitch
- I felt as though the narrator could have been a little less enthusiastic. I found it distracting at times, and I was unable to actually pay attention to the material that they were trying to convey to me. A more professional, serious tone may aid in my being able to gain the most from the experience of viewing the video
- I suppose it did, although the change in narrators kept me more attentive
- The female narrators voice was a little too high pitch and fast. The male was much better. However the enthusiasm does help
- The narrator's enthusiasm helped keep my attention because the voice was not monotone and didn't drone on. That sometimes cause myself and other students to lose attention and that wasn't a problem with the new video

- A little. Didn't seem that enthusiastic, but at least there was some talking to keep me intrigued

Question 16: Any other comments or suggestions for further improvements?

- Maybe add some music in the background when there's silence
- No further comments or suggestions.
- Just be sure that the video is playable in all formats. Maybe it would be better to upload online somehow as opposed to having to play it in media player?
- One suggestion is to better extinguish the feel between skin and muscle so the student will know if they are too deep in the layers of the pig
- I feel as if the closed captioning wasn't really necessary. The narrators were clear and easy to understand, the words across the bottom were just a little distracting
- Don't stress, you did fine. ☺
- I thought that the video was far better than the old video. I can see that a lot of thought was put into allowing people with all learning styles to benefit from watching it (i.e. the verbal narration, closed captioning, pointing out the important aspects with arrows). This gave me multiple opportunities to "absorb" the information that was being presented to me. As I had stated above, I was slightly distracted by the narration at times. It almost seems too informal since it was so enthusiastic. I feel as though dissecting a fetal pig can be interesting, but is not something that warrants such an enthusiastic tone while describing the procedure
- None that I can think of at the moment
- The quiz needs to be more in depth or just a little bit more quizzes. Also when showing the skinning part it was too fast and I couldn't really see all the details. It was also too close to the pig at times and couldn't see what was happening. Even if a minute was added it would be a little bit better.
- Possible have more questions in the video. Also, the last question came before the answer was given in the video. Just make sure that questions come after the information in presented in the video
- The continuous skinning was a little repetitive

Question 17: How was the audio/video quality and cinematography in the video?

- The audio and video quality was equal to the old videos
- Seemed like it could use some work but it just may have been the computer having problems when we were watching it.
- The audio was clear and loud enough to understand. The quality of the video was better than the original and more up close to the pig
- The audio for this video was very good. It was loud enough and very clear. Plus, the speaker seemed enthusiastic about what was going on and they were not monotone. I feel

like in some spots the camera angels were a little awkward or too close up but overall the video worked

- The quality of the audio/video and the cinematography was good
- The audio/ video quality was much better than the original. I could see everything clearly (at least when it wasn't going too fast). Overall it was very good
- The audio/video quality was great in the video. There were some technical difficulties so I would make sure that everything runs smoothly with the video. The cinematography was great and it was wonderful that the video was speed up, to help get rid of some of the dead air
- The audio and video aspect was very good and flowed nicely. I liked the speeding up of pointless and repetitive skinning, so it wasn't in actual real-time

Other comments:

- I think you should have kept the whole process of skinning the pig like in the old video so people know how long it's going to take but add music to keep them entertained or had more information while the skinning is being done.

Appendix D: Survey/Questionnaire Posted On myWPI

Found on the following page

Assessment Statistics: New dissection video survey

The statistics are calculated based only on the attempts being used in the grading option (Last attempt, First attempt, Lowest Score, Highest Score, or Average of Scores). If Average of Scores is the grading option, then all attempts are included in the statistics.

Name	New dissection video survey
Attempts	89 (Total of 92 attempts for this assessment)
Instructions	This survey is completely anonymous. By completing it a check mark will go into the grade book that we will award 4 bonus points for. Your responses cannot be attributed to you in any way. You are not required to partipate in the survey. The points awarded are purely bonus and will be added to your total score. If you choose not to take the survey you can still get the bonus points by submitting a written review of the video. You need to have viewd both videos to complete the survey. If you have not watched the new video follow the instructions and use the file in the lab 3 section of the course. When answering the question keep in mind that they are in reference to the new video and how it comparesa with the original version.

Question 1 Opinion Scale/Likert

In comparison to a straight forward video, being quizzed in the video helps to highlight the important points from the procedure.

Answers	Percent Answered
Strongly Agree	30.337%
Agree	56.18%
Neither Agree nor Disagree	5.618%
Disagree	6.742%
Strongly Disagree	0%
Not Applicable	1.124%
Unanswered	0%

Question 2 Opinion Scale/Likert

The use of pop-ups was useful to call attention to important aspects of the video.

Answers	Percent Answered
Strongly Agree	31.461%
Agree	58.427%
Neither Agree nor Disagree	5.618%
Disagree	3.371%
Strongly Disagree	0%
Not Applicable	0%

Unanswered	1.124%

Question 3 Opinion Scale/Likert

The length of the new video was appropriate.

Answers	Percent Answered
Strongly Agree	24.719%
Agree	49.438%
Neither Agree nor Disagree	22.472%
Disagree	2.247%
Strongly Disagree	0%
Not Applicable	0%
Unanswered	1.124%

Question 4 Opinion Scale/Likert

The narration was easy to comprehend.

Answers	Percent Answered
Strongly Agree	24.719%
Agree	60.674%
Neither Agree nor Disagree	13.483%
Disagree	1.124%
Strongly Disagree	0%
Not Applicable	0%
Unanswered	0%

Question 5 Opinion Scale/Likert

References made to the Dissection Manual were helpful to the overall process of learning lab procedure.

Answers	Percent Answered
Strongly Agree	30.337%
Agree	47.191%
Neither Agree nor Disagree	16.854%
Disagree	5.618%
Strongly Disagree	0%
Not Applicable	0%
Unanswered	0%

Question 6 Opinion Scale/Likert

I learned more by watching the new dissection video

Answers	Percent Answered
Strongly Agree	22.472%
Agree	58.427%

Neither Agree nor Disagree	19.101%
Disagree	0%
Strongly Disagree	0%
Not Applicable	0%
Unanswered	0%

Question 7 Essay

What specifically did you find helpful in this particular video?

Unanswered Responses
6

Given Answers
the content provided and the instructional procedure I found the dissection video to be especially helpful for this lab, as I was able to see exactly what I was supposed to be doing in the dissection as opposed to trying to infer it from the protocol or dissection manual.
The popups really reminded me what was important to pay attention to because there was a lot of information to obtain from reading the lab manuel.
References made to the Dissection Manual. It is then easier to remember exactly what to do during the actual lab.
I loved how you could choose a certain section of the video to watch and didn't have to scroll through the whole video just to find that part.
I found the small quizzes helpful, captions, and the table of contents on the side.
You could really easily skip around between sections to replay parts or skip things that you already understood. Since you could skip around, the video was definitely not long enough.
Making the cape. Easy to understand. Explaining as it was happening.
I found the pop ups really helpful. They drew my attention to what I needed and helped me to focus.
I found the pictures from the lab manual, the references to the lab manual, and the on screen pop-ups particularly helpful. I was able to follow along using the lab manual and the pop-ups helped me put a title to what was happenning.
In this particular video, "being quizzed" was extremely helpful because it established which details were the most vital.
I think the presentation was very well thought out and displayed well. All in all I think the videos are better now.
The video helped me focus on the important tasks for the dissection.
the quizzes really helped me keep my attention on the video, and the fact that if you get the answer wrong, it goes back to the part where the answer is shown is very convenient.
I really liked that there was a table of contents on the video, so you could go to the particular part you want to without having to search for it too much. It would be really useful in the lab when you are having issues dealing with a particular part of the dissection so that you can find the answer to your question quickly and easily.
The pop-ups and the quizzes were really helpful. They drew my attention to important details.
Their specific advice about the proper techniques were helpful.
the simplicity
It was shorter and the pop ups and quizzes helped me stay focused to full understand what was going on.

The shorter length and the abilityto jump around to specific parts with the table of contents bar was much more helpful.
The closed caption was especially useful when you might not understand a certain term or perhaps pronounciations. The table of contents was useful too, because I could just jump to the desired section without guessing where I left off.
I loved the quizzes given in the middle of the video. It makes you pay attention to the key concepts of the video which can help so much in the actual dissection of the pig. The arrows pointing to the pig also make things so much clearer. The video quality and sound quality. the video is much larger as well and the side bar shows the parts cut down that can help with the video by mentioning the exact location of the specific part of the video. Overall I LOVED it!!!
The shorter video, with the pop up quizzes that stopped the progress of the video helped to force me to pay attention to the video so i actually got something out of it. I liked the reference back to the manual--it gives you a better idea of what's going on and what you're expected to do in lab.
The popups kept my attention
More effective, better length
I liked the linking of the manual and the video, which is what we do in lab on our own. It makes us less clueless.
The fact that we are able to visual the experiments before actually doing them makes it easier to understand
The addition of questions to review material is helpful and kept my attention. The vivacious new narration also helped out by keeping me focused. Past videos dragged on.
The interaction kept my attention better.
The removing of the skin from the back, and from the umbilical region to around the tail. Also the use of the injection site, which I didn't know existed until they used it.
I thought it was a little more coherent
The quiz question in the middle of the video was helpful.
Easy to understand and had good descriptions of procedures.
n/a
It was more inter-active and highlighted the most important things. Also the quizzing helped me learn about the dissection more.. Also well organized.
The lighting was much better in this video so it was easier to view the dissection. The highlights made following along easier as well.
I like the pop-ups that were used in the video.
The quiz questions helped to reinforce important concepts.
I found the questions helpful becuase it made me pay more attention to the video, rather than being distrected.
The questions and interaction.
The most helpful was the references to the Dissection Manual and the pop ups.
Being able to use the navigation bar on the left side made it easier to go to each part of the dissection. I know my partner and I found it really annoying having to guess where to go if we had questions about the dissection on the old video and it took longer to complete simple tasks.
I found the close up shots and hints on how not to damage the internal organs of the pigs helpful. Text over video was also helpful.
I enjoyed that the new video was much more interactive through the quiz questions and that it highlighted important aspects of the fetal pig lab proceedure. Also the video was of an appropriate length of time.
The new video went much faster than the old one, and had many tactics (quiz, more narration, closed captioning,

etc.) to keep me engaged. Therefore, I learned more from this video, as it was more faced paced, highlighted important points, and kept me interested and paying attention.
I like how it could be separated into different sections so if a particular portion of the dissection wasn't clear to me the first time around, I could easily go back to the video to find it.
I liked the questions because they allowed me to see what was the most important part of the lab and that I wasn't just listening, I was also learning.
The quizzes were very helpful
Referencing the dissection manual, because the procedures we follow come from it.
The length of the first video was too much i lost alot of interest and probably didnt absorb as much of the information that i could have. Also this video is much clearer on what to do.
I liked being quizzed on the videos because it helped to focus on what exactly was important to remember
I liked the pop-ups. They really helped to highlight the important details and cuts.
There was not really much that stands out.
. It had a table of contents, quizzes (if you got it wrong, it sent you to the part of the video that said the answer.
The refernce to the dissection manual was helpful and the pop ups were nice.
The popups and quizzes in the video
My favorite part of the video was the pop ups that highlighted important information I otherwise may have overlooked.
I could see what needed to be done in the lab. It was easier to visualize what I needed to do.
The quizzes really focused on the important parts. A shorter video keeps the student's attention for longer.
The step by step explanations.
N/A
The questions relating to the more important parts of the dissection procedure were helpful in reinforcing the key points needed to skin the pig without damaging organs.
The quizzes really helped to reevaluate the new info and make sure it is fully understood.
the references were helpful
It kept my attention because it was a good length and highlighted the important parts of the lab
The video quality was much better, so I could easily see what the dissector was doing. The speaking was also much easier to understand. The angles of the camera and the pop ups and highlights were also helpful. Fast forwarding the lengthy parts of the video also made it easier to see the overall goal without having the video be too long.
I found the pop up boxes helpful. They highlighted what was important but were not in the way either. The explination of the injection site and the suggestion to start from there was also helpful.
It was very easy to follow and pretty simple
The quizzes were helpful to keep the audience's attention.
I found the separation and identification of the major vessels near the heart helpful.
I liked how it refereed to the dissection manual and had pop ups that highlighted important aspects of the video. It made the overall procedures of the lab clearer to understand and easier to follow.
Not really
Pop-ups were nice
The use of fast-forwarding during slow parts of the video kept the viewer's attention.
The pop-ups
The quiz

I thought that relative to the other videos I have seen it had a larger amount of content and was much easier to understand.
Better than most.
I liked this video more because there was less excess material being presented, the video is more engaging without the long awkward pauses of other lab video's I've seen.
n/a
The fast forwarding of the skinning was a bit dizzying at times. And the talking was bit fast at times but other than that I liked it better than the first video.
shorter videos tend to better keep the viewer's attention, helping the viewer to absorb more information
The video has more content with the beginning visuals of what the viewer should be looking for; it also has better quality because the person's voice can be better heard.
It was very good. The pop-ups and questions made it seem very professional. The video quality, and editing made it easy to watch.
The audio is clearer and visual is better
I beleive that the content of this video is superior to the content of the other laboratory videos as the surgical procedures for skin removal were evident and emphasized but not overlly long in time duration. Also, the video itself was much clearer in terms of both audio and video quality. Speeding up the video frame speed in certain parts of the video so as to decrease the overall time of the video for pig dissection techniques that take some time to complete but not to learn was appreciated.
I like being quizzed. It gets you more acquainted with the pig and manual.
It has really good quality and content. I was really bored when I watched the old lab videos, but I was able to pay better attention to this one because of the quizzes and the random pop-ups.
This video is way easier to focus on than the past ones because it's more interactive.
The quality was good compared to other videos, and the content was very similar to the material covered in other laboratory videos.
I appreciated the text overlapping the video, which made it easier to take useful information out. I thought in the new video the dissector's hands got in the way a lot and the camera angle wasn't adjusted to compensate.
The new video was much better.
i feel like the quality is about the same, both straitforward
The content was roughly comparable, but it was presented in a higher quality, better, more interactive way.
N/A
It's quality was better than most and less boring.
This is a lot more specific and really helps to know what you are supposed to be learning. Other videos are boring and more vague, but the questions made it a lot easier to remember the information.
The content was roughly the same as the old videos, but I like the style of the new video much better with the quizzes and other features that kept you more actively engaged in the video.
The quality of this video was very good. It was straight forward and easy to understand. It also very easily linked pictures from the dissection manual to pictures of the actual pig.
I feel like the new video was better quality and easier to watch in general.
It had the same content, but was of better quality because since the video was shorter, I could pay attention the entire time.
This video was much better compared to other lab videos not only because of the interactive capabilities (which make you actually pay attention) but also because it allows you to follow along with the dissection manual.
I thought this video was very comparable in quality and content to the other videos I have seen and I found it very helpful, especially with the dissection.

It has good quality.
It was probably above average and the narration was better
It was a little more specific on how to do things and it made things a little clearer
The quality is much better. There is a better close-up of the pig during the dissection. The content is very straight forward and helpful.
This is a much higher quality video in my opinion because as the video continued, the parts that were mentioned in the narrative were labeled on the piggy. The video, unlike the old one, did not take a very long time. It showed the parts that were needed to be cut and how to cut them off but it was efficient on time. It was about 10 minutes as opposed to 20. Also, more references to the book would have been great
It was not as long and it put it in simple terms while highlighting the most important parts of the video/dissection.
much better
I think this lab video was much more helpful because it showed all of the necessary steps but faster than the old video. Since the old video was in real time, it became boring and tedious to watch, I enjoyed that this video went much more quickly and didn't have nearly as many pauses with no dialogue. I also liked the table of contents on the side. It's much easier to locate a specific part that you wish to see again than it was in the old video.
This lab video is just as informative, but it conveys its information better than the other videos I have seen.
Rather than just the procedure of what was expected, there was more emphasis on the important aspects of what we're learning through quiz questions and pop-outs.
The shorter time and more frequent narration made important parts easier to point out. The old video was too long and had too much silence.
It was better quality in terms of presenting the information needed to do the dissection.
The overall video quality was much greater than previous videos. More narration kept me paying attention, so I didn't find myself zoning out or surfing the web. There was much more content than just watching someone dissect a pig for 35 minutes. The constant explainations helped me to understand what I should focus on, rather than just showing every single step of the process.
The quality was a little better, and the content was basically the same. However, having the video broken up into sections really would have helped if I had a specific question in the lab and needed to review the video. There just isn't enough time in lab to skim through several 7 or 8 minute videos to find one part of the procedure.
It's quality was so much better because there wasn't any background noise. Also the sound was clearer and the video angle was better. It was angled closely and in a direction so that the hands didn't cover what was happening in the dissection.
I have not really ever had to watch laboratory videos, I have only had lab procedures to read.
I think the quality is just as good.
The visual quality is much better, it is apparent that it is an updated video. THe references make it easy to connect the video to the material we are going over in order to prepare for lab and makes the viewer more efficient while completing the lab.
Higher quality. More informative
this video was of a more appropriate length and held my attention better than many other lab videos I have seen.
It is easier to follow and understand the important material
It is much more up-to-date and less boring which is good!
clarity
I feel it does a good job, i liked the popups to reference important things to remember
This video was more to the point and there was less silent periods than the old video which is especially helpful in NOT dozing off in the middle of the video and missing important information. The video quality was better and it also showed different video shots allowing the viewer to see the pig in an almost 3-D view which is helpful when actually doing the lab as not all pig specimens are the same but rather similar.

The video is longer that other lab videos, but I have never been quizzed on a video before.
the quality was higher and I liked the person speaking better but I mean the content was about the same.
The quality of this laboratory video is more updated and recent compared to other laboratory videos I have previously viewed.
This video was better because it cut out the long periods of watching the instructor skin the pig and only showed the student the important aspects.
It is clearer vocally and more explanatory with the use of pop-ups and quizzes. Also shorter and makes it easier to stay attentive.
Better quality in regards to explaining the procedure better.
Much better quality. It is better made and the graphics are better.
The audio and video were both improved quality. Also the quiz questions and pop-ups were a great improvement over the videos watched previously.
The content in this video was the same as the other videos, but was much easier to watch and kept my attention longer. That way when I watched the video I got all the information I needed and didn't have to watch it again
Other lab videos seem pointless and boring/monotone. This one was a slight improvement.
The quality of this video was better than some of the other videos. It used time more effectively. It was not too long but long enough to contain the right information. It also included important information needed when cutting the skin off the pig.
This one is better because it is much shorter, so students would be more likely to to actually see the entire thing. The new video is also clearer and has better views of the object being studied. However the speakers voice is too high pitch and spoke to fast.
The new video teaches more than the old video. It goes over some of the prelab questions that the old video doesn't, which is much more convienent.
There is more than one speaker and they are much more lively. The fast-forwarded feature skims a lot of unnecessary time when observing the dissection while not skipping it altogether. There is more content than the previous videos but still remain at a low amount.
This video did have better sound quality, but it tend to scare me at some points when a random voice appeared from no where. I would prefer to watch the other laboratory videos. They gave the materials needed before they started the experiement and i like the sound better in the other videos. I did like that you fast forward through the skinning so it would take up less time.

Question 9 Essay

Did you experience any moments where the video rewound to review a section when you answered a question wrong? Did you find this helpful?

Unanswered Responses
5

Given Answers
No, I answered a question wrong purposely to see if this would happen. However that feature would probably be helpful with some procedures later in the dissection, after the skinning.
No
Yes. Being quizzed in the video made sure I was actually absorbing the information and called attention to things I had overlooked, making it possible for me to go back and re-watch that section.
No, but I don't think I would like it, I'd rather choose whether or not I actually rewind, and chose what point I want to go see instead of being forced back to a set point
N/A

Yes. Yes.
Yes, it was helpful for review.
Yes. I did find this helpful because I was able to pay better attention and find out what the correct answer was and why my answer was wrong.
It was a little bit annoying that it rewound, but I think it was good that it did this. This way, it ensures that you KNOW exactly what you are to do when you get to lab.
No, but if I did answer wrong I'm sure that I would have found it helpful. Good to re-enforce key points.
No, I did not experience this.
I didn't get a question wrong, so I didn't experience this.
No, I did not experience this, although it sounds like it would be helpful to send the student back to a part they misunderstood.
No.
I did not, but it would be helpful. It makes the student realize if they are about to do something wrong.
Yes it was very helpful.
I did not experience this, but if I had I would have found it both annoying and helpful.
Yes, I experienced the rewinding moments. I found it helpful because it helped me remember what the highlight of that segment of the video was.
Yes I did experience that and it was delightfully helpful when the video rewound to the exact location! I liked it a lot because it helped reinforce the answer by allowing you proof to the answer so you understand where it's coming from.
No I did not
Yes I did, and I think it was great to be shown where the answer was and get a refresher.
Yes and Yes
No
I did find it helpful, but also just seeing right answer helps me better understand where I went wrong instead of re-watching the section. At times it was just a time killer.
No, this never happened to me.
Yes, it was very helpful to review what I got wrong. :)
No I didn't but that seems like a helpful approach to having missed an important topic.
no
No...I didn't like that
N/A
Yes, and it was mildly frustrating, but I get the point.
nope
I didn't really like being quiz throughout the video, I just wanted to see how the lab was done so I didn't rewind if I got a question wrong. I din't really find this that helpful.
no. but i assume it would be, as it would tell me where i was wrong and give me the right answer, clarifying any confusion.
Yes, that was helpful.
No, because just getting the question wrong helps to remember, if i wanted to rewind it and see it again i would
I did not experience this.
n/a

Not helpful.
Yes, i did find this helpful
Yes, this was helpful. It was just a "oh I got it wrong, move on" sort of situation. I was sort of forced to learn it.
Yes I did and it was very helpful as it told me what was correct.
No
Yes and this was extremely helpful although after the second time answering wrong i think additional info should be given, not just rewound to the same section.
Yes, rewinding was helpful because I could review the material and figure out the correct answer.
I didn't answer any questions wrong, but I would imagine that this would help me to learn the material better. I wouldn't have to waste time finding the part of the video that provided me with the correct answer, yet the specific review of the topic would engrain/reinforce the material in my mind.
I did not experience any of these moments, but the questions were helpful to make sure I knew the material.
yes, and that is a very helpful tool.
It did not happen to me, althought I went to the focus group and they let us know it did this and I think that's a great idea.
No
yes
Yes, that was helpful because if it didn't rewind then i probably would not have gone back and watched the section with the right answer.
No I didn't answer any of the questions wrong. But I was informed of that aspect in which in the event that a question was answered incorrectly, the video would rewound itself. I find that that was helpful because it forces the viewer to rewatch and pay attention to the information given and it reinforces the viewer's knowledge through repetition and visual viewing.
I did not experience this.
I would have preferred a choice in being able to go back to the material instead or going on ahead if I understood why my answer was wrong.
Yes, this is quite helpful.
No I did not experience any of these moments.
I would tend to skip over the questions. It might be helpful for some students to answer the questions, but for me I just wanted to see how the person in the video is doing the lab and mimic what they are doing.
No
I did not see any quiz questions, so no.
No I dd not but I do like the fact that if you get something wrong it goes to that section again.
Yes, it was helpful but did get a little annoying as it took time to go back and reshow that portion.
Yes, it saved me the time of having to go back and review myself by immediately addressing the issue.
n/a
Yes it did; I think it was helpful because I relearned the material.
yes; learning from mistakes is a very helpful technique
N/A
Yes. The flash component was helpful and allowed me to correct my answers.
No I didn't experience rewind, I watched with mu manual in hand. But rewind would be good if you were wrong.
Yes, because I clearly was not paying enough attention to the video so the fact that it reiterated the information was a good idea.

No, but if I did that sounds like it would be helpful because it does reiterate the information that I didn't know the first time.
yes, it was helpful.
No, but I would find that helpful
Yes, it is actually very helpful since it lets let you learn the stuff you dont know
Yes, I did experience the video rewind to review a section when a question was answered wrong. Again, this was exteremly helpful because it reviewed essential information relevant to the actual lab procedure.
I did not experience this myself. However, I would presume that this would be helpful because most people would have tried to rewind the video themselves to find the answer and it can be difficult to locate the actual part needed.
I don't remember the video rewinding at any section. It fast-forwarded some parts that take long that have the same process of skin removal. For instance it showed the removal of the skin from one leg and one side of the ribcage, etc.
Yes I found it very helpful
yes this was very helpful
Yes, it was helpful to review a section when I answered a question wrong.
I found the questions helpful, but I did not necessarily rewind the video to repeat the section. I found that just testing myself on key points about the video made me realize key details that I was supposed to take away from each section.
Yes, I found this very helpful to understand what I got wrong by reviewing it in the context of the video.
No, but I would find this particularly useful should it have come.
None, but this is because I already performed the skinning of the pig.

Question 10 Essay

Any other comments or suggestions for further improvements?

Unanswered Responses
21

Given Answers
Great job! :)
No other comments
Nope
The videos are a bit lengthy, but this one is shorter than some I have seen. Overall, the new video is much better than the old ones! Much more entertaining to watch!
no
More audio would be helpful in the video, it seems there are long points of silence. It is nice to hear the procedure being explained as the teacher goes instead of at specific points.
Making the videos a bit shorter may help keep the attention of the viewer.
I personally think that background music could be used to make the video more entertaining during segments without any verbal instructions. Also, as these videos will potentially be played in a lab setting, it might be useful to put all of the audio instructions in text boxes on the screen as well so that when students play the video on mute during class, in order to minimize auditory disruption, they have access to all of the appropriate auditory pig skinning instructions from the video.
I like being able to jump to chapters.

Nope.
Maybe go a little slower, but the pace is good for me.
I can't think of any other comments or suggestions that have not already be mentioned in this survey.
No, it was over good.
-
There could be one done for the female genital section and the male in the proper way to remove the skin, or the organs you're supposed to look for for each sex. From personal experience I had a male pig, I simply guessed which one is the penis, which one is the umbilical cord and which one is the bladder. The photos in the book aren't very helpful because their pig had that section in different variations of pink, but my pig, everything was the same! The older video was of a female.
meh.
N/A
It was hard to figure out how to do the video lab report with a PC.
Ask more questions and please try to polish the video a bit better. The narration was well done but could more clear. The narrators were much more lively yet at moments, I could not understand what they said. Other than those, good job!
Potentially you could mention what to do if the skin ripped or got stuck. Many students in lab had times when they got to a hard part on the pig and unintentionally ripped off muscle with skin. The video, although very accurate, is unrealistic about the skill level the students have in not making mistakes during the skinning process.
I think it could be just a tad shorter.
Overall, I think the addition of these videos would be in the best interest of all students.
Re-do the voices because they're a bit edgy.
No
No.
I have nothing.
nope
N/A
is there any way there could be a few points involved for watching the entire thing and answering all of the questions?
nope
I really liked this video better than the other lab videos. It captivated my interest and I would like to see the other videos switched to a format similar to this.
great video!
Nope
I was slightly distracted by the narration at times. It was slightly too enthusiastic and informal. At times the voice and tone got annoying. I find dissecting interesting but not to the extent that the narrator was enthusiastic about the procedure. A more serious tone would improve the narration quality.
The shorter and more concise a video can be made the more effective it will be (always).
The new video is an improvement on the old video, although the TA was usually more helpful than a video would have been during lab.
nope.
I don't have any other comments besides that the time, camera viewpoints, and enthusiasm in the person's voice made the video more appealing and interesting.

A feature where the video pauses automatically after major steps in the procedure would be helpful, so if the video is playing on a computer in lab and the person dissecting the pig is referring to the video during their dissection, the video would not play ahead of where they are working and it would save the time of rewinding back to the appropriate place in the video.
Just a random thought, but maybe some nice background music would be nice :) I do like the pop-ups to explain the main point in the experiment.
Have an option to just audit without having to answer questions.
It's improved significantly since the first video and at the moment can't really think of too too much to criticize about it. Well done.
Really good job!
I'm not sure if it was a personal problem, but I had trouble with the audio during the presentation, wasn't really hearing anything.
The videos are a little on the long side. It is almost awkward to watch it with no sound, then suddenly have a period of narration. Perhaps it would be better to time lapse the process a little. more. For example: you don't need to watch the entire skinning process to get an idea of how to skin the pig. If the video just hit the critical points, and then went faster through the long process, it would be easier to pay attention to.
I thought the angles used in this new video made it a little difficult to fully be able to see the incisions. I think if incision lines were drawn on the pig with sharpie for the purposes of the video (even though we didn't need to do this in class) it would've made it easier to see exactly where they were cutting.
No, not really.I personally just feel like watching videos is more time consuming than reading.
Included more short quizzes, speak a little slower (but not too slow), and there were times when the camera was too close to the objected being studied.
Everything looks really good.
I didn't like when the video fast-forward, I understand that there is a time limit but, I just lose tract sometimes
There should be a little more narration to keep the audience engaged.
N/A
Explain that you have to cut around the umbilical chord.
Final polishing of the sound levels.
The new video is definitely a lot better.
None that I can think of at the moment.
N/A
I don't have any suggestions for further improvements.
No, I liked this video and format a lot more than the orginal.
No not really. I think overall everything was done very well and the video was even cut shorter. I liked it a lot!
Keep up the good work!
Good improvements
For the pig skinning, I think you should have kept the whole process of skinning the pig like in the old video so people know how long it's going to take but add music to keep them entertained or have more information while the skinning is being done.
n/a
The audio seems to only come out of one speaker, and the girl's voice is sometimes a little too fast and too loud. The ending where the video kept switching back and forth between caudal and neck regions was a little confusing.
nope

Easy to grasp. Well done.

OK