

Educational Television in the Elementary Classroom 1

Implementing Educational Science Television in the Third Grade Classroom

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Abstract

When educating children, teachers need to be aware of ways to make learning engaging. For young children, with their high exposure to current technology, listening to one person all day can be boring. Children today understand technology at a faster pace than did children of previous generations, so teachers need to implement more technology sources into their teaching.

The research literature reveals that educational television is in fact educational and does help teach children concepts. The major research supporting this information centers on the television program *Sesame Street*.

Textbooks are still primary resources for providing knowledge, but now technology can enhance textbook lessons. Specifically, lessons enhanced with educational videos will help third grade students enjoy learning. This paper discusses the implementation of educational science television programs in the third grade classroom. The use of educational television is supported by Gardner's Theory of Multiple Intelligences (1979), and Piaget's Theory of Cognitive Development (1972).

Several classroom teachers participated in an interview on the use of educational television in the elementary science classroom. Results indicated that in order for an educational television program to be a successful tool for a teacher, activities must be planned around the program. If students are only told to watch, then they will not get the most out of the program. By asking questions, taking notes, and discussing a program, students stay engaged and learn more. Educational television programs succeed as teaching tools when they are engaging, relevant to the unit, and age appropriate for the students.

Chapter 1 Introduction

As a child, I would find myself getting bored during lessons on certain subjects. It was not that the subjects themselves were boring; it was the way they were presented. Throughout my education, we read textbooks, short stories, and articles to learn about different subjects in school. I found reading textbooks to be boring, which made the lessons boring. I retained little (if not nothing) of what I read in a textbook. Watching an educational television series and PBS program called *Liberty's Kids* changed that. This program is an entertaining cartoon that uses fictional characters to teach how America was founded. Viewing this television program in my twenties, I was finally finding history fun. What would school have been like if my teachers had used educational television on a regular basis during my pivotal schooling years?

Persons in the education field and parents commonly think television (TV) hinders children's educational development (Cohen, 1987). While many TV shows available today are not appropriate for children, I do not believe that TV in general is a hindrance for children. *Liberty's Kids* is just one example of a TV program that has educational benefits for children. There is also the *School House Rocks* television series, in which catchy songs convey important lessons. I can still remember the *School House Rocks* song on conjunctions called "Conjunction Junction"; it helped me to remember what conjunctions were in a fun and entertaining way. Let's not forget Bill Nye the Science Guy. The enthusiasm he projects on screen transfers to the viewer.

When information is presented in a way that children can relate to, they enjoy learning what is being taught (Cohen, 1987). Although TV is an older technology, teachers can (and should) still use it as a great resource for their classes. For example,

reading textbooks or doing worksheets become more fun and interesting when children also watch a show or movie on the subject.

More than twenty years ago, Cohen (1987) predicted, “Educational television was another early hope, but prophecies of new freedom for teachers and students were quickly followed by stories about TV sets languishing in school closets” (p. 16). However, in the last ten years, there has been a limited amount of research about the use of educational television in the classroom. Through my research, I hope to provide some good reasons for teachers to dust off their TVs and begin to use them to help enhance students’ joy of learning.

Statement of Problem

Students can become bored with a subject quickly. This lack of interest is a problem teachers face. Another problem is the amount of material that needs to be covered in a limited amount of time. Every minute in a school day needs to be used wisely. Losing the students’ interest in the first lesson of the day makes it difficult to regain their interest for further lessons.

A further problem with respect to this research is teacher resistance to using technology to benefit their students. Cohen (1987) writes about resistance to technology in general: “The success of technology will depend partly on a phenomenon that has bothered reformers since the turn of our century: the persistence of traditional modes of teaching, which has had a constraining effect on innovations of all sorts” (p. 16). In today’s world, where technology is prevalent in most lines of business, many teachers still teach with paper and pencil.

Another problem I encountered was the lack of statistics on the use of educational videos. I did find that educational videos are widely available in public schools. There is a recently completed study by the National Center for Education Statistics titled Educational Technology in Public School Districts: Fall 2008 (Gray, 2009). While this study conveys important information, it speaks only to computer and internet technology; in the study, the authors limit the technology topics they examine.

Statistics on public school libraries include the types of media they offer. Data includes the following:

School type and selected school characteristic	Number of schools with library media centers	Average number of holdings at the end of the 2006-07 school year	
		Book titles	Audio/video materials
All public schools	81,920	11,710	520
School classification			
Traditional public	80,100	11,780	520
Charter school	1,820	7,560	420
Community type			
City	19,340	12,390	560
Suburban	23,740	13,030	540
Town	12,380	11,550	590
Rural	26,450	10,110	440
School level			
Elementary	59,730	11,480	460
Secondary	17,760	13,150	740
Combined	4,430	8,890	390

(National Center for Education Statistics, 2008)

One can see from the chart that most libraries have a large number of audio/visual materials. This affirms my thoughts that this type of technology is readily available and could be integrated into the classroom. Although this data backs up some of my assumptions, I have not been able to find any data on the use of educational television in

the classroom or data on how or to what degree teachers use educational television programs in their classrooms.

Lemke, Coughlin, and Reifsneider (2009), in their article *Technology in Schools: What the Research Says, A 2009 Update*, provide a small section on educational television in the form of videos. The authors give a brief synopsis of the benefits of educational television. Lemke (2009) sums up the research, “Decades of research on Children’s television have indicated that television can be an effective instructional tool when the content is educational or repurposed for education” (p. 40). It is also pointed out that educational television does have positive effects on children, “Numerous research studies show that educational television can have positive effects on the intellectual and academic development of children” (Lemke, 2009, p. 40).

It seems as though educational television is not seen as a relevant technology anymore or technologies not worth the time to investigate. Statistical information indicates that audio/visual are still in school libraries for teacher use, but they are underutilized.

Purpose

The purpose of this research is twofold: 1) to document ways in which educational television programs can be implemented in the third grade classroom, and 2) to find ways to create lessons around educational television programs. For teachers, I am interested in technology that can easily supplement the textbook. For students, I am interested in how educational videos can enhance their joy of learning.

Research Questions

What are the best practices for implementing educational television into a third grade classroom? How can a third grade lesson be created around an educational television program?

Theoretical Rationale

Gardner's Theory of Multiple Intelligences (1979) introduces the theory that all students have different ways of learning. There is the spatial intelligence (visual) learner, who learns best using his or her sight; the linguistic intelligence (auditory) learner, who learns best while listening; and the kinesthetic intelligence (movement) learner, who learns best when moving. There are eight different learning styles, according to Gardner (1979). Television teaches to two of the multiple intelligences. It involves listening and watching. A teacher could add movements and make it kinesthetic by having students dance while listening to songs on *School House Rocks*. I use Armstrong's interpretation (Armstrong, 2000) of Gardner's Theory of Multiple Intelligences.

Piaget's Theory of Cognitive Stages is also relevant (Piaget, 1972). Piaget's theory (1972) explains the means by which the mind processes new information. The stage most third grade students fall under is the concrete operations stage, in which a child no longer needs to have objects to manipulate in order to understand a concept. By applying Piaget's theory (1972), a teacher can create lessons incorporating TV that will take advantage of a student's stage of cognitive development: when students no longer need to physically manipulate material, they can begin to understand by watching someone else manipulate the material, e.g. on a video. According to Piaget, a child is at the Concrete Operations stage from ages 7 to 11 (Piaget, 1972). These are the ages of

third through fifth grade students. This is the stage at which teachers should look towards educational television in order to have more effective lessons using a variety of materials.

Assumptions

Television is a big part of students' everyday life and thus familiar and enjoyable to them. Therefore, bringing television into the classroom may enhance students' excitement about the general curriculum in third grade. For students who become bored listening to the same person every day, watching an educational video may maintain interest and excitement about a subject. Once students become excited about a subject and want to learn more, the teacher's job becomes easier. By finding out which aspects of a certain subject interest the students, the teacher can create lessons that will continue to keep the students engaged. Once the excitement about a subject is generated for a student, a teacher can then assign textbook and other readings. As explained earlier, educational television helped me to learn by stimulating my interest in a certain subject, history. It can serve the same purpose for students in the third grade classroom.

Using educational videos may help in optimizing teachers' use of class time. Teachers are busy trying to meet educational standards within the limited timeframe of any given year. Finally, each student is an individual, and using educational television may help teachers address different learning styles.

Background and Need

Anderson (1998) explores educational television and whether it is truly educational. He uses the case of *Sesame Street* in order to explore educational television and its impact on children. Anderson (1998) finds that claims against the use of educational television have not been supported by the research. Instead, he finds that

there are both long-term and short-term benefits to educational television. During both my student teaching (2009) and my time as a long-term substitute for third grade, I witnessed firsthand that educational television does help students to learn.

While conducting this research, I narrowed my interview questions in order to compile ways in which teachers can implement educational science videos in a third grade classroom. This portion of the research will be done through the use of personal interviews.

Chapter 2 Review of the Literature

Review of the literature has shown two major themes. The first theme is the difference between instructional and educational television. The research reveals that instructional television was designed to take the place of the teacher. It was thought that a person could learn by watching another person give a lesson through the television. Teachers quickly criticized this idea as they did not want to be replaced, and it was found that instructional television did not work in the classroom and teachers were still needed. Educational television, on the other hand, was created to help the teacher with lessons. It was designed with the intention of helping children and adults learn new ideas and become more educated, and crossing all social and class barriers.

The second theme is whether educational television is in fact educational. Numerous studies have shown that educational television does teach and can be a very effective tool in the hands of a teacher. Because educational television was created to help the teacher, most programs supplement direct teaching. The most studied case is that of *Sesame Street*.

Historical Context

For where there was nothing, we now count some 60 *non-commercial* educational television stations on the air, representing a total expenditure in the neighborhood of \$60 million, with a current market value of perhaps \$200 million; costing some \$15 million a year to operate; and capable of serving perhaps 50 million viewers with programs imagined, created, and sponsored in the name of education (Powell, 1962, p. 3).

The above quote comes from John Walker Powell (1962), author of *Channels of Learning: The Story of Educational Television*. He provides a detailed account of

television and how educational television evolved. Although the numbers have changed since Powell wrote this book, the history has not.

From the time television was born in the late 1940s, it has been subject to evaluation and criticism. Television was beautiful and evoked a sense of awe in its early years. People were amazed that they could not only hear events, but see them as well. As television gained more and more prominence in American society, a small set of people began to develop what is known today as educational television.

It was not only this small group of individuals, but the society, law, government, and communities that shaped educational television (Powell, 1962). Educational television was developed to offer all people (not just a select few) the chance to be educated and to watch a program uninterrupted by commercials. This form of television has distinct differences from television produced for entertainment. Educational television asks viewers to watch on purpose, expects them to participate, and encourages them to turn off the TV set (Powell, 1962). Educational programming serves the community, and it reflects the values and attitudes of the community it serves.

The beginning of educational television was not without its problems. Herein lies the problem: educational television falls on the short list, if television stations can make money, educational television is the first to be cut. Educational television relies on public support; it does not have the luxury of selling ad space as the mainstream entertainment channels do. If a company has only 50 channels to give to broadcasting stations, the stations that do not make money are the ones that lose out. This is why educational television had a hard time getting into the television market.

“Educational programs are dams in the golden stream of audience flow” (Powell, 1962, p. 15). Because stations are paid by advertisers to show their commercials, stations want a lineup that will attract views to stay with them for the entire primetime (8 to 11pm). Educational programs can lose too many viewers and the ad money that goes with them. Where does this leave educational videos today?

Reiser (as cited by Marshall, 2002) speaks about the dawn of technology-based learning and its correspondence with the audiovisual media that was introduced to schools in the 1900s. Saettler (as cited by Marshall, 2002) tells how technology-based learning entered into the schools through “school museums” who would distribute slides, films, and other materials to enhance instruction in the classroom.

A large amount of educational television, in the form of videos, first appeared in 1910, and the Rochester, New York, public school system was the first to adopt educational television for classroom use. With more technological advancement in the 1920s and 1930s, technology for educational purposes expanded as well. Sound recording, radio, and “talking pictures” intrigued and expanded interest in educational visual instruction. Saettler (as cited by Marshall, 2002) cites Thomas Edison, who predicted what television would do: “Books will soon be obsolete in the schools....It is possible to teach every branch of human knowledge through the motion picture. Our school system will be completely changed in the next 10 years” (p. 68).

Educational technology advanced significantly during World War II. After the bombing of Pearl Harbor, the military needed more manpower than it currently had. This was where educational technology came in. In order to teach the influx of new soldiers in basic combat and survival skills, the military looked to educational technology: “The

division of Visual Aids for War Training in the U.S. Office of Education rose to meet this World War II challenge” (Marshall, 2002, p. 1). Saettler (as cited by Marshall, 2002) gives numbers about this division, which created 457 sound-motion pictures and instruction manuals as well as 432 silent filmstrips. In total, the U.S. Government spent one billion dollars to implement the use of educational technology in training new soldiers and the investment was fully returned. Olsen and Bass (as cited by Marshall, 2002) quotes the German Chief of General Staff’s remarks after the German surrender: “We had everything calculated perfectly except the speed with which America was able to train its people. Our major miscalculation was underestimating their quick and complete mastery of film education” (p. 1). Educational technology (television) was proven to work.

Educational technology did not advance much between 1939 and 1945 during World War II, but with the 1950s the interest in educational technology was ignited once more. Two primary factors contributed to this rebirth: the advent of educational stations and new funding by the Ford Foundation for Educational Television (Marshall, 2002).

Previous Research

Marshall (2002) explores numerous studies regarding the effectiveness of educational television. Marshall (2002) states that both contemporary and historical research has found educational television to be an effective form of learning. Educational television is traditionally shown through the medium of a television. However, “regardless of the means – be it television or computer, or even computer-delivered streaming video – when contact is presented with purpose, the student can experience the

content and attach the new information to that which is already known” (Marshall, 2002, p. 1).

It is important to note that while educational television can teach, it is the teacher who makes the learning meaningful. One cannot show an educational video and expect students to learn. The teacher is a key component of the learning process; a teacher focuses students’ attention on the key points of a lesson. Technology used without purpose is useless. Marshall (2002) proposes that the casual use of technology and a lack of alignment with the desired outcomes threaten any success of technology-based learning. It is very important that teachers facilitate material covered in educational television. Concrete lessons and objectives make learning from educational television productive, enhancing students’ learning of the subject.

Educational television piques students’ in academic subjects. *USA Today* (as cited by Marshall, 2002), asked the question, “What makes a new subject in school most interesting to me?” (p. v) to children 6 to 11 years old. The responses created this breakdown (*arrangement mine*):

Textbook	12%
TV Program	24%
Teacher	26%
Internet	34%

Teacher and television fall in the middle, once again showing the correlation that teachers and television together can bring excitement and extended learning to the classroom.

Rich and vivid educational programming integrated into a teacher’s typical classroom lessons enhance instructional strategies (Marshall, 2002). It is shown that students enjoy learning from media other than textbooks.

“We shall stand or fall by television – of that I am sure” E.B. White, 1983 (as cited by Marshall, 2002, p. 5). Teachers who believe that educational television supports learning do use this technology. Others who do not hold this belief consider educational television and other technologies to be burdens and therefore do not use technology to enhance their lessons. Concrete proof is needed to show teachers that educational television is worth their time and energy. This proof can be seen in the science of how people learn.

Memory and learning are intertwined; the formation of lasting memories is essential to the learning process and is accepted as such. The formation of memory is caused by a stimulus to the brain cells. This stimulus can be a thought, a picture, or a television show (Marshall, 2002). This stimulus causes brain plasticity. Jensen (as cited by Marshall, 2002) defines brain plasticity: “When we say cells connect with other cells, we really mean that they are in such close proximity that the synapse (spaces between cells) is easily and almost effortlessly “used” over and over again. New synapses usually appear after learning” (p. 5).

Marshall used a qualitative approach to his work; he did not conduct his own study on educational television, instead using the prior work of other researchers. He based this prior research on the theoretical rationale of Gardner’s Theory of Multiple Intelligences. He came to the conclusion that educational television does promote learning, but “learning is not a guaranteed outcome” (Marshall, 2002, p. 23).

O’Bryan (1980) looks at the case of *Sesame Street* and how it transformed instructional television into educational television. He filters the research of instructional television, giving his interpretation of where and how instructional television should be

used. He finds in his study of the research that more research is needed on instructional television. O'Bryan (1980) mentions the use of instructional television as a replacement for the teacher. Doing away with the teacher is one major fault of early instructional television (O'Bryan, 1980, p. 21). Instructional television was initially shown only on TV and at certain times, making it difficult to use in the classroom. With the invention of the videotape, instructional television became more widely used. A key point O'Bryan (1980) makes in his study of the research is that "the ITV [instructional television] program that tries to teach through entertainment alone will fail just as surely as the text which cannot hold the attention of the learner" (p. 24).

O'Bryan's (1980) work showed evidence of educational television's teaching ability. He pointed out that educational television does in fact teach: "In the hands and under the control of a skilled teacher, they are truly instructional" (O'Bryan, 1980, p. 22). The point that educational television has the best learning outcomes when in the hands of a teacher will inform my research; I will explain why it is critical to have clear lesson plans when showing an educational video in order to create a learning outcome from it. Another hurdle that educational television continues to jump is the thought that viewing television will shorten children's attention spans.

Curriculum-based television does not shorten attention spans or hinder thought or language development (Anderson, 1998). Anderson (1998) looks at the case of *Sesame Street* and points out that there is no evidence to back people's perceptions that television is necessarily "bad" for children. Anderson's (1998) work is important in that it shows that educational television does not hinder children's development. Anderson (1998) concluded that the frequency of movement, of the characters in *Sesame Street* is the same

as in other educational programs and can be less than in other morning shows for children. Anderson stated that when a child was put in a room with toys, the child looked at the television only 40 to 60 percent of the time. These observations contradict the critics' idea that *Sesame Street* mesmerizes a child (Anderson, 1998).

Anderson (1998) reviewed the claims about educational television and its effects on the attention spans of young children. He looked at an experiment done by many different researchers. The research took place in a room and looked only at how many times a child turned away from the program on TV. He did not conduct this research himself, but condensed the research and experiments of others to show that TV does not shorten attention spans. His research shows that there are both long and short-term benefits of educational television.

Administrative Record

Many people find that educational television programs are merely time fillers for teachers who do not feel like teaching for the day, when in fact these programs, when incorporated into the curriculum with a purpose, can greatly benefit the students. Every state has specific standards for each grade and subject. By looking at the standards for a particular subject, teachers can find places where an educational program will enhance their students' learning. In districts that require teachers to teach lessons from textbooks day after day, educational television programs can spark interest in students.

The Science Framework for California Public Schools provide the standards for the third grade science curriculum. With the initial adoption in 1998 of the science framework, "California made a commitment that we will provide all students a world-class science education" (California Department of Education, 2004, p. v). In 2004 the

content standards were adapted to include criteria for instructional materials.

Instructional materials according to the state of California, is the adoption of a program with a textbook. Although “the State Board encourages publishers to select research-based pedagogical approaches that completely cover the rigorous California Science Standards...present science in an interesting and engaging ways, and otherwise give teachers the resources they need to teach science effectively” (California Department of Education, 2004, p. 301). Yes, the textbooks are present in class, and they do give instructions on experiments that will engage the student; however, the books do not come with all the materials. In many districts, teachers do not have the funding for the materials needed to the experiments and therefore can only resort to reading the text in order to teach science.

The third grade science standards for Life Sciences state: “Students know plants and animals have structures that serve different functions in growth, survival, and reproduction” (California Department of Education, 2004, p. 51). If a student is lucky, he or she will get to observe an animal and a plant through its life stages. The schools with the financial resources to order kits or go to purchase plants for the students to observe better equip their students to remember what they learn by giving their students the added benefit of hands-on science education. This is where the use of educational television can bring the science to life for students who would otherwise be merely reading words.

While educational television cannot substitute for real hands-on learning, it is a step up from just reading about science. These students who do not have the opportunity to observe a plant or animal grow through its stages can at least see it on the video in a time release. The Bill Nye science series does just that – bring science to life. Teachers

are supposed to make learning engaging and should have the materials to do so. In science, when those materials are not available educational television can be a life-saver and open a door to the world of science that would otherwise be closed.

Special Collections

The National Public Broadcasting Archives (NPBA) is located in College Park, Maryland at the University of Maryland's Hornbake Library. The NPBA houses the entire history of public broadcasting and all the work of those who have contributed to its development. Donald R. McNeil, founder of NPBA and a former Public Broadcasting Station (PBS) board member, worried that the history of public broadcasting would be lost. On June 1, 1990, a dedication officially recognized the NPBA (University of Maryland, 2004).

The NPBA houses the major entities of non-commercial broadcasting in the U.S. These entities include the major players as well as lesser known entities. The following entities are available:

- Agency for Instructional Technology
- America's Public Television Stations
- Association for Educational Telecommunications and Technology
- Children's Television Workshop
- Corporation for Public Broadcasting
- Joint Council for Educational Telecommunications
- Maryland Public Television
- Midwest Program for Airborn Television Instruction
- National Public Radio
- Public Broadcasting Service
- Public Service Satellite Consortium

Also housed at the NPBA are papers on specific use of educational or instructional television by individuals who made significant contributions to the field of educational/instructional television. Papers include the Warren F. Seibert documenting

instructional television at a school level, the William F. Brish papers on the development of instructional broadcasting, C. Scott Fletcher, Susan Fratkin, and others (King, 2008). Each of these collections housed at NPBA include many observations of and research into educational/instructional television. It also houses and collects selected video and audio programming of public broadcasting (University of Maryland, 2004). The work of top educators and researchers can be found in this building and is available virtually. One can browse through the many holdings of the NPBA on its website. There is also a curator, Karen King, to contact for more information and or to obtain a copy of a particular document.

The Public Broadcasting Station (PBS), founded in 1969, is a private nonprofit corporation that exists in all 50 states. With almost 360 stations, PBS reaches Americans from all walks of life, giving them opportunities to experience things they would otherwise not have access to. According to the PBS website, “Each month, PBS reaches more than 110 million people through their local stations and nearly 19 million people online, inviting them to experience the worlds of science, history, nature and public affairs...” (Public Broadcasting Service, 2010, ¶. 1). With the internet in every library across the United States, PBS is available to anyone who chooses. The content on the website is user friendly. One can easily navigate and search to find what one is looking for. The main website page, www.pbs.org, directs users to a section just for teachers, kids, and parents.

The section for teachers is organized into grade levels: PreK, K-2, 3-5, 6-8, and 9-12. Under each, users can find links to the arts, science and technology, health and fitness, math, reading and language arts, and social studies. Within each category are

resources to enhance classroom lessons with the use of technology. There are short videos, worksheets, and basic information (for those times when a teacher forgets how to teach a concept). The PBS website goes into detail about each of its shows and the individual episodes of each so that a teacher can easily find an educational tool to fit the lesson.

The PBS website also offers a teachers' store, where users can find almost all PBS programming for sale on DVD. Users can search by subject or by program. This is a great site for teachers looking to use videos to enhance the lessons that they teach.

Interview with an Expert

Sarah Zykanov (personal communication, March 25, 2010) is the head of the technology department for San Rafael City Schools in San Rafael, California. I sat down with her on March 25, 2010, to discuss the use of technology in her schools. Sarah is not only a technology specialist, but also teacher at Dominican University of California, where she teaches technology classes for teachers. She works hard to bring in new technology and help with technology that is already available. I chose to interview Sarah because of her position in the San Rafael City schools as Educational Technology Specialist, as she would have valuable information about how technology is used and what technologies are available for teachers.

I interviewed Sarah at her office on the Dominican campus. Before answering my five questions, she signed the IRB consent form. I recorded her responses by hand in a notebook. I asked her each question, probing for more information when appropriate. Sarah thoroughly answered all of my questions, and I could see we felt similarly about the specific technology that I am researching.

To begin, I asked Sarah how technology is implemented in the San Rafael City Schools. What forms of technology are used on a regular basis? She started with what the students had available to use. All the computers for the schools are Macintosh and are networked, allowing students to access their work from any computer at their school. Sarah then went into what teachers use. Many teachers use technology for assessment, such as the Scholastic Reading Inventory. She also mentioned Data Director, which stores information for the schools and can also assist teachers in creating assessments. Sarah stated that more teachers are becoming familiar with Data Director and using more of its functions.

For English Language Learners (ELLs), there is a program by DynEd for grades K-3 called Let's GO. This program uses a placement test and then assigns activities based on the results. It requires the classroom teacher to be involved initially with the set showing students how to access and use the program. Following initial instruction, the teacher can tell the students to work with the program, and they usually do not need further assistance.

Sarah then discussed the technology available for mathematics. In the San Rafael City Schools, teachers use Everyday Math. The program has web-based supplements, which can be accessed at home as well as school. In the area of science, she said that the BBC website has the best video content and includes science simulations. Sarah also went on to say that teachers are creating their own websites for their classes with links for students to use. Teachers also use projectors and document cameras to enhance learning and create on-the-spot learning with students. Sarah has also created pages within the San Rafael City Schools website with links for students to use. They are organized by

grade level and offer a lot of lessons that teachers can have students do during class time or suggest for use at home for practice.

The next question I asked Sarah had to do with the use of educational television. I asked about the availability of educational television programs for teacher use and asked her to focus on educational science television. Sarah said that the adopted program for the science curriculum comes with DVDs to enhance lessons. Some of the schools also subscribe to Learn 360, which has many programs for teacher use. Sarah, however, suggested Discovery Streaming, which is very user-friendly, as teachers can search the educational television programs by grade level. The educational television programs can be full-length, or the teacher can use specific clips for lessons. Sarah also said that teachers could organize a series of clips tailored to a specific lesson. She mentioned that many teachers ask for access to YouTube, but Federal Law does not allow it. She also said that PBS Instructor has many educational television programs for lessons. I then asked if educational television programs on VHS or DVD were available to teachers to check out. Sarah said that whether there were videos for check out depended on the specific school. She believed that most schools had some videos, but that most teachers just bought their own.

I then steered the conversation to the requirements for technology. I asked if there were any specific requirements for teachers to use technology and if there were any guidelines for the use of technology. Regarding requirements, Sarah said that teachers primarily used technology to take roll and complete other administrative tasks. Teachers in San Rafael have to use a computer program for report cards, attendance, and for online access to benchmarks for grades 2 and up. She said that there are no expectations for

teachers to use technology in the classroom. She explained that if technology use were mandated, teachers would likely ask for more money to compensate them for time spent in finding good programs. This led me to ask a follow-up question about teacher resistance to technology. Sarah said she does see resistance in some teachers, even those who like technology. She said that a large problem is the lack of support to maintain computers and other devices. They fall into disrepair, and the teachers do not want to prepare lessons that depend on the use of equipment only to find that the hardware does not work.

Next, I asked what types of technology were available in each classroom, and if something were not available, what were the options for teachers? Sarah said that within San Rafael City schools, it was all or nothing. Either all classrooms had a projector, or there were no projectors. Schools did not have a central place where teachers could check out a projector, TV, etc. She said if the schools see a need for a technology and the teachers support new purchases, school leaders will come up with the funds to equip the classrooms.

My final question had to do with the proficiency of teachers. I asked how teachers could become more proficient in technology and if there were any specific technologies she considered important for classroom teachers. Sarah responded that teachers needed more hands-on practice and time to experience any project that they would then assign to their students. She said this would also help with the fear that many teachers have of using equipment when something goes wrong. If teachers have more experience, then troubleshooting will become second nature, and using technology in the classroom will be easier. She went on to say that teachers should have a toolkit and

familiarize themselves with certain technologies. In the toolkit, teachers would find a teacher computer, 3 to 5 student computers, a projector, and a document camera.

I then asked an additional question about using educational television programs in the classroom. We discussed the fact that many teachers feel that educational television programs are babysitters for the students. Sarah said teachers should be integrating educational television programs into lessons on a regular basis and understand that a video is more than a babysitter if integrated into a lesson.

At the conclusion of the interview, I thanked Sarah for her time and mulled over her responses. I found it very reassuring to my research to hear from a technology specialist that educational television programs should be everyday occurrences in the classroom. She also confirmed my assumptions about teachers being resistant to technology and gave reasons as to why they are resistant.

Chapter 3 Method

The qualitative method of data collection, using interviews to gather data and presenting the information found, was used in this study. In order to compile information on the use of educational science television programs in the classroom, I conducted interviews of three experienced third grade teachers within one district at one elementary school.

Sample and Site

The elementary school is located in Marin County, California. I chose these three teachers because; I live in the same county, and I completed my student teaching as well as a long-term substitute position at this particular school.

Ethical Standards

This study adheres to the ethical standards of the American Psychological Association in the protection of human subjects used in research. Additionally, I completed the Dominican University of California application for the Institutional Review Board for Protection of Human Subjects. The application was submitted to the program director for review and received approval (IRB #8080).

Access and Permission

I met the three third grade teachers during my student teaching. I developed relationships with these teachers during my student teaching and during the following year, when I worked with two of them as a long-term substitute in their grade level. I worked closely with them, developing curriculum and learning from them to enrich my

own teaching. I worked with the teacher whom I replaced during the year by volunteering in her class to get to know the students and to take mental notes on how she ran the classroom. We developed a close relationship, and I continue to help her as well as the other third grade teachers.

Data Gathering

I conducted three interviews, one for each teacher. I developed eight questions relating to the use of educational science television programs to ask the teachers. Once all the interviews were complete, I used a narrative approach to break down each interview and compile the answers. When compiling the interviews, I examined each question and the varying responses to understand how educational television is used in the classroom. From an analysis of these interviews I developed a list of ideas on using educational television to enhance the learning for the students.

Chapter 4 Analysis

Description of Site, Individuals, Data

Looking at the previous research, I found it necessary to interview teachers to get information on how they apply educational science television programs in teaching third grade. I interviewed three third grade teachers, all from the same school. The site was chosen for its convenience. I worked with two of the teachers and replaced the other for six months while she was out on maternity leave. One teacher has been teaching for 13 years, another for eight years, and the last for five years. I have been in each of their classrooms as an observer and as a substitute, and all three are great teachers with a wealth of knowledge. In the interviews, I asked each teacher the following eight questions:

1. How is technology implemented into your classroom? What forms of technology do you use on a regular basis?
2. What educational television programs, if any, do you use when teaching science?
3. At what point do you choose to use an educational television program in a science unit? Why?
4. When choosing to show an educational science television program, what are your criteria for choosing the particular video during a unit of study?
5. How have you created activities around the video or how have you used activities that come with the video, if any?
6. What have you found works best for your students to get the most out of an educational science television program?
7. In what ways do you find that students retain more of what they learn after watching an educational science television program?
8. What are the interest levels of your students during the showing of an educational science program?

Summary of Themes/Findings

With the conclusion of the interviews, it became clear that teachers use technology when it is convenient and easily accessible; that students enjoy watching educational television programs; and that in order for students to retain anything from a program, teachers need to have questions and to involve themselves with the program. Students should not just passively sit and watch.

Each teacher had many forms of technology in her classroom: an LCD projector, a document camera, a television with a VCR/DVD player, a personal laptop, a classroom desktop, and a digital camera. All three teachers enjoyed using the document camera. They had each recently received one from the parent teacher association (PTA) and spoke about its benefits when showing student work. For science, they used the document camera by placing a live snail or crawfish under the lens to show the students in more detail about the animal they were studying. Each teacher felt lucky to have the use of these technologies and to be able to use these devices at a moment's notice.

When questioned about the specific use of educational science television programs, each teacher reported use of the same programs. The Bill Nye science series was the number one pick among the teachers. As Kristina states, "Bill Nye displays concepts in a dynamic way, which as a teacher I am not always able to do alone in a classroom" (K, personal interview, June 4, 2010). Bill Nye catches the attention of the students, which I observed first-hand when I subbed her classroom. The minute Kristina turned on the program, the students began singing the theme song. Other educational science television programs that all three teachers used were the All About series, National Geographic, and local productions. Each teacher had a slightly different idea of

how to integrate these science programs into a unit and to fully exploit their educational potential.

When I asked when each teacher decided to use educational television program in a unit and why, I received varying answers. Two of the teachers like to use a video at the beginning of a unit. Heather chooses this method because, "...it helps to kick off a unit, gives the students some schema, brings excitement to the subject, and brings all students to the same page" (H, personal interview, June 4, 2010). The two teachers who choose to show at the beginning do this also because students have different levels of knowledge. Some have been more exposed to certain concepts than others. Kristina chooses to use a video at any time during a unit when teaching an abstract concept. She said this was especially helpful during her astronomy unit: "The students cannot go to space and see what happens, and the video brings space to them" (K, personal interview, June 4, 2010). All three teachers like to use an educational television program at the end of certain units. Kim states, "When I use a video at the end, it helps to cap off the unit. I have students listen for any new information, usually abstract ideas" (K. personal interview, June 4, 2010).

In order for students to get the most learning out of an educational television program, all the teachers were in agreement that you cannot just play the program and be done. Two of the teachers use a KWL chart; they ask students what they know and what they want to know before they watch the video. After the students view the program, the teacher brings the class together to find out what they learned and to see if they answered their own questions. Another strategy all three teachers use is a "keys" worksheet. The worksheet has five spaces shaped like keys in which the students have to write

information from an educational television program, usually things they did not already know. Once the program is over, the students share what they learned, and other students can complete their worksheets if they were unable to find enough facts on their own.

When using this worksheet, the teachers will stop the program at points and discuss what was just said, thus giving the students time to write. Kristina also uses educational science television programs in order to preview an experiment that the students will be doing: “The students watch the experiment on the video; then I am able to explain again, and the students know what to look for as they complete the experiment” (K, personal interview, June 4, 2010).

Each teacher had similar yet different ideas about how educational television should be used for science in third grade. What became clear is that teachers today use educational television programs and that these particular teachers feel they are useful for the students and for the science units. They all agreed that they are lucky to be in a school in which technology is readily available and that they have time to learn the technology and integrate it into their curricula.

Chapter 5 Discussion

Summary of Major Findings

Researching educational television revealed two major findings. The first was the argument over instruction versus educational television. According to the research, instructional television does not teach; it just replaces the teacher with a person on a screen. However, educational television does teach as long as there is a teacher in the room to create questions and help the students understand what they have just watched. Teacher interview responses reinforced this concept. Each teacher agreed that instructors must carry out an activity around the educational television program in order for it to be an effective teaching tool. One cannot just put on a video and expect the students to absorb the information presented.

The second major finding was that educational television does teach. There are studies explaining how children learn through television, and studies refuting claims that educational television does not teach. The major case presented was that of *Sesame Street*. The research that Anderson (1998) and O'Bryan (1980) did on the effectiveness of *Sesame Street* changed educators' views and reinforced that educational television can and does teach. This is one of the reasons we have the Bill Nye series today and the teachers I interviewed are able to use it to add to their curricula.

Comparison of Findings with Existing Studies

Throughout my research, I did not come across any studies asking classroom teachers how they use educational television programs or if they feel these programs are worthwhile. There are studies that show statistics on technology, but very little on the

use of educational television. I have come to the conclusion that this is because television is an old technology and one that many people forget is a technology. Ask the question what is technology. And most likely responses will include computers, cell phones, and so on. Because televisions and videos are in every person's life, we forget about their being technologies. Educational television programs are taken for granted. Even with the numerous studies completed on *Sesame Street*, which show that children do learn from educational television, there are no studies giving information on how to best use an educational television program in an elementary classroom.

Implications for Future Research

The interviews of the three teachers only provide a limited source of information on how to use educational television in a classroom. More research needs to be done on the use of videos in the classroom in different subjects and grade levels. It would benefit the technological world to continue to study educational television and to bring it to teachers. Educational television can be shown through many media, including television, internet, pod cast, videos, and DVDs. It would also be beneficial to research the making of educational television and who decides what goes in. I think the research on educational television is limitless and should be explored to its fullest extent.

Conclusion and Overall Significance of the Study

This study brings new ideas to teachers of how to use science educational television in the third grade classroom. The ideas expressed by the interviewed teachers can be applied to other grades. The research done in this study brings educational television back to the forefront of educators' minds and is another tool sometimes

forgotten by teachers. Bringing this information to teachers and giving ideas about how to use educational television will help both new and seasoned teachers.

Through my research, I have gained valuable information on educational television and its creative uses. Understanding how children learn and putting knowledge into an entertaining venue can enhance classroom learning. With the activities provided by classroom teachers, educational television can be a great learning tool for students.

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