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"A PBS mind in an MTV world": teaching teenagers meteorology by placing a weather forecast on MTV and the creation of the concert forecast

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"A PBS MIND IN AN MTV WORLD": TEACHING TEENAGERS METEOROLOGY BY PLACING A WEATHER FORECAST ON MTV AND THE CREATION OF THE CONCERT FORECAST

By

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Studies show teenagers are influenced by television. This study tested the hypothesis that students can learn meteorology by viewing a weather forecast on *Music Television* (MTV). MTV was used because it is the network watched most by adolescents. Two surveys were administered to 175 high school students along with a DVD showing a weather forecast for MTV's Spring Break. Half of the sample group was told the forecast was for MTV and the other was told it was for Channel One. Results showed that there was no statistically significant difference between MTV and Channel One in information recalled from the forecast. Results also showed the White student population recalled more information from the weather forecast format than the other races surveyed in the study. Additionally a series of concert forecasts was pilot-tested on 15 bands with very positive and promising feedback.

DEDICATION

I would like to dedicate this research to my parents, Dan and Diane Shaw, my thesis advisor, Dr. Kathleen Sherman-Morris, my committee and the wonderful people who assisted me through this scholarly adventure.

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CHAPTER I

INTRODUCTION

Student interest in science has been in a slow decline since the latter part of the twentieth century (Osborne et al, 2003; Haonawar, 2005; Barr, DA et al, 2008). The decrease of interest is reflected in lower science test scores (Osbourne, 2007). National assessment tests given to students in fourth, eighth, and twelfth grades show a decline in science scores when compared to assessment scores from 1996 and 2000 (The Nation's Report Card, 2005). According to the National Report Card, a decline was apparent not only from comparing scores by years, but student scores were declining when comparing scores from fourth through twelfth grade. When comparing the two, it shows that science scores are falling not only from 1996 to 2005 but simultaneously from fourth to twelfth grade.

High school students are not achieving the requirements necessary to meet college standards in science (U.S. Dept of Education, 2006). College assessment scores for 2008 are slightly lower than 2007 scores (Rimer, 2008), and the enrollment of students majoring in science has decreased (ASME, 2002). As a way to compensate for the decline in ACT/SAT scores, small colleges and science colleges are starting to experiment with making the test scores optional when submitting applications (Marklien, 2007).

Trying to increase interest and to improve science education, teachers and instructors have taken to alternative methods and ideas of teaching, such as using beer and the beer brewing process to teach biological and chemical processes (Pelter, 2006), using the popular animated adult television show "The Simpsons" as an aid in teaching psychology and media literacy (Gray, 2005; Eaton and Uskul, 2004; Bybee and Overbeck, 2001), and from personal experience while in graduate school, using video from the community sharing website "youtube.com" to educate students about condensation nuclei in a physical meteorology classroom.

The trend appears to be using popular activities (beer, watching youtube videos) and television shows (The Simpsons) as a way to intrigue students. The combination of science, meteorology, and the popular influence of Viacom's Music Television (MTV) was used to test and research the hypothesis: If a weather forecast were to be placed on Music Television, would viewers be able to learn basic meteorology?

Meteorology was chosen as the particular science because the weather affects students in their everyday activities (sports, clubs, organizations, etc). The students watch the weather in order to decide what type of clothing to wear that day. Meteorology is the science the students experience in the classroom through instruction and out of class in their normal routine and daily lives.

The brand name and cable television network, MTV, was chosen because it is an icon in music, fashion, pop culture and celebrities. The students who are currently in school grew up with MTV since its first cablecast on August 1, 1981. To the students, MTV is the direct line to what's new and upcoming in pop culture, fashion and music.

The research group chosen for the study was mostly eleventh grade students in science classes in the Oktibbeha County high schools in Mississippi. In three cases, the class size was small enough to survey the entire grade. The sample consisted of students from ages 14-18 at three public high schools and one private school. Eleventh grade students were chosen because they would soon be considering whether to go to college and if so the chosen major of study.

Data were collected via a survey containing two separate parts and a DVD of a mock weather forecast for "MTV's Spring Break" in Panama City. The first part of the survey asked questions pertaining to the previous education of meteorology the students had, what type of television is watched most, how often a weather forecast is watched by the student, and why does the student watch a weather forecast. The second part of the survey was distributed following the showing of the DVD. It contained questions pertaining to what was given in the forecast, a few questions about the meteorology in the forecast and other details shown on the DVD. The data were collected and documented in an Excel spreadsheet, and it was analyzed using T-tests Assuming Equal Variances with a 90 percent confidence level.

Another topic discussed in this study is the creation of a concert forecast for local and regional bands. While conducting the research, the idea of creating concert forecasts surfaced. A myspace account was created to give a weather forecast for fifteen bands that have pages on the community website, myspace.com. Each week the meteorologist followed the band's tour schedule and gave a weather forecast for the location and time the band would perform the preceding weekend, very similar in format to the mock weather forecast used in the DVD given to the students when conducting the survey.

The purpose of the combination of Music Television, concerts, and weather is for teaching meteorology concepts to the viewers of MTV and also to create a safe and prepared environment for audiences attending indoor and outdoor concert venues should severe weather occur. It is better for venues to take precautionary measures than to learn from mistakes due to the possibility of venues and audience members being unprepared and unknowledgeable.

Considering the decline in the interest in science and the alternative methods used to teach science, the idea of teaching meteorology to students through the format of a weather forecast will be researched. MTV will be used because of the influence and place it had amongst the teenage demographic. Combing the forecast and MTV, this study will determine if the association of the two can help students to recall basic meteorology information and what precautions to take during a weather event after viewing a weather forecast.

CHAPTER II

LITERATURE REVIEW

This study is the first to create the idea of merging meteorology and the influence of *Music Television* (MTV) to educate teenage viewers. Due to the lack of research on the specific topic of MTV and meteorology, the following literature review will address the amount of time the population of interest spends watching television. This literature review will show that the amount of time spent watching television eventually indirectly, directly, mentally, physically, and psychologically influences the audience of every age. Since television is very common in the household, it is being used in the classroom. The following discussion will present examples of how television is used in the classroom as a teaching aid and for alternative teaching methods. While television is being brought into the classroom, the audience is being educated and entertained in the home. Television contains educational yet entertaining programs and stations in which the following literature will provide examples. *Music Television* (MTV), the focus of the present study, educates the teenage audience about music, fashion, celebrities and their lifestyles. Finally, the literature will conclude with the presentation of the idea of using MTV's influence over the teenage audience to educate them about meteorology by placing a weather forecast on *Music Television*.

Television's Effect on Viewers

Research conducted in 2008 by The Nielsen Media Research Company states that the time spent watching television in the home is at its highest ever. Data collected every month over the span of one year has shown that the use of television in the home has increased by 1.4% and the time spent watching television has increased by 4% (Nielsen, 2008). This does not include the viewing of timeshifted television which is recorded television programs played back via DVR (Digital Video Recorder) or another digital recording device at a later time than the original time the program was aired. Homes using timeshifted television increased 35.7% and the time spent watching timeshifted television increased by 56% (Nielsen, 2008).

Studies show that after watching television for an extended period of time what is viewed on the television has an indirect and a direct influence on the society's everyday lives from infants and children to elder and the type of programming can determine the type of influence it has on the viewer whether it be positive or negative (Rettew, 2008). Konig et al. (2008) determined that the indirect influence television had on partners living in the same household was that if one watched television very often then the partner will start watching television just as much. Partners living in the same household influence each other's television viewing habits, and parents can influence their children. The programming parents view on television can indirectly influence their children. For example, a parent warning a child as he gets older about taking precautionary measures when out on his own due to the act of the parent watching programs containing crime and violence on television (Russelle, 2003).

Indirectly, television affects the audience in the household through the members of the household, but the direct television influence has more of an impact. Thompson and Christakis (2005) indicate that television viewing among children younger than three years of age affects the naptime and sleep schedules. Direct television influence continues to affect children with vocabulary development, in a positive way, as young as two-years of age with the assistance from an adult (Barr and Wyss, 2008). As the child continues to grow and develop, television becomes more apparent in their lives, which then can affect the child's diet (Griffiths, 2006; You and Nayga, 2005), and food intake (Taveras et al., 2006). If the child watches too much television instead of participating in other physical activities it can lead to child obesity (Campbell et al., 2006) which has been linked to television content and advertising.

Teenagers and Television

As the child progresses into adolescence, television becomes more of an influence concerning behavior, self image, attitudes and opinions. Jackson et al. (2008) linked the casual views of risk-taking behaviors (smoking and sex) of early adolescents to the exposure of having a television in the bedroom. Adolescents viewing television programs containing violent content increased the likelihood of the adolescent participating in tobacco/marijuana use (Brook et al., 2008). Studies have linked the connection between adolescents and their casual views and opinions of sex (Pinkleton et al, 2008, Nabi and Clark, 2008; Brown and Strasburger, 2007) and teen pregnancy (Chandra et al, 2008) to what they view on television. However, if sexual content was viewed that showed negative consequences, the opinions and views turned to abstinence and negative

thoughts about premarital sex (Eyal and Kunkel, 2008). Reality television has been studied to correlate the risk-taking behaviors seen on the programs along with the actions duplicated among adolescents (Reid, 2003). Alcohol consumption while going out among adolescents can be a result of the viewing of television with alcohol advertising and music videos depicting alcohol consumption in a positive way (Van den Bulk and Beullens, 2005).

Television can show the audience new ideas and different lifestyles the audience would not normally see in their everyday lives. A study conducted by Rossler and Brosius (2001) indicated that adolescents watching a talk show addressing the issue of gays and lesbians, tattooing, and trans-sexuality--after a prolonged exposure--cultivated their views on those topics and created more of a tolerance for the gays, lesbians and trans-sexuals.

Self body image (Clark, 2008; Aubrey, 2007; Gentles and Harrison, 2006) and food intake (Legenbauer et al, 2008; Hill, 2006; Van den Bulck and Eggermont, 2006) are influenced by what is seen on television and in some cases just the size of the screen affects they way adolescent girls view themselves. Anshutz et al (2008) showed thin models on two TV screens of difference size, 16:9 (widescreen) and 4:3 (normal) to girls of average weight. The wider screen flattens the image more than the normal viewing screen making the images seem broader in appearance. After viewing thirty minutes of televised models, those who watched the normal screen had worse body image and less food intake than the group who viewed the same content on the widescreen.

As the adolescent gets older, school can become more challenging and, in some cases, relationships with parents become more testing. In the Roe and Minnebo (2007)

study, when an adolescent experiences challenges in school and/or the relationship between the parents is not good, the student will watch the television as a way of mood management and escape.

Adolescents spending a lot of time watching television start to develop an expectations about a romantic relationships and partners. Eggermont (2004) supported the hypothesis with evidence pertaining to male adolescents expecting their female partner to be very beautiful like the females portrayed on the television screen. Female viewers seek male partners with a good personality, and looks are not taken into account as strongly as male viewers. According to the study, a female looks for a male who is willing to take care of them and be a "knight in shining armor" similar to the men portrayed on the television.

Thus far, research suggests television has an effect on an adolescent's opinions, views, moral beliefs, self image, expectations of romance, and can be used as a means of mood management and escape from problems at home. When dealing with issues at home, some adolescents turn to their religious beliefs. If a particular form of religion has not been practiced regularly or the adolescent does not have a strong religious belief, television has been shown to expose the adolescent to new types of religion. Religious beliefs and the belief in the realm beyond are connected with the viewing of television programs such as *The X-Files* and movies such as *The Craft*. Both examples contain subjects pertaining to supernatural phenomena, which increases the curiosity of the adolescent viewers into looking into other forms of religion (Clark, 2002).

Other than television affecting an adolescent's religious beliefs, television has been shown to affect them culturally such as in the style of clothes chosen to wear based

upon what is seen. Brooker (2001) conducted a study based upon the viewing of the teenage drama *Dawson's Creek* and adolescent viewers. The results revealed female viewers did seem to experience some cultural convergence; meaning clothes were bought that looked similar to the clothes being worn by the characters, and viewers with internet access visited the fan-based website as a way to get more involved with the program and its characters.

Television affects an adolescent personally, but it also has an influence on how the adolescent interacts with others. An adolescent can develop a lack of trust towards others when crime news and other crime-related media or programs are watched consistently over a period of time (Salmi et al., 2007).

Watching television consistently for a long period of time can have a psychological affect on the viewer in ways of aggression by viewing aggressive content or violence (Coyne et al., 2008, Cornstock, 2008, Hamilton-Giachritsis, 2005). On the other hand, psychologists portrayed on television create a stigma against those who would want to seek therapy if they feel the need (Vogel et al, 2008).

The "Good" Television

While the preceding paragraphs seem to describe television as very negative, it can have positive learning influences (Samaniego and Pascual, 2007). Television viewers are being entertained while simultaneously being educated. Children as young as twenty-four months learn new skills by imitating people seen on the television (Strouse and Troseth, 2008) . Studies have shown that educational programs containing previews and summaries in a repetitive format does enhance a child's knowledge (Michel and Roebers,

2008). Baydar's (2008) found low socio-economic children benefit more from educational television because it is substituted for a pre-school program.

Palmgreen et al (2001) signified the positive effect that public service announcements had on high-sensation-seeking adolescents and marijuana use. As a result of the study, the substance use among the high-risk experimental population decreased because of the anti-marijuana content in the public service announcements.

Television stations that focus more on the educational aspect of entertainment (*The History Channel, Discovery Channel, Public Television* etc) teach viewers about a variety of topics. *The History Channel* has programs that are in a documentary style along with thirty minute programs that focus on events, people, places, things and ideas that occurred in the past (Moss, 2008; Beckett, 2007; White, 2005). Driver (2006) studied the teaching of the Middles Ages on film with visual narratives and historical records through *The History Channel* programming. Teachers use sources from *The History Channel* in the classroom to assist in teaching history and social studies (Lee et al., 2006). *The Discovery Channel* educates viewers about foreign places, people, animals and travel which gives the audience a look at things not normally seen in personal normal surroundings (Pierson, 2005; Dhingra, 2003; Fursich, 2003). The *Public Broadcasting Service* (PBS) provides educational programming without commercial interruptions with a wide audience demographic, broadcasting educational cartoons and shows like "Mr. Roger's Neighborhood" for the children to documentary/news programs for the older demographic (Levin and Hines, 2003). The public children's television program "Sesame Street" educates children about numbers and the alphabet while also

addressing ethnicity, gender, and sexuality (Schildcrout, 2008; Cole et al, 2008; Kraidy, 2002).

Television in the Classroom

Television is not only watched in the home for educational purposes (Rey-Lopez *et al*, 2007). It is becoming more common in the classroom as teaching aids (King, 1999; Champoux, 1999). Teachers are using science fiction films to explain scientific processes and anomalies (Barnett and Kafka, 2007; Czerneda, 2006). The Simpsons are being used to explain topics in social psychology (Gray, 2005; Eaton and Uskul, 2004; Bybee and Overbeck, 2001). The Houston Museum of Natural Science teaming up with Rice University created an outreach program by bringing portable digital theaters into schools. Over the span of five years, research was conducted on what the students learned through the full dome digital experience, which is similar to a giant television screen. After viewing a 22 minute program, results showed a short-term increase of knowledge and interest amongst the students, grades 3-12, related to basic concepts in Earth science (Sumners et al, 2008).

The content seen on the television is not the only influence; the way students perceive the message is also a factor (Gomez and Gomez, 2008). Cox (2008) developed a teaching plan to educate students on how to perceive media messages. In the Cox (2008) study, storyboarding – a series of pictures in sequence used to show the story as told in a movie, television show, etc, scene by scene -- was used to analyze public service messages to persuade students to make good health choices.

On an international scale, Kothari (2008) found that literacy increased in Indian schools due to same language subtitling on television. The English language is being taught to students at China's universities through the college radio and television stations (Junhong, 2008).

Entertaining and Educational Television

Programs on television normally focused more towards entertainment can be educational as well. "The Daily Show with John Stewart" educates the audience on current events in a humorous way (Feldman, 2007; Lambe *et al*, 2007). Research indicates that adolescents watching late-night TV such as "The Daily Show" display more civic participation (Hoffman and Thomson, 2007). Shows such as "Law and Order" (Richardson *et* al, 2008; Lindahl, 2007; Slater et al., 2006), "Crime Scene Investigation' (CSI) (Miller, 2007; Duncan and Daly-Engel, 2006; Jones and Bangert, 2006) and "ER" (Goodman, 2007) portray scenes from the lives of lawyers, crime scene investigators and doctors and educate the audience about the judicial system, crime investigation and medicine.

News programs educate the world on local and international current events (Xigen, 2007; Diddi and LaRose, 2006), politics (Druckman, 2006; Bucy and Grabe, 2007), the economy, advances in science (Lee and Scheufele, 2006; Miller *et al*, 2006), and climate change (Boykoff, 2008) etc. Pfau et al (2008) studied the influence television had on the views and opinions viewers had on war as broadcast by news reporters, anchors, and real-life footage. Sports programs educate primary school students in cooperation, team-play and character (Light and Pickford, 2004). Weather

segments (Wilson, 2008; Roos, 2005; Earl and Pasternack, 1991) and television stations and networks such as *The Weather Channel* teach the audience about meteorology, how to prepare for extreme weather events and assist in planning everyday activities.

Music television is very educational in the genres of music, fashion, celebrities and their lifestyles. (Rosati, 2007;Smith and Beal, 2007). MTV is focused more towards teenagers in high school, and the targeted viewers are very impressionable by what is shown on the television (Katja and Roper, 2008; Ward et al., 2005; Tiggemann and Slater, 2003).

Teenagers' time spent watching traditional television comes to 89:09 (hours:minutes) per month and 3:36 (hours:minutes) spent watching timeshifted television per month. This study provided examples of how television affects adolescents indirectly, directly, religiously, psychologically, ethically, culturally, and emotionally in the classroom and the home. Educational programming assists teachers and learning is taking place at the home while watching programs for entertainment purposes and being unknowingly educated.

Music Television's programming is focused more toward teenagers. Adolescents watch MTV as a way to learn about what is up and coming in music, fashion and celebrities. Using the influence MTV has over teenage viewers, meteorology can be learned through the format of a weather forecast as part of the science curriculum.

The Art of Teaching Meteorology

The Earth science curriculum in the United States is not equally taught in every state and is in need of improvement (Hoffman and Barstow, 2007). A weather forecast is

a good format for television but educators may not consider it as an education tool in the classroom. Instructors are using other methods to teach meteorology. Gaudry-Hudson and Yalda (2008) focused on using online posts and threaded discussions in assisting students with the meteorology learned in the classroom. Students wrote online discussions using their basic meteorology terms and concepts learned in class to better understand what was seen online and in weather forecasts on television. The online posts pushed the students to relate what was learned in the classroom and use other sources outside of the classroom to relate what was happening in real-time weather.

Some schools designate an entire day to the weather. In the spring of 1999, an elementary school in Kensington, Maryland created "Weather Day" which is devoted to teaching students about how meteorologists study basic weather phenomenon and how they forecast. (Marshall and Mogil, 2007).

Competition can be used as a tool for educating students about meteorology in the format of a forecasting contest. Students are given cities all over the nation to provide weather forecasts for the duration of two weeks per location. The contest has not only been used on a national level but departments in universities sometimes host their own forecasting contests within their departments (Skeeter, 2006).

Small-group assignments have been studied that gave the students scenarios concerning events and other activities in which students have to make a decision to cancel or continue an event according to the forecast they produce (Market, 2005). Devoted school days, small-group assignments, projects, contests and online postings are some methods to educate students about meteorology. This study will propose the notion

of using a televised weather forecast on a popular television network to teach basic meteorology concepts.

Attracting Attention and Creating Interest

Bringing a student's attention to a topic can create an interest (Rule et al., 2008). Yar (2008) found that the topic of obesity did not have the necessary attention for students to consider it a serious issue. Teachers brought up the topic of spinal shrinkage to bring attention to the issue of obesity. Results found that students not only became interested but decided to adopt better lifestyles and healthier habits. Rule et al. (2008) brought the issue of global climate change to the student's attention along with some in-class group projects, therefore creating an interest.

MTV relates to its targeted audience by being the leader in music, fashion trends, and advertising the latest technology. Showing programs adolescents are interested in keeps their attention. Goodstein (2008) produced a new marketing plan to create adolescent interest in a local public library. Teens became actively involved with the library by using online community websites such as Facebook and MySpace. Teenagers were also able to create an online blog to advertise and announce events the library was hosting.

The Montgomery County/Virginia Tech Robotics Collaborative (MCVTRC) created a program in which students can apply their science and math skills to robotics design through several short classes. The students are able to participate in an international robotics competition. The program was created as an attempt to answer the problem of the low number of students interested in science, mathematics, technology

and engineering (Brand et al., 2008). By creating a program students become interested in, their attention is turned to applying their math and science skills. Placing a weather forecast on MTV could potentially create an interest and increase attention in meteorology.

Once the interest and attention has been addressed, the forecast can be imbedded in the memory (Anderson and Kirkorian, 2006; Smith and Gevins, 2004). Grabe et al. (2007) showed that the audience with the least amount of education was able to remember what was seen on television more than the audience with higher education. Adolescents have not yet received any higher education so according to Grabe et al. (2007) they will be able to remember the most because they are more susceptible to raw information.

Since the time spent watching television is at its highest in history, it has direct and indirect effects on its viewers, especially adolescents. This paper will use the influence television has on teenagers in an attempt to teach them basic meteorology concepts through the format of a weather forecast. The weather forecast will use the influence MTV has upon the teenage culture in order to possibly attract attention and in turn create an interest. This paper will combine all previous sections discussed to test the hypothesis that students can learn meteorology through a weather forecast placed on MTV.

CHAPTER III

METHODOLOGY

To be able to test the hypothesis if students can learn meteorology from music television, a two-part survey was written and a brief informational weather forecast was recorded onto a DVD. To test the hypothesis, some students were led to believe the forecast was for MTV. It was not possible to actually place a forecast on MTV. The survey was distributed to high school juniors within science classrooms, and the DVD was shown to accompany the second part of the survey.

After obtaining approval from superintendents, school board members, teachers, and parents, high school juniors from the four high schools in Oktibbeha County were administered the survey. The 11th grade students were chosen for this particular survey because during the following year, they will be deciding when and if to go to college, and if college attendance has already been decided the next choice will be selecting a major. The survey may or may not have an impact on the student's path of study; however, will present meteorology as an option.

Since the study is focused toward science education and meteorology, science classrooms were the appropriate location to conduct the survey. The 11th grade students are required to be enrolled in a science class as part of graduation requirements; therefore, high school juniors were able to be surveyed. In three out of the four high

schools, every high school junior was able to be surveyed. The largest public school with over three hundred juniors enrolled was not able to commit more than one day of class due to teacher lessons plans and the school schedule, therefore only 10 percent of the students were surveyed there.

Survey Part One

Questions addressed in the first part of the survey (See Appendix A) inquired about the student's previous knowledge of meteorology, whether it be previous instruction from the classroom or from a local television weather forecast. The survey included the following questions:

- Has meteorology been discussed in previous classes?
- How do you acquire your weather information?
- What national cable network do you watch most often?
- Do you watch a local television weather forecast on a regular basis? If so, how often?
- Before an outdoor school event, do you look at the weather?
- Do you watch a television weather forecast to seek information about meteorology?
- Do you think personal knowledge about meteorology is important?

The goal of the first four questions of the first part of the survey was to get an understanding of the student's previous knowledge about meteorology. The final six questions addressed frequency, purpose, media format, and the importance of gathering weather information.

Eleventh-grade students are being taught the basics of meteorology and climatology in Earth Science classes (Mississippi Department of Education, 2008). The survey asked the students directly if they could recall discussions about meteorology from previous classes in an effort to determine whether information taught to them was retained.

The second question on the survey was accompanied by different types of communication media so that the students could identify the method used to acquire meteorological information. The methods placed on the survey are:

- Internet
- Television
- Radio
- Newspaper

The goal of this question is to see if television is the type of media students use to get information about meteorology. The collected data will aide in the hypothesis that meteorology can be taught if placed on *Music Television* (MTV).

Students were also asked to report which type of television programming they watch most often. MTV is a dominant icon among high school students in the United States. Because it is so commonly watched, *Music Television* was one of the options the students had to choose as the type of television most viewed along with other types of television stations: broadcast networks, sports programming, news and home, health and food networks. If MTV is chosen to be the most watched national cable television network, the hypothesis will have supporting data to continue pursuance.

The frequency of students who reported watching a weather forecast will show the importance of meteorology in organizing their daily activities or to decide what clothing to wear. The purpose of this question is to seek information if students view a weather forecast, on a local or national level, which in turn exhibits positive evidence towards placing an informational weather forecast on MTV given that the inquisition of meteorology is already in place on a personal level.

The current student participates in many hours of extra-curricular activities (e.g. sports, band, clubs, organizations, etc.) and some events associated with the activities may be outdoors such as games, performances, and fundraisers. Subsequently, students were asked if they looked at a weather forecast before participating in any school or extra-curricular activity. The goal of this question was to see if the weather is considered a factor in planning or participating in a school-related event that shows meteorology plays a role in the student's daily life.

Whether a student watches a weather forecast for educational enlightenment or in preparation for upcoming events is an important indication about the student's priorities. If the student answers "no" to the survey question concerning personal inquiry of meteorological information, a follow-up question will be asked as to what other reason motivates a student to watch a weather forecast. One answer could be: "to decide what to wear." If a high frequency of students chose what clothing to wear, it supports the idea of placing an informational weather forecast on MTV because MTV is a prominent leader in the fashion world for teenagers. So while students are preparing for the day by watching the weather forecast, they can be subconsciously learning about meteorology.

If knowledge of meteorology is important to students personally, the combination of the importance of a student's science education and a television network known for being the leader in popular culture and being viewed by students on a daily basis could only be beneficial to the student's educational interests of meteorology.

All of the questions previously addressed appeared in the first part of the survey and provides partial data on the student's recollection of meteorology. Before taking the second part of the survey, the students paused to view a DVD containing a brief informational weather forecast followed by a second set of questions. The second part contained questions pertaining to information provided by the brief weather forecast. The students were not told they would be quizzed on the DVD because some students might become a little anxious or agitated out of the dislike for taking quizzes. Not being told they were being quizzed was an attempt to create a relaxed and leisurely type of atmosphere similar to what the students would experience in their home.

Before showing the DVD accompanying the survey, the students were told either that the weather forecast was intended for MTV or the student oriented news program, Channel One. As each science class was surveyed, students were told only one of the two television networks by alternating between the surveyed science classes.

The reasoning behind alternating the two television networks between classes was to see if the name "MTV" made on impact on whether the students payed attention to the weather forecast and if the students were more likely to retain the information given in the forecast.

Research DVD

After the students were told which television network the weather forecast was intended, the DVD was shown. The brief weather forecast contained information about "Spring Break", a popular televised event on MTV, but the forecast did not mention MTV. The weather forecaster was dressed in stylish attire while giving a weather forecast in an energetic and entertaining manner.

The weather forecaster gave a forecast for "Spring Break" and named popular artists (Katy Perry and Flo Rida), giving concerts and other activities happening along the beach. Amidst the forecast, the meteorological process of sea breezes was explained using graphics giving the step-by-step process of sea breezes along with what safety precautions to take.

The description of the step-by-step process of sea breezes started with the formation of a high pressure system forming over the ocean and a low pressure system forming over the land. The winds flowing from the high pressure system to the low pressure system form a weak boundary while simultaneously accumulating moisture over land. The rising air causes the low pressure system over land because the land warms much faster than the ocean. Combing the rising air and the moisture accumulation, thunderstorms and rain showers are generated.

The precautions of what to do if watching a concert on the beach during a sea breeze thunderstorm followed a step-by-step process. The precautions were:

- Keep away from all metal and electrical equipment
- Go inside
- Stay out of the water

After the DVD was shown the following questions were asked on the second part of the survey (See Appendix B):

- What is the main reason the thunderstorms will occur later in the afternoon?
- What causes the air to rise over the beach in order for the breeze to occur?
- What action should be taken if on the beach during a thunderstorm?
- What will happen after the sun goes down?
- What artist was performing on the beach?

The answers students gave for the second part of the survey determine whether the information given in the brief weather forecast was retained and if the name of the television network showing the forecast had an effect on the responses.

Survey Part Two

The set of questions on the survey were review questions about the brief weather forecast the students viewed. The students were not told the questions were a review because some might visualize the questions as a test or quiz much like in a school setting. Because the survey took place within the schools, it was difficult to ask the second part of the survey's questions without the students feeling like it was school work. Students were not told the second set of questions was a quiz to limit some sense of anxiety or resistance.

The brief weather forecast gave information about the cause and effect of sea breezes and actions to take if ever on the beach during a thunderstorm. The primary reason thunderstorms are occurring during the forecast is due to the sea breeze process.

If the students can give a similar answer, the cause and name of the event may have been retained.

The forecast went a little more in depth about sea breezes by explaining some of the causes for the thunderstorms. The sun heats the surface causing the air to rise, creating uplift which leads to instability. Combing the Gulf Coast moisture and the warm rising air, cumulus clouds will form and possibly cumulonimbus clouds. From the cumulonimbus clouds, thunderstorms are likely to occur. Students were given a list of five steps in the sea-breeze process and told to place them in order.

A few directions about the actions to take if on the beach during a thunderstorm were also given during the forecast. The forecast was not only intended to teach students about meteorology but tactics to ensure safety. Therefore, if a student is in a situation similar to the example in the forecast, correct precautions can be taken. The question placed on the survey was in the format of six given statements. Three of the statements were the correct measures to take during a thunderstorm if on the beach while the other three were incorrect measures to take. The students marked the answers they thought were the correct measures to take.

After the sun goes down, the surface cools which creates a land breeze. If a student is aware of the conditions after a meteorological event, the right preparations can take place. The students were not asked specific questions about the land breeze but the conditions after the thunderstorm were addressed. Only one correct answer was given: It gets cooler.

With the premises of the survey intended for the MTV venue, the mentioning of two popular music artists (pop singer Katy Perry and rap artist Flo Rida) occurred in the

forecast with the mentioning of another famous reality show hostess (Tila Tequila). Naming artists purposely intends to grab the student's attention while at the same time subconsciously teaching about meteorology. If the students can recall some of the artists, the forecast caught the student's attention.

The second part of the survey and how many questions the students answer correctly were the deciding factors for supporting or not supporting the research hypothesis that students can learn meteorology through the format of a weather forecast on MTV.

At the end of the second survey, questions to gather demographic information asked students about their race (White, Black, Hispanic, Asian, other), gender (male/female) and age.

The survey is the basis of the research to test the hypothesis that students can learn meteorology from music television. Part one of the survey showed what previous knowledge students have pertaining to meteorology. This was followed by a DVD of a brief informational weather forecast discussing a meteorological event along with the mentioning of popular artists. The review in the second part may or may not support the research hypothesis by showing what information was retained from the DVD.

After conducting the surveys within the four high schools in Oktibbeha County, all data were collected and placed in an Excel® spreadsheet. Three separate spreadsheets were created to represent the data from all three surveys which includes the first part of the survey, the second part of the survey where the students were told the weather forecast seen was for Channel One, and a third spreadsheet containing the data from the

second part of the survey which the students were told the weather forecast seen on the DVD was for Music Television (MTV).

The first spreadsheet containing data for the first part of the survey contained all data from every student in all four high schools (n=175). Each question on the survey was in the format of multiple-choice, true/false, yes/no, "select all that apply" or "choose one answer". The numbers one and zero were used to indicate the answer chosen as well as the incorrect/correct answer. For the multiple choice questions, "select all that apply", and "choose one answer", the number one was used to indicate what the student chose while the number zero was used to indicate the answers not chosen for the same question. When placing data into the spreadsheet for true/false questions, one was used if the student marked true and zero was used if the student marked false (true=1; false=0). The data entered for the yes/no questions were indicated by the number one meaning yes and the number zero meaning no (yes=1; no=0).

Timeline and Student Sample

The process of getting permission to conduct the surveys within the schools was extensive. The entire process took approximately three months which was roughly the entire summer break between the school years. The survey methods were presented to school boards and principals, and had to be approved by both before entering the school. After permission was granted, parent consent and student assent forms were distributed the week before the survey was administered during the first few days of the new school year.

After the conduction of 175 surveys, each response was entered by hand into Excel® spreadsheets. The data were entered by what the students placed on the survey; each returned survey was "graded" if the survey questions had a specific correct answer. All correct and incorrect answers were indicated by either the number one meaning correct or the number zero meaning incorrect (correct=1; incorrect=0). Questions containing more than one answer such as questions one and four of the second part of the survey, were graded by how many out of those possible answers students got correct. For example, question one has five possible correct answers so the question is worth five points. If the student got four answers correct out of five, then the questions is worth four points. The same "grading" process was repeated for question four except it was worth three points for the three possible correct answers.

The student sample being surveyed contained eighty males and ninety-three females ranging between the ages of 14-18. The majority race was black (n=102) followed by white (n=61) with other (n= 8), Hispanic (n=2) and Asian (n=1) being the least. In all four surveyed schools, the average age was sixteen. In the three public schools, the majority race was black. White was the majority race in the one private school.

CHAPTER IV

RESULTS

Responses from the survey questions were placed into frequency tables. The first question on the first part of the survey asked if meteorology was taught in any previous classes taken by the students with yes (n=121) or no (n=53) as the options. One respondent did not choose an answer. The result answers the question of whether or not meteorology was taught to students in past classes or whether the students can recall if meteorology was taught. Seventy percent of the students were taught or believed they were taught meteorology in previous classes.

The four following questions pertained to what the student learned about meteorology from the previous classes. Question two referred to the cause of the change of seasons. The correct answers, revolution of the earth around the sun and tilt of the earth's axis, was listed in the format of a multiple-choice question along with two other incorrect answers; Earth's distance from the sun and rising and setting of the sun. A frequency table was used to indicate how many of the students chose one of the correct answers (n=140; 80%) or the incorrect answer (n=34; 19%). One respondent did not list an answer. (Figure 4.1.)

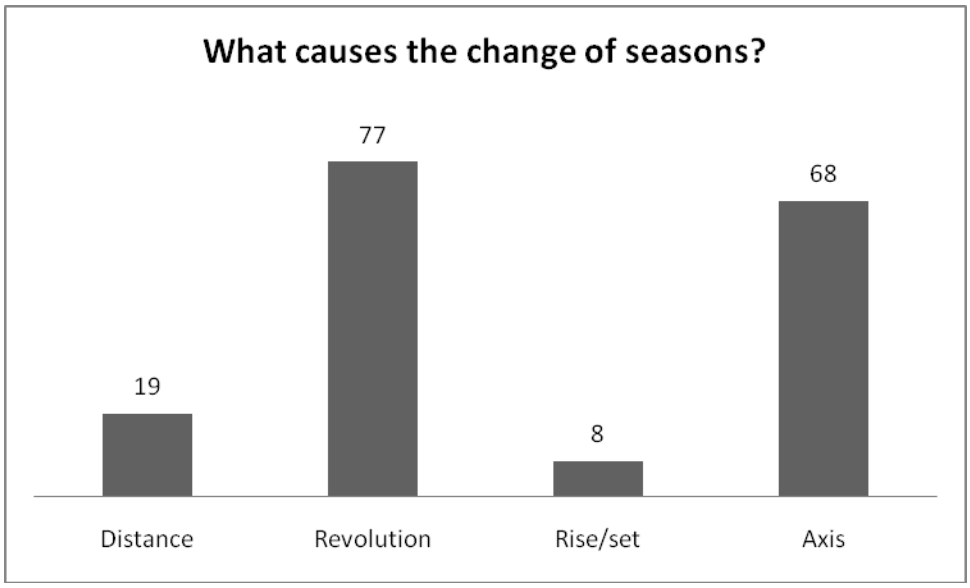

Figure 4.1 Answers to part one survey question two.

The following or third question was in the true/false format addressing the difference between the terms weather and climate. The questions falsely stated that weather occurs over a long period of time, while climate is different on a daily basis. Data showed the incorrect (n=88; 50%) or the correct (n=85; 49%) choice. Two surveys did not provide an answer. The number of correct to incorrect answers only differed by three; therefore, students were approximately even on both sides of the question which could suggest that confusion about the difference between climate and weather could be apparent.

The following multiple-choice question about what normally causes thunderstorms along the gulf coast during the summer was chosen due to sea breezes being addressed in the forecast on the DVD that followed the first part of the survey. Sea breezes was the correct answer and three incorrect answers were listed (clouds, global warming, pollution). The correct answers (n=58; 33%) were indicated by a one, and the

incorrect answers (n=117; 67%) were indicated by a zero. The incorrect answer most chosen was global warming is the cause for thunderstorms along the gulf coast during the summer. (Figure 4.2.)

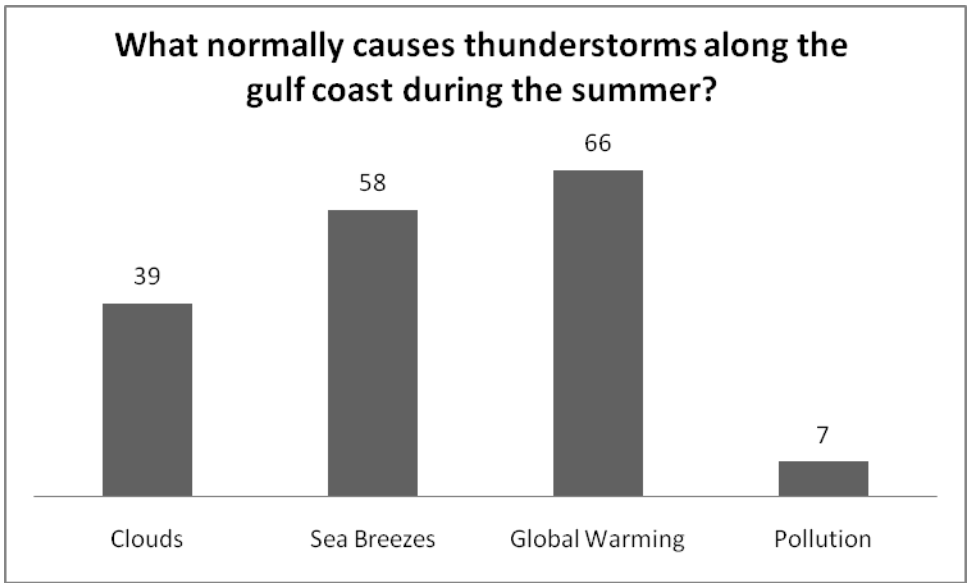

Figure 4.2 Answers to part one survey question four.

The final question of the section of part one in collecting background information about any previous knowledge of meteorology and the fifth question of the entire survey concentrates on some basic mechanics of meteorology as to what causes air on the surface to rise in the multiple-choice format. The correct answer was listed as heating the Earth's surface along with two other incorrect answers; evaporating rain and very strong winds. Results from the final question showed correct answers (n=64; 37%) and incorrect answers (n=110; 63%). One survey did not present an answer. The incorrect answers (evaporating rain, n=58 and very strong winds, n=52) were approximately even; one incorrect answer was not given more than the other. (Figure 4.3.)

Question number six is the question of the type of medium used most often to acquire weather information. Types of media included were television, newspaper, internet, radio, followed by other and "I do not look at the weather". Multiple options could be chosen for the question not just one. Each column was summed up in the spreadsheet with television (n=132; 76%) being the medium used most to acquire weather information, which aides in testing the hypothesis of whether meteorology can be taught if placed on Music Television (MTV). The second option chosen after television was internet (n=37; 21%). (Figure 4.4.)

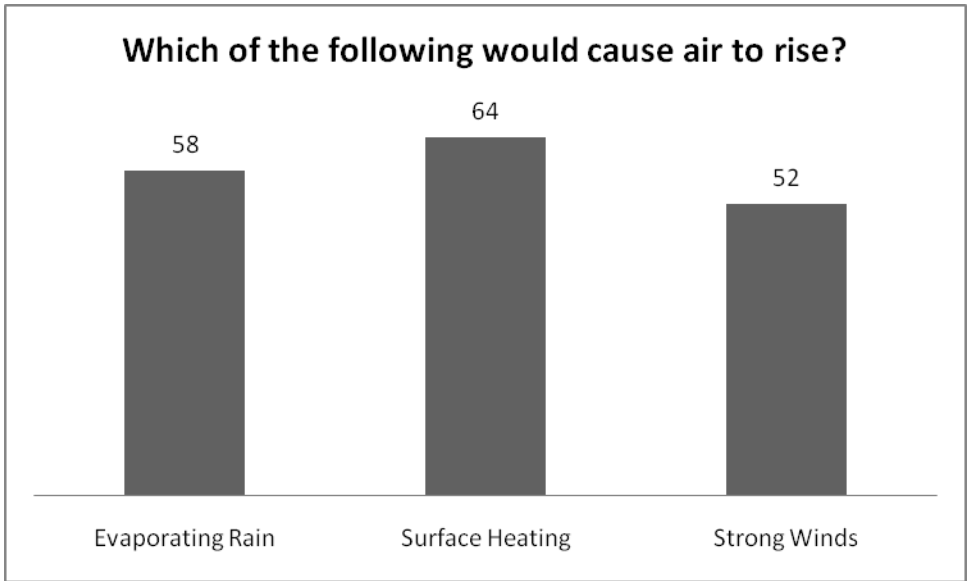

Figure 4.3 Answers to part one survey question five.

The frequency of the viewing of a weather forecast was addressed in the seventh question of the survey. The options following the questions were: several times per day, once a day, several times per week, once per week or less and never. The once a day option was most chosen (n=49; 28%) followed by several times a week (n=41; 24%) and

once a week or less (n=40; 23%). The act of acquiring meteorology is in place on a personal level with the majority checking the weather at least once a week. (Figure 4.5.)

Some students are involved in out-of-school activities (e.g. sports, band, clubs, organizations, etc.) and events associated with the activities may be outdoors. The eighth question asks if the weather is viewed before an outdoor event with yes (n=93; 53%) or no (n=81; 46%) as options. More students check the weather before attending or participating in an outdoor event which plays a role in their everyday lifestyle.

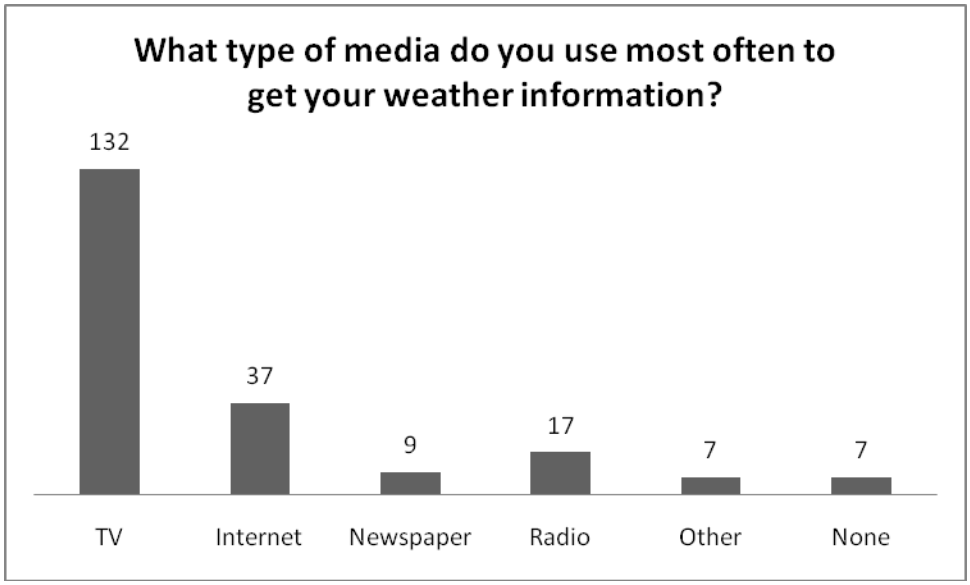

Figure 4.4 Answers to question number six on part one survey.

The ninth question pertains to the reason why a student watches the weather. Four options were given and more than one option could be chosen. The options were: I want to learn about meteorology, I want to know what to wear, I want to plan my daily activities, and I don't watch a weather forecast. Wanting to know what to wear (n=95; 55%) and planning daily activities (n=80; 46%) were the two options chosen most

frequently. Wanting to know what to wear supports the idea of placing a weather forecast on MTV because MTV is a prominent leader in fashion amongst teenagers. (Figure 4.6.)

Question ten looks at the importance of meteorology to the student followed by four options: very, somewhat, not very and not at all. The data entered state that the surveyed students see knowledge of meteorology as somewhat important (n=107; 61%). Combined with the frequency of students watching a weather forecast at least once a week (n=134; 77%) supports the idea of using a weather forecast to teach meteorology to students. (Figure 4.7.)

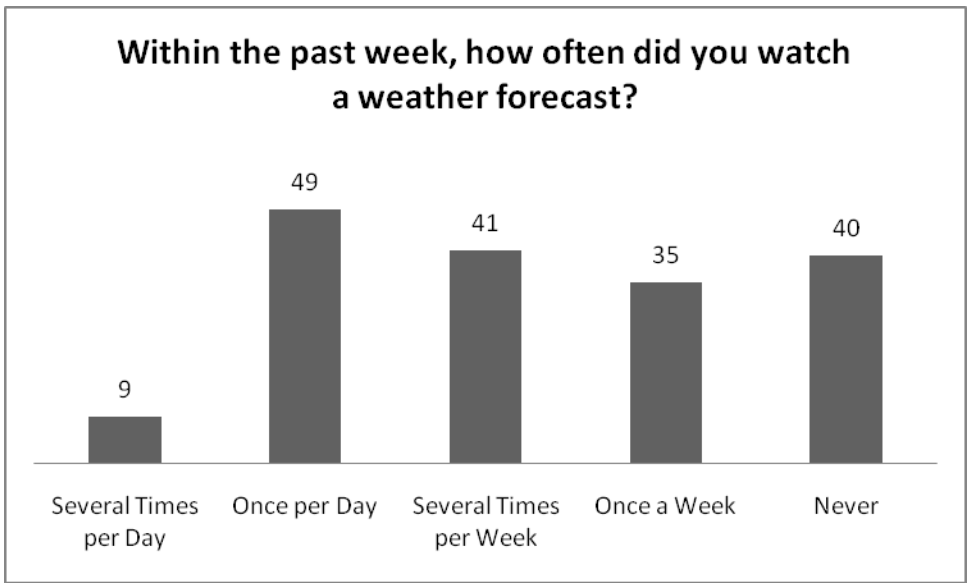

Figure 4.5 Answers to question number seven on part one of survey.

The final question of the first part of the survey lists five types of television stations: broadcast networks (ABC, FOX, NBC, CBS), sports programming (ESPN, ESPN2, ESPN Classic), home, health and food networks (Food Network, TLC, HGTV),

music television (MTV, MTV2, MTVU) and news networks (CNN, MSNBC, FOX NEWS). More than one station could be chosen for the question. Music Television was the option most chosen (n=65; 37%) followed by sports programming (n=57; 33%). Because MTV was chosen as the television station most watched by the surveyed students, it supports the idea of placing a weather forecast on MTV because of its popularity with the students. (Figure 4.8.)

The first part of the survey collected background information about students' previous knowledge about meteorology, whether the students watch a weather forecast, how often a weather forecast is viewed, and what type of station is most viewed by the student. Results show that students are not very knowledgeable about weather even though meteorology was taught in previous classes. Students do watch a weather forecast at least once a week in order to decide what to wear and to plan their daily activities. MTV is the most watched television network amongst the surveyed students. Data gathered from the first part of the survey support the idea of placing a weather forecast on MTV to teach meteorology to high school students. After "grading" the first four questions of part one of the surveys, the average score was 1.98 out of four.

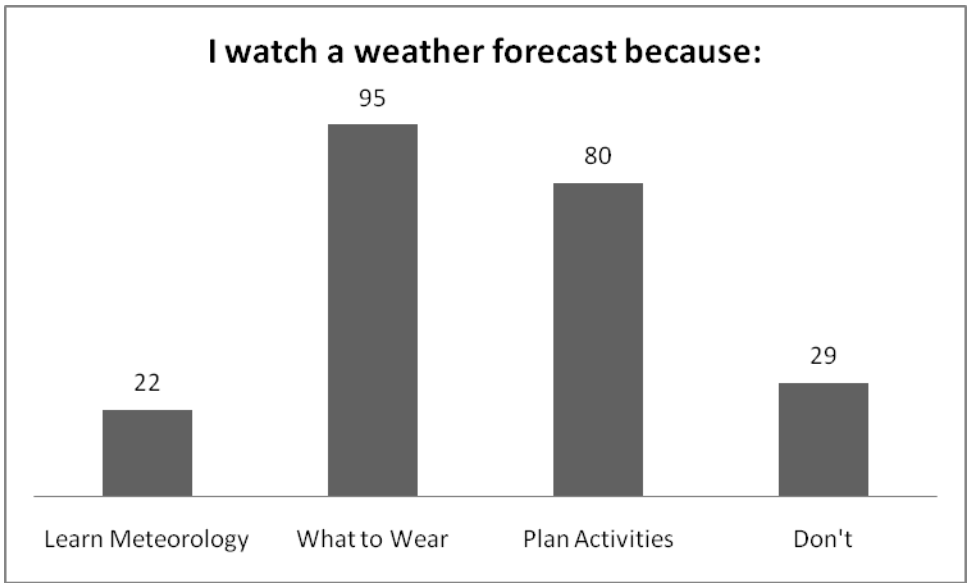

Figure 4.6 Answers to question nine from part one of survey.

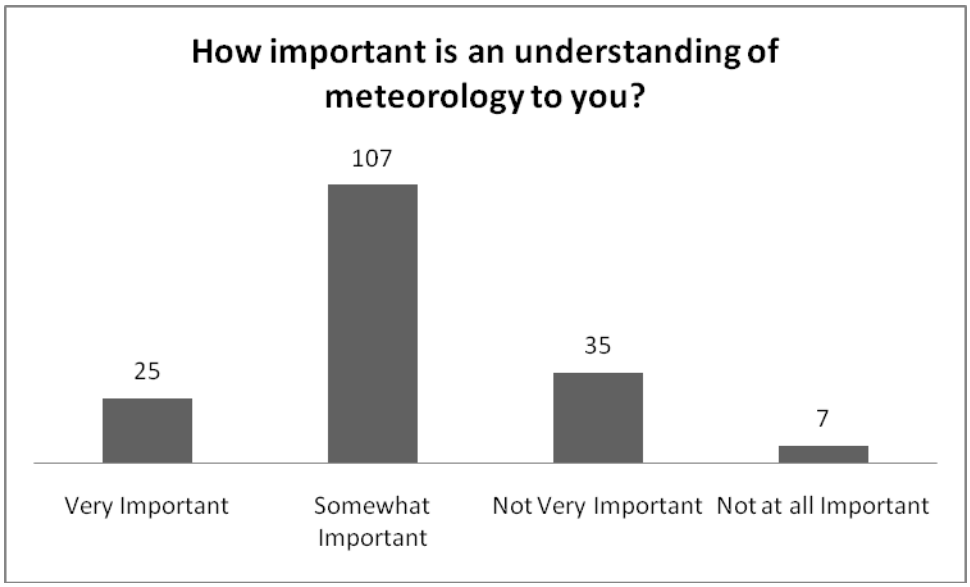

Figure 4.7 Question ten answers from part one of survey.

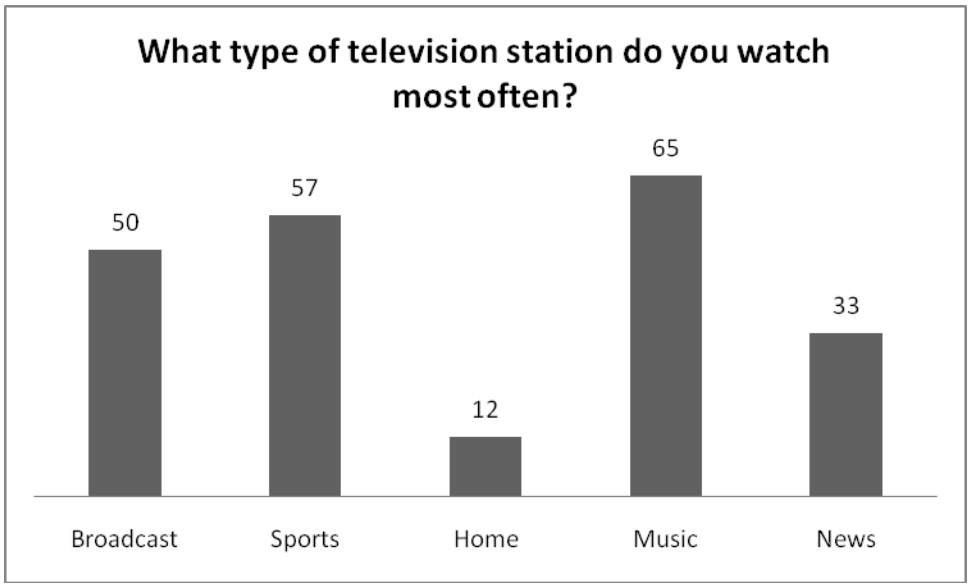

Figure 4.8 Answers to question eleven from part one of survey.

The second part of the survey was conducted after viewing the DVD showing the weather forecast for "Spring Break" in Panama City. Questions pertaining to the content of the DVD were on the survey and separated into two parts. While performing the survey after the viewing of the DVD, half of the survey group was told the forecast was for the student news program, Channel One, and the remaining half was told the weather forecast was for MTV. Communicating to the students the different television stations tested the theory of if the brand name, MTV, has any affect on what the students learn from the forecast.

Part two of the survey contained a total of eight questions the weather forecast shown on the DVD followed by three demographic questions pertaining to age, race, and gender.

The Channel One survey (n=93) and the MTV survey (n=82) were placed into two separate Excel® spreadsheets. Frequency tables were constructed on both surveys

followed by T-tests assuming equal variances (CI = .95) to compare the answers chosen by the students. The T-tests showed whether there was a significant difference of the correct answers between the two surveys.

During the forecast shown on the DVD, a graphic was created showing the step-by-step process of the formation of sea breezes along the Gulf Coast in five steps. The question on the survey referring to the process had all steps listed out of order and the students were asked to place the steps in order from one to five indicated by the corresponding number. The frequency tables generated based on the five answer question contained the frequencies of the number of correct answers the students chose out of five.

On the Channel One survey, two students answered all five steps correctly (2%), 18 students got three answers correct (19%), 27 students correctly answered two out of the possible five (29%), 27 students only got one answer correct (29%), and 19 students answered all incorrectly (20%). The average score out of five was 1.56. (Table 4.1.)

The second part of the full survey with the MTV influence four students answered all steps correctly (5%), eight students got three answers correct (10%), 18 students answered two out of five correctly (22%), 27 students only answered one correctly (33%), and 25 students gave all incorrect answers (30%). The average score out of five was 1.30. (Table 4.1.)

The T-tests ($p<0.05$) did not show a significant difference between the number of correct answers between Channel One and MTV for the first question asking to place the process of the formation of coastal sea breezes in order from one to five.

Table 4.1 Side-by-side tables comparing the correct answers out of five for question one on both Channel One and MTV surveys.

Correct Answers out of 5	Ch 1 Frequency
0	19
1	27
2	27
3	18
4	0
5	2

Correct Answers out of 5	MTV Frequency
0	25
1	27
2	18
3	8
4	0
5	4

The second question of part two of the survey referred to a basic meteorological statement of land warming faster than the ocean in a true/false format. However, the statement was written on the survey such that the correct answer is false. On the Channel One survey, fifty three students answered the true/false question correctly (57%), and forty students incorrectly answered the question (43%). On the MTV survey, forty students answered the question correctly (49%), and the same number answered incorrectly. (Table 4.3). A two sample Z-test was used because there are only two answers available. The two sample Z-test did not show a significant difference ($p < 0.05$).

In the DVD, the meteorologist stated in the first step of the sea breeze formation process a high pressure system forms over the ocean and a low pressure system forms over the land, which is correctly stated in the format of a true/false question. Sixty students from the Channel One survey answered true which was the correct answer (65%) while thirty-two students answered incorrectly (34%). In the survey with the MTV influence, forty-eight students answered correctly (59%) and thirty-three answered

incorrectly (40%). (Table 4.3). The two sample Z-Test ($z = 0.39$; $P > 0.05$) does not indicate a significant difference between the two surveys.

The fourth question pertained to what safety precautions to take if caught in a thunderstorm while on the beach. Three correct answers that were given in the forecast were listed along with three incorrect answers. The table displayed how many answers the students got correct out of three possible answers. Ten students only answered one correctly (11%); 13 answered two (14%); and 70 got all three correct (75%) on the Channel One survey. The MTV survey showed seven students only answered one correctly (9%); 17 students answered two (21%); 58 got all three correct (71%). The t-test ($p < 0.05$) does not show a significant difference. (Figure 4.10; Table 4.3).

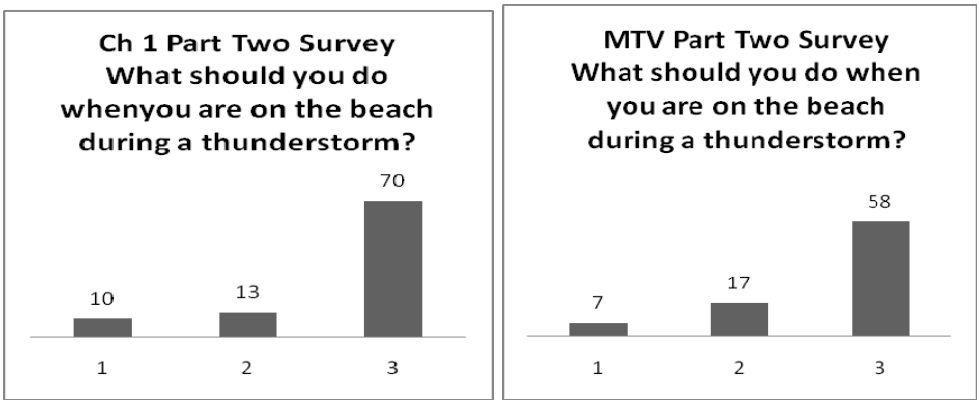

Figure 4.9 Side-by-side bar graphs comparing question four of the second part of the survey displaying the number of the correct answers out of a possible three.

A forecast is given for the "Spring Break" event for the rap artist, Flo Rida's, concert at 7:00 PM. The meteorologist shows a graphic of the Flo Rida's album cover with the artist on the front with arms crossed and the name "Flo Rida" above in the

background. A forecast fades up to be placed on top of the album cover, but not covering it completely. The forecast shows a chance for thunderstorms with partly cloudy skies that evening due to sea breezes. The question asks what the forecast will be for that evening of the concert along with the correct answer and two incorrect answers in a multiple choice format. Sixty-two questions were answered correctly (67%) on the Channel One survey and 31 were answered incorrectly (33%). On the MTV survey, 53 were answered correctly (65%), and 29 were answered incorrectly (35%) with a t-test ($p<0.05$) between the two surveys not showing a significant difference. (Table 4.3).

The meteorologist presenting the forecast on the DVD mentioned the cooler weather conditions after a sea breeze thunderstorm, which was presented in the survey in the form of a multiple-choice question along with two other incorrect weather conditions. There were 54 correct answers (58%) and 39 incorrect answers (42%) for the Channel One survey. Fifty-one correct answers (62%) and 31 incorrect answers (38%) were listed for the MTV survey. (Table 4.3). A t-test ($p<0.05$) does not signify a difference between the two survey's correct answers.

The following two questions referred back to the artists performing during the "Spring Break" events, rap artist, Flo Rida, and pop performer, Katy Perry. The questions were scored by how many students listed both celebrities. The first question asks which artists were mentioned during the forecast with two correct answers. The Channel One sample gave 41 correct answers (44%) and 52 incorrect answers (56%) while the MTV sample gave 25 correct answers (30%) and 57 incorrect answers (70%) with the t-test ($p<0.05$*) showing a significant difference between the two surveys. (Table 4.3.)

The final question referring to the forecast shown on the DVD asks what celebrity is hosting events during "Spring Break". The correct answer is Tila Tequila. The meteorologist only mentions the reality television host and does not show a graphic. Channel One sample gave 68 incorrect answers (73%) and 25 correct answers (27%). The MTV sample gave 73 incorrect answers (89%) and 9 correct answers (11%) with two sample z-test ($p<0.05$) not showing a significant difference. (Table 4.3.)

When comparing the number of correct answers pertaining to meteorology between the two surveys out of a total of twelve, three students answered only one correct answer (3%); one got two correct (1%); six answered three correctly (6%); another seven answered four (8%); 18 answered five out of eight (19%); 19 gave six correct answers (20%); 14 scored seven out of eight (15%); 15 scored eight out of twelve (16%); eight had nine correct answers (9%); no students had ten correct answers; two students scored eleven out of twelve (2%) and no survey had all correct answers with the Channel One influence (n=93). On the MTV survey (n=82), two answered two correctly (2%); five gave three correct answers (6%); 18 had four answers (22%); 18 surveys had five correct answers out of twelve (22%); 17 gave six correct answers (21%); 11 scored seven out of twelve (15%); four students answered eight correctly (5%); three scored nine out of twelve (4%); one student got ten correct (1%); two students answered eleven correctly (2%) and one student answered all twelve correctly (1%). The average grade for the Channel One survey was 6.09 out of twelve for the sample and the average grade for the sample for the MTV survey was 5.65 out of eight. The t-test ($p<0.05$) does not signify a difference.

Table 4.2 Side-by-side comparison of "graded" correct answers for the Channel One and MTV surveys

.

Correct Answers out of 12	Ch 1 Frequency
1	3
2	1
3	6
4	7
5	18
6	19
7	14
8	15
9	8
10	0
11	2
12	0

Correct Answers out of 12	MTV Frequency
1	0
2	2
3	5
4	18
5	18
6	17
7	11
8	4
9	3
10	1
11	2
12	1

This part of the survey looked into if students can learn meteorology through the format of a weather forecast and if the name MTV has any impact as to what is learned. When looking at both average grades for the sample, there is only a 0.44 difference between the Ch1 survey and the MTV survey; therefore, the students got approximately the same amount of questions correct from viewing the weather forecast. When addressing the hypothesis of if the name MTV can help students learn meteorology, based on the amount of correct answers given the data suggests that the hypothesis was incorrect and; therefore, rejected.

To further explain the reason the majority of the two sample t-test's non-significance, the factor of race was researched. When conducting the survey within the classrooms, the private school had a majority white population while the public schools had a black student majority. When comparing the test scores amongst only white students, the mean sample score for the Channel One survey was 7.74 while the mean

sample score for the MTV survey was 6.54. The t-test ($p<0.05$*) showed a significant difference.

When looking at the comparison between the White students and the other races (Black, Asian, Hispanic), the Caucasian students had a mean sample score of 7.17, which was higher than the other races with a mean sample score of 6.10. The t-test ($p<0.05$*) showed a significant difference. Channel One survey had the better score.

Comparing the scores about the correct answers about the two artists and host, the white student's mean sample scores amongst the white population were 2.19 for Channel One and 1.45 for MTV. Then, when comparing the number of correct artist questions correctly answered between the white students and the other students, the mean sample score for white was 1.8 out of three and the other mean sample score was 1.25 from the other races surveyed.

The mean sample score from the black students only concerning the amount of meteorological questions answered correctly out of 12, the Channel One survey score was 6.16 while the MTV score was 5.98. The t-test ($p<0.05$) did not show a significant difference.

Table 4.3 Side-by-side comparison of correct answer percentages for Channel One and MTV surveys.

Survey Question	Ch 1 Correct Answer Percentage	MTV Correct Answer Percentage
1) Place the process of the formation of sea breeze thunderstorms in order 1-5		
Zero out of five	20%	30%
One out of Five	20%	33%
Two out of Five	29%	22%
Three out of Five	19%	10%
Four out of Five	N/A	N/A
Five out of Five	2%	5%
2) Water warms faster than land.	57%	49%
3) High pressure forms over the ocean. Low pressure forms over the land.	65%	59%
4) What should you do when you are on the beach during a thunderstorm?		
One out of Three	11%	9%
Two out of Three	14%	21%
Three out of Three	75%	71%
5) What is the forecast for the concert at 7PM?	67%	65%
6) What happens after a sea breeze thunderstorm?	58%	62%
7) What music artists were mentioned during the forecast?	44%	30%
8) Who is hosting the events for the weekend?	27%	11%

CHAPTER V

DISCUSSION

Survey Part One

The survey data showed a large majority of students in the four high schools surveyed have been taught or believed they have been taught meteorology in previous classes, which is part of the required curriculum for Earth Science classes (Mississippi Department of Education, 2008). However, students could not answer basic questions about meteorology.

The beginning of the survey acquired some background information about previous knowledge of meteorology. The second question of the survey pertaining to the cause of the change of seasons was answered correctly by 84% of the students. It was the only question on the survey the majority of students got correct. The reason behind this occurrence could be that students are being taught about the cause of the change of seasons in more than in just one class during their educational career. It is being repeated over and over again which supports the further research suggestion addressed later.

The following question of the difference between weather and climate was more of a specific meteorology question and may only be taught in one class instead of repeated year after year. Although, the percentages of the incorrect and correct answers

given were approximately even. The assumption cannot be made that students know the difference between weather and climate.

The fourth question on the first part of the survey pertained to the cause of thunderstorms along the gulf coast during the summer. The question most answered incorrectly. The incorrect answer most often given was global warming. This may be due to the way global warming is presented in the media which supports evidence of the influence television has on the ideas and opinions of the audience about climate change.

Evaporating rain and very strong winds were the two most frequent incorrect answers for the question pertaining to what causes air to rise. The correct answer is the heating of the Earth's surface. When visualizing rising air, it can be reasoned as to why students chose the two answers because evaporating rain can be seen as moving vertically into the atmosphere and very strong winds are moving air. Therefore, it is possible when the student visualized rising air and did not recall anything taught in previous classes, the two answers given seemed correct.

When comparing the incorrect answers given by the students, the answers that students can visualize were given most often. If students are visual learners, this supports the types of medium chosen for which meteorological information is acquired (television and internet). Television was the type of medium chosen most often for retrieving weather information, supporting the reason global warming was chosen as to why thunderstorms occur along the gulf coast during the summer and previous research pertaining adolescents learning from television.

While watching television the students are seeking information about the weather at least once a week to plan their daily activities and to know what to wear. The purpose

of planning what to wear was chosen more than to plan daily activities. Watching a weather forecast in order to plan what type of clothing to wear supported the idea of placing a weather forecast on MTV. Adolescent viewers can see the recent trend in fashion while subconsciously learning about the weather.

The second most common reason for watching a weather forecast is to plan daily activities. However, students were somewhat equally distributed as to whether or not a weather forecast was viewed before attending or participating in an outdoor activity. Normally, if participating in the outdoor event, the coach or some other type of adviser which is usually a teacher will inform the student as to whether or not the activity has been cancelled as a result the weather conditions. As for the students attending the event, the school officials usually announce whether the event or activity has been cancelled. The results from the survey were approximately even as to the student checking the weather before participating or attending an outdoor school-related event.

Whether students participate in outdoor activities or not, they think knowledge of meteorology is somewhat important according to the given survey. When referring back to previous survey questions, knowledge of meteorology, according to the student, is viewed as a prediction in order to plan, attend, and participate in outdoor activities and to plan what to wear not knowing the processes and ingredients it takes for weather events to occur. They more concerned with what will affect them personally at that specific moment in time.

The question as to what type of television station is viewed most among the students showed that music television was the most viewed. Music television contains stations such as MTV, MTV2, and MTVU which are leaders in music, fashion and

celebrities and simultaneously hosts outdoor events such as MTV's Spring Break which is held at various beaches including Panama City, Florida. The event brings celebrities, popular musicians and bands to the beaches performing outdoor concerts. Having a weather forecast on MTV will be able to aide in planning the outdoor event and assist in the celebrities, fans, crews, and others in attendance as to what to wear for the event, how to plan and what precautions to take if unexpected weather were to occur affecting the nature of the event. It will be able to provide assistance as to current weather conditions and what precautionary measure to take in the event of thunderstorms or any other possible severe weather event to ensure the safety of those attending the event while subconsciously teaching the audience meteorology and weather safety. The idea of having a weather forecast on MTV led to the creation of a concert forecast, which will be addressed in the next chapter.

Survey Part Two

The second part of the survey researched the hypothesis that students can learn meteorology through a weather forecast designed for MTV.

The survey began with a question about the process of the formation of sea breeze thunderstorms which the student was asked to place the steps in order from one to five began the second part of the survey. Four students got all five questions correct on the MTV survey than the Channel One survey in which two students answered all five correctly. The percentages between the two questions comparing all five answers are close in number when referring to the results (Table 4.3). The five steps of the process were all illustrated by a graphic so the student could view each step of the process. From

the Channel One survey, the students giving one and two correct answers made the largest percentage. The MTV survey's largest percentage was with the students that answered only one answer correctly (Table 4.3).

The falsely stated question of the water heating faster than the land, the Channel One survey had a higher percentage of correct answers, but the percentages of correct answers between the two were close in number. The information given in the forecast about the difference between heating of land and water was only mentioned briefly in the forecast and was not demonstrated by a graphic supporting that students are visual learners.

The question pertaining to a high pressure system forming over the ocean and a low pressure system forming over land had approximately the same results as the question of land heating faster than water. A graphic was showed during the forecast of a low pressure system over the land and a high pressure system of the water. The two systems were only represented by the letter "L" for low and the letter "H" for high instead of using the entire word which may or may not have made a difference in the results of this question.

The steps of the sea breeze process were not listed word-for-word in the forecast, but the question giving the options of what actions to do when caught in a thunderstorm were. The actions as to what to do were listed in the graphic and stated by the meteorologist. This question had the largest percentage of correct answers on both surveys. The percentages and the frequencies were very close in number when comparing the two surveys. The percentages suggest students were able to recall more information if it was seen and discussed.

The following graphic displayed the performing artist, weather conditions and temperature which was discussed by the meteorologist. When asked on the survey about the weather conditions for the Flo Rida concert at 7:00 that evening, a larger percentage of students answered correctly than incorrectly, but the two percentages were close in number between the two surveys.

The question referring to what the weather conditions would be after the thunderstorm received a larger percentage of correct answers than incorrect answers. The MTV survey had a larger percentage of correct answers than the Channel One survey; however, the frequencies were similar in number. The results from this question support the data from the first part of the survey suggesting that students think meteorology is important only if it pertains to them. The weather conditions after the event gives the students information as to what to expect so they may decided to continue what they are doing or change what they are wearing.

The following question asked what two artists were performing at the event. Flo Rida and Katy Perry were the correct answers. A larger number of students gave the answer of just Flo Rida as the only performing artist partly because the graphic of the album cover with the forecast for the concert that evening was given and focused on more during the weather forecast on the DVD. Katy Perry's album cover was used in the weather forecast but was only described in the beginning as the concert occurring at the time of the forecast.

Reality television celebrity, Tila Tequila was hosting some events during MTV's "Spring Break". The students were asked to list the person hosting the events. More answers were incorrect than correct for both surveys with the greatest percentage

incorrect in the MTV survey. A visual of Tila Tequila was not shown during the weather forecast, which is a possible reason for the large percentage and frequency of incorrect answers. Many answers given on the MTV survey mentioned MTV was hosting the spring break event. A possible reason for this answer could be that the name of the event is named MTV's "Spring Break" which could have caused some confusion.

The surveys were both "graded" meaning they were graded as if it were a quiz or test. The total number of answers came to twelve. The first question asking to list the steps of the sea breeze process was worth five points and the question of what precautions to take was worth three points. Comparing the two "graded" average scores between the two surveys, Channel One had the highest average score out of twelve. Table 5.1 shows the Channel One survey received a higher number of students getting six answers correct while the MTV survey shows the highest number of students getting four answers correct. The Channel One graph showing total scores had the higher number and percentage. MTV did not have an effect whether or not students learned meteorology.

A possible reason as to why the Channel One surveys have a higher score is because when students were told the survey was for MTV the entire classroom experienced a change in mood from rather lethargic to excitement with an occasional verbal expression. MTV does not come to Mississippi very often especially to the two schools which were in rural communities. MTV may have created a type of distraction so the excitement so that the students could not focus on the information given.

Table 5.1 Side-by-side comparison of the total correct answers on both surveys.

Correct Answers out of 12	Ch 1 Frequency
1	3
2	1
3	6
4	7
5	18
6	19
7	14
8	15
9	8
10	0
11	2
12	0

Correct Answers out of 12	MTV Frequency
1	0
2	2
3	5
4	18
5	18
6	17
7	11
8	4
9	3
10	1
11	2
12	1

Scores Compared by Race

When comparing the scores between races, there was a significant difference between the white population and the black population. The white students scored higher on the second part of both of the surveys, even though Channel One had the better score than MTV by 1.07. When comparing the surveys taken by the black population, the Channel One mean sample score (6.16) was higher than the MTV mean sample score (5.98). The difference between the two sample scores was 0.18, which was much lower than the difference of the two scores amongst the white population. It may be assumed that the black population scores were close in number so the MTV format was beneficial to them. Maybe the format of combining celebrities and artists made the forecast more interesting to the black population therefore attracting their attention.

The white population scoring higher than the black population could be due to the educational environment they are in where they watch Channel One on a regular basis

and they are very familiar with the program. The majority of the black students were attending the public schools which may not show Channel One. The students may not have known about the program but they knew the brand name, MTV.

According to the previous discussion, if the concert forecast were to be placed on the MTV venue, teenagers would most likely watch it. This is because MTV is the network watched most often by teenagers and a weather forecast is viewed mainly because the audience wants to know what clothing to wear. The weather forecast will be able to provide what precautionary measures to take if caught in a severe weather event while attending an outdoor or indoor concert, while subconsciously teaching the teenagers meteorology. With students being visual learners, the format of a weather forecast can show graphics about the weather, and the meteorologist can discuss the events. The difference between the races is discussed later as a suggestion for future research.

CHAPTER VI

CONCERT FORECAST

While researching the answers given on the both parts of the survey and the forecast given for the concert, the idea of creating a concert forecast came into fruition. The example forecast for MTV's Spring Break event also aided the idea of creating a concert forecast, but instead of giving a forecast for the event and then naming the artists and bands performing, the forecast was forecasted more towards the artist/band. Another inspiration of the creation of the concert forecast was the near-miss of a tornado striking the Georgia Dome during a college basketball tournament. This raised the question: What if the same weather event occurred during a concert?

During the basketball tournament, both teams, coaches and their families were taken to safety while thousands of fans remained in their seats in an open arena. A small section of the roof was removed due to this near-miss. The high-speed winds shook the arena causing lighting fixtures to shake and insulation to fall onto the court. Fortunately, if the game had not gone into over-time, audience members would have been leaving the arena and would have been subjected to the conditions outside. Although, there were no serious injuries, another question is brought up of if the tornado had hit the venue.

A concert is normally performed in the same type of venue. If the event had been a concert instead of a basketball game, would the performing artists and stage crews be

placed into safety while the thousands of fans are left to fend for themselves? How would the audience members be aware of the weather conditions outside? If tornado sirens were to go off, would they be heard? Questions such as these and many more were appearing as to what the venue would do to direct the audience to take precautionary measures.

Then, the thought that thousands of fans attend outdoor music festivals all over the nation which leaves them subjected to the weather elements. The same question occurs of what would happen if a severe weather event were to occur during the outdoor music festival? Would there be adequate shelter or any form of shelter at all?

In an attempt to address some of the questions raised, the idea of a concert forecast was taken into effect. The format of the forecast concentrated more on the individual bands' concert tours instead of the event or the venue.

The participation from fifteen bands/artists (Tea Leaf Green, Blind Melon, Taco and Da Mofos, Ten56, Elam McKnight, Prosevere, Shirock, Zola Moon, Girl Talk, Cuban Cigar Crisis, Justin Trawick, Jenni Alpert, Pawnshop Roses, Sweet Japonic, RoMak and the Space Pirates) aided in the presentation of the concert forecast. Each group and musician perform all over their region, nation, and in some cases all over the world. The researcher of this study contacted the bands via the network community website, MySpace.com, asking if they would be interested in participating in the study. The first call for bands occurred in August 2008 resulting in eight participating bands. Another mass message asking bands to participate occurred in December 2008, and the total number of bands/artists increased to fifteen.

The researcher would then check the groups MySpace pages every week and follow the location and time the band will be playing the following weekend. A weather forecast for the particular band included the name of the city, the venue, the time and day of the performance, the weather conditions, temperature and any other promotional information. The video was uploaded onto the internet via Youtube.com and the embedded code was sent to the bands for them to post on their MySpace page for the visiting fans to view. Tea Leaf Green posted the video on their personal fan-based website as well as on their MySpace page.

The limitation of the bands being on tour was that not every forecast sent to them would be posted on the MySpace page which was expected due to the extensive schedule of traveling. When the videos were posted, nothing but positive feedback occurred from fans and bands/artists. The artist, Girl Talk, posted his first weather forecast on his Myspace page, and the video collected over 500 hits the first day of the post. Fans were not only enjoying the forecasts but the bands enjoyed it as well because it assisted them while traveling and performing outdoors. The benefit of the concert forecast informs the bands and fans of the weather conditions so both groups may prepare accordingly.

The possibilities of the concert forecast are endless such as incorporating cell phones and other wireless internet devices. If an audience member subscribed to receive the forecast for the event they were to attend, the forecast could be sent to them via their electronic device a few days before the event and the day of. If the event is an outdoor music festival that lasts more than one day, the forecast would be sent each day of the event. If severe weather were to occur and the audience member is subscribed to the

concert forecast, watches, warnings and what measures to take would be sent to the cell phone or other chosen device (laptop, IPOD, etc.).

CHAPTER VII

CONCLUSIONS

Limitations

The sample size being little larger may help or not change the outcome of the study, but one school could not allow more than one day for surveying classes due to school schedules and lesson plans. The one public school that had the most students also had a closer ratio of black to white students. Since the majority of the white students were familiar with Channel One, their scores were higher on the Channel One survey. If the students attending the larger public school were surveyed, then there would be a better representation of educational environments between the two races.

Another limitation was the first part of the survey could not be connected to the second part of the survey. If the two surveys could be connected then data could be collected as to whether the students learned from the time they took the first survey to the second part of the survey. This mistake was discovered after the students were already surveyed. There was not enough time to go back and conduct the survey again due to the extensive time it took to get permission to survey the schools from the school boards and principals. Then, it would interrupt school schedules and lesson plans once again.

The word of mouth about a survey in a school pertaining to MTV could have spread to the classes who have not taken the survey. Even though, students were asked not to discuss the survey after the class. There is still no guarantee the request was

carried out. The students knowing already it was for MTV could have affected the survey answers.

Recommendations

Recommendations for future research include that the students could be surveyed again at a later time. If after a few months, the students were asked questions about the meteorological information given and keep the same classes taking the same two surveys (MTV and Channel One) to determine if any of the information given was retained. It would be interesting to see if the information with the MTV survey would be given more than the Channel One.

As a way to increase the recall of information, the forecast could be shown repeatedly over a designated period in a different weather format for a different event to see if the repetition of meteorological information would make an impact. Referring back to the results about the cause of the change of seasons, it was the only question on the first part of the survey with the highest percentage of correct answers. The Earth's revolution and tilt of its axis is discussed repeatedly in science classes all through school. If the forecast on MTV was repeated periodically through a daily rotation, the students may be able to retain more information.

The difference in scores between the surveyed races was considerable. The black population average survey scores was smaller than the white population. That could suggest the unfamiliarity with Channel One and the interest in MTV. When and if conducting future research with the majority of the students are black, perhaps students should be told that the forecast is for Black Entertainment Television (BET) which is

focused more on the African American population instead of MTV. The forecast would have a black meteorologist giving the forecast and explaining weather events. If the black students viewed a forecast that was geared more to their demographic, it may or may not influence the results of the survey.

Another result of the survey was sports stations were the second most watched among the students. If a weather forecast were to be placed on a station such as ESPN, would it have the same results? The events are very similar being that many are outside and large amounts of people come to watch. The format could be the same as the concert forecast giving the time, venue name, city, the competing teams, the forecasted weather conditions and the temperature.

If the concert forecast over time becomes successful, future research could be conducted about the bands' views of whether it actually helps in their touring schedule. The fans could be surveyed as to determine if it influences their preparation of attending a concert if it be indoors or outdoors. The venues could be surveyed if the concert forecast helps them in conducting a severe weather plan.

Research Conclusions

This study addressed the declining interest in science among teenagers creating the purpose for this study. The affect television has on teenagers supported the research. Teenagers watch MTV the most because it is a leader in their demographic, and it has been an icon all of their lives since its creation in 1981.

Students are watching a weather forecast at least once a week; the main type of media students retrieve meteorological information is television and the network they

watch most is MTV. The conducted research shows that students would watch a weather forecast if placed on MTV.

The surveys conducted do not support the hypothesis that the name MTV will have an effect on what students retain from the weather forecast. The data showed the students answered more questions correctly on the survey they were told was for Channel One which could be correlated so some of the limitations experienced during the study.

If the limitations and recommendations are taken into account, a new field of study may be available to research.

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APPENDIX A

SURVEY PART ONE

Survey: Part 1

1. Meteorology is the study of weather. Has it been taught in any of your classes before this one?

   Yes No

The following questions will see what you remember from your previous classes.

2. What causes the change of seasons?

   a) Earth's distance from the sun
   b) Revolution of the earth around the sun
   c) Rising and setting of the sun
   d) The tilt of the earth's axis

3. Weather occurs over a long period of time, while climate is different everyday.

   True False

4. What normally causes thunderstorms along the gulf coast during the summer?

   a) Clouds b) sea breezes c) global warming d) pollution

5. Which of the following would cause air to rise?

   a) Evaporating rain b) Heating the Earth's surface c) Very strong winds

6. What type of media do you use most often to get your weather information?

   Television Internet Newspaper Radio Other I don't look at the weather

7. Within the past week, how often did you watch a weather forecast?

   Several times per day Once a day Several times a week

   Once per week or less Never

8. Before an outdoor school event, do you watch a weather forecast?

   YES NO

9. I watch a weather forecast because: (Select all that apply.)

   a. I want to learn about meteorology.
   b. I want to know what to wear.
   c. I want to plan my daily activities.
   9. I don't watch a weather forecast.

10. How important is an understanding of meteorology to you?

Very Somewhat Not very Not at all

11. What type of television station do you watch most often?

Broadcast stations (ABC, FOX, NBC, CBS)
Sports programming (ESPN, ESPN2, ESPN Classic)
Home, health, and food stations (Food Network, TLC, HGTV)
Music Television (MTV, MTV2, MTVU)
News (CNN, MSNBC, FOX NEWS)

APPENDIX B

SURVEY PART TWO

Survey Part 2

1. Please put the process of the formation of sea breeze thunderstorms in order 1-5.

   ___ Warm air rises
   ___ High and low pressure systems are created
   ___ Clouds form producing rain
   ___ Air flows from high to low
   ___ A cold front moves onto land

2. Water warms faster than land.
   True False

3. High pressure forms over the ocean. Low pressure forms over the land.
   True False

4. What should you do when you are on the beach during a thunderstorm? Select all that apply.

   ___ Get in the water, you're getting wet anyway
   ___ Go inside
   ___ Get closer to the stage
   ___ Stay out of the water
   ___ Keep away from metal and electrical equipment
   ___ Continue watching the concert outside

5. What is the forecast for the concert at 7PM?
   A. Clear, sunny B. Cloudy all day & night
   C. Partly cloudy with a chance of thunderstorms

6. What happens after a sea breeze thunderstorm?
   A. It gets hotter.
   B. It gets cooler.
   C. Nothing changes.

7. What music artists were mentioned during the forecast?

8. Who is hosting the events for the weekend?

For research purposes:

How old are you? _____

Sex: Male Female

How would you describe yourself?
___ White ____ Black ____Hispanic
____Asian ___Other