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Capstone Project for
Exodus instructional unit

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Web site: (www.zuriky.com).

Abstract

A need was identified for teaching the familiar story of the Exodus. A PowerPoint presentation was developed on the Exodus for fifth and sixth grade students. Learner and task analysis were performed to assist the instructional designer in forming performance objectives. The type of media needed for the project was selected and instructional strategies were adopted. A formative evaluation was conducted in three phases: subject matter expert, one on one and small group evaluation. Both qualitative and quantitative methods were used to collect data, then the data was analyzed and consolidated into tables. The results of the formative evaluation were positive. After the revisions made during the subject matter and one-on-one phase, the instructional unit reached the goals of the performance objectives.

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Introduction

Overview

This capstone project is designed around an instructional unit and PowerPoint presentation of the Exodus story. The capstone includes a problem statement, needs analysis, goal statement, learner analysis, task analysis, performance objectives, instructional strategies and theories of learning, media selection rationale, literature review, and formative evaluation. The project was designed to fill a gap for teaching this story, a familiar story, to students in a novel way. There is interaction and role-playing involved in the lesson plans so the students can actively participate. The actual presentation and instructional manual is accessible on the web site. (www.zuriky.com).

Educational Importance

The significance of this instructional project is to provide a new and more effective way to teach and actively learn the Exodus story. This is a story that most students are already somewhat knowledgeable about, although they would not know the details presented in this instructional product. The challenge was to develop an instructional unit that could hold the learner's attention and that would include information not previously learned through the movies, cartoons or less educational mediums.

The significance of this project can also be traced to that fact that there is no existing lesson plan or instructional unit that includes the material and presents it in this manner. The Exodus story is a mandatory lesson for fifth and sixth grade Catholic religious education students. Therefore all students in these grades will be learning the story. If they are unable to effectively learn it they will be unable to progress in their religious education to the next grade level.

This instructional unit can also serve as a basis for future types of religious education

curricula. Instructional developers could use it to assist in developing their own units based on other lessons, and decision makers could implement this unit at a parish or even a diocese level to improve the quality of many different religious education lessons. The goal of this capstone is to use this project as a template for future modules in religious education and to hopefully encourage other instructional designers to be more active in using multi-media presentations in their instructional products.

Relation to Master of Learning and Technology

The work done on this capstone project pulls together all of the different aspects of instructional design theory for the Master's of Learning and Technology Degree. The initial research and literature review, the instructional design, actual development of the multi-media PowerPoint presentation, and the formative evaluation of the tie in all of the work that comprises the degree program. The final product uses all the research, instructional design, measurement and evaluation modules by putting them all together in one complete package.

Each domain is represented, from Research Fundamentals with the literature review and hypothesis statement, to Instructional Design with the problem statement, goals, performance objectives and learner and task analysis. The capstone continues with the actual instructional product from the Technology Integration module, and concludes with the formative evaluation and assessment instruments from the Measurement and Evaluation module. Everything I learned as a student at Western Governor's University is included in consolidated form in this capstone project. I can apply the knowledge learned in each module to my instructional product.

Problem Statement

Background of Problem

Catholic instruction has benefited from the incorporation of multimedia based learning models into its curriculum. The story of the Exodus of the Jewish People from Egypt can be a difficult subject to teach. The instructor needs to come up with novel and interesting approaches on presenting this story to their students. When teaching this subject in class last year, I noticed the students did not show interest or motivation in the subject of the Exodus due to the fact that it was such a familiar story. There are popular movies about the subject, even a Broadway play. In addition to this, the video the instructor was using was creating many complaints on its poor quality. The sound was substandard, and it was cheaply made. The animation of one video consisted of a series of still pictures shown in a frame-by-frame sequence to simulate movement.

Definition of the Problem

During the time I began to teach students at St. Anthony's Parish two years ago, the only way to get the students to learn about the Exodus story was through the textbook. I attempted to do some role-playing myself and dress up as Moses to present the story, but that did not seem to keep their attention. The students were barely able to finish the reading assignment, and many did not know the Ten Commandments when we were done with the lesson.

They did not know any of the main characters of the story aside from Moses, did not understand the parting the Red Sea, and knew next to nothing about the wandering in the desert. Although these events of the story were mentioned on the textbook, they were not covered in any detail or in a way that would spark the students' interest. After the assignment was completed, I noticed, aside from the Ten Commandments, that the students did not seem to know more about the Exodus story than when they began. This became the motivating factor for me to design this instructional unit.

Much of the multimedia material provided to catechism teachers consists of outdated videos and audio recordings. In the case of St. Anthony's Parish, the videos available for instruction of the Exodus story were of poor quality and not effective. The entire class agreed to stop the video and the instruction continued with a lecture and book reading on the subject. Any additional instructional material such as cassette tapes and compact discs were non-existent. There was nothing aside from their textbooks that the students had to help explain this multi-faceted and complex story.

Solution/Goal

The solution to the problem of inadequate instructional material and to teaching the familiar tale of the Exodus story is the computer-based PowerPoint learning presentation. This presentation includes a time-based story line, animation, and role-playing capabilities to augment the instructional outline. It presents the material in a novel, original way. The goal of this instructional unit is to provide the students with an interesting and fun way to learn the Exodus story while at the same time reinforcing their retention and comprehension of the subject. This is different from the traditional textbook-based manner in which the story is passively discussed in an uninteresting way with no interaction to help re-enforce the lesson.

At the conclusion of this unit, the students will learn the five main events of the Exodus and recite them in chronological order. They will learn about the characters involved in the story, and will learn new vocabulary words. The performance objectives state in detail what the desired outcomes are of this instructional unit.

Goal Statement

A goal statement defines what the learners can take out into the world after this unit of instruction has been completed. Using a PowerPoint presentation, fifth and sixth grade St.

Anthony's Religious education students will be able to identify main points of the Exodus of the Jewish people from Egypt and be familiar with the main characters of the story. The students would have constructed a meaningful framework in order to understand the context of the Exodus in the history of the Jewish People.

Learner Analysis

Introduction

This learner analysis was conducted to determine the characteristics and attributes of the learning population that this instructional unit was designed for. It includes demographic information, relevant group characteristics, prior knowledge of the subject, entry level skills, attitudes and motivation toward the subject, instructional setting and student learning styles.

Demographic Information

The setting is a Religious Education classroom for fifth and sixth graders at St. Anthony's Parish Church in Upland, CA. The neighborhood is mainly upper-middle class with some areas hovering around middle to lower-middle. The ethnic background of the students is approximately 30% White, 20-25% Hispanic, 15-20% Asian/Pacific Islander, 10-15% African/American, and the remaining 10-35% is made up of East Indian , Native American, Middle Eastern to varying degrees. Gender is approximately equal in most classes. However, in the 2004 class that gave birth to the this instructional unit there were eight boys and only three girls. Parent participation ranges from non-existent (remember, to many this is just a way to get their kids through communion and confession) to helping out as assistants in the class.

Relevant Group Characteristics

As in any classroom setting, the students in this religious education classroom exhibit different levels of knowledge and abilities. Some are in a home environment where religion is important and a part of everyday life, others may look at this class as a form of "church daycare".

The key factor is how the child is taught to view their instruction at home. Another possible leveling factor in the ability of the students is that the instructors are held to teach the material presented to them by the Diocese. There is not much room for personal interpretation.

Prior Knowledge of Student About the Topic

In the third and fourth grade religious education classes the students are introduced to the Exodus story but there is no actual teaching on the subject. All Old Testament teachings begin with the fifth grade. However this introduction does not include any solid information on the story or the different parts that are broken into lessons. The students should have a basic grasp of the story due to its recent treatment in the media with cartoons and plays.

Entry Level Knowledge and Skills

At this level, the students must exhibit some knowledge of basic religious concepts in order to be allowed into this class. The classes taught are all based what the students have learned in the previous year. Progress of each student is kept in the office, and at the end of the year if they passed successfully the student will receive a certificate stating they have done so.

In order for the child to proceed to this level (fifth and sixth grade), they will need to show proof of this. In the case of a student not being able to produce the necessary documentation they will be placed in a suitable class level, maybe behind a grade, and then observed in the learning environment. If it appears the child still is not able to comprehend the subject matter, the teacher will conduct a conference with the parents. Sometimes, because of lack of motivation, or the parents just want them to finish for communion, home schooling will be recommended.

Attitudes and Motivation Toward Subject

As with any subject, students are motivated toward a subject when they enthusiastic

about learning and interested in the content of the story. The motivation of the Exodus story is no different. This story can be exciting and captivating if explained and taught in the correct manner. In the case of part-time religious education, the teachers have an extra incentive to motivate the students because they are not full-time students and many look at this as a side activity. For past classes on the Exodus, I would dress up like Moses to present the story and have the students role-play as shepherds or even sheep. This would help in them remembering the different aspects of the story and how the Jews, shepherd nation escaped from Egypt.

Attitudes can be affected by different things, such as the teaching environment and the subject matter. Again, many times the students do not take these classes as seriously as they would an actual full-time class. The students were already somewhat familiar with the story line, so many times I would ask them questions in the beginning to get them interested. Once they combined their limited knowledge with what they were learning and constructively created a learning environment the students continued to grow their knowledge and understanding of the Exodus story.

Student Learning Styles

1. For this instructional unit the students will be viewing animation and pictures depicting the Exodus of the Jewish people from Egypt. The students will use a visual learning style when viewing the lessons on the PowerPoint presentation. During the role-playing section of the lesson, the students will act out the lesson plan and use kinesthetic learning styles.
2. Each lesson is read out loud, thereby reinforcing verbal and linguistic skills. The Exodus instructional unit will include an appropriate story line for each lesson that will end with a short quiz. This quiz will be discussed out loud by the class before the role-playing sequence of the instructional unit.

Task Analysis

This is an instructional unit based on the Jewish People and their Exodus from Egypt. The primary usage will be a topical analysis. The main concern is to have the students identify the facts, concepts, principles and rules needed. I am the Subject Matter Expert (SME), so it will be up to me to determine the content of the class.

1. The five events of the Exodus in chronological order
 - A. The events leading up to the Exodus.
 - B. Ramses agrees to let the Hebrews leave Egypt.
 - C. The Wandering in the Desert.
 - D. The Ten Commandments.
 - E. The promised Land.
2. Three main characters from the story
 - A. Moses- Leader of the people out of Egypt.
 - B. Ramses- Pharaoh of Egypt during this time.
 - C. Aaron- Successor of Moses in The Promised Land.
3. Five vocabulary words from content of story.
 - A. Manna- Bread from heaven to feed the Jewish people on the desert.
 - B. Ark- Box that contains the Ten Commandments.
 - C. Tabernacle- mobile temple the Jewish people used in the desert.
 - D. Yahweh- Hebrew name for God.
 - E. Torah- the first five books of the Hebrew Bible.
 - a. Genesis, Exodus, Leviticus, Deuteronomy, Numbers.
4. Five main components of the exodus story

- A. The events leading up to the Exodus.
 - a. The Pharaoh Ramses' son dies in "The Passover."
 - b. Ten times Moses pleads.
 - c. Ten total plagues befall the land.
- B. Ramses agrees to let the Hebrews leave Egypt
 - a. The people prepare the way to reach "The Promised Land".
 - b. Ramses army prepares to follow the Hebrews in order to massacre them.
 - i. The parting of the Red Sea; Ramses' army is annihilated.
 - ii. The Jewish People are now free from the tyranny.
 - iii. God protects them in the form of a cloud by day, a flame by night.
- C. The Ten Commandments.
 - a. The people reach the foot of Mt. Sinai.
 - i. Moses goes up the mountain.
 - ii. Moses receives the Ten Commandments.
 - iii. Moses also receives instructions on how to build a tabernacle.
 - b. The people become restless.
 - i. They build a golden calf to worship.
 - ii. Moses comes down, sees this and destroys the Ten Commandments.
 - iii. The people repent and listen to Moses.
- D. The Wandering in the Desert.
 - a. The people complain and grumble and become lost.
 - b. God sends manna from heaven to feed them.
 - c. A plague of serpents befalls them.
 - i. Moses is told by God to hold up a golden serpent.

ii. The serpents retreat once this is done.

E. The Promised Land

- a. Moses dies before reaching this land.
- b. Aaron is appointed his successor.
- c. The people begin to prosper in this “Land of Milk and Honey”.

Performance Objectives

A performance objective is a statement describing the desired outcomes of the instructional unit that includes three aspects based on the task analysis. These aspects are: Conditions, behavior and criteria. The conditions are the predetermined parameters that the unit will be functioning under, the behavior is what the student will be expected to perform at the completion of the unit, and the criteria are the means by which this performance will be evaluated. The objectives must be measurable and verifiable by the instructor of the unit.

Although the performance objectives are focused on the students learning the Exodus story and being able to understand it’s main points at the completion of the lesson, there will be an informal evaluation of the student’s level of knowledge relating to the Exodus story at the beginning of the lesson. The following is a table stating the performance objectives of this unit, and includes the assessment instruments that will be used to evaluate it. The flow of the lesson plan will be in chronological order, beginning with the plagues, continuing with the Red Sea, wandering in the desert, the Ten Commandments, and the promised land.

1. Given a paper-based test, students will list at least five events of the Exodus of the Jewish people from Egypt in a chronological order with a 100% accuracy as measured by a rubric.
2. Given a paper-based test, students will be able to describe a minimum

of three main characters from the Exodus story; e.g. Moses, Aaron, Ramses and what their place is in the story with a 100% accuracy as measured by a rubric.

3. Given a paper-based test, students will learn new vocabulary words from the Bible by reading along with the lesson outline. They will list a minimum of five new words with an 80% accuracy as measured by a rubric.
4. Given a paper-based test, students will be able to describe a minimum of five of the main components of the Exodus story: e.g. the plagues, Red Sea, Ten Commandments, the wandering, the Promised Land, etc. with a 90% accuracy as measured by a rubric.

Instructional Strategies and Theories of Learning

Gagne's Nine Events of instruction provide a solid basis for designing a rubric from inception to completion. Having the ability to use active learning has been proven much more meaningful in the instructional process than passive lecture based learning. The students will form a learning community where they will be allowed to share and collaborate information up until the final test is administered.

This instructional unit strategy is based on Gagne's Events of Instruction. The following is a breakdown of these events for the Exodus PowerPoint presentation:

1. Gaining attention- The introduction will include music and photographs of Israel and beautiful scenes of nature. There will be an animated sequence to introduce the story line and inform the students of the lesson plan contents.
2. Informing learners of objectives- at the onslaught, students will be told what is expected of them at the end of this unit. This includes discussion of the test on five main events, three main characters and five new vocabulary words. There will be a hyper-linked outline of the lesson plans in order of instruction.

3. Stimulating recall of prerequisite learning- a brief review of the Exodus and its main events will be held at the beginning of the unit to determine how much prerequisite knowledge each student has. Each review will be discussed out loud with the entire class. A pretest will then be administered at this point.
4. Presenting new material- after the initial pretest, students will be presented with an computer-outline on the instructional unit, including the events in chronological order. Each event is a lesson for the instructional unit.
5. Providing learner guidance- students will be assisted along the time line of the Exodus by their outline, and also by the instructor who will be going over each succinct point and answering any questions that arise. A hands-on approach to help will be used where the instructor will physically explain and demonstrate the solution to any difficulties.
6. Eliciting performance- at each main point in the instructional unit, the instructor will monitor the progress of the students by observation and verbally asking questions to the entire class. At the end of each lesson, there will be a series of questions that will be answered out loud by the class.
7. Providing feedback for correctness- students will be praised for their correct responses during the unit, and rewarded by high marks if performance dictates at the closing of the unit. In addition, the students' performance on the posttest in comparison with the pretest will help in providing positive feedback.
8. Assessing performance- at the close of the unit, students will be given a test on describing the five main events of the Exodus in chronological order, the three main characters and what they did, and the meaning of five new vocabulary

words. This test will consist of writing a short essay on the events, matching characters to their attributes, and filling in a brief definition of the five vocabulary words.

9. Enhancing retention and recall- since this unit is based on chronological events in the Bible, the students will incorporate it into their larger body of knowledge by seeing how it fits into the total history of the Old Testament. This will be a continuing theme throughout the entire structure of the class.

Media Selection Rationale

The selection of media criteria is based on the needs analysis and determined by the scope of the lesson plan. Primarily, the students will be participating in an interactive Power Point presentation that uses animation to explain in chronological order the Exodus story. The presentation will be listed on the web site as a link on the main page.

The primary goal to keep in mind is what needs to be accomplished by using this technology. This is not “technology in education” but “educational technology” (Hooper, Rieber 1995). The crucial difference between these two terms is that “technology in education” refers to having computers in the classroom but says nothing about how to use them. “Educational technology” is a process of how to create the most effective learning environment for the students. This is an environment where the computers and other technologies, such as video and audio, become incorporated in to the teaching process as a seamless whole.

PowerPoint

The PowerPoint presentation was developed for this instructional unit to assist the students in making a familiar story more meaningful. Many educators believe the most crucial

aspect of learning is that is meaningful to the students (Mims, 2001). Learning must be an active process where the learner is engaged in some type of meaningful activity. This happens when the students connect new knowledge with their prior understanding, and corresponds to the Constructivist viewpoint, which states a student needs to create their own learning environment (Mims, 2001). In the case of this instructional unit, the students will be creating an environment based on role-playing along with the PowerPoint presentation. Constructivism sits on the opposite side of the learning and teaching continuum from Instruction, which focuses on learning as a behavioral issue (Hooper, Rieber 1995).

One of the primary ways for Constructivist method of teaching to be implemented in a classroom is to have the students work on group projects (Grant, 2002). In the case of this PowerPoint presentation, the students in this instructional unit will be collaborating in groups of three to four. The presentation runs as a slide show and shows the events of the Exodus in chronological order. This is a very effective way to present this material because it demonstrates to the students how these events unfolded in time and how they can relate them to the context of the classroom teaching and in the Bible. It also allows them to role play and follow the storyline as an actual participant in the Exodus.

Graphics

The graphics incorporated into this presentation include the pictures mentioned under the animation section, bullet points for relevant facts of the story, an example spreadsheet that the students will create themselves in Excel at the end of the lesson, and a map of the Exodus journey showing the timeline and points of interest. Graphics involve principles of visual learning which can assist the students in grasping concepts and remembering facts. Utilizing them in computer-based learning programs have been shown to be effective in past projects.

There are instruments to use to assess how successful computer graphics and other computer technology can be used in the classroom. Christopher Moersch developed the “Level of Technology Implementation Questionnaire” or “LoTiQ” for this purpose (Moersch, 2002). The LoTiQ helps to shape the future decision making processes related to computers in the classroom by having instructors answer questions in technology integration, computer skills, and instructional practices. These skills are necessary not only in designing computer graphics but also on how to use a program that incorporates them into a lesson plan such as the Exodus PowerPoint presentation.

The Internet

Larger schools and universities can allow grade school students small blocks of time to use their more advanced computer equipment. This has been done at the Media Laboratory of the Massachusetts Institute of Technology (Rieber, Luke, Smith, 1998). They have worked in conjunction with schools in allocating blocks of time for the students to learn computer and programming skills. These schools have also allowed students to use the World Wide Web. These students can use this time to develop their own graphics and multi-media projects and to research other subjects. At the end of the Exodus PowerPoint presentation I have included a list of related web sites that the students can link to through the presentation to learn more about the story.

Literature Review

The effectiveness of using technology in Catholic school teaching has been a research topic in educational design for over two decades. Computers contributed to the movement toward modernization (Dauwer, 1988). Many parishes used technology in assisting with their mission by incorporating them into the teaching curriculum (Sanderson, 2003). They were discussing the financial issues and budgetary constraints involved with such an endeavor (Geide,

1999). As of 1999, 80% of Catholic schools had Internet access, up from 64% in 1998 (Business Credit, 1999).

Studies show that how religious education students are presented material is a factor in how successful the instructor will be in having the students absorb and retain that information (Sanderson, 2003, Dauwer, 1988). For teaching students about the Exodus of the Jewish people from Egypt, a layered approach was necessary due to the complexity of the story (Dauwer, 1988) a complexity based on it's different aspects and allegorical nature.

There are other institutions that have benefited from using web-based learning tools in religious education. In Dallas Texas, Bishop Dunne Catholic School used Geographic Information Systems Software to assist students in learning geography and cartography, another complex and multi-faceted subject. The school was presented with the 21st Century Schools of Distinction Award for Technology Use for it's efforts (Daily, 2003). Bishop Hartley Catholic High School in Columbus, Ohio, has a program that allows it's students to work on tablet PERSONAL COMPUTER's in the classroom (Barton, 2003). The students collaborated on assignments, send e-mails to each other, and submitted papers on their tablets via the same school network.

The benefits of web-based learning should be apparent at all aspects of instruction. According to McGrath (2001), there are essentially four areas where technology can be of assistance in the Catholic school environment:

1. Obtaining real-time information from commercial or government databases.
2. Web-based publishing.
3. Using the Internet for unique primary source data.
4. Web-sharing capabilities.

Computers also need to be used by all participants to be effective. The use of technology can increase participation with multiple interactive media (O'Keefe, Haney, Cimino, Zukowski, 2000). Technology can assist in the goals of Vatican II by increasing the quality of education available to the laity, and is endorsed by the National Catholic Educational Association (Zukowski, 2003). However the use of technology is problematic for some schools (Zukowski, 2002) due to the fact that teachers lack instruction on computer use-and need to be properly trained (Clifford, 2001).

One way to remedy this problem was to have the students be part of the process. Students at LaSalle College High School in Philadelphia, Pennsylvania, set up a laptop network in their classrooms (Assaf, 2001). They were responsible for the installation, upkeep and trouble shooting of this network. Another solution is to have a university sponsor the diocese or parish. Marian College helped raise \$10,400 for an asynchronous web-based course on the mission and history of Catholic Schools for the Indianapolis Archdiocese (Landa, 1996). Profiling Educational Technology Integration (PETI) tools can be used by the researcher to check the progress and success of such programs (Lemke, 2005) and can help the researcher determine if the program is performing as planned.

In order for these programs to be initiated, there needed to be a change in the way the schools viewed computers and technology. Action research was required by the instructional designers to help establish these programs (Robinson, 1993). Instructors needed to be involved and not fear technology (Gardner, 1999 p. 39-40). In addition, instructors needed to understand that "Computers, like any tool, are only as good as the information they are given" (Airasian, Gay, 2003,p.253-254).

In conclusion, there is much indirect evidence to support the use of computers in a

Catholic school curriculum and the benefits should not be understated. These studies demonstrate the effectiveness of computers in religious education. However, there is still no direct evidence referring to using computers and computer-based instruction specifically in teaching the story of the Exodus.

Formative Evaluation

Subject of Evaluation

The subject of this evaluation is a PowerPoint presentation of the Exodus for Catholic religious education. The presentation is designed for fifth and sixth grade religious education students. All of the material used for instruction is included in this presentation with the exception of the exams, surveys and questionnaires that will assist in evaluating the unit. These materials will be in paper format.

Purpose/Type of Evaluation

The purpose of this evaluation is to determine the strengths and weaknesses of a web-based instructional unit on the Exodus story (www.zuriky.com). The type of evaluation is formative in nature. The purpose also is to determine if the goals and objectives of the instructional unit were met.

Phases of Evaluation

The formative evaluation was conducted in three phases: a subject matter expert, a one-on-one evaluation, and a small group evaluation. The evaluation was conducted in this order, beginning with the subject matter expert. Each phase has its own section for methodology, data analysis, and report of results.

Evaluation questions

The main questions that this report will address are:

1. Was the goal of improving students' learning of the Exodus story achieved?

2. Which section of the instructional unit needed the most revisions?
3. What part of the lesson plan had the most impact on the learners and why?
4. Were the instructions clear to the participants?

Methodology

This evaluation was done in three phases, beginning with the subject matter expert. The SME review for this report was conducted with Mr. Andres Verzosa, Director of Catechesis, St. George Catholic Church. His office is located on the church grounds. Next, the one-on-one evaluation was conducted, with three participants at my home office. The computer used during the evaluation was very similar to the ones that will be used for the actual teaching of the unit. Finally, the small group evaluation was conducted at St Elizabeth Ann Seton Church. The setting for this phase was a school class room on church grounds.

The Participants

For the one-on-one phase, three male participants from St. Anthony's religious education at the fifth and sixth grade levels were chosen. They were a good fit for the target audience because they were in the actual class when the idea for this instructional unit was conceived. For the small group, they were a group of eight fifth and sixth grade religious education students who are members of the Catholic ministry group Couples for Christ. They were selected because they were the target audience that this instructional unit was intended. The group consisted of seven boys and one girl, all Filipino/American. The Couples for Christ ministry is a Catholic family ministry active in parishes all around the world, and the children are involved in a sub group called Kids for Christ.

Procedures

Subject matter expert review. For the SME review, Mr. Verzosa was an excellent choice due to his extensive knowledge and experience in religious education. He was a school principal in the Philippines before coming to the United States, and is involved in implementing new curricula at St. George school for the entire student body. I briefed Mr. Verzosa on the outline of the instructional unit and how to incorporate it into the lesson plan. He had some questions on how to run the presentation on his office computer, so we went over the procedures and I demonstrated the slide show to him.

We began by going over the introduction, and how it relates the entire lesson. I demonstrated the use of the links to lessons, and also went over how to set up the actual slide show to view on his computer. In addition to this, we accessed my web site so he could view it there if he desired to. The presentation, outline, and surveys were all saved on CD for him to use so he could spend some time on his evaluation. Mr. Verzosa put together his own evaluation and did not use any of the assessments such as the pre and posttest. After he completed his review the instructional product was revised using his recommendations.

One-on-one evaluation procedure. The one-on-one evaluation was conducted with the following procedures. Prior to any interaction with the PowerPoint presentation, the students were all given a pretest to determine how much entry knowledge they had of the Exodus story. The instructional unit was downloaded onto the desktop and the participants were given a set of instructions on how to conduct the survey. I was present during the evaluation and took observation notes and answered questions. The list of instructions were as follows:

1. Go to my desktop, go to folder called “ME Capstone progress”. Open
2. Click on Exodus.zip. Open. Go to “slide show”, watch and review.
Go back to “ME Capstone progress”, open “posttest 1 on 1”. Take test, answer and save with answers.
3. Open “ME 1 on 1 evaluation”. Go to conclusion section, answer questions and rate each section, save changes.

Each lesson was briefed out loud by the instructor before the actual presentation so the students would be more familiar with it. The students were also asked to role-play along with the lesson plan. After the final fifth lesson a posttest, identical to the pretest, and a Likert Scale Questionnaire survey was given to the students. The results of the pre and posttests, along with the survey and questionnaire is listed after the lesson plans. The instructional product was revised using the recommendations of the one-on-one participants.

Small group evaluation procedure. The small group evaluation was then conducted at St Elizabeth Ann Seton Church. Initially, the students were given the pretest to determine initially how much knowledge each one had of the Exodus story. Once the pre tests were collected, the presentation was shown on the wall using a Dell 2100MP projector attached to a laptop computer. Each lesson was briefed by myself before the actual presentation so the students would be more familiar with it.

The students were also asked to split up into groups of two to three students so they could role play along with the lesson plan. After the final fifth lesson a posttest, identical to the pretest, and a Likert Scale Questionnaire survey were given to the students. The results of the pre and posttests, along with the survey and questionnaire is listed after the lesson plans.

Description of Data and Instruments

The purpose of this section is to describe the instruments and data collection methods used to evaluate this instructional product. There is a list of each instrument, and how they relate to the evaluation questions presented earlier. In the subject matter expert phase of the evaluation, Mr. Verzosa used his own evaluation procedure. This is listed in the results section, and will not be included in this section due to its unique nature. A short initial interview was included in the subject matter expert section, but it was only to familiarize Mr. Verzosa with the set up procedures for the PowerPoint presentation.

Observation. Observation was used during the one-on-one and small group phases of the evaluations. Basically it consisted of passive observation and note taking during the actual workings of the evaluation, which used qualitative data collection methods. (See Appendix A for the lists of observation notes.)

Pre and posttest. The pre and posttest was used during the one-on-one and small group phases of the evaluation. The test consists of multiple choice questions, matching, correct spelling of vocabulary words, and a final essay question. Each section of the test relates to one of the five main areas of the Exodus: the removal from Egypt, the parting of the Red Sea, the Ten Commandments, the wandering, and the arrival to the promised land. The pre and posttest is a quantitative data collection method. (See Appendix B for the the template of the pre and posttest.)

Likert scale questionnaire. The Likert Scale Questionnaire was used during the one-on-one and small group phases of the evaluation. It is a quantitative data collection method. The scale rated each section of the instructional unit with a response from 1 (Poor) to 5 (Very Good). The sections of the scale are introduction, objectives, presentation, activities, and assessments. (See Appendix C for the template of the Likert Scale Questionnaire.)

Survey questionnaire. The questionnaire was used during the one-on-one and small group phases of the evaluation. It was used to help determine if the lesson plan was an improvement over the traditional book-based learning. This questionnaire is a quantitative method and consists of three questions, all with “yes” or “no” answers: that the presentation was more effective, could it be used for other lesson plans, and that they would recommend it to other students. (See Appendix C for the questionnaire template.)

Data Analysis

Introduction. The analysis methods used during the one-on-one and small group phases in this evaluation include the pre and posttest, Likert Scale Questionnaire, evaluation questions, survey questionnaire, and observation. The variety of different methods were used to provide both qualitative and quantitative data collection methods and to show how the lesson plan was an effective way to teach the Exodus story. All of the data analysis methods used in this evaluation were put into a Word format results table to show how each method answers the four evaluation questions.

Analysis of observation. The observation section of the analysis is a qualitative collection method. Prior to the analysis the observational data was collected on note pads and categorized. The topics were body language, comments and reinforcement. These were cross-referenced on how they related to the performance objectives. The students were observed when performing the assessments. Once it was categorized the data was listed in a table to compare it with the

evaluation questions. These questions include possible improvements for the lesson plans. If any of the participants answered a no to one of the questions, or had some critical feedback, this would be evaluated by myself and used to make improvements on the lesson plan.

Analysis of pre and posttest. Once both pre and posttests were collected for the on-on-one and small group evaluations, I did a quantitative means analysis on the scores using a data table in Word document format. The means of the number of correct answers for the five questions were listed in the table, followed with a comparison of means of correct answers between the pre and posttest. This comparison shows an increase or decrease of the means between the pre and posttests.

An increase was listed with a plus alongside the percentage difference, and a minus if there were any means lower on the posttest than the pre test. If any of the participants scored less on the posttest than on the pre test or scored below 100% or 80% as listed by performance objective, this would be used as a criteria for lesson plan improvement.

Analysis of likert scale questionnaire. The Likert Scale Questionnaire was given at the end of the posttest in order to help determine the effectiveness of the different areas of the presentation and lesson plan. There was no prior knowledge needed, as the Likert Scale Questionnaire is based on the lesson plan. The results in tabulated form along with percentages of each response for both the one-on-one and small group evaluation are listed in the results section. In addition there is a table showing how the pre/post test mapped out to the evaluation questions. If any of the participants rated any area of the Likert Scale Questionnaire below a three score, this would be an indicator to improve that area of the lesson plan.

Analysis of survey questionnaire. Once the survey questionnaires for the on-on-one and small group evaluations were collected, I listed the responses in a Word document table. The

results were compared to the four evaluation questions, and were used to determine whether the survey was effective in answering these questions.

Report of Results

Introduction

The following section reports the results of the formative evaluation on the web-based instructional unit on the Exodus. Each phase of the report is summarized and includes any revisions that were preformed before the phase was initiated. All in all, there were positive results from the observation of the students. During the one-on-one phase the participants all agreed that the instructional unit was effective and was more interesting than the book based learning. In the small group observation the students agreed that the unit was interesting and they all showed enthusiasm and interest during the presentation.

Subject Matter Expert

The subject matter expert for this evaluation was Mr. Andres Verzosa, Director of Catechesis, St. George Catholic Church. Mr. Verzosa performed a personal evaluation based on his extensive experience as an educational evaluator and religious instructor. He was especially pleased with the incorporation of the role-playing model into the instructional unit. He did recommend utilizing a voice over introduction, which was taken into account during the one-on-one phase. However, this was determined to be too distracting due to the fact that there are sound effects of rain and thunder during the introduction. An alternative of the instructor reading along during the introduction portion was used. (See Appendix E for Mr. Vezosa's comments.)

One-on-One Results

The one-on-one evaluation was conducted with three participants from St. Anthony's religious education at my home office. The data collection tools used in this phase were pre/post

tests, observation notes, Likert Scale Questionnaire, survey questions and a questionnaire. The purpose of this phase was to critique the presentation from the view point of a student who would be using this instructional unit in their religious education curriculum.

The evaluation questions shown below are used to help analyze if the instructional unit's objectives have been met. The participants answered "yes" to questions one and four. For question two the participants agreed that the tests were too short and simple. This could be due to the fact that they were allowed to spend time with the instructional unit to critique it. For question three, two answered the animation and music had the most impact as desired. One participant answered the story line. They all agree on this instructional unit being more effective than book-based.

1. Was the goal of improving the instructional process for the Exodus story achieved?
2. What section of the instructional unit needed the most improvement?
3. What part of the lesson plan had the most impact on the learners and why?
4. Were the instructions clear to the participants?

For the pre and posttest, the results of the evaluation were positive, with the posttest scoring within the desired scores listed by the performance objectives. Participant one scored 100% on three of the questions and only missed one on the other two. This compared to the pre test, where he missed two on one question, and one on two. Participant two scored 100% for the posttest on three of the questions, and only missed one on two of the questions. This is compared to missing five on one question and three on two of them. Participant three also scored 100% on two of the questions, with minus one on the other three. He had a smaller improvement than the other two participants, missing three on only one question, and two on two others.

The questions the students had the most difficulty with were one and five, due to the essay nature of the questions. Questions five was missed by all the participants on the pre test,

and scored the lowest (80%) on the posttest. The difficulty was due to the fact that the participants were required to use critical thinking, a higher level skill, and not just rote memorization. The participants showed a marked improvement in scores between the pre and posttests, and the results were within the guidelines of the performance objectives.

In the qualitative survey questionnaire, all of the students answered yes to whether this method of instruction was more effective than the book-based.

Please Table 1 below for the results.

Table 1

One-on-One Pre and Posttest Results (N=3)

Objective/behavior	Pretest mean Percentage student correct	Posttest mean Percentage student correct	Difference between pre and posttest means Percentage correct
Question 1 order of events desired 100%	0%	80%	+80%
Question 2 matching desired 100%	0%	100%	+100%
Question 3 vocabulary/spelling desired 80%	33%	100%	+67%
Question 4 multiple choice desired 100%	100%	100%	+100%
Question 5 essay spreadsheet desired 80%	0%	100%	+100%

The Likert Scale Questionnaire was also positive, with participant one scoring two three score- middle and remaining four questions being four and five, good and very good. Participant two had three four scores, and only one four and five. Participant three had two three scores, two four, and one five. There are no one or two responses. The lowest average scores were given to objectives and assessments, both with two three scores. This may be due to lack of enthusiasm or any kind of test, and also for an incomplete understanding of the objectives of the course work. Please see Table 2 for the results.

Table 2

One-on-One Likert Scale Questionnaire Results (N=3)

Objective/behavior	Number of three response	Number of four response	Number of five response
1. Introduction	1	2	0
2. Objectives	2	1	0
3. Presentation	0	1	2
4. Activities	0	1	2
5. Assessments/tests	2	1	0

Note: Ratings: Poor 1 2 3 4 5 Very Good.

The changes made to the lesson plan after the one-on-one evaluation was completed included dividing the lesson plans into sections, as it would be used in a classroom and reading along the introduction out loud as a class. In addition, the spelling errors noted in the revisions section were fixed.

Small Group Results

The small group phase of the evaluation was conducted at St Elizabeth Ann Seton. The group consisted of eight fifth and sixth grades religious education students from the ministry group Couples for Christ. The purpose of this phase of the evaluation is to determine how this instructional unit would actually perform on a classroom setting. The results were positive and the same methods used in the one-on-one phase were used here. Please see Table 3 for results.

The evaluation questions shown below are used to help analyze if the instructional unit's objectives have been met. The participants answered "yes" to questions one and four. For question two the six of the students said the tests needed the most improvement. The other two said the animation could use improvement, possible add some more sound effects. As in any classroom, the tests are always the most dreaded portion of instruction. The students felt the tests were too difficult or after all the learning they had already done it was too much to add it at the end. This will be remedied by spreading out the lesson plan into five sessions.

For question three, six answered the animation and music had the most impact as desired. Two said the introduction was most effective. This is actually referring to the animation used in the introduction. All agreed that this method of instruction is more effective than book-based.

1. Was the goal of improving the instructional process for the Exodus story achieved?
2. What section of the instructional unit needed the most improvement?
3. What part of the lesson plan had the most impact on the learners and why?
4. Were the instructions clear to the participants?

For the pre test, there were three questions where all the students missed the answers. On the posttest, all students answered all the questions, and three questions had a score of 100%. The lowest score listed was 80%, which was on order of events, spelling and the essay. The small group scored higher on the average on essay questions one and five than the one-on- one

participants did. This may be due to a collaborative effort with more students, or just a more productive environment in the classroom. The participants showed a marked improvement in scores between the pre and posttests, and the results were within the guidelines of the performance objectives. Please see Table 3 for results.

Table 3

Small Group Pre and Posttest Results (N=8)

Objective/behavior	Pretest mean Percentage student correct	Posttest mean Percentage student correct	Difference between pre and posttest means Percentage correct
Question 1 order of events desired 100%	0%	80%	+100%
Question 2 matching desired 100%	0%	100%	+100%
Question 3 vocabulary/spelling desired 80%	0%	100%	+100%
Question 4 multiple choice desired 100%	0%	100%	+100%
Question 5 essay spreadsheet desired 80%	0%	80%	+80%

For the Likert Scale Questionnaire, there were only three three scores, and no one or two scores. The largest number of five responses was in the presentation, with the introduction right

after that with four. The highest number of three responses was under the activities section. This could be due to the students not understanding the purpose of role-playing, or it could possibly be to constraints on time, and that they did not have sufficient time to explore this aspect of the lesson. Please see Table 4 for results.

Table 4

Small Group Likert Scale Questionnaire Results (N=8)

Objective/behavior	Number of three response	Number of four response	Number of five response
1. Introduction	2	2	4
2. Objectives	2	5	1
3. Presentation	0	2	6
4. Activities	4	2	2
5. Assessments/tests	0	5	3

Note: Ratings: Poor 1 2 3 4 5 Very Good.

Recommended Revisions

Subject matter expert revisions. Mr. Verzosa’s main recommendations were to add the voice over at the beginning of the unit, and to clarify the length of each lesson in the context of an hour long class. The voice over was supplemented by the instructor reading along with the introduction, and to not interfere with the rain sound effects. The length issue was clarified when it was explained to Mr. Verzosa that each lesson will be combined with role playing in the classroom.

One-on-one revisions. Participant 1’s recommendations were to add other background colors, make the fonts different and to create more difficult test questions. The first two could not

be implemented due to the fact that the presentation must be consistent. As for creating a more difficult test, it was determined by the performance of the pre tests the tests were difficult to the average fifth and sixth grade religious education student. Participant 2 recommended the test be done in sections, and that it was too long to complete at a single lesson. This goes along with using the lesson plans within five class sessions and including role playing as a guideline for the students.

Critique

As a whole, I found the experience of a masters degree challenging especially coming from a different background, mainly science and engineering and not education. So many of the subject topics were new to me. However, I did learn a large amount of new information related to instructional design and using technology to teach. I learned how to research for and design an instructional product using technology and multi-media a format. I especially enjoyed the technology integration domain. Being an engineer and information technology person by trade I could see the application of Dreamweaver and the PowerPoint presentation to my full-time job as well as my part-time job as a teacher. The least enjoyable part of the degree process was the measurement and evaluation module. Not because of the field work, which I enjoyed, but more of the revisions and attention to so much grammar detail. This could be due to the fact that I did that module as a self-study and not with a course.

As stated earlier, I plan on using this instructional unit as a template for future religious education instructional units. It would be nice to be able to influence educators in this realm to use more multi-media in teaching religious stories and lessons, and to come up with new ways to present old topics and teachings.

Additional applications could include using this format in other areas of instruction, perhaps during a seminar geared towards religious educators, or as a teaching tool to help in the certification of religious instructors. A template for this instructional unit could even be used outside the area of religious education to assist with teaching history or science curricula. Because this unit is based on a timeline, it is especially suited for teaching history. The format will need to be changed, as will the performance objectives and the learner analysis if this instructional product will be used for these different application.

The strengths of this unit include the ease of usage, how easy it is to set up and use, and many of the effects that tie into the story and animation. I selected specific examples to try and highlight the story line and not be overpowering. The weaknesses are the short time line for the lesson plan and the lack of cross-referencing similar educational units.

The remainder of time is filled up during the class with role playing. If more time was allowed and resources were available, I would like to create an entire presentation and lesson plan based on Flash animation and using a completely animated storyline with music and a main character to tell the story. That could be a future goal for this instructional unit.

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APPENDIX A. Observation Notes

One-on-One Observation Notes

The observation portion consisted of me silently observing the participants and taking notes as he completed the one-on-one evaluation. Initially I asked participant one if he understood the list of instructions, and he replied yes. Participant two fully understood the list of directions and was able to use the lesson plans without any difficulty. There was a slight glitch in viewing of the web site, it was running too slow, which was fixed by shutting down some other programs. Participant three suggested that we view the presentation on CD format as to eliminate any other problems with the web site which may arise. I agreed to show the portions of the presentation that seemed to be working okay, and to use the CD if the web version were too slow. Finally, the decision was made to use the CD. Once the evaluation was underway, we noticed the sound was not working on the music downloads. I repaired the file error and we restarted the presentation. Participant one asked who was the evil king in the opening monologue, so I made a note to change the name to Pharaoh. He commented that the lessons seemed short and I responded that the students will be role playing and will use their textbooks as homework. He noticed that there was a misspell at the end, “you” instead of “your”. The conclusion of the observation is that participant one seemed to enjoy to presentation, but found it too short to just read and take the tests. That is why the unit will be combined with role-playing and acting the parts out during the actual teaching in the classroom setting.

Small Group Observation

In the beginning of the small group evaluation, the students were restless and seemed unsure of how to approach the lesson plan. I began by trying to assure their fears and explaining to them that they are helping me by doing this, and that they will not be penalized for wrong answers. Once this was established, the students relaxed and settled down to the lessons. We

started the lessons by reading the instructions on the PowerPoint presentation. One revision that was mentioned by Mr. Verzosa during his subject matter expert evaluation was that the introduction should have a “voice over” to explain the lessons. I decided that it would be better to read the introduction out loud, because there is also a sound effect of rain during this section and to have a voice over would be too confusing.

As the evaluation progressed, more students began to raise their hands and participate. I completed each of the five lessons by asking if they learned anything. The response was always “yes”. At the completion of each lesson there is a series of review questions that are not part of the final test, but meant to re-en force the subject matter. As the questions were asked of the students, each one volunteered to answer on their own. A part of the fourth lesson explains how Moses made a snake icon to ward off a plague of snakes. I drew a sketch to explain how it looked like the Cross of Christ. At the close of the evaluation, all the students took their posttests in silence, then completed their survey questionnaires. They had some questions on how to fill out the Likert Scale Questionnaire, but once I explained the procedure they understood and completed the tasks.

APPENDIX B

Pre and Posttest

1. On this spreadsheet, please numerically place the five events of the Exodus in chronological order.

2. Please match the name and describe three of the main characters of the Exodus story.

- | | |
|------------|---------------------------------------|
| 1. Moses- | A. Pharaoh of Egypt during this time |
| 2. Ramses- | B. Leader of the people out of Egypt. |
| 3. Aaron- | C. Son of the Pharaoh |
| | D. Leader in the promised land. |

3. Please correctly spell the five vocabulary words learned from the lessons (post test).

4. Please give the correct response to the following:

1. Yahweh
 - A. Hebrew name for God.
 - B. The ark of the covenant.
 - C. A song.
 - D. A book of the Bible.

2. Jerusalem
 - A. A robe worn by Moses.
 - B. The promised land.
 - C. A book of the Bible.
 - D. Where the Pharaoh lived.

3. Manna
 - A. A town in the Arabian desert.
 - B. One of Moses' brothers.
 - C. Food God gave to the Jewish people.
 - D. What you say when you are upset.

4. Tabernacle
 - A. Portable temple.
 - B. A book of the Bible.
 - C. A song.
 - D. Hebrew name for God.

5. Covenant
 - A. Food God gave to the Jewish people.
 - B. The promised land
 - C. Agreement between God and His people.
 - D. A town in the Arabian desert.

5. Please list and describe the five main components of the Biblical Exodus story. You will write a short essay (four to five sentences) pertaining to each component. You will work in groups of three to four students.

APPENDIX C

Likert Scale Questionnaire

I need your help in improving this lesson plan. The following evaluation is to help me improve the lessons and for you to offer any suggestion on the content or presentation of the subject matter. On the left is the part of the lesson, and next to it is a quality rating, from Poor=1 to Very Good=5. On the right is a column for you to add any improvements on clarity, interest value or relevance to the subject matter you can think of.

Lesson Part	Quality Rating(please circle)	Suggested Improvements:
1. Introduction	Poor 1 2 3 4 5 Very Good	Clarity Interest Relevance
2. Objectives	Poor 1 2 3 4 5 Very Good	Clarity Interest Relevance
3. Presentation	Poor 1 2 3 4 5 Very Good	Clarity Interest Relevance
4. Activities	Poor 1 2 3 4 5 Very Good	Clarity Interest Relevance
5. Assessments/tests	Poor 1 2 3 4 5 Very Good	Clarity Interest Relevance

APPENDIX D

Survey Questionnaire

At the completion of these lessons, I would like to ask the you some questions.

These questions are designed to help you help me in making this a better assignment.

Here are the questions:

- 1 Did you find this method of instruction easier to follow than book-based instruction?
- 2 If so, do you think this is an effective way to present this subject matter?
- 3 Would you recommend this type of instruction to other future students taking this course?

APPENDIX E

Subject Matter Expert Comments

The story of Exodus is one of the central themes often referred to during the years of training in the faith that a Catholic goes through. Even during adult life, it is again often made a reference point and the faithful are expected to have ease and familiarity with the story. Hence, its use for this lesson is a laudable reinforcement for the children undergoing Religious Education. It is correct to assume that students have previous familiarity with this theme. It is however suggested that a one-minute Scripture “voice over” regarding each of the 5 Lessons be inserted in order to refresh, reinforce and hold the interest of the student who is browsing over the lesson.

It is very fitting to use computer technology in the presentation of this subject since it is to be presumed that students today have already gotten extensive exposure to this technology at their regular schooling and at home. Its use as a means of instruction for the use of Churches (in their Religious Education classes) however, is just about beginning as far as applications are concerned. The use of Microsoft PowerPoint lends itself very suitably for this presentation.

The use of Role Playing especially for children this age is commendable as it is a method that is well liked by children and it maximizes learning retention through the use of many senses. The insertion of new vocabulary as a part of the lesson enhances the lesson and draws focus to the new material(s) that the students are learning and they could facilitate better recall of the lesson itself as well as serve as links between lessons. The simple multiple choice test is quite easy and encouraging towards the student. The story of the Exodus contains many side stories children can relate to. A review of it serves to recall to the student many religious values (faithfulness, truthfulness, obedience, trust, piety, etc.) and reinforces

them with the usefulness and applicability of these values in their life.

The Lesson on the Exodus story as a self standing lesson to run on a micro computer is very commendable. It is an area which is expected to gain more and more efforts in the future. It is presented with simplicity and clarity and is suitable for Children in the Elementary grades.