

**Adapting Television Cultivation Theory Variables
to determine the effects of P.E.TV on Middle School
Viewers' Attitudes toward Physical Activity**

by

John Mathieu Roussell

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APPROVED:

David M. Moore (Chair)

J. Thomas Head

John K. Burton

Andrew J. Stremmel

George M. Graham

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Toward Physical Activity

by

John Mathieu Roussell

Dr, David (Mike). Moore

EDCI

(ABSTRACT)

Physical Education Television (P.E.TV) is a curriculum supplement package, consisting of a series of 10-12 minute long videos and a teachers' support manual, for use in physical education and health classes in middle and high school. The program has been distributed to over 13,000 schools across the United States. The creators of P.E.TV have stated that they intend the program to influence adolescents' attitudes toward physical activity, and to encourage wellness. Reports from a national survey of educators have shown that teachers believe that their students' attitudes are being affected by the program. This experimental study examined if that is the case for 7th graders in a rural Southwestern Virginia Junior High School.

Four intact 7th grade physical education/health classes were selected for the study. The students were randomly assigned to the classes by school administrators. The classes were randomly assigned to treatment and control groups. The treatment group (two 7th grade classes) viewed 10 P.E.TV shows over a period of 9 weeks. The same teacher taught all four classes. All participating students filled out a questionnaire consisting of the "Weekly

Activity Checklist” and a television cultivation exposure questionnaire, at the beginning of the 9 weeks to determine their activity levels and viewing habits before the experiment. Students were categorized into groups based on activity level, amount of television normally viewed, and predominant type of television show viewed to allow for attribute-treatment-interaction analyses.

A post-test only design was used to find out if P.E.TV influenced the students’ attitudes toward physical activity. The Children’s Attitudes Toward Physical Activity scale was used to assess the students’ attitudes. Three hypotheses were tested using a one-way Analysis of Variance and two hypotheses concerning attribute-treatment-interactions were tested using a two-way Analysis of Variance for each. Levels of significance were set at .05. The analyses indicated that there were no statistically significant differences in attitudes toward physical activity between treatment and control groups as well as no statistically significant differences within the treatment groups concerning attribute-treatment-interactions.

DEDICATION

To my mother, Mary Roussell, whose strong desire and effort in raising five children resulted in them having opportunities for success. This accomplishment, as well as any I may be fortunate to have in the future, will be done in honor of her bravery, strength, protection, and character.

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TABLE OF CONTENTS

Chapter 1: Introduction and Review of Literature.....	1
Introduction.....	1
P.E.TV?.....	6
P.E.TV's mission.....	7
PE.TV's viewing appropriateness in education.....	8
Purpose of the study.....	8
Research questions.....	9
Justification for the study.....	10
Limitations.....	11
Review of literature.....	12
The relationship between television viewing, and learning.....	13
Traditional criticisms of television in the classroom.....	15
Refocusing television's effectiveness.....	16
Television viewing as an effective instructional strategy.....	17
CNN Newsroom success in the classroom.....	18
Physical educational uses of television.....	20
Traditional television research methodology.....	22
Attitudes and affective learning.....	25
Measuring attitudes in education.....	28
Attitudes linked to activity.....	33
Attitudes and physical activity.....	34

Erikson’s psychosocial theory on adolescent development.....	35
Adolescent characteristics within Erikson’s theory.....	38
The effect of celebrities on adolescent identity.....	40
Television’s influence on adolescent identity.....	40
Adapting instruments to measure attitudinal shifts in physical activity resulting from television.....	43
Children’s attitudes toward physical activity.....	43
Assessing physical activity levels.....	45
Measuring television viewing habits.....	46
Summary.....	50
Hypotheses.....	53
 Chapter 2: Methodology.....	 54
Subjects.....	54
Instruments used in study.....	55
Data collection procedures.....	56
Research design.....	61
Method of analysis.....	62
 Chapter 3: Results and Discussion.....	 63
Results of the study.....	63
Discussion.....	72

Investigator speculation concerning the study.....	74
Summary.....	77
References.....	78
Appendices.....	93
A: CATPA questions.....	93
B: Weekly Activity Checklist.....	101
C: Television viewing questions.....	104
D: Informed consent forms.....	106
E: Field notes.....	109

TABLE OF FIGURES

Figure 1: Taxonomy of educational objectives, affective domain.....	31
Figure 2: Erikson's eight stages of development.....	37
Figure 3: Weekly activity checklist and assigned MET values.....	58

Chapter 1

INTRODUCTION

One of the major developments in instructional media concerns the visual presentation of learning materials through the use of television in the classroom (Chesebro, 1984; Haynes, 1989; Neuman, 1985). In looking at learning through television, evidence has been offered through communication studies which center around the power of television to influence and shape a set of values and attitudes within the viewer (Gerbner, Gross, Morgan, & Signorielli, 1986; Greenwald, 1968; Hastie & Park, 1986; Hawkins & Pingree, 1982; Petty & Cacioppo, 1981; Tan, 1986). Traditional research concerning the use of television within an educational setting has focused on the learner's ability to recall information compared to the classroom lecture (Anderson & Collins, 1988; Kozma, 1991). These comparison studies resulted in a litany of inconclusive results concerning the effectiveness of using television in a learning context (Saettler, 1968; Schram, 1977).

In addition to conducting studies aimed at measuring learning through television, educators and researchers have been quick to criticize the use of television in the classroom. These criticisms center around the fact that television usage, by children in particular, has become so dominant that more hours will be spent watching television than attending school (Neuman, 1985). There appears to be only one activity that occupies more of a child's time during those years than watching television, and that is sleeping (O'Rourke, 1981). One of the questions that arises concerns how appropriate

is it to spend classroom hours for the use of television to affect learning. Few instructional media have been introduced into the classroom with such promises on the one hand, such criticisms on the other, and generally perceived by all as being extremely controversial (Saettler, 1968; Salomon, 1984).

In looking at television viewing in educational settings, there appears to be a need to characterize how learning takes place in a general viewing setting, and ultimately how that learning can be used in specific educational objectives. Gerbner (1969) developed the "cultivation theory" (Potter, 1993; p. 564) that was designed to explain the effects of television viewing on a person's construct of reality. Specifically, the theory suggests "that the more people are exposed to the mass media, especially television, the more they will come to believe that the real world reflects media content" (Potter & Chang, 1990, p. 313). Cultivation theory portrays the amount of *general* television viewing as an indicator of television's influence on one's attitudes and beliefs about the real world. Research focusing more directly on shows which were *specifically* designed to promote or change social behavior has also shown television to be effective at influencing (positive) attitudes in the viewer (Soloman, 1982). This included shows that were directly designed to promote physical activity.

In looking at the relationship between viewing and attitudes, early research on the use of films to affect attitudes has served as the basis for later research with television (Saettler, 1968). Miles and Spain's (1947) experiment with the United States Army involved the showing of the film "Why We Fight" to a group of fighting age males. In the controlled experiment setting,

more than twice the amount of males in the group that saw the film expressed attitudes and behaviors for enlisting and ultimately fighting than those in the group who did not see the film. The content of the film was purposefully devoid of any emotional production tricks, however Miles and Spain concluded that the experience associated with viewing film played a significant role in affecting the viewer's attitudes. In a related study, 70 percent of a group of US soldiers who saw the film "Battle for Britain" expressed belief that Britain would be conquered without allied help; this compared to only 40 percent of a group of soldiers who did not see the film expressing the same belief (Saettler, 1968).

Another landmark experiment based on using film (Romiszowski, 1988) involved employing purposeful attempts, through the use of powerful production techniques, to deliberately change attitudes and emotions. War propaganda films, shown to school children, produced a significant effect of anti-German attitudes and emotions. The effects on the attitudes were also shown to be long lasting (Furhammar, 1963). In Belson's (1956) study, the film's effect on the viewers attitudes were shown to be independent of the film maker's intended attitude effect. A French language study film designed for the purpose of empowering the potential tourist with key words and phrases, was shown in reality to significantly increase the level of apprehension concerning traveling in foreign-speaking countries, thus creating a negative influence on the viewers' attitudes toward foreign travel (Belson, 1956).

An extensive experiment conducted by the United States Navy featured a survey of instructor opinions concerning 159 motion pictures. The

following were some of the conclusions concerning learning and motion pictures...

"films constitute an effective part of the training... motion pictures are considered more valuable in training than filmstrips... men learn more, remember longer, and show more interest in learning when training films are used than when more traditional methods are employed" (Saettler, 1968 p. 178).

Romiszowski (1988) identified three types of film shown to effectively "stimulate viewers to think, feel, or act in certain ways" (p. 191). Propaganda films which use well-known production techniques to influence viewers attitudes was first listed. Second were advertising films used to stimulate good will to influence viewers' behaviors to purchase and consume particular products. The third type were documentary films which characteristically include one-sided presentation of facts for the purpose of persuasion. All three types of film have significant potential for influencing learning in the affective domain (Romiszowski, 1988). Since the advent of television, this potential lies primarily in the content and treatment of the content associated with the film, as opposed to the medium (film) itself affecting the attitudes. In the early days of movie theaters, movie goers would typically describe seeing a film as an "experience in itself" (p. 191).

In reviewing research concerning the relationship of physical activity and psychological domains, the focus has been on benefits derived from those who are engaging in physical activity. This has included regular exercise positively affecting areas such as emotional stability, confidence, mood, depression, type-A personality, independence, assertiveness, intellectual

functioning and locus of control (Hughes, 1984). Conversely, looking at influences on an individual's value and desire of being more physically active, studies suggest that psychological factors exist in combination with social and physical factors (Dishman & Dunn, 1988). The psychological determinants identified (e.g., motivation, perception, and attitudes) relate to people becoming more physically active (Atkins, 1990; Maccoby, Farquhar, & Fortmann, 1985). These same psychological determinants have been identified for behavior in general (Fishbein & Azjen, 1975).

This research will focus on the relationship between television viewing and physical activity. Namely, if some of the attributes associated with television viewing can help play a role in positively affecting a student's attitude concerning physical activity. The basis for this research will be P.E.TV, the latest development by Whittle Communications (Channel One) to produce educational programming aimed at using telecommunication technology.

Chris Whittle was the founder of a communication company that began to express interest in having a presence in the schools. One of their earliest attempts took the form of a commercially sponsored television news program entitled Channel One, with the express purpose of delivering a news program, designed as a supplement to the curriculum and beamed via satellite, directly into the classroom. The purpose behind Channel One was to make the issues of the outside world more relevant and understandable to middle/junior and high school students (De Vaney, 1994b). The goal of Channel One was to make those same students more interested in national and international current affairs.

P.E.TV

P.E.TV (Physical Education Television) is Channel One's latest attempt at influencing the attitude of the junior high and high-school students. The program has been designed to deliver resource materials to physical education teachers throughout the United States. The delivery of programs consists of two alternatives. Current Channel One schools already possess satellite equipment capable of receiving the Channel One programming, a 12-minute video news program aimed at "combatting a perceived teenage ignorance and apathy about current events" (De Vaney, 1994). P.E.TV programs are sent with the Channel One program to be taped by the schools and shown at a later time. Schools that are not currently receiving Channel One programming, are receiving P.E.TV from Channel One in a series of video tapes to be shown at a later time. Channel One schools receive the P.E.TV programs free of charge. Non-channel One schools receive the shows for a one-time fee of fifty dollars. During the initial year for P.E.TV (1994-95), over 13,000 schools had received P.E.TV, however, a preliminary study by Himberg and Graham (1994), showed the actual number of schools using P.E.TV to be significantly lower.

The P.E.TV shows have been designed and are recommended to be shown once a week. Eighteen shows per semester have been created to coincide with an 18-week semester. For the first year, 36 shows were completed and provided to the schools. In addition to the video shows, a teacher's guide was developed to supplement the material being shown in the video. The guide includes suggestions for integrating P.E.TV into the classroom, supplemental information concerning ideas for activities, and a

comprehensive list of available resources for the teacher. The guide is provided at no additional cost to the schools.

Production and distribution of the video shows and guide have been financially underwritten by Reebok International Ltd.. Unlike the Channel One programs which include commercials within the show, P.E.TV is shown commercial-free. Reebok's presence during the show is limited to a Reebok logo at the beginning of each show, as well as Reebok equipment and apparel being worn by hosts and guests of the show. The teacher's manual includes several full page advertisements for Reebok.

P.E.TV's Mission

The creators of P.E.TV have identified a need for physical education teachers to be provided with innovative supplemental materials. Ideally, P.E.TV could be used as a catalyst to help change the way physical education classes are administered by teachers, perceived by the public, and received by students. By focusing on a strategy which attempts to change middle and high schools students' attitudes toward physical activity, the program relies on providing highly visual-oriented segments (consistent with past Whittle programs) which feature some of the leading sports and entertainment celebrities. The intended goal behind this approach is television is an appropriate and effective medium for shifting the student's attitudes and perceptions about physical activity in a positive direction.

P.E.TV's Viewing Appropriateness in Education

The P.E.TV program uses various production and design techniques for motivating the students to learn how physical education and activity can be fun. In addition to the use of role models and celebrities, the program provides situations that adolescents would generally describe as interesting, humorous, and attention-getting. The purpose for this type of presentation involves employing strategies which will motivate students to continue to watch and ultimately learn concepts.

Specifically P.E.TV is focusing on attitudes concerning physical activity because there has been a link established between television viewing and attitudes (Gerbner, 1969). Research in developmental psychology has established a link between attitudes and behavior (Ajzen, 1985). Adolescents have been shown to be particularly affected by media for both acceptance of present identity as well as being a significant agent in developing lifelong philosophies and world views associated with this identity forming process (Greenberg & Brand, 1993; Konner, 1991; Leonard, 1983; Tiene, 1993). In an educational setting there appears to be a sound basis for asserting that using a strong medium such as television, , could significantly affect a change in adolescents concerning their attitudes toward physical activity.

PURPOSE OF THE STUDY

The major purpose of this study will be to assess the influence of P.E.TV on middle school students' attitudes toward physical activity. In addition the study will also attempt to investigate a relationship between the

type of home television viewing habits of the students with P.E.TV's effectiveness in influencing attitudes towards physical activity.

RESEARCH QUESTIONS

Based on the goals of the creators of P.E.TV and the review of related literature, the following research questions were formulated:

1. Will P.E.TV have a positive influence on students' attitudes toward physical activity?
2. Will P.E.TV have more of an effect on students who are characterized as "moderate to low active" when compared to students who are characterized as "high active" with respect to their attitudes about physical activity?
3. Will P.E.TV have more of an effect on students who are characterized as "high viewers of television" when compared to students who are characterized as "moderate to low viewers of television" with respect to their attitudes about physical activity?
4. Will P.E.TV have a positive influence on students whose primary television viewing choice is music video with respect to their attitudes toward physical activity?

5. Will P.E.TV have a positive influence on students whose primary television viewing choice is sports with respect to their attitudes toward physical activity?

JUSTIFICATION FOR THE STUDY

Educational research studies have been conducted in the area of television and learning. These studies, however, have not primarily focused on the most effective aspects of television, including the effects associated with television and the shaping of attitudes. There has been fewer examples of research in education which attempts to fully represent the effects present in television viewing. There are, however, studies in communications which portray television viewing as negatively affecting the viewers attitude, such as violence and sex (Greenwald, 1968; Hastie & Park, 1986; Hawkins & Pingree, 1982; Petty & Cacioppo, 1981; Potter, 1993).

As educational technology research continues to look at the attributes associated with media and how they affect learning, more research should be conducted on television in the classroom. Unfortunately, poorly conducted comparative research which negatively portrayed television in the contexts of learning, has led to lower numbers of research even as television usage continues to grow. Television research that more accurately reflects the dynamics of television viewing may, in fact, lead to more effective usage of the medium in the classroom.

P.E.TV's attempt to positively influence the attitudes of students concerning physical activity may actually lead to an example where the right medium, being delivered under the right circumstances, may lead to a more

positive attitude concerning health and fitness in general. With the many benefits associated with physical activity and fitness, and child and adolescent activity levels dropping with increased age, researchers in the fields of physical education and psychology have called for the study of intervention programs aimed at fostering positive attitudes toward physical activity, that eventually may lead to a lifetime of participation in physical activity (Sallis, Simons-Morton, Stone, Corbin, Epstein, Faucette, Ianotti, Killen, Klesges, Petray, Rowland, & Taylor, 1992b; Sallis & McKenzie, 1991; Shepard & Godin, 1986). P.E.TV claims to be such an intervention program, and this study will be conducted to determine if P.E.TV is successful in achieving these goals. This may lead to other possibilities for television to be implemented into existing curricula, not as a replacement for, but as a supplement to presently existing effective teaching strategies.

The P.E.TV program is currently being sent to over 13,000 schools (although schools actually using the program in the curriculum is lower). An experiment that attempts to measure what the program has been designed to do (influencing student attitudes toward physical activity) may help educators and the program producers to assess the program's effectiveness and weaknesses.

LIMITATIONS

Limitations of the study center around particular factors that the investigator has no control over which may have an influence on the results. The following have been identified as limitations:

1. The length of the P.E.TV program has been limited to 12 to 15 minutes
2. Middle school teachers may vary in the methods they use to deliver P.E.TV to their classes.
3. Aesthetic factors associated with viewing the programs vary with each showing .
4. The study was conducted using assessable intact groups.

The length of the program could not be adjusted as the study was designed to represent the natural conditions associated with using P.E.TV in the classroom. In an attempt to compensate for varying teacher methods, only one teacher was involved in the study and was instructed to present the programs in the same manner for each of the two classes that received the program. The programs were copied to one video tape by the investigator and evaluated for video and audio level consistency and viewing quality between programs. Only two video recorders and monitors were used for showing the program. Only two viewing settings were used for the study, the gym and the health classroom at the middle school.

REVIEW OF LITERATURE

This section reviews the literature concerning the relationship between television viewing, attitudes, physical activity, and adolescence. The review will focus on the relationship between television and learning; attitudes and affect; attitudes and physical activity; changes in attitudes; Erikson's theory on adolescent development; the relationship between media and adolescent identity; possible limitations associated with the effects of P.E.TV; adapting

Cultivation Theory into measuring the effects of P.E.TV; and measurements associated with attitudes towards physical activity in adolescents.

The Relationship Between Television

Viewing and Learning

In beginning to answer whether P.E.TV will be just another fad in a long line of television's failure to deliver on promises, it is important to visit past relationships between the medium and education. Ultimately evaluating the effectiveness of the program will center less on traditional studies and methodologies which attempt to measure the student's ability to recall the information presented via the medium. The success of programs such as P.E.TV centers around how it is being used, under what circumstances, how realistic the expectations are related to the strengths of viewing television, and how representative the studies are in truly measuring the essential contexts associated with viewing.

By the time a child reaches the end of its high school years, he or she will have spent more hours watching television than attending school (Neuman, 1985). There is, in fact, only one activity that occupies more of a child's time during those years than watching television, and that is sleeping. (O'Rourke, 1981). As viewing patterns continue to be aided by "personal oriented" viewing developments, (i.e., cable, VCR's, satellite dishes, etc.) the hours spent watching may well double those of formal instruction.

Research in this area has predominantly centered around viewing at home in comparison to school activities. Hours spent watching programs were assumed to take away time spent reading or completing homework

assignments. This generalization fails to identify different types of viewing, under what contexts the viewing takes place, as well as what is being watched and why.

Neuman (1985) identified the issue of different types of viewing images in looking at the effects of television viewing on children's reading behaviors. After looking at the complete dynamics involved in the viewing process, Neuman found that the relationship of television and reading habits ranged from encouraging and teaching reading to shortening attention span, decreasing the ability of reflecting, and creating expectations in children of rapid changes in their environment (p. 38). Neuman also looked at the experiences involved with television viewing within the classroom. This included how teachers were integrating the media into daily lesson plans.

Looking at television viewing in an educational context does not render general television criticism unimportant. In fact passive viewing, be it educational or recreational, share many of the same problems. Neuman, (1985) for example, found that educational programs such as Sesame Street, did such a good job at holding viewer attention with quick video and animated clips, the child had little or no time for processing the information presented. Teachers found their lesson plans, more than likely slower paced and geared for internal processing, often competed poorly for the child's attention due to the lack of the attention span.

Kaplan (1990) looked to the technological developments as helping people process the amounts of information involved in viewing video situations. Video recorders enable the viewer to self regulate the pace of the flow of information. As video recorders become more popular in classrooms,

the teacher is able to implement video viewing into their students' curriculum more often. This encourages more student interaction as well as reflection time, the lack of which educators traditionally mention as a deterrent to viewing in the classroom.

Traditional Criticisms of Television in the Classroom

One of the major developments identified in instructional media has centered around the visual presentation of learning materials through the use of television in the classroom (Haynes, 1989). Although there was a great deal of early optimism for using this medium in the classroom, actual implementation proved to be a bit more difficult, and educators began to experience a major gap between what television in the classroom could do, with what it was actually accomplishing.

One of the areas that influences this perception is the control of program content and context within the classroom setting. The educational programs are designed by broadcasters and delivered into the classroom. Teachers and students often lack control over what is being presented. This can lead to teacher apathy and often creates a climate where educators are:

- 1) unprepared to teach the content of the program,
- 2) lack enthusiasm for preparing lessons which make use of television programs,
- 3) only superficially cover the program content,
- 4) under pressure to maintain established lesson plans sporadically use television in the classroom, and

5) lose enthusiasm for using television in the classroom (Interact, 1991).

Refocusing Television's Effectiveness

Although criticisms concerning television have been justified, the focus on pace of information presented, ability to process bits of information, and the effects of active viewing associated with video reside in the cognitive domain. Research in this area attempts to explain ineffective results by focusing on the viewer's inability to keep up with what is being presented (Kozma, 1991). Little time is allowed for linking what is being presented with prior knowledge to help insure transferal from short term to long term memory (Anderson & Collins, 1988).

Through the years, broadcast technology has been an effective deliverer of visual information. Most of what people know about the world, they learned through visual images. Because changes are occurring within the viewer, even during what has traditionally been referred to as passive viewing, there appears to be more activity involved in a television/viewer relationship than has traditionally been characterized. The typical notion of couch potatoes sitting zombie-like during viewing, as endless streams of visuals and sounds go zooming by, have been discounted in numerous research studies (Anderson & Field, 1983). Visual attention to television varies compared to different development stages of the viewer, increasing from “low levels during infancy to a maximum during late elementary school years, declining somewhat during adulthood” (Kozma, 1991, p. 189). Kozma (1991) and Morris (1988) identify features associated with capturing

and keeping visual attention. These include slick television production featuring pans, zooms, cuts, sound effects, music, and high physical and visual activity. All features which have been designed into the P.E.TV television program. The relationship between peak stages of human development and effective features for capturing visual attention is based on sound principles. But is this the whole viewing experience of P.E.TV, no matter how effective, appropriate in an educational setting?

Television Viewing as an Effective

Instructional Strategy

One of the major components in an effective instructional strategy involves the motivation of the learners (Dick & Carey, 1990). This implies assessing at what level the learners are currently motivated to learn the material. Highly motivated adults, for example, who need to learn for a particular purpose would need less motivation than adolescents struggling to find meaning in the instruction to their lives. Special techniques have been explored, for use in the classroom, to raise the level of motivation in uninspired learners. Kopp (1982) identifies visuals as being an effective use in motivating learners. Visuals, however, must be effective for the learner in three distinct ways (Kopp, 1982, p. 32):

1. Enable the learner to make the invisible, visible.
2. Provide structure to complex content
3. Are dramatic.

Cornett (1986) calls for humor to be developed in instructional models for motivation because it attracts attention and provokes thought in the

learner. Dodge and Rossett (1982) identify humorous and off-beat instruction as being more likely to initiate, maintain, and enhance learner interest.

Researchers and educators have recognized the need for attention getting devices in the classroom. In addition to providing information in a more entertaining format which leads to an enjoyable classroom setting, studies have indicated that there is a direct relationship between attention and achievement in an educational setting (Brofenbrenner, 1976; Gagne, 1985).

Television differs in many significant ways from other instructional media in affecting learning (Kozma, 1991). Motion, sound, familiarity of use, all serve to enrich and capture the viewer on various cognitive levels and help to increase the chances that material will be stimulating and meaningful (Huston & Wright, 1983; Anderson & Lorch 1993). Glass (1983) cites television and film, in particular, as "significantly influencing our understanding and interpretation of the world" (p. 21), and yet related educational research seems to ignore or superficially represent the effects that they both play on shaping one's attitudes.

CNN Newsroom Success in the Classroom

The Cable News Network has tried to offer a richer viewing experience for students with the development of CNN Newsroom. Classrooms now have access to information prepared by one of the largest news gathering organizations in the world. State of the art technologies such as cable, satellite, computer, and video hardware play intricate parts in the whole learning process. CNN Newsroom began in 1989, and according to Ittelson,

Burkhart, and Rockman (1991) is based on the following assumptions specifically related to the "use of video in the classroom:

- 1) video must be supported by the written word,
- 2) the use of television must conform to the agenda of the classroom, and
- 3) video must support the existing curriculum" (p. 1).

Teachers have better control which is necessary to effectively implement the visual materials into their daily lesson plans. Educators, parents, and students report tremendous benefits from the program (Roussell, 1994). The students' comments primarily focus on program content, mode of delivery, and production quality (Interact, 1991). The teachers' observations primarily focus on being able to:

- 1) obtain strong visual support materials including graphs and charts to be used with a prepared lesson plan,
- 2) provide opportunities for students to develop critical viewing skills, and
- 3) enable students to be more aware of the world.

According to recent surveys (CNN, 1992), the use of CNN Newsroom in American schools have risen dramatically. In 1990, 51 per cent of the schools who had access to CNN Newsroom, actually used the program in the classroom. In 1991, 90 per cent of the schools were using CNN Newsroom in their classrooms. Every state in the US has schools enrolled in the CNN Newsroom program (CNN, 1992). Likewise, P.E.TV's programming is being sent to every state but at the time of this writing, it is too early to tell if it will mirror CNN Newsroom's rise in school usage.

Physical Educational Uses of Television

Although the history of using television in physical education has been traditionally scarce, there has been a rise in its use in the last twenty years (Freeman, 1987; Singer & Dick, 1974). Two reasons for this rise have been technical developments that assist teaching in the psychomotor domain, and a philosophical shift in physical education which includes a direct focus on health and wellness related issues (Singer & Dick, 1974).

Early claims of instructional television in the classroom centered around the use of media to bring the most brilliant lectures from across the country into the classroom (Saettler, 1968). The focus was on a teaching/learning relationship that closely resembled a one-way communication model. Physical education teachers, in addition to not having access to traditional classrooms where television viewing was possible, were engaging in teaching and affecting learning in the psychomotor domain (Harrow, 1972). Teaching in that area implies a teaching/learning relationship that is more two-way in nature.

A televised teacher in an actively engaging psychomotor-driven physical education class would be insufficient for the learner. The teacher must be able to assess whether or not the objective has been learned by being able to observe physical cues in the learner. Feedback plays a vital role in the process when it is immediate and specific (Singer & Dick, 1974). The feedback, either positive or corrective, must address what is actually being done by the student. No significant uses of traditional television in this area has been shown.

The advent of the video tape recorder and camera (personalized television) brought about an enthusiasm in physical education unlike earlier instructional television developments. Research with students using video technology reported success at self-observation and correcting of skills. Imperfect movements have been shown to be communicated more effectively to students with the use of video (Singer & Dick, 1974). The use of video has also been shown to be successful in demonstrating a particular desired movement through self-paced viewing and adaptation of a video featuring someone who has mastered the movement (Singer & Dick, 1974).

The second area associated with the rise of television in physical and health education has centered around a more philosophical rather than a pedagogical evolution in physical education. Physical education trends seem to center more around lifetime physical activity and promoting fitness and wellness concepts (Pate & Hohn, 1994; Ross, 1994). Providing instruction and learning experiences that attempt to influence healthier lifestyles and behaviors would appear to coincide nicely with effective television attributes.

Physical and health educators have had some of the major effects on television research in the 1970's that attempted to address what is being shown and how it is affecting behavior. An overwhelming amount of the research focused on the negative relationship between viewing and health (Bryant & Anderson, 1983). This included both measuring time spent in viewing versus physical activity as well as addressing television messages influencing kids to exhibit and develop unhealthy habits.

It would appear that future trends for using television in physical education should focus on attempting to use attributes uniquely associated

with the medium to affect changes in attitudes and behavior. This provides an opportunity to explore an area of television and educational research that is largely untapped by other educational fields.

Traditional Television Research Methodology

With the advent of television, educational and communication researchers have struggled with questions concerning what is television viewing, and what effects does it have on our lives? As stated earlier, television has become so intrinsically linked to our lives that being able to develop methodology to isolate and evaluate it becomes increasingly more difficult as generations become more involve in television viewing. Today, more Americans have no personal recollection of life before television.

When attempting to measure learning with television, three fundamental questions need to be asked. First, what type of learning are we attempting to measure? Secondly, in what type of television context is the learning taking place? These two questions lead to the final fundamental question that has been haunting educators, namely, what and how much do students learn while viewing television (De Vaney, 1994)? Forty years and numerous studies and methodologies later, these questions are still relevant and debated in the academic world.

Earlier instructional television research modeled other instructional research which pitted television against other forms of media (Saettler, 1968; Schram, 1977). These comparison studies were grounded in a behaviorism paradigm (De Vaney, 1993) and came out of a need to justify television's existence in the classroom. Thus methodology was employed featuring true

and quasi-experimental designs based on the assumption that the medium was neutral. De Vaney (1993) cited political agendas, often influencing research designs, demanding positive results concerning slightly different modes of delivery. A live lecture and a televised live lecture are essentially the same thing. Clark (1983) referred to these examples when using his delivery truck analogy.

Most of the studies during the early 60s concerning television revealed more about the studies than about truly measuring television's effectiveness. According to Schramm (1977), the major finding from these studies was quite clear, "the more carefully such comparisons are designed and controlled, the more likely they are to show no significant difference in learning from the two sources" (p. 27).

Research that showed differences became more valuable when attributes associated with the presentations implied interactions between the stimulus and the subject (Di Vesta, 1975). Dubin and Hedley (1969) reviewed 192 comparative studies and found instructional television (ITV) without talkback was significantly superior to ITV with talkback. If the claim that there is no significant differences is true, one would think that the ability for the learners to ask questions and interact with the instructor would be of the same benefit to ITV viewers. The discrepancy was examined and with it certain questions came about. Maybe the best uses of television were not in duplicating classroom lectures, but rather creating different learning experiences such as a television show (Schramm, 1977).

Research methodology continued the comparison mode focusing on various styles of presenting within the same medium. Studies such as

comparing a straight-talking head lecture show to a jazzed up version for measuring learning resulted in very little differences between the two (Shramm, 1977). Again the focus was on measuring learning in the cognitive domain and were often designed to measure recall. Poorly designed methodologies were often employed which had a greater impact on the learning than the intended measured media (Morris, 1988).

As mentioned earlier, numerous studies have been conducted in the area of television and learning in educational research. These studies have not focused on the most effective aspects of television. This would include the potential effects television has on shaping attitudes (Gerbner, 1969). There has been little research in education, which attempts to fully represent the effects present in television viewing. There have, however, been studies in communications which portray television viewing as negatively affecting the viewers' attitude, such as violence and sex (Gerbner, 1969; 1977; 1992; Potter, 1993).

P.E.TV is one of a new breed of educational technology programs that are being made specifically for use in the classroom. Satellite and cable technology along with communication industry partnerships have made delivery of special interest programs into the classroom more common place. This has led to a new set of questions that educators, researchers, parents and students must concern themselves with as future communication technologies will make a larger presence in the school.

Research techniques, methodology and evaluations will need to look at what constitutes an effective program. How will learning be defined and ultimately evaluated under what contexts? Will the program significantly

produce results for all of the students, or will certain student traits interact better with the program? Comparative research is needed to help in the attempt to provide some answers, answers that hopefully will lead to more effective uses of communication media in education.

Attitudes and Affective Learning

The P.E.TV program producers claim the show has been designed to affect students' attitudes. In looking at P.E.TV's relationship to attitudes about physical activity, certain criteria about attitudes and their relationship to learning must be established. This includes not only attitudes in general, but specifically how one can go about attempting to measure attitudes and affective learning.

Although, researchers measuring attitudes generally agree that attitudes are learned (Fishbein & Ajzen, 1975), the learning component is oftentimes not stressed when attempts are made to explain attitudes and attitudinal changes. Campbell (1963) referred to attitudes as consisting of residues of past experiences. The researcher is not privy to a subject's entire past when measuring one's attitude, and thus rely on outward expressions of the residue to infer past. As new experiences are presented to the subject, those experiences are digested and evaluated and become a part of the subject's past. The subject could in turn, exhibit some sort of behavior or give a response to the object that could be interpreted as an attitude change. Clearly attitudes are learned (Campbell, 1963; Fishbein & Ajzen, 1975; Zimbardo, Ebbesen, & Maslach 1977). However, how they are learned, and affected are more pertinent to the study of attitudes.

Theories have been put forth in an attempt to explain attitudinal changes in relationship to behavior, beliefs, and intentions (Fishbein & Ajzen, 1975). Traditional learning theories have viewed attitudes as predisposing the individual to perform various behaviors based on the attitude centering on a stimulus-response conditioning model (Fishbein & Ajzen, 1975). Attitudes toward an object are related to beliefs about the object. Other attitude theories include: expectancy value theory (Atkinson, 1957; Tolman, 1932) and balance theory (Heider, 1944) where attitudes and beliefs are indistinguishable and do not vary. Dissonance and attribution theories, however, give no clear explanation of attitude, dealing instead with beliefs (Fishbein & Ajzen, 1975).

For the purpose of studying the effects of television on attitudes, a holistic learning theory that includes a richer context, interaction between internal and external forces, and a dynamic bi-directional relationship between society and the learner needs to be examined. As traditional learning theories focus on environmental influences on attitude, they tend to imply a one-way relationship where "a person does not act upon the world, the world acts upon him" (Skinner, 1971, p. 211). Modern social learning theorists agree with environmental influences affecting attitudinal changes, However, it is one of several forces which come into play.

According to Miller (1993), in social learning theory, the learning context (and subsequently the changing of attitudes) include "biological and psychological characteristics of the person, the person's behavior, and the environment...the three factors are highly interdependent, and each factor influences and is influenced by each of the others" (1993, p. 197). Learning

environments which include strategies that attempt to influence all three factors have a better chance at influencing the attitude of the learner (Bandura, 1977).

The importance of mediating responses on changing attitudes, and ultimately the role of television in shaping attitudes are dependent upon the social learning theory that new mediating responses can be learned, and thus changes in social behavior and attitudes can occur. Glover and Bruning (1990), cite reinforcement as having a necessary role in the shaping of responses. Bandura (1986) has argued that reinforcement alone would be a terribly inefficient way of changing behavior and attitudes. One would have to operate the reinforcement in such a closed environment because the learner in the real world would be subjected to a variety of reinforcements. In addition to reinforcement, modeling has been introduced as being important to the changing of attitudes. In fact most social learning theorists cite observation and imitation (modeling), not shaping (reinforcement) as being the process by which almost all learning occurs (Glover & Bruning, 1990). Greenwood, Carta, and Hall (1988) reported a combination of the two as being highly effectively means of classroom management.

The effectiveness of modeling in particular depends on several factors. Research has shown that modeling which consists of "actors" who are similar to the learners' age, social setting, and sex tend to have the greatest impact on the learning. Likewise, "actors" that are perceived by the learner as having a higher status or positive role model, likewise significantly influence the learning (Henry, 1987). Television pumps in "actors" to homes on a daily basis. The advertisement industry has targeted television viewers as the

recipients of an endless stream of significant televised surrogates with the express purpose of affecting attitudes and ultimately influencing behavior represented by purchasing choices. By its very nature, television elevates the status of the person portraying the actor to a level of significance which encourages modeling of the behavior and attitudes presented (Bronfenbrenner, 1979; Greenberg & Brand, 1993). The media's power to create significant characters and the potential for modeling their behaviors and attitudes have profound implications concerning the use of television to affect attitudes.

Television has been clearly shown to have an impact on the social learning of children, adolescents, and adults (Brocks, Armstrong, & Goldberg, 1988; Gilley, 1988; Kniveton, 1987). The positive social learning attributes associated with television have directly led to recommending the employment of television to help influence attitudes in a positive nature using social learning both at school and in the home (Dunn & Cardwell, 1984; Liebert & Sprafkin, 1988; Singer & Singer, 1984). Focusing on the use of television in education to affect attitudes is directly related to the development and goals of P.E.TV.

Measuring Attitudes in Education

Because measuring the effectiveness of the P.E.TV program involves assessing changes in attitude, assessment of the learning must be conducted appropriately. Assessing students' grasp of a concept or knowledge has been traditionally characterized as being a much easier evaluative task than attempting to assess students' attitudes, interests and beliefs (Krathwohl,

Bloom, & Masia, 1964). This is mainly due to the rich tradition of using knowledge-based materials to assess student achievement, and ultimately, to assign grades. This led to, according to Krathwohl and others (1964), an atmosphere of avoiding and/or neglecting to measure areas concerning the attitudes of the students or the "affective domain" (1964, p. 7).

Evaluation material in the affective domain was usually developed and operationalized in relation to national research projects. It was only rarely that local teachers used affective evaluation techniques to see if students "were developing in a particular way" (Krathwohl et al., 1964, p. 15). However, merely dismissing the lack of measuring affective domain areas because of "time-honored" tradition, fails to wholly understand the relationship between student achievement measurement and learning domains. Specifically, measuring student achievement in the affective domain presents some specific challenges that can not be superficially dismissed.

Some of the problems with influencing and assessing students in the affective domain include the difficulty in measuring student gains, the personal nature associated with the domain, the potential for abuses, and the length of time to affect change (Krathwohl et al., 1964). Likewise, there is a relationship between cognition and affective objectives and therefore, there is a clear need to determine how P.E.TV has been designed to affect attitude through the use of information content, attention getters, and role model building. Merely having knowledge about a particular concept does not necessarily imply that the concept has been internalized in terms of value, satisfaction, and intent (Krathwohl et al., 1964). Specifically, when looking at

health issues, knowledge has been shown to have little correlation with actual health behaviors (Sallis et al., 1992). Thus, measuring P.E.TV's effect on learning in the cognitive domain would be analogous to measuring one's shoe size to determine who is the best basketball player. Ultimately, a hierarchy developed by Krathwohl, Bloom and Masia (1964) effectively measured development of attitudes, beliefs, intentions, values, and behaviors. Following the hierarchy will be an attempt to specifically apply it to the P.E.TV viewing context.

Summary of the taxonomy of affective educational objectives-

Affective Domain

- 1.0 Receiving (attending) The willingness to attend to or receive certain stimuli.**
 - 1.1 Awareness- to be conscious of stimulus events.**
 - 1.2 Willingness to receive- to attend willingly, without avoidance**
 - 1.3 Controlled or selected attention- to differentiate figure and ground**
- 2.0 Responding Active involvement and participation**
 - 2.1 Acquiescence in responding.**
 - 2.2 Willingness to respond.**
 - 2.3 Satisfaction in response.**
- 3.0 Valuing The worth of a thing, phenomenon, or behavior.**
 - 3.1 Acceptance of a value.**
 - 3.2 Preference for a value.**
 - 3.3 Commitment.**
- 4.0 Organization The organization, interrelationship, and ordering of values.**
 - 4.1 Conceptualization of a value.**
 - 4.2 Organization of a value system.**
- 5.0 Characterization by a value or value complex. The generalization and integration of a total world view or philosophy.**
 - 5.1 Generalized set- one's basic orientation or point of view.**
 - 5.2 Characterization- the peak of the internalization process.**

Fig. 1- Taxonomy of Educational Objectives-Affective Domain. (adapted from Krathwohl et al., 1964)

1.0 Receiving (Attending)

At this level the learner is showing an ability and willingness to receive the message and is displaying a degree of attention to the message. In the P.E.TV context, MTV type production, hip hop characters, and recognizable celebrities, are used to get the student's attention and increase the likelihood of success at this stage.

2.0 Responding

This level deals with the learner's active involvement and interaction with the program. It includes the student's desire to seek out and relate to, as well as gain satisfaction from, the program. Specifically, are the students exhibiting excitement and anticipating another session with P.E.TV. This level would also include expressing enjoyment for the program.

3.0 Valuing

This category includes attitudes towards both the program as well as the content being portrayed. Namely, can P.E.TV through producing a television program featuring significant other surrogates, influence attitudes concerning physical activity? The attempt is to influence the attitude in a way which focuses on the student's desire to being active. Realistically, the relationship of viewing the program to affecting attitudes could only be measured at the 3.1 level, acceptance of a value. Levels higher than 3.1 involve preferences and commitments which represent combinations of attitudes, intents, and behavior that imply reinforcements such as peer, teacher, and parental interactions.

4.0 and 5.0 levels

These levels are far beyond measuring the impact of viewing a television program. They focus on an internalization process involving organizing and re-organizing of an individual's value system in such a way, that overall behaviors represent one's view of the universe, philosophy of life.

Attitudes can have an influence on behaviors, but affecting one's attitudes does not insure an effect on behavior. There have been attempts by researchers to describe the processes involved in the role of attitudes, intention, beliefs, and ultimately behavior (Fishbein & Ajzen, 1975).

Attitudes Linked to Activity

The focus of P.E.TV is to change negative attitudes concerning physical activity into positive ones. The idea behind the effectiveness of the program centers around the premise that attitudes are linked to behavior and can have an influence on activity. Fishbein and Ajzen (1975) adopted the theory of reasoned action which targeted the individual's intention to perform as being the best predictor of actual behavior. Intention is affected by both the individual's attitude towards the behavior and the individual's subjective norm concerning the behavior (perception of social pressures for performing).

Ajzen (1985) adapted his earlier work with Fishbein and came up with the theory of planned behavior. It states that intention is not enough to elicit behavior, but one must have control over the behavior. This control is actually one's perception of behavioral control. Gatch and Kendzierski (1990)

used Ajzen's theory of planned behavior to predict exercise intentions. They demonstrated that perceived behavioral control significantly increased the predictability of exercise intentions.

Attitudes and Physical Activity

In recent years, many researchers have looked at the effect physical activity has on various psychological domains. Positive effects of regular exercise on areas such as emotional stability, confidence, mood, depression, type-A personality, independence, assertiveness, intellectual functioning and locus of control have been suggested by many and questioned by others (Hughes, 1984). Research has also, to a lesser extent, been done to explore some of the psychological effects, such as motivation, perception, and enjoyment which affect physical activity (Atkins, 1990; Maccoby, Farquhar, & Fortmann, 1985). Studies in the field seem to show a collection of psychological, social, and physical factors as having an influence on the value of and desire to be physically active (Dishman & Dunn, 1988).

Most of the research done in the area of motivating physical fitness has been looking at the correlation of internal motivation and physical activity (Adams, Johnson, Matthiasson & Abbas, 1990; Brandon & Loftin, 1991; Cohen, Brownell & Felix, 1990; Doganis, Theodorakis & Bagiatis, 1991; Ryckman, Robbins, Thornton & Cantrell, 1982). Some researchers have examined the influence of exercise on motivation and attitudes about life (Duke, Johnson & Nowicki, 1977; Labbe, Welsh & Delaney, 1988), and other studies have focused on the reverse; the internal motivation of a person making them want to

engage in more physical activity (Carter, Lee & Greenockle, 1987; Dinning & Crampton, 1989; McCreedy & Long, 1985; Sonstroem & Walker, 1973).

Researchers have linked attitude towards adherence to a physical education program, such as a low attitudes about physical exercise leading to low attendance to the programs (Anderson, 1990; Atkins, 1990). However, to a lesser extent, there appears to be fewer research examples that isolate particular outside influences and identify them as having lasting influences on one's attitude about physical activity. People have been shown to strongly influence others to participate in recreation, but this was found to be the case only when these people were deemed "significant" by others (Hultsman, 1993). It has also been concluded that once these external factors (e.g., instructor, significant other) have been removed, there is a low rate of physical activity retention in the individual (Knapp, 1988).

The relationship of attitudes, intentions, and physical activity behaviors justifies looking at attitudes and physical activity. Without regard to effectiveness, P.E.TV's concern with attitudes, and ultimately the reason for measuring shifts in attitudes, are generally worthwhile goals and grounded in the theoretic framework concerning attitudes and behavior.

Erikson's Psychosocial Theory on Adolescent Development

One of the major developments in developmental psychology focuses on Erikson's work concerning the identification and rich description of the adolescence stage of human development. Erikson's work is particularly relevant when evaluating the P.E.TV program because the intended viewers

are operating in the pre-adolescent and adolescent stages. In addition, the theory guiding content and delivery style choices for the program are directly related to fundamental influences concerning adolescence. The program's goal in affecting attitudes, and ultimately values are being introduced to students who are operating in a stage of development where values are constantly being evaluated and adopted to form self-identity.

Erikson is noted in development psychology for providing two contributions to the field (Miller, 1993). First of all, he put forth a framework which attempts to describe a lifelong process of identity development. Secondly, Erikson's work stresses a relationship between development and social influences.

Erikson's framework of lifelong development concerns eight stages corresponding to "critical periods in which various lifelong ego concerns reach a climax" (Miller, 1993, p.161). Although the producers of P.E.TV have clearly focused the show for adolescent viewers, it may be helpful to examine where those viewers are in comparison to the other stages of development. These stages are represented in the following figure.

Erikson's eight stages of development

Stage 1: Basic Trust vs. Basic Mistrust	(birth to 1 year)
Stage 2: Autonomy vs. Shame and Doubt	(2 to 3 years)
Stage 3: Initiative vs. Guilt	(4 to 5 years)
Stage 4: Industry vs. Inferiority	(6 yrs to puberty)
Stage 5: Identity and Repudiation vs. Identity Diffusion	(adolescence)
Stage 6: Intimacy and Solidarity vs. Isolation	(young adulthood)
Stage 7: Generativity vs. Stagnation and Self Absorption	(middle adulthood)
Stage 8: Integrity vs. Despair	(late adulthood)

Fig. 2- (adapted from Erikson, 1968, p. 94).

The stages of lifelong development are influenced by both physical maturation and cultural influences. The nature of both influences combine in a contextualist world view where the child changes in a changing world which constructs and contributes to resolving crisis which is necessary in developing through the stages (Miller, 1993). The stages are hierarchical in nature, but conflicts within each stage are not necessarily resolved as one moves through the stages.

Adolescent Characteristics within Erikson's Theory

Adolescents operating in Erikson's Identity and Repudiation versus Identity Diffusion Stage are in a critical period in their lives where the psychosocial crisis of identity is being resolved (Leadbeater & Dionne, 1981). Erikson describes a situation where radical biological changes and sexual urges in the adolescent combine with social issues such as occupational and educational decisions to create an atmosphere where a variety of roles come under consideration (Miller, 1993). In simple terms, it is the transition period between childhood and adulthood.

Erikson views this transition period in terms of an individual, being confronted with a developmental challenge or crisis, who forms a sense of identity which meets both the needs of self-fulfillment as well as recognition from valued others (Leadbeater & Dionne, 1981). As with other stages in Erikson's theory, this challenge is not expected to be fully mastered and put to rest, however, a healthy personality is generally measured by a predominantly positive resolution of the crisis (Protinsky, 1975).

Marcia (1966) operationalized Erikson's notion of resolving identity by focusing on two criteria to determine successful progression through the stage: presence or absence of a crisis and commitment in occupational plans and ideological beliefs. Namely, the consideration of alternative occupations and ideologies and the anticipation of the consequences of adopting a particular adult lifestyle role or belief are central to positively resolving the identity crisis for adolescents. (Erikson, 1968; Marcia, 1966). Erikson identified three psychological factors associated with identity development (Enreight & Deist, 1979):

- 1) self- one's thoughts and self reflections;
- 2) ego- selective processor of incoming material; and,
- 3) formal operational abilities- moving from concrete to abstract thinking abilities.

Thus, in using Erikson's psychosocial theory, as well as reactions and adaptations to it, there is a clear sense of identity searching and development which focus on lifelong philosophies and world views. The most relevant characteristic of this stage for P.E.TV concerns how adolescents search for their true selves as they move through the identity stage, and particular what role does media play in this identity forming process.

Media and adolescents have traditionally had a close bi-directional relationship. The media industry spends billions of dollars creating a haven of television, radio, magazines, movies, and videos which are aimed at appealing to adolescent searches for identity of self and acceptance of peers.

The Effect of Celebrities on Adolescent Identity

In a report of a recent survey in which eighth graders were asked to write down two names for heroes, paired response examples included Elle McPherson and Bart Simpson; God and Arsenio Hall; New York Mayor David Dinkins and Public Enemy. Historically, adolescents have represented a parade of heroes which ultimately represented an inner split. One hero would represent the acceptance of school and parents, while the other would more likely receive acceptance from their adolescent peers (Konner, 1991).

Media celebrities are often short lived within adolescence. What is hip today, often by its very acceptance into popular culture, becomes passé, where identification with the celebrity brings out negative reaction from peers. Thus tying a message to a celebrity, such as P.E.TV's use of Reebok International athletes and rock stars run the risk of an adolescent rejection of the celebrity, and with it a rejection of the behavior the celebrity has put forth to model.

Television's Influence on Adolescent Identity

In communication studies, viewers' perceptions and attitudes concerning television viewing have been a rich resource (Potter, 1992). Most of the research has focused on the effects of television on youth, which overwhelmingly demonstrates that younger viewers perceive television as reality, and thus, has more of an influence on the shaping of their attitudes (Leonard, 1983). This has increased the concern associated with using television in the classroom because of the very influence that television possesses.

However, recent research has attempted to use television to achieve certain positive identity building in adolescents by focusing primarily on attitudinal effects. Potter (1993) refers to the long-term shaping of perceptions, beliefs and attitudes as a result of long-term exposure to media as "cultivation theory" (Gerbner, 1969, p. 138). It appears that television exposure is related to the cultivation of the viewer. Attempts to use television to positively cultivate adolescents include projects such as Whittle Communications attempts to bring news programming into the classroom (Greenberg & Brand, 1993; Tiene, 1993).

Research has shown that television viewing has a substantial influence on adolescents. As often mentioned before, more time is spent watching television than doing anything else with the exception of sleeping. Potter and Chang (1990) found that television has a significant effect on the attitudes and construction of reality on 8th through 12th grade students. Programming is routinely produced for adolescents and research has shown that both the programs, as well as the accompanying advertisement, have a direct effect on the attitudes of those who watch the program (Potter, 1993). This effect is represented by desires of these students to watch more content-related programs, as well as buy more of the products that they see advertised than those students who were not exposed to the programs (Greenberg, & Brand, 1993).

Investigators of television messages have routinely demonstrated the effects of television advertising on young people's attitudes toward fitness, which includes demonstrating causal relationships between television portrayals of the "ideal" body and the distortion of self-perceived body size in

young adolescents (Myers & Biocca, 1992). Without significant messages that combat these portrayals, the adolescent is in danger of rejecting herself as opposed to rejecting the message.

One of the dangers of this blurring of reality can be seen in children. Like their adult counterparts, children, through television, have more information about a wide variety of places and events, but have much less experience of reality. Children of earlier times got their first views of the world more by a process of doing (Goleman et al, 1992). This includes the development of understanding that things have a beginning, middle, and end. Television, in particular, through its "quick succession of images and compression of time" (Goleman et al, p. 92) destroys this process. Things just happen, and there appears to be little interest in how these images came to represent an actual event.

Bronfenbrenner (1976) pointed to research that focuses on television's affect on children's behavior as missing the primary danger of the medium... "[television's danger] lies not so much in the behavior it produces as in the behavior it prevents. The talk, the games, the family activities, the arguments through which much of the child's learning takes place, and his or her character is formed." (1979, p. 323). However, Konner (1991) cites other studies where low socioeconomic status parents living in areas where safety was a major concern (traditionally heavy viewers of television), saw television viewing as protecting their children from graver dangers rather than keeping them from wholesome adventures.

Adapting Instruments to Measure Attitudinal Shifts in Physical Activity Resulting from Television

In attempting to measure changes in attitudes towards physical activity, certain instruments that have been shown to be reliable in reflecting those changes are needed. In addition, certain traits associated with the participants (activity level and television viewing habits) have been explored for the purpose of attempting to establish a richer relationship between P.E.TV and its measured effects on students who possess those particular traits. Literature concerning the measurements of children's attitudes toward physical activity, children's activity levels, and children's television viewing habits were reviewed in an attempt to develop appropriate and reliable instruments for the study.

Children's Attitudes Toward Physical Activity

The revised Children's Attitudes Toward Physical Activity (CATPA) inventory (Schutz, Smoll, Carre & Mosher, 1985) was selected to be in this study to measure the students' attitudes toward physical activity. This instrument was developed based on Kenyon's (1968) Attitudes Toward Physical Activity (ATPA) and Simon and Smoll's (1974) CATPA inventories. The revised CATPA (Schutz et al., 1985) assesses children and adolescents' attitudes toward the following physical activity subdomains (Schultz et al., 1985):

1. social growth- opportunity for meeting people.
2. social continuation- opportunity to be with existing friends.

3. health and fitness- opportunity to make health and body condition better.
4. vertigo- increasing risks for injury because of fast and quick changing of direction for the opportunity to engage in physical activity.
5. aesthetic- opportunity for beautiful and graceful movements.
6. catharsis- opportunity to reduce stress and escape problems.
7. ascetic- giving up other things for the opportunity to engage in activity.

The purpose of this inventory is to determine how the respondents feel about aspects associated with physical activity. There are five word pairs per statement with each of the pairs representing a negative (1 point) and positive (5 point) association to the statement.

The inventory has been shown to possess high construct validity through research with both the ATPA and the CATPA (Schutz et al., 1985). The CATPA inventory has also been shown to be reliable with respect to internal consistency, with a Hoyt reliability of .8 and .9 (Schutz & Smoll, 1977, Schutz, Smoll, & Wood, 1981). The revised CATPA inventory, with exception of the Health and Fitness subdomain, possesses high test-retest reliability (Smoll & Schutz, 1983) with mean reliability coefficients of .71 and .67. The Health and Fitness subdomain has a much lower test-retest reliability coefficient (.2 for males and .54 for females) (Smoll & Schutz, 1983). The two main reasons for the low reliability coefficient of the subdomain center around high ceiling effects and the subdomain's division into two factors, Value and Enjoyment, which gives each only 2 and 3 respective word-pairs. In an attempt to overcome the low reliability, Schutz et al. (1985) suggest that

more word pairs be added to this particular subdomain. For this particular use of the subdomain some of Ajzen's (1980) word pairs have been merged with Schutz et al.'s (1985) revised CATPA, and were added to the Health and Fitness subdomain, making a total of 5 word-pairs in both the Value and Enjoyment groups (Appendix A). Although the revised CATPA has a reported good reliability and validity, Schutz et al.(1985) warn that the instrument should be used for assessing changes in attitudes for groups, not for assessing individual changes in attitudes. Observing this warning, this study will use the revised CATPA only in an attempt to assess changes of attitudes in groups.

Assessing Physical Activity Levels

In an attempt to measure the potential interaction between viewing P.E.TV and the levels of physical activity of the students prior to viewing P.E.TV, a measurement was needed in order to categorize students into the groups “high active” and "moderate to low active”. Past research has shown that attempting to measure young adolescents' physical activity levels has been complicated, and no consensus has been reached among researchers for the best way to measure levels (Blair, 1984; LaPorte, Montoye & Caspersen, 1985; Sallis, Condon, Goggin, Roby, Kolody & Alcaraz, 1993; Saris, 1986).

Five major criteria have been developed to evaluate the potential for using various methods to measure one's physical activity level (LaPorte, Montoye & Caspersen, 1985). These criteria are:

1. The instrument or method should be valid, that is, it should measure what it was intended to measure

2. The instrument or method should be reliable, that is, it should be consistent in the results of measurements under the same circumstances
3. The instrument or method should be accurate. If it is reliable and valid this criterion is fulfilled.
4. The instrument or method should be practical. This concern includes cost and effort required of both researchers or administrators and participants of the study.
5. The instrument or method should be non-reactive. A participant's behavior should not be affected by the measurement methods.

How these criteria are addressed depends on the type of study and number of subjects taking part in the study. Based on a review of the methods of assessing physical activity, the Weekly Activity Checklist (Sallis et al, 1993), a self-administered, seven day recall survey questionnaire was chosen for the study. A number of studies support the use of self reported seven-day recall methods in children and adolescents (Blair, 1984; Wallace, McKenzie & Nader, 1985). The benefits of recall surveys include practicality, non reactivity in participants, simplicity, ease of use and low cost.

Measuring Television Viewing Habits

Since P.E.TV's mode of delivering information to the students involves television, a measurement that links television viewing and learning would be useful in assessing its effects. Gerbner (1969) attempted to identify the relationship between long term exposure to televised messages and perceptions and attitudes of the viewer. Gerbner's cultivation idea has

been used in communication research in three distinct forms (Potter, 1993, p. 565):

1. as a construct referring to one type of media effect,
2. an hypothesis predicting a positive relationship between amount of television exposure and evidence of cultivated perceptions or beliefs,
3. a formal theory composed of constructs and a set of propositions.

Gerbner's Theory involved "cultivation analysis" which focused on long-term effects regarding heavy exposure to the viewer, shaping his/her conceptions of reality (Hughes, 1980). If, for example, cultivation is present through the viewing experience, one would be more likely to express world views that would resemble more closely television portrayals than actual views. Gerbner's General Social Surveys (GSS) for 1975 and 1977 asked respondents to rate their opinions concerning the possibilities of being involved/victimized in violent acts. The GSS asked the following "Is there any area right around here, that is, within a mile, where you would be afraid to walk alone at night?" The respondents were then asked to rate their response on a seven point scale between "yes" and "no". The GSS also included three similar questions concerning alienation. The results concluded that heavier viewers of television were significantly more likely than light viewers to agree with the more violent/alienation responses. These responses were interpreted as being in the direction of the "television answers" and away from the real world answers based on statistical probabilities (Gerbner, et al., 1986). These findings hold up after controls were introduced for age, sex, and education (Hawkins & Pingree, 1980, Hughes, 1980; Potter, 1993, Rubin, Perse, Taylor, 1988).

Some of the major criticisms with cultivation theory involve the oversimplification of the relationship between television and behavior, the analyzing of “television world” answers, the lack of identifying the role of perceived realism in the viewer, and using *total* hours of viewing as an independent variable as opposed to accounting for types of television viewing choices and the role of social attitudes on those choices. (Hawkins & Pingree, 1980, Hughes, 1980; Potter, 1993; Potter & Chang, 1990; Rubin, Perse, Taylor, 1988).

Although this study has not been designed to employ cultivation analysis in the true sense, two variables (television viewing and type of viewing) have been adapted for classifying student television viewing habits. Gerbner’s 1975 and 1977 GSS attempted to characterize viewers of 0 to 2 hours per day as being low users of television, 3 hours per day as being moderate users of television, and 4 hours and above as being high users of television (Gerbner, 1978; Hughes, 1990).

In attempting to classify television viewers by levels of exposure, Rubin, Perse, and Taylor (1988) measured the level of television exposure by asking the respondents to indicate: a) how many hours of television they watched yesterday (weekday) and b) how many hours of television they usually watched each weekday. The two responses were averaged and the result represented the television exposure amount. This instrument has been used in past research with a Cronbach alpha index of .76 (e.g. Rubin, 1981; Rubin, Perse, Powell, 1985).

In looking at the type of television exposure, Potter and Chang (1990) expanded Gerbner's original operationalization (1975; 1977) and Hawkins and

Pinegree (1980) attempted to measure cultivation by various types of program viewing. By looking at both total and the types of exposure, Potter & Chang (1990) identified a proportional viewing experience where the primary viewing of certain types of programming dominated a particular person's repertoire, and the cultivation of television ideas (which are familiar to the type of programming) is likely to occur. When the proportional operationalization was compared to total exposure alone, and when it was compared to types of viewing alone, the proportional operationalization emerged as the best measure in terms of producing more significant coefficients (Potter & Chang, 1990).

By adapting certain measurement and classifying instruments which have been used in cultivation analysis, this study attempted to predict the likelihood that the P.E.TV program would affect student attitudes more positively based on the amount of television watched, as well as which types of shows have been identified as their primary viewing choices. Although Gerbner's original cultivation analysis focused on long term effects, other researchers have called for studies which use experimental designs using some characteristics of cultivation analysis (Hughes, 1980; Potter, 1993; Potter & Chang, 1990; Rubin, Perse, & Taylor, 1988).

Rubin, Perse, and Taylor (1988) found that television viewing did not result in only negative effects. Although cultivation analysis has predominantly attempted to measure negative feelings within the viewer such as characterizations of a world that is mean and violent, strong positive measures concerning social attitudes were shown to be strongly reported in respondents who were classified as having high levels of television exposure

(Rubin, Perse, Taylor, 1988). Thus, television would appear to be associated with cultivating strong positive attitudes in the viewer.

SUMMARY

P.E.TV is currently in thousands of middle and high schools throughout the United States. It was created as an attempt to influence attitudes in adolescent students concerning physical activity. In reviewing research in the areas of television and education, namely attitudes, adolescents, and factors associated with physical activity, it would appear that P.E.TV's goals are based on sound theory.

In looking at whether P.E.TV could have a positive influence on the students' attitudes toward physical fitness, certain issues must be addressed. The program has been designed for adolescent viewers. This group has been described as operating in a psycho-social stage of development in which life-long identities are formed. These identities are largely shaped by peers and cultural popular icons. In addition, the research concerning the influence of television has shown a unique relationship with the shaping of adolescent attitudes. The overwhelming amount of television influence on attitudes concerns negative messages and portrayals as well as creating wants through advertising. P.E.TV's attempt at influencing attitudes toward physical activity includes "slick" television production techniques that mirror the type of home television viewing choices made by "typical" adolescent viewers. However, the goals associated with P.E.TV concern positive social messages that often-times appear to be in direct contrasts to the stream of negative social messages associated with television viewing.

In reviewing literature concerning the relationship of attitudes and behavior, clearly attitudes play a role in predicting intent, which ultimately predicts behavior. In looking at P.E.TV's effects on attitudes, another point of interest would concern one's current level of physical activity (behavior). Research clearly shows a relationship between one's behavior and one's attitudes concerning the behavior (Fishbein & Ajzen, 1975). By looking at the current levels of physical activity of the students, it would seem to follow that those students who are "high active" would already possess high attitudes concerning physical activity. Therefore, it would be interesting to look at how P.E.TV could effect attitudes with respect to the current activity level of the student.

In addition to the activity level of the students, the current level of television exposure by the students would appear to be an interesting area to examine with respect to P.E.TV affecting attitudes. Cultivation Theory (Gerbner, 1969) has been a catalyst for numerous research studies concerning the relationship of amounts of media exposure to the shaping of one's attitudes. Since P.E.TV attempts to present viewing material that closely resembles home viewing, certain connections between the students' exposure to P.E.TV and exposure to other television may help to measure P.E.TV's role in positively shaping one's attitudes. Past research has established a link between amounts of television viewing with the shaping of attitudes and beliefs. Although traditional Cultivation Theory research focuses on long term effects, there has been a call (Hughes, 1980; Potter, 1993; Potter & Chang, 1990; Rubin, Perse, & Taylor, 1988) for incorporating characteristics of

cultivation analysis, namely amount and type of viewing, into experimental designs.

With regard to the current levels of television viewing of the students, would P.E.TV have more of an effect on attitudes with those students who are "high viewers" and more likely to be inclined to cultivate the programs message into their own world-view? Likewise, the type of television viewing would also appear to be an interesting possibility for interaction with the program's effect on attitudes. P.E.TV's presentation style is modeled after music video television programs with quick cuts, moving camera shots and music. Would students, whose primary television viewing choice is the music video format, be more likely to accept the programs' message and have an effect on their attitude toward physical activity? Finally, P.E.TV includes sports celebrities as a way of providing "positive" modeling for the viewers. Research has been presented in the literature review which links the effects of modeling with the level of significance accorded to the celebrity by the adolescent. Certain celebrities would more likely be deemed "significant" by students who primarily view sports on television. Therefore, another area of interest would center on whether students whose primary television viewing choice is sports format would be more likely to accept the programs' message and have an effect on attitudes toward physical activity?

The literature review has described areas that coincide with factors associated with using P.E.TV to help affect adolescent students' attitudes toward physical activity. The review focused on the relationship between television and learning; attitudes and affect; attitudes and physical activity; changes in attitudes; Erikson's theory on adolescent development; the

relationship between media and adolescent identity; and Cultivation Theory. This study was a result of incorporating ideas from the review to attempt to measure P.E.TV's effectiveness.

HYPOTHESES

Based upon the literature reviewed above, the following hypotheses have been developed:

Hypothesis 1: P.E.TV will have a positive influence on students' attitudes toward physical activity.

Hypothesis 2: P.E.TV will have more of an effect on students who view the programs and are characterized as "moderate to low active" when compared to students who view the programs and are characterized as "high active" with respect to their attitudes about physical activity.

Hypothesis 3: P.E.TV will have more of an effect on students who view the programs and are characterized as "high viewers of television" when compared to students who view the programs and are characterized as "moderate to low viewers of television" with respect to their attitudes about physical activity.

Hypothesis 4: P.E.TV will have a positive influence on students who view the programs and whose primary television viewing choice is a music video format with respect to their attitudes toward physical activity.

Hypothesis 5: P.E.TV will have a positive influence on students who view the programs and whose primary television viewing choice is sports with respect to their attitudes toward physical activity.

Chapter 2

METHODOLOGY

The review of literature has attempted to make a case for investigating the effect of P.E.TV on high school students' attitudes toward physical activity. This chapter explores the process through which the research questions were answered. It includes a description of the subjects and setting, the adaptation and description of instruments used, the research procedures, and procedures for analysis of the data.

Subjects

Four intact seventh grade health and physical education classes from a middle school in southwest Virginia were chosen for the study. Sixty-eight students took part in the study, 37 male and 31 female. All four groups had the same health and physical education teacher. Health and physical education was a mandatory subject for all four groups. The students were assigned to the classes randomly by the school authorities. They were not assigned to classes based on talent, interest in the subject or attitude toward the subject. Two classes were randomly chosen to receive the treatment (P.E.TV), the other two classes were designated as control groups. Only students who completed the student consent form and returned their signed parental consent form were included in the study.

The junior high school was chosen because it had not previously received P.E.TV, and the physical education department was not aware of the program. Thus neither the teacher nor the students had any previous

experience with or bias toward the program. The four classes were chosen because of the age level of the students, and the fact that they are taught by the same physical education teacher.

Students participating in the study returned a consent form signed by their parent or legal guardian (see Appendix D). The consent form included a brief description of the purpose of the study, participation involvement, privacy issues, instructions on how to withdraw from the study, contacts at the University, and a consent statement. Due to the nature of the study, the students' ability to withdraw from the study was represented by their refusal to complete the questionnaires (Appendices A and B).

The students were also given a student consent form (Appendix D). This included a brief description of the study, participation procedures, privacy issues, and how to withdraw from the study.

Instruments Used in Study

The revised Children's Attitudes Toward Physical Activity (CATPA) inventory (Schutz, Smoll, Carre, & Mosher, 1985) was used to measure the students' attitudes toward physical activity. The Weekly Activity Checklist (Sallis et al., 1992b) was used to categorize the students into the groups, "high active" and "moderate to low active". Cultivation predictors were used to categorize the students into the groups "high" and "moderate to low" viewers of television (Rubin, Perse, & Taylor, 1988) and primary television viewing listing were used to identify primary sources of viewing choices (Potter & Chang, 1990).

Although the instruments have been tested for reliability and validity (see above) they were piloted prior to distribution by a population similar to the one used in the study. The pilot group consisted of 40 sixth graders from the same school who filled out both the CATPA, Weekly Activity Checklist, and the Cultivation predictor questions. This was done prior to the experiment and helped to ensure clarity, understanding and local student's ability to respond. The piloting also provided an estimate of time and effort needed to complete the questionnaires.

Data Collection Procedures

The Weekly Activity Checklist (Appendix B) was administered to the participants in the control and treatment groups before P.E.TV was shown to the treatment group. The instrument asked that participants put a check for each kind of physical activity in which they participated 15 minutes or more in the last week. The students filled out the questionnaires, and were asked to mark one of the boxes on the front page, indicating if the amount of physical activities for this week was normal, more than usual, or less than usual. This information was wanted in case any of the participants were on the borderline as far as the categories "high active" and "moderate to low active". The students' responses were assigned, by the investigator, metabolic equivalent (MET) values based on Brooks and Fahey's (1987) list of METs for physical activities (Figure 3). Light activities were assigned a value of 3 METS, moderate activities 5 METS, and heavy activities 9 METS (Sallis et al., 1993).

Students were categorized by the researcher into the two groups, "high active", and "moderate to low active", based on the total score of METS for

the week. The total score figure was obtained by multiplying the number of checks for an activity with the activity's assigned MET value. Each activity check was multiplied by the MET value for the activity, and the MET values were added for a total MET score for the week. (See Fig. 3 for MET values for each activity). A student who received a total MET score of 25 or less was categorized as "moderate to low active", and a student who received a total MET score above 25 was categorized as "high active". The two groups "high active" and "moderate to low active" corresponded with Kusnitz & Fine's (1990) categories for activity levels. The highest score for any participant in the "moderate to low active" group was 23. The lowest score for any participant in the "high active group" was 27. In the study, one of the students reported playing football 5 times during the week for at least 15 minutes at a time (MET value for the activity = 5, score for this activity for the week was 25), bicycling 5 times during the week for at least 15 minutes at a time (MET value for the activity = 5, score for this activity for the week was 25). He received a total activity score of 50 METS for the week (25+25), and was categorized as "high active". Another student reported skateboarding 1 time during the week for at least 15 minutes at a time (MET value for the activity = 5, score for this activity for the week was 5), and walking 3 times during the week for at least 15 minutes (MET value for the activity = 3, score for this activity for the week was 9). She received a total activity score of 14 METS for the week and was categorized as "moderate to low active".

Figure 3- Weekly Activity Checklist activities and assigned MET values

ACTIVITY	METS	ACTIVITY	METS
walking	3	jumping rope	9
running/jogging	9	soccer	5
playing tag	5	skateboard/skating	5
dancing	5	swimming laps	5
hiking/climbing	5	bicycling	5
baseball/softball	3	tennis/badminton	5
basketball	5	aerobic dance	5
volleyball	3	water skiing	3
football	5	golf	3
frisbee/kickball	5	other	3-9

Fig. 3- Adapted from Brooks and Fahey (1987).

Television cultivation responses (Appendix C) included grouping television viewers as "high" and "moderate to low" by ranking the order the responses from the highest number to the lowest, and grouping the top half as "high" and the bottom half as "moderate to low". Scores above 3 hours per day (amount of hours watched yesterday plus amount of hours normally watched in a day divided by two) were classified as "high viewers" and scores below 3 hours per day were classified as "moderate to low viewers". The 3 hour divider was consistent with earlier attempts at classifying television viewers based on the amount of hours per day formula (Gerbner, 1978; Hughes, 1990; Rubin, 1981; Rubin, Perse, & Powell, 1985; Rubin, Perse, & Taylor 1988). Types of viewing were grouped according to the respondents primary source of viewing choices (Hawkins & Pinegree, 1980; Potter & Chang, 1990).

The checklists were coded so that the results from the post-treatment questionnaire could be analyzed for interaction of the attributes ("high active" and "moderate to low active" as well as "high viewer" and "moderate to low viewer") with the treatment (P.E.TV). The coding of the checklists also provided privacy and encouraged honest responses to the various questions. No effort was made to identify individuals, as only the means of the whole groups, or the sub groups ("high/moderate to low active" and high/moderate to low viewers), not individual scores, were used for the data analyses. The code consisted of the first name of the student's mother and the last three digits of the student's phone number.

The 10 P.E.TV shows were used for the study and came from the first 10 shows of P.E.TV's second semester series. These shows were picked because

according to the P.E.TV producers they were better than the first semester series. They were shown in sequential order to simulate how they are shown by teachers in schools across the country.

The P.E.TV shows were shown to the treatment groups once a week for a period of 9 weeks. Due to scheduling changes and cancellation of school because of the weather, two shows were shown during one week. The shows, each lasting 10 to 12 minutes, were shown during health or physical education class by the health/physical education teacher. The P.E.TV Instructors Manual was given to the teacher for her to use as she pleased. She was told to show the video during class, and to do the same activities and act the same way (i.e. encourage discussion) with both of the treatment groups regarding issues related to P.E.TV. The teacher was also told to keep the treatment and control groups the same as far as any activity not relating directly to the P.E.TV shows for all of the physical education and health classes during the 9 week long study. No other attempt was made to control any of the actions of the teacher during the class, or any other physical education or health class during the 9 weeks. Fidelity of treatment (showing P.E.TV, and keeping the other content the same) was controlled because the investigator observed when P.E.TV was shown to the treatment groups, and because the control groups were observed once a week (Appendix E).

The post-treatment CATPA questionnaire (Appendix A) was administered to the treatment and control groups after the 9 weeks. The questionnaire was distributed by the investigator and the standard CATPA instructions (Schutz et al., 1985) read aloud to the students by the investigator. The questionnaires took approximately 15 minutes to complete, and were

distributed during physical education classes. The students again put their code on the questionnaire (the same one they used for the Weekly Activity Checklist at the beginning of the 10 weeks) consisting of their mother's first name and the last three digits of their telephone number.

At the time of administration of the questionnaires the students were reminded that the responses did not represent right or wrong answers, that the responses were going to be tabulated and analyzed by groups, that no attempt would be made to identify individuals and their responses, and that the responses in no way would affect their grades in the class. This reminder was given orally before the administration of the questionnaires, and were also printed on the questionnaires (Appendices A and B).

After the study was completed, the students in the control group would be given an opportunity to see the 10 P.E.TV shows if they wish however, this would be left up to the discretion of the teacher. A copy of the tape containing the 10 shows were donated to the school. All the participants in the study would, if desired, have access to the findings of the study. A copy of the results will be on file in the school administration office.

Research Design

The study was a post-test only experiment, with a treatment and a control group. Treatment and control classes were randomly assigned. The classes were kept intact as they were assigned by the school. Individuals were not randomly selected, however, the experimental situation closely resembled the use of P.E.TV in classrooms across the country. P.E.TV is normally shown to intact health/physical education classes. This particular

school assigns students to the health/physical education classes by random. Students are not assigned by skill, interest in the subject, or attitude toward the subject.

Method of Analysis

Hypothesis 1 was tested using a one-way Analysis of Variance with the dependent variable, attitude score, being compared with both the treatment and control groups. Hypothesis 2 was tested using a two-way Analysis of Variance with the dependent variable, attitude score, being analyzed with "high active" and "moderate to low active" variables within both the treatment and control groups. Hypothesis 3 was tested using a two-way Analysis of Variance with the dependent variable, attitude score, being analyzed with "high viewer" and "moderate to low viewer" variables with both the treatment and control groups. Hypotheses 4 and 5 were tested using a one-way Analysis of Variance for both "music video" and "sports" primary viewing variables with both treatment and control groups. All computations of the analyses were performed with the data software, Statview®. The level of significance for all of the analyses was set at .05.

Chapter 3

RESULTS AND DISCUSSION

This research experiment was conducted in a rural middle school in Southwest Virginia in the fall of 1995. Sixty-eight students, divided between the four classes, completed the student consent form and returned the signed parental consent form. These 68 students were allowed to take part in the study. All 68 completed both the pre-experiment questionnaire (Weekly Activity Checklist and Cultivation Predictors) and the post-test (CATPA), and were included in the analysis. 15 students did not return the consent forms and did not take part in the questionnaires or the post test. The total number of students in the treatment group was 32 (two intact classes), and the total number in the control group was 36 students (two intact classes). The following sections show the results of the statistical analyses and answers to the research hypotheses, and a discussion of the results.

Results of the Study

Total scores from the CATPA questionnaire were subjected to an ANOVA, providing results answering the question, "Does P.E.TV make a difference in attitudes toward physical activity?", for this particular population. The dependent variable, CATPA questionnaire responses ranged from a low score of 92 to a high score of 190 for this study.

Hypothesis 1: P.E.TV will have a positive influence on students' attitudes toward physical activity.

Mean scores from the Children's Attitudes Toward Physical Activity (CATPA) for both treatment and control groups were subjected to an ANOVA, using the post-test attitude scores as the dependent variable. The analysis was adjusted for unequal cell size. The resulting F statistic was not statistically significant for the treatment versus control groups, $F(1,66) = .054$, $p > .05$. Thus the first hypothesis was rejected. There was no statistically significant difference in the means between the treatment and control group for the CATPA. Table 1 shows the means and standard deviations for attitudes toward physical activity (CATPA) for both the treatment and control groups.

Table 1 Means and standard deviations for the CATPA

Group	n	CATPA- Attitudes	
		Mean	SD
Treatment	32	155.562	17.694
Control	36	154.472	20.547

In looking at the results, certain possibilities exist for why the hypothesis was rejected. Based on observations of the P.E.TV viewing, it was apparent that in a group setting, attention to the program was interrupted by comments from individual students that may have been counter to the intended message of the program. Bonfenbrenner's (1979) and Erikson's

(1968) work pertaining to the influence of adolescents primarily identify significant others as having a major affect on the shaping of attitudes and values. Since the study was set up to include group dynamics into the viewing process, responses by others could have had an effect in negating the message.

Secondly, in looking at the CATPA score of the control group, an overall means of 154.472 was surprisingly high when compared to the expected score for this age group. The CATPA scores range from a minimum score of 40 to a maximum score of 200. A score of 120 represents a "neutral" attitude toward physical activity. Since the control group was already reporting a high attitude towards physical activity, there was little room for any statistically significant difference in the control group.

Hypothesis 2: P.E.TV will have more of an effect on students who view the programs and are characterized as "moderate to low active" when compared to students who view the programs and are characterized as "high active" with respect to their attitudes about physical activity.

Mean scores from the CATPA for both treatment and control groups were subjected to an ANOVA, using the post test attitude scores as the dependent variable and the activity levels as independent variable along with treatment and control groups. The analysis was adjusted for unequal cell size. The resulting F statistic was not statistically significant for the interaction between "high" and "moderate to low" activity levels and treatment versus control groups, $F(1,64)=.173, p>.05$. Thus the second hypothesis was rejected.

There was no statistically significant interaction in the means between the level of activity and the treatment and control groups for the CATPA. Table 2 shows the means and standard deviations for attitudes toward physical activity (CATPA) for both the treatment and control groups.

Table 2 Means and standard deviations for the CATPA with activity level groups.

Group	n	CATPA- Attitudes	
		Mean	SD
"High Active" Treatment	17	157.529	18.487
"High Active" Control	15	154.600	23.479
"Moderate to low Active" Treatment	15	153.333	17.108
"Moderate to low Active" Control	21	154.381	18.787

Once again, the means in the control groups for the CATPA scores represent a high attitude score. This remains constant regardless of the reported activity levels of the group. According to Fishbein and Ajzen (1975) there is a relationship between attitudes and behavior. Engaging in high activity would imply a high attitude towards that activity, and likewise, low activity would imply a low attitude towards the activity. The findings in this study are inconsistent with Fishbein and Ajzen's relationship between

attitudes and behavior. Both high active and moderate to low active groups in the control setting had what would be considered high levels of attitudes toward physical activity. All groups in the control and treatment settings had roughly the same reported attitudes toward physical activity. Dividing the moderate to low group into two groups, one moderate and one low, may result in greater differences in attitude scores between the two groups, however, in this particular instance, the attitude scores would have remained high across all groups.

Hypothesis 3: P.E.TV will have more of an effect on students who view the programs and are characterized as "high viewers of television" when compared to students who view the programs and are characterized as "moderate to low viewers of television" with respect to their attitudes about physical activity.

Mean scores from the CATPA for both treatment and control groups were subjected to an ANOVA, using the post test attitude scores as the dependent variable and the viewing levels as independent variables along with treatment and control groups. The analysis was adjusted for unequal cell size. The resulting F statistic was not statistically significant for the interaction between "high" and "moderate to low" viewer levels and treatment versus control groups, $F(1,64)=2.229$, $p>.05$. Thus the third hypothesis was rejected. There was no statistically significant interaction in the means between the level of television viewing and the treatment and control groups for the CATPA. Table 3 shows the means and standard

deviations for attitudes toward physical activity (CATPA) for both the treatment and control groups and television viewing levels.

Table 3 Means and standard deviations for the CATPA with viewing level groups.

Group	n	CATPA- Attitudes	
		Mean	SD
"High Viewer" Treatment	15	160.400	19.606
"High Viewer" Control	18	151.944	21.237
"Moderate to low Viewer" Treatment	17	151.294	15.132
"Moderate to low Viewer" Control	18	157.000	20.117

In looking at hypothesis three, the attitude scores in the high viewers of television treatment group were higher than those in the corresponding control group. Those who were moderate to low viewers of television in the treatment group had lower scores than those in the corresponding control group. However, the scores for all four groups still represented a tendency toward high attitude. Thus there was no significance reported. Traditional cultivation theory variables (Gerbner, 1969) have been used to focus on long-term effects and are used as a predictor of viewers' attitudes and beliefs matching a television view of the world. In this study the variables were adapted in an experimental setting. The viewing in the school setting for this

study did not involve a choice of the viewer for seeing any, some, or all of the show. At each viewing, all students were shown the entire show and all gave outward signs of directing their attention to the screen. Traditional cultivation theory focuses on home viewing, where the freedom of what to watch, and how much to watch is decided by the viewer. This element of choice was not present during this study and may be better introduced in future studies by looking at individual viewing sessions of P.E.TV.

Hypothesis 4: P.E.TV will have a positive influence on students who view the programs and whose primary television viewing choice is a music video format with respect to their attitudes toward physical activity.

Mean scores from the CATPA for both treatment and control groups were subjected to an ANOVA, using the post-test attitude scores as the dependent variable and music video format television viewers as the independent variables with the treatment and control groups. (CAUTION TO READER- the cell size for the following analysis is too small to assume significance). The analysis was adjusted for unequal cell size. The resulting F statistic was not statistically significant for the music video format viewers in the treatment versus control groups, $F(1,7)=1.177, p>.05$ Thus the fourth hypothesis was rejected. There was no statistically significant difference in the means between the treatment and control group for the CATPA with respect to music video format television viewers. Table 4 shows the means and standard deviations for attitudes toward physical activity (CATPA) for both the treatment and control groups for music video format viewers.

Table 4 Means and standard deviations for the CATPA with Music Video Format Viewers (MVFV)

Group	n	CATPA- Attitudes	
		Mean	SD
MVFV Treatment	4	162.500	15.000
MVFV Control	5	150.600	17.300

Hypothesis 5: P.E.TV will have a positive influence on students who view the programs and whose primary television viewing choice is sports with respect to their attitudes toward physical activity.

Mean scores from the CATPA for both treatment and control groups were subjected to an ANOVA, using the post-test attitude scores as the dependent variable and sports format television viewers as the independent variables with the treatment and control groups. (CAUTION TO READER- the cell size for the following analysis is too small to assume significance). The analysis was adjusted for unequal cell size. The resulting F statistic was not statistically significant for the sports format viewers in the treatment versus control groups, $F(1,12) = .059, p > .05$. Thus the fifth hypothesis was rejected. There was no statistically significant difference in the means between the treatment and control group for the CATPA with respect to sports format television viewers. Table 5 shows the means and standard

deviations for attitudes toward physical activity (CATPA) for both the treatment and control groups for sports format viewers.

Table 5 Means and standard deviations for the CATPA with Sports Format Viewers (SFV)

Group	n	CATPA- Attitudes	
		Mean	SD
SFV Treatment	5	160.000	22.716
SFV Control	9	162.778	19.182

Both hypotheses 4 and 5 attempt to measure P.E.TV's effects on attitudes in respect to students who express a particular preference for viewing a type of television show. Hawkins and Pinegree (1980) introduced the predominant type of television show of the viewer as having an influence on the cultivation process.

In hypothesis 4, only those students who reported music television as their primary choice were analyzed for comparing attitude scores between the treatment and control groups. The hypothesis was based on the familiarity of production style adding to the show's effect. The means for the attitudes of the music video format viewers in the treatment group was the highest of any viewing situation. However, the high attitude control group score resulted in no significance. In addition, the relative low numbers of students in each group increased the likelihood of differences between treatment and control groups being due to chance. Finally the P.E.TV show, although using

music video production techniques, is not a music video. Students who prefer music videos may be more likely to cultivate positive attitudes from watching music videos that are designed to influence attitudes.

In hypothesis 5, only those students who reported sports as their primary choice were analyzed for comparing attitude scores between the treatment and control groups. The hypothesis was based on the significance of the show's role models to the viewer adding to the show's effect. The means for the attitudes of the sports format viewers in the treatment group was lower than the control group. In looking at the celebrity role models featured in the 10 shows, they represented champions that are not traditionally featured on television. Highly televised sports focus on football, baseball, and basketball. Celebrities in lesser known, low profile sports were predominantly featured in the ten shows. Football, baseball, and basketball celebrities may be deemed significant by high viewers of sports, but likewise, performers in the other sports may be deemed insignificant by the same viewers. In addition, the use of female performers in the P.E.TV shows may more likely be deemed insignificant due to the fact that female teams are not predominantly displayed on television.

Discussion

This study looked at attitudes toward physical activity for middle school students, and whether or not P.E.TV made a difference on those attitudes. The participants of the study were in a rural town in the southeastern United States. P.E.TV is in 13,000 middle and high schools across the United States. One of the major reasons for suspecting, and ultimately testing the effects of

P.E.TV was due largely in part to the results of a national survey (Himberg & Graham, 1994) which reported an overwhelming number of teachers believing that P.E.TV has had a positive effect on their students' attitudes toward physical activity. In addition, the producers of the show claim the show has been designed to affect adolescent attitudes toward physical activity.

Although the findings from this study fail to show a significant effect under any of the circumstances, certain issues could be examined in future explorations of P.E.TV. The investigator attempted to look at one intact 7th grade class (4 periods) with one health/physical education teacher. This was done for logistical reasons on the part of the investigator, which allowed him to be present in the classes of all of the ten instances where P.E.TV was shown. By limiting the subjects to just these 7th graders, low cell numbers were an issue when measuring for significance of "high viewers" and "moderate to low viewers" and of "music video format viewers" and "sports format viewers". There appeared to be some difference concerning the third and fourth hypotheses, however the low number of subjects made significance a particularly difficult thing to attain.

Secondly, it was apparent from actual observations of the students receiving P.E.TV, that the teacher only showed the program, and made no attempts to include the content into other formal instruction. This included no use of the teacher study guide which is produced and distributed by P.E.TV to accompany the programs. This investigation focused only on the attributes associated with viewing the programs. Future studies should attempt to include the impact of the teacher and the study guide on P.E.TV's relationship with attitudes.

The intended goal behind this approach to P.E.TV is that television can have a positive effect on shifting the student's attitudes and perceptions about physical activity in a positive direction. Solomon (1982) pointed specifically to television as having a significant untapped potential for affecting voluntary change in health and fitness attitudes and behaviors. However, there are some limitations that must be addressed pertaining to the program.

Investigator Speculation Concerning the Study

The following speculations were not based on data from the study but on observations by the investigator during the tenure of the study. The students in the treatment were exposed to P.E.TV once a week, for only a period of 12 to 15 minutes. The limited amount of exposure to the program may affect the ability for the program to influence the students' attitudes toward physical activity. Bronfenbrenner (1979) cites a world in which influences on an individual includes a rich amount of contexts and relationships. A 12 minute program being shown once a week, without reinforcement from others deemed significant, would appear to generate short term shifts. Reinforcement of the show's message can not only be provided by the teacher, but other adolescent peers will have a more significant influence. In addition, parents, social interactions, a new gym at the rec center, all will affect physical activity attitudes. In this study, the teacher was instructed not to actively engage in any extra discussions pertaining to the show. In attempting to measure the show's effect, she showed it and then moved on to teaching the regular material. No attempt

was made on the part of the teacher to actively link the show's content with other class activities. The P.E.TV teacher's guide was not used by the teacher in this study. Students' observed behaviors during the showing of the programs reflected more of a "passive" viewing nature than "active" viewing. The students were not able to go back and review the earlier segments of the show.

Age is another factor in limiting P.E.TV's potential for success. As the individual moves closer to adulthood, television viewing as well as its effects drop off slightly (Gerbner, 1969). Pre-adolescence generally exhibit more opportunities of modeling televised behavior than their older counterparts. Also, in terms of fitness, many health behavioral patterns have been established in the older individual, which leads one to hypothesize that a television program would have less of an effect on a longer developed attitude in the older individual. In this study, high attitudes for physical activity were already being expressed by all groups, no matter how they were being categorized. The show has been designed to affect the attitude in those who have lower and moderate attitudes toward physical activity. Quite possibly, in this study, the CATPA test results could have reflected students seeing themselves as linking their high attitude responses to a positive acceptance from the investigator. However, this is merely speculative.

Finally, in observing the students viewing of P.E.TV, there appeared to be little outward show of actively engaging with the show. There was little to indicate that this show was anything different or memorable to the group. This is despite the fact that the show promotes itself as being revolutionary. Although the show is intended to be produced to affect attitudes, most of the

show, despite the hip-hop music and cool camera angles featured role models talking and giving information. There seemed to be an awareness in the viewers in this study of what the show was pretending to be, and what the show was in fact designed for. There is a difference the mind of an adolescent between genuine hip and typical phony. The kids shown in the video are not in reality their friends, and feelings of being lectured to may end up relegating the whole experience as being inconsequential concerning attitudes about physical activity. Likewise, the more vocal kids in the study had a negative attitude about seeing P.E.TV in the gym instead of actually participating in physical education class. The overall attitude of the classes when they saw P.E.TV in health class were more positive than when time was taken out of gym class, to watch others participate in physical activity.

In conclusion, there is a need for additional studies pertaining to P.E.TV. An overwhelming number of teachers who use P.E.TV report that it is having a positive effect on student's attitudes toward physical activity (Himberg & Graham, 1994). The show is presently available in over 13,000 schools across the United States (Himberg & Graham, 1994). In this particular study, no significance was shown pertaining to students' attitudes when compared to those who didn't see P.E.TV. However, P.E.TV is being shown in numerous ways, contexts, and with various teacher involvement strategies (Himberg & Graham, 1994). Studies which attempt to examine the relationship of the teacher, the study guide, the viewing circumstances and length of exposure, may prove to be more suitable for investigating the validity of teacher claims. Clearly, in this study, the attempt to isolate the P.E.TV viewing experience by minimizing the effect of the teacher and study

guide has shown that there is no significant difference between viewing 10 P.E.TV programs and one's attitudes pertaining to physical activity.

SUMMARY

This chapter presented the results of the data analysis answering the question "does P.E.TV make a difference?" regarding attitudes toward physical activity. It also attempted to look at certain attributes associated with the viewer to see if P.E.TV had an effect on the attitudes with the students when grouped in high and moderate to low activity levels, high and moderate to low viewers of television, and predominant viewing choices, namely, music video format and sports format. The results of this study cannot be generalized beyond this population.

The analysis indicated that there was no statistically significant differences in attitudes toward physical activity between the students who saw, and those who didn't see P.E.TV. In addition, no statistically significant interactions were found in the analysis of "high active" and "moderate to low active" students; "high viewers" and "moderate to low viewers" of television; and students who reported primarily watching music videos or sports programming; with regards to their attitudes toward physical activity.

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APPENDIX A

CATPA Administration Instructions

This questionnaire is designed to find out how you feel about physical activity. Physical activities are games, sports, and dance, for example tag, soccer, hockey, ballet, and roller blading.

Each of you has a booklet. Do not open it yet. Please listen carefully to the instructions. (Refer to visual aid).

At the top of each page in your booklet there is a box, and in the box there is an idea. Down below the box are five different pairs of words. You will be marking these word pairs to show how you feel about the idea. This is not a test, so there are no right or wrong answers. Read the idea in the box, for example, REFEREE. Now go down to the first pair of words - Good-Bad. How do you feel about Referees? If you think they are very good, you put a check here (mark at the end of the scale by good), or if you think that they are very bad, you would put a check here (mark at the end of the scale by bad). If you think that Referees are pretty good, but not super good you would put a check here (indicate). Or if you thought that Referees were sort of bad but not really bad you would put a check here (indicate). If you think that Referees are neither good nor bad (i.e. a neutral feeling) then put a check in the middle. If you do not understand the idea in the box, put a check in the "I don't understand box" on the middle of the page. Then go to the next page. If you understand the idea in the box, but not the word pair, leave the word pair blank, and go on to the next word pair. Do you have any questions?

It is important that you remember several things. First of all put your check in the middle of the space, not on top of the dots. Second, there are five word pairs on each page, so how many checks will you have on each page? (5) There is only one exception, one of the questions has 10 word pairs.

When I tell you to begin, go through the booklet page by page. Read the idea in the box at the top of the page and fill in how you feel about all of the word pairs before you go on to the next page. Don't go back to a page after you have finished it; and don't try to remember how you answered the other pages. Think about each word pair by itself. As you go through the booklet, go fairly quickly, don't worry or think too long about any word pair. Mark the first thing that comes to your mind, but don't be careless. Remember the idea in the box at the top of each page is a new idea, so think only about that idea. When you are all finished, put down your pencil and go back through the booklet to make sure you haven't left anything out by mistake. After you have finished checking, turn your booklet over, and wait until everyone is finished. If you have any questions, raise your hand, and I will come around and help you. You may begin.

SAMPLE QUESTION

How do you feel about the idea in the box?

REFEREES

Always think about the idea in the box.

If you do not understand this idea, mark this box [] and go to the next page.

- | | | | |
|----|---------------------|-------------------------------|-----------------|
| 1. | good | _____ : _____ : _____ : _____ | bad |
| 2. | of no use | _____ : _____ : _____ : _____ | useful |
| 3. | not pleasant | _____ : _____ : _____ : _____ | pleasant |
| 4. | nice | _____ : _____ : _____ : _____ | awful |
| 5. | happy | _____ : _____ : _____ : _____ | sad |

**ATTITUDES TOWARD PHYSICAL ACTIVITY, SUBJECTIVE NORM AND
PERCEIVED BEHAVIORAL CONTROL**

MALE []

FEMALE []

YOUR SECRET PERSONAL CODE:

(This code will be used to match your answers on the two questionnaires. The code is used to make sure your identity is kept secret. We are not interested in finding out who you are, and we will not attempt to do so.)

MOTHER'S FIRST NAME: _____

LAST THREE DIGITS OF YOUR TELEPHONE NUMBER: __ __ __

How do you feel about the idea in the box?

**Taking part in physical activities which
give you a chance to meet new people.**

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | | | | | | | | | |
|----|---------------------|-------|---|-------|---|-------|---|-------|---|-------|-----------------|
| 1. | good | _____ | : | _____ | : | _____ | : | _____ | : | _____ | bad |
| 2. | of no use | _____ | : | _____ | : | _____ | : | _____ | : | _____ | useful |
| 3. | not pleasant | _____ | : | _____ | : | _____ | : | _____ | : | _____ | pleasant |
| 4. | nice | _____ | : | _____ | : | _____ | : | _____ | : | _____ | awful |
| 5. | happy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | sad |

How do you feel about the idea in the box?

**Taking part in physical activities which
give you a chance to be with your friends.**

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | | | | | | | | | |
|----|---------------------|-------|---|-------|---|-------|---|-------|---|-------|-----------------|
| 1. | good | _____ | : | _____ | : | _____ | : | _____ | : | _____ | bad |
| 2. | of no use | _____ | : | _____ | : | _____ | : | _____ | : | _____ | useful |
| 3. | not pleasant | _____ | : | _____ | : | _____ | : | _____ | : | _____ | pleasant |
| 4. | nice | _____ | : | _____ | : | _____ | : | _____ | : | _____ | awful |
| 5. | happy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | sad |

How do you feel about the idea in the box?

Taking part in physical activities to make your health better and get your body in better condition

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | | | | | | | | | |
|-----|---------------------|-------|---|-------|---|-------|---|-------|---|-------|-------------------|
| 1. | good | _____ | : | _____ | : | _____ | : | _____ | : | _____ | bad |
| 2. | of no use | _____ | : | _____ | : | _____ | : | _____ | : | _____ | useful |
| 3. | harmful | _____ | : | _____ | : | _____ | : | _____ | : | _____ | beneficial |
| 4. | wise | _____ | : | _____ | : | _____ | : | _____ | : | _____ | foolish |
| 5. | healthy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | unhealthy |
| 6. | punishing | _____ | : | _____ | : | _____ | : | _____ | : | _____ | rewarding |
| 7. | boring | _____ | : | _____ | : | _____ | : | _____ | : | _____ | exciting |
| 8. | not pleasant | _____ | : | _____ | : | _____ | : | _____ | : | _____ | pleasant |
| 9. | nice | _____ | : | _____ | : | _____ | : | _____ | : | _____ | awful |
| 10. | happy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | sad |

How do you feel about the idea in the box?

Taking part in physical activities that could be dangerous because you move very fast and must change direction quickly.

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | |
|----|---------------------|-------------------------------|-----------------|
| 1. | good | _____ : _____ : _____ : _____ | bad |
| 2. | of no use | _____ : _____ : _____ : _____ | useful |
| 3. | not pleasant | _____ : _____ : _____ : _____ | pleasant |
| 4. | nice | _____ : _____ : _____ : _____ | awful |
| 5. | happy | _____ : _____ : _____ : _____ | sad |

How do you feel about the idea in the box?

Taking part in physical activities which have beautiful and graceful movements.

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | |
|----|---------------------|-------------------------------|-----------------|
| 1. | good | _____ : _____ : _____ : _____ | bad |
| 2. | of no use | _____ : _____ : _____ : _____ | useful |
| 3. | not pleasant | _____ : _____ : _____ : _____ | pleasant |
| 4. | nice | _____ : _____ : _____ : _____ | awful |
| 5. | happy | _____ : _____ : _____ : _____ | sad |

How do you feel about the idea in the box?

Taking part in physical activities to reduce stress or to get away from problems you might have.

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | | | | | | | | | |
|----|---------------------|-------|---|-------|---|-------|---|-------|---|-------|-----------------|
| 1. | good | _____ | : | _____ | : | _____ | : | _____ | : | _____ | bad |
| 2. | of no use | _____ | : | _____ | : | _____ | : | _____ | : | _____ | useful |
| 3. | not pleasant | _____ | : | _____ | : | _____ | : | _____ | : | _____ | pleasant |
| 4. | nice | _____ | : | _____ | : | _____ | : | _____ | : | _____ | awful |
| 5. | happy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | sad |

How do you feel about the idea in the box?

Taking part in physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.

Always think about the idea in the box.
If you do not understand this idea, mark this box []
and go to the next page.

- | | | | | | | | | | | | |
|----|---------------------|-------|---|-------|---|-------|---|-------|---|-------|-----------------|
| 1. | good | _____ | : | _____ | : | _____ | : | _____ | : | _____ | bad |
| 2. | of no use | _____ | : | _____ | : | _____ | : | _____ | : | _____ | useful |
| 3. | not pleasant | _____ | : | _____ | : | _____ | : | _____ | : | _____ | pleasant |
| 4. | nice | _____ | : | _____ | : | _____ | : | _____ | : | _____ | awful |
| 5. | happy | _____ | : | _____ | : | _____ | : | _____ | : | _____ | sad |

APPENDIX B

WEEKLY ACTIVITY CHECKLIST

MALE []

FEMALE []

YOUR SECRET PERSONAL CODE:

(This code will be used to match your answers on the two questionnaires. The code is used to make sure your identity is kept secret. We are not interested in finding out who you are, and we will not attempt to do so.)

MOTHER'S FIRST NAME: _____

LAST THREE DIGITS OF YOUR TELEPHONE NUMBER: ____ _ _

On the next page is a list of physical activities. Think about those activities that you did in the last week.

- For each activity that you did 15 minutes or more at one time, write down the number of times you did this before and after school (Monday - Friday).
- Then write the number of times you did the activity for 15 minutes or more on the weekend (Saturday and Sunday).

REMEMBER, ONLY INCLUDE THE ACTIVITIES THAT YOU DID LAST WEEK.

Please check one box:

This was a normal week for me. []

I was more active this week than I usually am. []

I was less active this week than I usually am. []

ACTIVITY	Before or after school (Mon - Fri)	Weekends (Sat & Sun)
walking		
running/jogging		
playing tag		
dancing		
hiking/climbing		
baseball/softball		
basketball		
volleyball		
football		
frisbee/kickball		
jumping rope		
soccer		
skateboarding/skating		
swimming laps		
bicycling		
tennis/badminton		
aerobic dance		
water skiing		
golf		
Other:		

APPENDIX C

TELEVISION VIEWING

On this next page are questions concerning your television viewing habits. Think about the amount of television you viewed yesterday. Also think about what types of shows you watched.

The first two questions will ask you to estimate how many hours you spent watching television **yesterday**. Next you will be asked to estimate how many hours a day do you **normally** spend watching television. Write down both numbers in the spaces provided. Remember, this is just an estimate so don't worry about being too exact.

Then you will be asked which type of shows you watched last week. Please list the top three types of shows you watched.

I WATCHED _____ TOTAL HOURS OF TELEVISION
YESTERDAY.
I NORMALLY WATCH _____ HOURS OF TELEVISION EACH
DAY.

LAST WEEK I WATCHED FOLLOWING TYPES OF SHOWS...

(For example, if you mostly watched cartoons last week, your response would be this.... MOST WATCHED ...A...)

MOST WATCHED _____

SECOND MOST WATCHED _____

THIRD MOST WATCHED _____

Types of shows:

A) CARTOONS

B) MOVIES

C) MUSIC VIDEOS

D) NEWS

E) SITCOMS

F) SPORTS

G) TV DRAMAS

H) OTHER

APPENDIX D

INFORMED CONSENT FOR PARENTS/LEGAL GUARDIANS

P.E.TV's (Physical Education Television) Influence on Students' Attitudes Toward Physical Activity
Investigators: John Roussell and Dr. Mike Moore

Dear Parents/ Legal Guardians:

The Purpose of this Research

We are conducting a research project which has been designed to find out if P.E.TV can influence students' attitudes toward physical activity. Your child may be viewing 10, twelve minute long P.E.TV shows during the next 10 weeks in health class. All four 7th grade classes will be participating in this study (roughly 100 students).

Procedures

Your child's participation in this project involves answering two brief written questionnaires during health class, concerning his/her physical activity levels, attitudes toward physical activity, and television viewing habits. Total involvement should take roughly 15 to 20 minutes per questionnaire. One questionnaire will be given to your child at the beginning and one at the end of the ten weeks.

Risks

Participating in this study will involve no personal risk to your child, and his/her responses will have no bearing on his/her grades. Your child's identity will not be known to us.

Benefits of this Project

By participating in this study, your child will help us find out if P.E.TV is successful at influencing students' attitudes toward physical activity. After the study is completed a copy of the results will be available at the school's main office for your review. If you have any questions concerning the results, you may contact us.

Privacy

We will not ask for your child's name, his/her identity will not be known to us. No name will appear on the form or in the researcher's notes. Your child's responses will be included and analyzed within a group. Your child will be asked to include a code on both questionnaires, this code will be known only to him/her.

Freedom to Withdraw

You may withdraw your child from answering the questionnaires at anytime and for any reason. To withdraw, contact the investigators: Dr. Mike Moore (231-5587) or John Roussell (231-9691).

Approval of Research

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Montgomery County Superintendent's Office, by Auburn School, and by your child's health/physical education teacher.

If you have any questions about this informed consent or this research, contact one of the investigators or E.R. Stout, Chair IRB, Research Division (231-9359).

Permission

I have read and understand the informed consent and the conditions of this project. I have had all my questions answered. I hereby voluntarily agree to allow my child: _____ to participate in this project. If I allow my child to participate, I may withdraw him/her at anytime without penalty.

Signature of Parent or Legal Guardian

Date

Thank you for your cooperation in helping us with our research. Please sign both copies and have your child return one to his/her health/physical education teacher tomorrow. Keep the other copy for your records.

INFORMED CONSENT FOR STUDENTS

P.E.TV's (Physical Education Television) Influence on Students' Attitudes Toward Physical Activity

Investigators: John Roussell and Dr. Mike Moore

Dear Student:

During the next 10 weeks you may be watching a television program called P.E.TV once a week during health class. We are trying to find out if the show has an influence on students' attitudes toward physical activity. To do so we are asking you to fill out two questionnaires during health class. One will be at the beginning of the ten week period, and the other at the end of the ten week period. These questionnaires will ask about how physically active you are, what your attitudes toward physical activity are, and how much and what type of television you watch.

If you don't get to see P.E.TV during the next 10 weeks, you will be able to do so after the ten weeks.

We will not ask for your name, you will be completely anonymous. We will ask you to make up a code, so that your two questionnaires can be matched. This code will be your secret.

You have the right not to participate in the study, and can withdraw at anytime by telling your health/physical education teacher or one of us. Your participating or not participating in this study will have no influence on your grades.

Permission

I have read and understand what you want me to do for this study, and my right to withdraw at any time. I voluntarily agree to participate.

Signature of Student

Date

Thank you for helping us with our research.

APPENDIX E

SYNOPSIS OF FIELD NOTES

October 17, 1995

I met all four classes in the gym. It was a regular physical education class period. I introduced myself to the class, the purpose of the study and gave out the student consent forms. All students were able to read the consent forms, and the teacher answered any questions concerning the consent forms. I left the gym for the time that they signed the consent forms. I had no way of knowing which students signed the consent form and which students did not. After the teacher had the consent forms, all four classes (**treatment** and **control**) groups got the Weekly Activity Checklist and the Television Viewing questionnaire. I read the instructions to the students and was present to answer any questions concerning the questionnaire and checklist. The entire procedure took roughly 20 minutes to complete. The teacher collected all of the questionnaires and gave them to me. I only received the students who were eligible based on the returned parental consent forms and the completed student consent forms. The **treatment** groups watched the first show of P.E.TV in the gym on the gym television monitor. No introduction of the show was given by the teacher and no comments were made after the show. The **control** groups talked among themselves for the remainder of the period. I told them that they would not be getting P.E.TV and thanked them for their cooperation.

October 25, 1995

Both control and treatment groups met in the gym for physical education. The teacher had both groups dress up for physical activity. In the **control** groups no mention was made about P.E.TV. The class period concerned shooting baskets. The teacher demonstrated shooting and broke up the groups into small groups to practice on the six baskets. The period ended with a series of pick-up games. In the **treatment** groups the students entered the gym and sat on the bleachers. The television monitor was in the corner of the gym and the students sat close to it. The sound was a bit muffled due to the acoustics of the gym. This appeared to make some of the content of the show hard to understand. No comment was made pertaining to show by the teacher, before, during, or after the showing of program #2. She did have to a couple of times tell the kids to be quiet because certain comments were being made by the students. After the program the kids broke into mini groups and played pick-up games for the last 15 minutes.

November 1, 1995

The students in both the control and treatment groups were in the cabin, a classroom for health. The physical education teacher is the same teacher for health. The **control** groups were handed back their progress reports concerning their notebooks and took notes. The teacher gave a lecture pertaining to drugs (types and effects). It was obviously a continuation of an earlier lecture. The last fifteen minutes was an open note test with 10 questions pertaining to drugs. In the **treatment** groups progress reports were handed back, notebooks were taken out and there was a Q and A review of

the drug material. They took a 15 minute open note test pertaining to the material. The teacher then showed the 3rd episode of P.E.TV without introduction. The sound in the classroom was much better than in the gym. The students appeared to be more attentive to the program in the classroom. The bell rang right at the end of the program and the students left.

November 8, 1995

Today the students met in the gym. They were all dressed up for physical education. The **control** group did a 2 minute run, stretched and worked on basketball skills (dribbling, keep-away, passing). The **treatment** group came in and sat in the bleachers (same setting as Oct. 25. They watched the 4th episode of the program. The students did not seem to be too interested in what they were watching. This particular program had a lot of material pertaining to nutrition. There was very little action visual stimulation on the part of the show. The teacher was not watching the show. At the end the students were broken up into groups to play pick-up basketball for the remainder of the period. No mention was made by the teacher pertaining to the P.E.TV program.

November 15, 1995

The students all met in the gym for physical education. The **control** groups worked on shooting (free throws) and then broke into smaller groups and played basketball games. The **treatment** groups came into the gym dressed up for physical activity. The same procedures were followed before for viewing the show within the gym. Some of the students appeared to be a bit irritated

with having to watch the program instead of playing. The teacher showed two episodes of P.E.TV (5th and 6th). The students watched the programs with very little comment. There didn't appear to be much interest in what they were watching. Again it appeared that the seeing people physically active while sitting in a gym and not being active, had an effect on the group. The teacher did not mention anything further about the content of the program. They shot a few baskets, but the bell rang shortly after the last show.

November 21, 1995

Due to scheduling problems, the 7th show was shown on a Tuesday. I was unable to witness the showing, however I talked with the teacher on Monday night, and was assured that no differences would occur with the showing. She would not mention anything pertaining to the program and would continue to be consistent in teaching between both treatment and control groups.

November 29, 1995

The students met in the cabin for health class. The particular subject covered was cardiovascular disease. The **control** groups were lectured concerning the effects of diet, smoking, and drinking on the heart. They also worked on an assignment at their desk. The assignment concerned answering certain questions pertaining to the subject matter. The **treatment** groups began by working on their particular assignments. This appeared to be the same assignment that the control group was working on. The students worked until the last 12 minutes of class when they watched the 8th P.E.TV program.

Again the teacher did not talk about P.E.TV. It appeared that P.E.TV served more of a break from serious class work in this instance. Most of the students were attentive during the show, but there were instances of talking among the students that did not pertain to the show's content. The bell rang and the teacher dismissed the class.

December 4, 1995

I was unable to view the class viewing of the program. The students met at the gym. I called her on Tuesday, and she said she showed the 9th show of P.E.TV. The **control** group worked on movement exercise and stretching for the period. The **treatment** groups watched the program in the gym. She mentioned that she did not make any comments pertaining to the program. After the showing the students worked on movement exercises and stretching. We talked about how the program was going, and she mentioned how she thought it would be a value if she could in the future tie it more closely to what she was teaching. She also said the students were not excited about seeing it during physical education classes, but liked it a lot better to be shown during health.

December 8, 1995

I had originally planned to meet on the 7th for the final showing and the giving out of the CATPA. Snow canceled Thursday's class, and Friday was a delayed by 2 hours. Only four periods were meeting today, but fortunately, they were the 1st, 4th, 5th, and 7th periods. All four that involved the experiment. We met in the cabin classroom. The **control** group were given

the CATPA at the beginning of the class period. I read the instructions, went over a sample question, and they took the CATPA. It took about 20 minutes for everyone to complete the questionnaire. I remained in the room to answer any questions from the students as they completed the questionnaire. Afterwards, I thanked them for their participation. The teacher collected the questionnaires and gave me the ones from eligible students. She said she was going to throw away the others. Afterwards, the students watched the first P.E.TV show. The **treatment** groups were shown the 10th and final P.E.TV episode when they arrived in the classroom. They all appeared to be interested in the particular show. The teacher made no mention of anything related to the program. After the showing I read the instructions, went over a sample question, and they took the CATPA. It took about 20 minutes for everyone to complete the questionnaire. I remained in the room to answer any questions from the students as they completed the questionnaire. Afterwards, I thanked them for their participation. The teacher collected the questionnaires and gave me the ones from eligible students. I thanked the teacher, gave her a small token of my appreciation and left the school.

VITA

John Mathieu Roussell was born June 8, 1961. He received his Bachelor of Arts degree in communications from Loyola Marymount University, a Master of Arts degree in communication design from California State University, Chico. His research interests include the use of mass media in educational settings, visual learning in the affective domain, television and attitudes, active and passive viewing of information, and multimedia applications. Roussell's thesis involved assessing the introduction of the television program CNN Newsroom into a Norwegian School District's curriculum. He has taught communications and instructional technology at the college level. He has worked on research projects involving multimedia development for schools, learning assessment, and teacher/technology interaction. Roussell also has worked 16 years as a television producer and broadcast journalist in the United States and Norway, and has produced television programs and consulted with international broadcast companies concerning the uses of video and television.