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Children's reported investment of mental effort when viewing child and adult television programs

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CHILDREN'S REPORTED INVESTMENT OF MENTAL EFFORT WHEN VIEWING CHILD AND ADULT TELEVISION PROGRAMS

by

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APPROVAL PAGE

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The present study was designed to examine developmental differences in children's active, conscious cognitive processing of television program information during home viewing. Specifically, the study focused on examining (1) relationships among children's ages, the types of television programs viewed, and reported amounts of invested mental effort when televiewing, and (2) contributions of factors in children's home viewing environments to reported levels of mental effort investment.

Subjects were a convenient sample of 40 second-grade, 42 fourth-grade, and 34 sixth-grade children and their parents. Parental questionnaires provided data on parental participation during the children's televiewing. Individual interviews with the children provided information on the child's performance of other activities such as playing when viewing, the child's familiarity with different television programs, and reported amounts of mental effort invested when viewing child and adult types of programs.

Children as young as second-grade were found to reliably report their mental effort investment. A 2 (type of programs) X 3 (grade) repeated measures ANOVA showed no significant main effects but a significant grade X type of program interaction. Children's reported amounts of invested mental effort when viewing child programs

significantly decreased with increasing age. Amounts of invested mental effort when viewing adult programs were not significantly different among second-, fourth-, and sixth-graders. Correlations of children's program familiarity, parental participation in the viewing situation, and performance of other activities while viewing with reported amounts of mental effort investment for child and adult programs indicated only three low but significant relationships. Regression analyses showed that these variables explained little (less than 15 percent) of the observed variation in children's reported amounts of invested mental effort when televiewing.

The results of this investigation document the reliability of children's self-reports and point to an interesting developmental trend in children's cognitive processing of child television programs. Additional studies are needed to investigate basis for the absence of developmental differences found here in children's cognitive processing of adult programs. How the home viewing context influences children's investment of mental effort remains unanswered. Refinement of measurement of these variables and additional correlational research are recommended.

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CHAPTER I

INTRODUCTION

Since the introduction of television, researchers have sought to identify how children's interaction with this medium influences their cognitive and psychosocial development. More than thirty years of research has demonstrated that children can learn from television programming, and that televiewing can have a measurable impact on children's development. The approach to television research is, however, shifting from an investigation of how television affects children's development to an examination of how children cognitively process television material (Kelly & Gardner, 1981; Williams, 1981). This change of focus arises from an increasing recognition of children's active interactions with television. Children select programs to view, and program information to attend to and incorporate into their knowledge base. Children bring to the viewing environment varied cognitive abilities and skills. They also bring their schema knowledge (i.e., metascripts) which guides their understanding of presentation formats and program content. These perceptions of the nature and demands of television programming directly influence children's

cognitive processing of television program information (Salomon, 1979; Collins, 1981a; Kelly & Gardner, 1981; Murray & Salomon, 1982).

Imagine that two children with equal intellectual capabilities watch the same television program. When asked to reconstruct the program events, one child provides a detailed program description, including information which was inferred but not explicitly presented in the program. The other child reports more general information about program events, but fails to recollect inferential or implicitly presented information. The differences in these reconstructions would appear to be due to differences in how the children cognitively processed program information, i.e., to the child's general television metascripts.

Theoretical Framework

The emergence of the belief that children actively cognitively process television information is based on recent advances in information processing theory. Television viewing is considered to be a schema-driven activity. Children conceptually represent their knowledge about television programs in the form of a schema (Anderson & Lorch, 1983; Collins, 1981a; Collins & Wellman, 1982; Huston & Wright, 1983; Salomon, 1983b). A television program schema includes information about typical program events, the program's actors or characters, the actors' activities in the program, and the character's motives for

action. The schema also includes information about the types of skills or viewer activities such as attention that are needed for comprehension and when, during viewing, the viewer should use these skills (Anderson & Lorch, 1983). Finally a schema contains "slots" to be filled, i.e., questions to be answered, during the viewing session (Abelson, 1981).

When a child begins watching a television program, his/her schema for that program is activated. This anticipatory program schema establishes the viewer's expectations of what will occur in the program; schema-posed questions guide the viewer's attention to and comprehension of the program material (Anderson & Lorch, 1983). As viewing begins, the child compares the program material to his/her schema knowledge. If the encountered program material fits well into the anticipatory schema, the viewer can rely on existing schema information to answer his/her viewing questions and may fail to notice new program content. Cognitive processing of existing schema information occurs essentially in an unconscious, automatic manner.

Although schema organization of material may promote effortless, automatic cognitive processing, more active, conscious processing can occur. The type of cognitive processing which occurs is largely dependent on the degree of discrepancy between existing program schema knowledge and

the present viewing situation. If program events are congruent with the viewer's schema, program information can be readily assimilated and schema-posed questions answered by existing knowledge without the viewer elaborating on program information or actively searching his/her other knowledge schemas (Mandler, 1979; Salomon, 1983a, 1983b, 1984). Moderate levels of discrepancy between the encountered television program and the viewer's program schema knowledge may promote elaborative cognitive processing (Kessin, 1971). When the viewer encounters television program material which is moderately discrepant from schema knowledge, he/she will not be able to understand program content from existing schema knowledge. Consequently, concentration increases, and the viewer actively searches other schemas to interpret the novel, incongruent program material. This conscious investment of mental effort results in the viewer's cognitive elaboration of the program material and the generation of inferences necessary for comprehension and the resolution of schema-posed questions.

The schema perspective of cognitive processing of television programs suggests that children's comprehension of television is influenced by existing knowledge of television programs' content sequences and information regarding how the medium presents information. Whether children engage in automation or elaborative processing of

program content depends on the nature of existing program schema and their recognition of unfamiliar program information warranting additional thought and exploration.

From their viewing experiences, children develop general perceptions (i.e., metascripts) of television programming's cognitive demand characteristics and their efficacy in understanding televised program material. As early as 1979, Cohen and Salomon provided evidence that children's processing of television program information is influenced by these general television metascripts. Fourth- and sixth-grade Israeli and American children's comprehension of televised program content were compared. To the researchers' surprise, the less television-experienced Israeli children demonstrated better television program comprehension than did the American children. Post hoc analyses suggested that the observed comprehension differences were best explained by differences in the children's viewing environments and television metascripts. Israeli children watched more often with their parents and were more likely than American children to perceive television as a serious medium which presented worthwhile, useful information. Cohen and Salomon (1979) proposed that the more positive perceptions of Israeli subjects led them to concentrate and think more about program information when viewing. This investment of mental effort, in turn, was presumed to be responsible for differences in comprehension.

Based on this research and subsequent studies, Salomon (1981, 1982, 1983a, 1984, 1985) proposed that a child's comprehension and inferential learning of television program content is related to the degree to which the viewer engages in conscious, thoughtful processing of the program material. Salomon referred to this conscious, active cognitive processing of television program material as the amount of invested mental effort during televiewing. He further proposed that a viewer's investment of mental effort is primarily determined by two general metascripts of the medium. One metascript involves the viewer's perceptions of television's demand characteristics. This schema includes knowledge about the nature and value of television program material, the amount of cognitive effort which the material deserves, and the worthwhileness of concentrating, thinking, and attempting to learn the program content. Thus, the viewer enters a viewing situation with a preconceived idea of how much mental effort he/she should invest to understand the program content. Salomon (1981, 1982, 1983a, 1984) further argued that a viewer's perceptions of television's demand characteristics are derived from the environmental context in which current and previous viewing occur, the viewer's familiarity with the material being presented, and the purpose of the viewing situation.

The other influential metascript proposed by Salomon (1981, 1982, 1983a, 1984) involves the viewer's perceptions

of his/her self-efficacy or competency in comprehending television material. Based on the awareness of one's own cognitive skills and abilities to understand television content, the viewer brings to a viewing situation beliefs about how effective he/she will be in understanding the program content with or without the investment of mental effort.

Salomon's concept of the amount of invested mental effort offers a plausible explanation of how and why children demonstrate variation in their comprehension of televised material. For example, knowledge of children's general television metascripts and cognitive processing of program material may help to explain why not all viewers of aggressive programming demonstrate increased aggressive behavior.

Theoretical Rationale

The role of children's invested mental effort during televiewing has not been extensively studied. Since Salomon has studied only one age group (i.e., sixth-graders), data concerning developmental trends in children's investment of mental effort while watching television are not available. Age-related changes in children's schemas and self-knowledge of when increased mental effort would enhance comprehension suggest that children's investment of mental effort while televiewing may also follow a developmental trend (Collins, Wellman, Keniston, & Westby, 1978).

With age, knowledge schemas become more complex as children encounter divergent social experiences. The generation of concepts that are redundant across different schemas, and the resulting interrelationships of schemas promote the child's ability to realize how various schema knowledge may apply to different situations (Schank & Abelson, 1977). Thus, age-related schema development encourages more flexible and proficient application of knowledge, and increased elaboration and inference generation about current events (Bransford, 1979; Schank & Abelson, 1977; Siegler, 1986).

Children's metacognition also improves with age. Older children are more adept at monitoring their learning and comprehension of ongoing events, and are more cognizant of their knowledge deficits. They also exhibit more strategic learning behaviors than younger children (Flavell, 1977; Siegler, 1986). With increasing age, children should more readily recognize when televised material is incongruent with existing program schema information, and thereby, warrants additional elaboration and inference generation. Older children should also be more cognizant of what strategies, such as concentration and schematic searching, to use to interpret program material and understand implicitly-presented content. Thus the age-related changes in children's cognitive processing abilities suggest that

children's investment of mental effort may also change with age.

In addition to the fact that previous research has focused on only one age group, it has also failed to examine children's investment of mental effort in their natural televiewing environments. The few studies on investment of mental effort that have been conducted to date have been limited to experimental manipulations of the viewing task, principally those that involve comparisons of mental effort investment for televiewing and reading. Although child and adult types of television programs vary in the nature and complexity of the material presented, researchers have not investigated whether children vary their investment of mental effort when viewing different types of television programs. Children's familiarity with child-oriented programs (i.e., cartoons, children's programs, and family shows) and adult types of programs (i.e., situation comedies, entertainment shows, adventure programs, news programs, sports, and soap operas) change with age (Lyle, 1982). Child and adult programs also vary in their format and complexity. Children's knowledge of the informative function of format features in different types of programs depends directly on their experience with these programs (Huston & Wright, 1983). Thus, investigation of children's mental-effort investment when viewing different types of television programs appears both reasonable and necessary.

Statement of the problem

The present investigation was designed to examine developmental differences in the relationship between children's reported amount of invested mental effort during home television viewing and the nature of the viewing situation. More specifically, the study examined the effects of children's age (i.e., grade level) and types of television programs viewed (i.e., child and adult) on their self-reported amounts of invested mental effort during televiewing. The study also explored the extent to which variations in children's investment of mental effort when viewing child and adult television programs are related to variations in their familiarity with these programs, the tendency to combine televiewing with other potentially competing activities, and the degree of parental participation in the viewing situation.

Hypotheses

Developmental differences in reported amounts of invested mental effort. Based on the literature related to developmental differences in children's cognitive abilities and their knowledge of program content and format, and the differences in social and implicit expository information of television programs, the following three hypotheses were proposed for test:

1. Reported amounts of invested mental effort vary both as a function of the child's grade level and of the types of programs viewed.

a. The amount of reported mental effort invested when viewing child programs decreases as the grade level of the child increases.

b. The amount of reported mental effort invested when viewing adult programs increases as the grade level of the child increases.

2. Younger school-aged children (in this case, second-graders) report themselves to invest more mental effort during viewing of family shows than when viewing cartoons and children's programs.

3. Older school-aged children (in this case, sixth-graders) report themselves to invest more mental effort when viewing news programs, adventure shows, and soap operas than when viewing situation comedies, sports and entertainment programs.

Relationships of home viewing variables to reported amounts of invested mental effort. The reviewed literature suggested that the viewer's familiarity with the program and the characteristics of the home viewing situation (i.e., parental facilitative and distractive participation and the child's performance of other activities while viewing) may influence the viewer's investment of mental effort.

Concentration and elaborative cognitive processing should occur when the viewer watches moderately but not highly discrepant programs. Therefore, it was hypothesized that:

4. The reported amount of invested mental effort when viewing is a curvilinear function of the viewer's familiarity with the type of program.

The literature suggested that parents engage in facilitative (i.e., discussion of television program material) and distractive (i.e., discussion of non-relevant program topics) conversation when co-viewing with their children. Parental participation in the viewing situation influences children's cognitive processing of television program material. It was hypothesized that:

5. The reported amount of mental effort is positively related to facilitative parental participation in the viewing situation.

6. The reported amount of mental effort is negatively related to distractive parental participation in the viewing situation.

Children often perform other activities such as playing and eating when watching television. Since performance of other activities while viewing may interfere with the viewer's attention to and cognitive processing of relevant program material, it was hypothesized that:

7. The amount of reported invested mental effort during televiewing is inversely related to the child's performance of other activities while viewing.

The reviewed literature suggested that the grade level of the child is related to each of the other independent variables in the study (i.e., program familiarity, parental participation, and performance of other activities during televiewing). Two hypotheses were proposed for test:

8. Grade of the viewer, familiarity, quality of parental participation, and performance of other activities contribute to the variance in the reported amount of invested mental effort while viewing child programs.

9. Grade of the viewer, familiarity, quality of parental participation, and performance of other activities contribute to the variance in the reported amount of invested mental effort while viewing adult programs.

CHAPTER II

REVIEW OF THE LITERATURE

The concept of the amount of invested mental effort (AIME) has evolved from general knowledge of how children cognitively process television information. Both the theoretical and empirical basis for the importance of AIME will be discussed. Unanswered questions about developmental differences in children's investment of mental effort during home viewing will be identified. Data from related television research will also be presented to support the likelihood of possible developmental differences in AIME.

Amount of Invested Mental Effort During Cognitive Processing of Television

Salomon (1981, 1982, 1983a, 1983b, 1984) has proposed that children rely on automatic schema processing during televiewing and seldom invest mental effort through conscious, thoughtful elaboration of program material. Based on their own previous viewing experiences, and on social cues from others, children, rightly or wrongly, enter a televiewing situation with preconceptions of how much mental effort is needed for program comprehension. These general televiewing metascripts often lead children to fail to recognize novel or incongruent program content, which in

turn, leaves expectations as to how much effort is needed for comprehension unchallenged (Salmon & Leigh, 1984).

Although various developmental and situational factors can potentially influence schema knowledge of what to expect when watching television, children's reliance on more automatic processing is primarily related to two metascripts or preconceptions about television in general. One of children's television metascripts is that television presents realistic, lifelike, uncontrived information which is easy to understand with investment of little mental effort (Meringoff, 1980; Salomon, 1981, 1982, 1984). When sixth-grade children were asked to describe their perceptions of television and print materials, they consistently described television as a realistic medium which presented easier, less demanding material than print materials (Salomon, 1981, 1984; Salomon & Leigh, 1984).

Given the metascript knowledge that television is an undemanding source of information, children develop a second metascript about their self-efficacy in comprehending television material; namely, that they are proficient or not proficient in understanding program material. Self-efficacy refers to one's self-perceived ability to deal competently with situational demands for learning and problem-solving; self-efficacy perceptions also guide one's decisions as to how much mental effort is warranted (Bandura, 1982). Sixth-graders were asked to describe how capable they were of

comprehending television program material; they described themselves as being highly efficacious (Salomon, 1981, 1984; Salomon & Leigh, 1984). The children's perceptions of themselves as highly efficacious lead them to believe that they can readily comprehend television programs with minimal cognitive processing of the material. Salomon (1984) argued that these perceptions derive not only from the children's attributions of television's realism, but also from their previously successful experiences in televiewing. Salomon contended that children typically watch television for its entertainment value, and that most children can comprehend a sufficient amount of program material to derive enjoyment without fully understanding all program content.

Beliefs that television has low demand characteristics and that the viewing task is entertaining and easy to comprehend predispose children to invest little mental effort during televiewing. Salomon and Leigh (1984) asked sixth-grade subjects to report the amount of mental effort invested in watching television by answering questions about how hard they concentrate when viewing, how much effort they expend during viewing, and how much they think about the program material. After viewing, subjects responded to the same questions as a measure of the actual mental effort expended during viewing. Pre- and post-viewing measures of the reported amount of invested mental effort during televiewing were significantly correlated. This finding

supported Salomon's position that children enter a viewing situation with preconceptions about how much mental effort is warranted during viewing; these preconceptions, in turn, determine the amount of mental effort children invest during viewing.

Children's beliefs about a medium's cognitive processing demands are based in general medium metascripts (Salomon, 1984; Salomon & Leigh, 1984). Sixth-grade subjects were questioned on their perceived self-efficacy in learning from television and print, and their perceptions of each medium's realism. The children's self-efficacy scores were positively correlated with perceptions of each medium's realism. These sixth-graders described television to be more realistic and uncontrived than print. They also perceived themselves as more efficacious in comprehending television material than print.

To assess the influence of these sixth-graders' medium metascripts on learning, half of the subjects viewed a short program while the other half read a text equivalent. Subjects reported the amount of invested mental effort expended during viewing or reading. All children completed a test for explicitly presented factual content and inferred or implicitly presented material. Subjects in the television group reported higher self-efficacy and lower amounts of invested mental effort than did those in the print group. Children believed themselves to be more

capable of comprehending the television program with little conscious thought and elaboration of the program's material than for printed materials. The television group also scored significantly lower on the comprehension measure than did the print group.

Not surprisingly, self-reported amounts of invested mental effort measures correlated highly with their comprehension scores. Children who reported investing little mental effort actually learned less of the implicit program material. Preconceptions of television as having low cognitive demands, coupled with the belief in oneself as readily capable of understanding television, led children to invest little mental effort during viewing. They appeared to use existing schema knowledge to answer schema-posed questions rather than to engage in active and conscious efforts to elaborate on the program material. The minimal investment of mental effort during viewing resulted in limited comprehension of program content, particularly implicit or inferential material.

The above study demonstrated that television metascripts predispose children to invest little mental effort during viewing. Are these metascripts abandoned when the task is viewed differently or when the reason for viewing is changed? Solomon and Leigh (1984) modified children's task perceptions by telling some sixth-graders to view a program for fun and telling other subjects to view

the same program for learning. Before and after viewing, subjects completed a questionnaire on the amount of invested mental effort during viewing. Subjects also answered questions on factual and inferential program content. Both groups scored similarly on factual recall questions; however, the "view for learning" subjects scored significantly higher on questions about inferential content. Pre- and post-viewing mental effort measures did not significantly change for subjects in the "fun" viewing condition, suggesting that these subjects did not change their perceptions of how much cognitive processing was warranted during viewing. The post-viewing investment of mental effort scores of subjects in the "learn" viewing condition significantly increased. To meet the "learn" task demand, subjects appeared to abandon their television metascripts and engaged in more thoughtful processing of the material. Consistent with findings in the previous study, post-viewing measures of the amount of invested mental effort during viewing were significantly correlated with knowledge of implicitly presented program content.

These findings suggested that children have the necessary skills and abilities to invest more mental effort when watching television, but that they choose not to increase mental effort unless learning is required in the viewing situation. Krendl and Watkins (1983) reported similar effects of task demand. In this case, fifth-grade

children were told to view a program either for entertainment or for educational purposes. Viewers in the education condition demonstrated significantly better generation of inferential knowledge and reconstruction of the story plot. Although measures of the amount of invested mental effort were not obtained, the observed knowledge differences appear to have reflected differences in the subjects' cognitive processing during viewing.

In summary, fifth- and sixth-grade children often engage in automatic cognitive processing and invest little mental effort in typical viewing situations. When watching television for entertainment, viewer's metascripts that television is an undemanding medium and is easy to comprehend appear to influence the amount of mental effort that they invest during televiewing. Data also suggested that the limited investment of effort reflects children's beliefs that the mental effort is not warranted rather than their inability to invest more effort.

Unanswered Questions on Children's Investment of Mental Effort

Although the above data support the premise that children's investment of mental effort during televiewing is related to their beliefs about television, these studies provide data primarily on older children's processing in a laboratory setting. Many questions, particularly those that involve children's investment of mental effort during home

viewing, remain unanswered. For example, are there age-related differences in children's decisions of when investment of mental effort during viewing is appropriate? Does the type of television program being viewed influence the amount of mental effort invested during viewing? Do differences in the social context in which viewing occurs influence children's investment of mental effort?

Salomon (1981) proposed that metascripts of television's demand characteristics and self-efficacy beliefs arise from children's previous interactions with television, as well as from environmental contexts in which viewing occurs. Many variables may, therefore, potentially influence children's decisions on when and how much mental effort is needed. Potential intervening influences include the viewer's age and general cognitive abilities, the nature or type of program material being viewed, the viewer's familiarity with the program material, and qualities of parental participation in the child's viewing situation (Salomon, 1984; Salomon & Leigh, 1984).

Developmental Differences in Children's Cognitive Processing of Television

Data from other television research also suggest situational and developmental differences exist in children's cognitive processing of television. Collins (1981a, 1981b) argued that children's cognitive processing of television material is dependent on their familiarity

with the type of program being viewed, their knowledge of the relevance of program material, and their existing world knowledge with which to interpret the program material. Children of different ages appear to have different levels of television program schema knowledge. For example, children's knowledge of television production features across different types of programs, and how these features are used to present relevant program material varies with age (Huston & Wright, 1983). General world knowledge needed for interpretation of television program content also varies with age. Therefore, the child's television schema and cognitive processing of television program content should also differ with age. Although data on developmental differences in children's investment of mental effort do not exist, data on age-related changes in children's familiarity with child and adult types of programs and their abilities to comprehend these programs are available.

Familiarity with different program types. Children's television program preferences change with age (Lyle, 1982). Young children typically prefer cartoons, children's programs, and family shows. During the early school years, children's interests in child programs decline. At this time, they become increasingly interested in adult-oriented programs such as situational comedies; by the late elementary school years, children primarily watch adult programs (Adler & Faber, 1980; Lyle, 1982; Ridley-Johnson,

Chance, & Cooper, 1984). Previous research findings suggested that child and adult types of television programs contain different content and use different production techniques, such as sound. These types of programs require different processing skills and knowledge; hence, children's cognitive processing of these programs also differs.

Program content. Child programs contain information that is more likely to be readily available in young children's schemas. For example, cartoons typically present information that is limited in scope and is redundant (Huston, Wright, Rice, Kerkman, & St. Peters, 1987). Family shows have less redundant content and more characters than cartoons, but these programs frequently deal with issues that the viewer may have experienced in his/her own family life. Adult types of programs contain more varied social and expository content than most child programs. For example, news programs present briefly capsule information on numerous and diverse topics. Adult adventure and dramatic programs also have more complex plot structures and involve more characters (Collins, 1982). Comprehension of the actions and motives of adult-oriented program characters may, therefore, require that the viewer have more complex general world knowledge with which to understand program events.

Due to fewer and less varied social interactions, young children may lack relevant schema knowledge with which to

engage in conscious, elaborative cognitive processing of adult programs (Collins, 1979, 1981; Collins & Wellman, 1982). Age-related differences in children's cognitive processing of adult programs are documented. When shown an adult adventure program and asked to predict upcoming program events at specified points in the program, second-graders predicted significantly fewer future program events than fifth- and eight-grade children (Collins & Wellman, 1982). Younger children's limited schemas of social knowledge appeared to impede their ability to notice incongruent and implicit program information, to perform the necessary temporal ordering of events, and to generate non-stereotypical inferences about characters' motives. Older children recognized and retained more relevant program information; their responses to comprehension questions also reflected more elaboration of program content and greater use of knowledge from related social schemas (Collins & Wellman, 1982) When viewing complex adult programs, second-graders failed to detect implicit, information needed to understand the character's motives (Collins, 1979, 1981a, 1981b). The temporal separation of program events in the longer, more complex adult programs also appeared to impair young children's abilities to meaningfully organize program material within their anticipatory schemas (Collins, 1983).

Program features. Developmental differences in children's comprehension of child and adult types of

programming may also reflect television schema knowledge of the viewing skills that are necessary, and of how and when to strategically use these skills. Information needed for child program comprehension is often explicitly stated or visually presented. Cartoons and children's programs frequently use formal production features, such as sound, to indicate when relevant information is being presented. Children learn to use these features to guide their attention to relevant program (Anderson & Smith, 1984; Huston & Wright, 1983). These formal features may promote more automatic schema processing since they guide the concentration needed for comprehension.

In contrast, information needed for program comprehension of adult programs is often implicitly presented and less consistently denoted by perceptually salient formal production features. Young children's schemas may not contain knowledge of how relevant plot-essential material is presented in adult action and drama programs. During the transition from viewing child to adult programs, young children may fail to attend to implicitly presented program information necessary for comprehension of the characters' actions and motives (Collins, 1981). Combined with content comprehension problems, the young child may, therefore, not recognize when to invest more mental effort.

In summary, children of different ages watch different types of programs. Child programs contain more redundant, less complex content and use more salient production features to help guide the viewer's comprehension than do adult programs. When watching highly familiar characters perform highly predictable actions, the viewer comprehends program content readily with little mental effort investment (Anderson & Lorch, 1983; Krendl & Watkins, 1983). Adult programs present more complex content in less predictable formats. Here, children need to invest more mental effort (i.e., increase their concentration and thinking about program events) to sufficiently comprehend program material. Older children have more familiarity with adult programs, more knowledge of program features, and more related world knowledge with which to interpret adult program content than do younger children (Collins, 1981a). Therefore, investment of mental effort while viewing adult programs should increase with age.

Potential Influence of Home Viewing Context

Children's preconceptions about television are learned from their own viewing experiences and from social cues (Salomon & Leigh, 1984). Environmental factors such as parental participation in the viewing situation can influence the nature of the children's general television metascripts (Anderson & Smith, 1984).

Parental participation. The extent and types of parental participation in home viewing influence children's decisions about how much mental effort is warranted during viewing. Although parental involvement during viewing is reported to be infrequent, parental co-viewing and discussion of program content may initially suggest to the child that watching television is a worthwhile activity. The role of Israeli mothers in emphasizing television as a source of meaningful, worthwhile information is an example (Cohen & Salomon, 1979).

Parents more often co-view and engage in conversation when children view adult shows than child shows (Lyle,1982; McLeod, Fitzpatrick, Glynn, & Fallis, 1982). However, many of these communications are unrelated to the program content which distract the child from processing the content of the program, and subsequently alter the investment of mental effort.

On the other hand, parental comments on program events can encourage the child's active processing of relevant program material (Collins, 1979, 1983). While watching an adult adventure program with an adult, second-grade children received either neutral adult comments which contained descriptions of the program activities, or facilitating adult comments which contained suggestions about the characters' motives (Collins, Sobol, & Westby, 1981). Post-viewing questions on the program content revealed that

children who received the adult facilitating remarks demonstrated greater comprehension, particularly of inferential content. These data suggested that program-relevant adult commentary encouraged the child to more consciously think about program events, i.e., to invest more mental effort.

Preschool, kindergarten, third- and fourth-grade children also appear to benefit from adult labeling of television content (Watkins, Clavert, Huston-Stein, & Wright, 1980). In this investigation, children received information at selected program points about the importance of recent program events and the relationship of current to earlier events. Some children heard a taped message dubbed onto the program's audio track; other subjects received the information from an adult who was co-viewing the program with them. Children who experienced the co-viewing situation demonstrated better recall of program material than children who heard the tape.

In summary, the literature suggested that different qualities of parental participation in the child's viewing situation may influence the child's investment of mental effort differently. The extent and nature of parental participation may also have long-term consequences in influencing the child's television metascripts and future comprehension of program material. Discussion of irrelevant program material may distract the child from relevant

program material and lead the child to perceive television as not worthy of mental effort investment. Program-related discussion, elaboration of program content, and responsiveness to the child's questions about program events may foster the child's investment of mental effort. These facilitative parental participations may also have long-term metascript effects by leading the child to perceive televiewing as a worthwhile activity.

Performance of other activities while viewing. In addition to the influences of parental participation in the viewing situation, the viewer's performance of non-viewing activities while televiewing, such as playing, reading, or eating meals, may also influence his/her investment of mental effort. Children of all ages often combine viewing with other activities. Overall attention to the television program declines when the viewer simultaneously engages in another activity (Lyle, 1982). Although attention alone is not sufficient for comprehension, attention is necessary for encoding and comprehending program material (Anderson & Smith, 1984). Declining attention may lead the viewer to ignore program material which does not readily "fit" with his/her anticipatory program schema. Performing other activities when watching television may, therefore, foster more automatic schema-driven processing.

CHAPTER III

METHODS

To examine developmental differences in children's reported amounts of invested mental effort during home television viewing, a cross-sectional, single measure survey was conducted. Parents and their children were surveyed at one point in time. Parental questionnaires provided descriptive data on parental participation, i.e., co-viewing and discussion, during the child's televiewing. Interviews with the children provided information on the child's participation in other activities such as playing during viewing, the child's familiarity (i.e., frequency of watching) with different programs, and the amount of mental effort invested during viewing.

Subjects

A convenience sample of 116 school-aged children and their parents participated in the investigation. To recruit subjects, informed consent letters were distributed by classroom teachers to students in the second- and fourth-grades of two elementary schools, and to all sixth-graders in one middle school, within the Durham City School system. Of 402 distributed forms, 145 were returned. The low return rate (36%) may be attributable to several factors. The

school system's requirement of "en masse" distribution of forms by teachers prohibited the investigator from initiating follow-up contact with parents to encourage return of the forms. Moreover, children and/or parents may have misplaced or discarded the letters.

Of the returned letters, 14 parents declined to participate in the study. Ten other parents and their children were excluded due to the parents' failures to complete fully the forms. Two children, for whom consent was provided, moved from the school district prior to data collection; one child was absent on each data collection day. The study design specified that only one child per family would be included as a subject. In two situations, parents returned consent forms for two children in the family. In these cases, one of the siblings was randomly selected for participation.

The final sample of 116 children was composed of 40 second-graders (27 girls and 13 boys with a mean age of 7.6 years), 42 fourth-graders (21 girls and 21 boys with a mean age of 9.5 years), and 34 sixth-graders (20 girls and 14 boys with a mean age of 12.1 years). Due to the composition of the schools, all subjects were black.

Among the 116 parental respondents, 84 (72%) identified themselves as mothers and 13 (11%) as fathers; the remaining 19 (16%) failed to identify themselves. Mothers' ages ranged from 22 years to 45 years (M = 27.7 years). Fathers'

ages ranged from 25 years to 49 years (M = 34.3 years). Education levels of mothers and fathers were comparable. Mothers had completed 6 to 18 years of schooling (M = 12.5 years); fathers had completed 3 to 18 years (M = 11.3 years).

Parents reported having from one to six television sets in the home. Data on the location of these sets revealed that 53% of the children had a television in his/her bedroom. This was more prevalent among fourth-grade subjects (62%) than among second-graders (48%) and sixth-graders (50%). Seventy parents (60%) stated that they had rules regarding their children's televiewing. Fourteen parents (12%) restricted their children's hours of viewing, 20 parents (17%) restricted the types of programs that their children watched, and 36 parents (31%) had rules for both the number of viewing hours and the types of programs watched.

Instruments

Two instruments, the Home Viewing Questionnaire and the Television Viewing Interview Guide were developed by this investigator for use in the study. For each tool, television programs were classified into one of the following nine sub-categories: cartoons, children's programs, family programs, situational comedies, news/documentary programs, entertainment shows, action/adventure programs, sports, and soap operas. To

facilitate parents' and children's understanding of these classifications, popular television shows were listed as exemplars of each category.

The Home Viewing Questionnaire (HVQ), which contained 57 items, was designed to obtain information from parents on parental co-viewing (see Appendix A). The first 10 items were open-ended questions designed to obtain demographic information on the family and data on the child's home viewing environment. The second HVQ section consisted of 5 questions, each to be rated on a 5-point Likert-scale for each of the above listed program sub-categories. Thus, this section included 45 items. For each program sub-category, questions 1, 2, and 3 solicited ratings on how often the parent viewed the program with the child, and how often the parent and child discussed program content. Question 4 asked the parent to indicate how often he/she and the child discussed topics irrelevant to the program during co-viewing. The fifth question in each program sub-category solicited the parent's subjective judgment as to how much the child attempted to understand the program's content. For each question of this second section, the parent responded by checking one of following five responses: never, seldom, sometimes, often, and almost always. The final two HVQ questions asked the parent to indicate how often the child participated in other activities, such as

playing, when viewing each different type of television programs.

The Television Viewing Interview Guide (TVIG) was developed from Salomon's (1984) definition of the investment of mental effort during televiewing (see Appendix A). For each of the previously described nine television program sub-categories, the child responded to four 4-point Likert-scale items. To measure the child's program familiarity, the first item asked how often he/she watched programs in the respective sub-categories (i.e., none, very little, some, or very much). The last three items required the child to indicate for each program sub-category the extent of his/her investment of mental effort when watching, i.e., how much he/she concentrated or paid attention to the shows, how hard he/she tried to figure out what was happening in the shows, and how much he/she thought about what the program's characters were doing and why. These items were also rated from none to very much. The last two TVIG questions assessed how often (i.e., none to very much) the child participated in other activities while viewing child and adult types of programs.

Procedure

The HVQ was distributed to parents with the informed consent letters. Parents were asked to complete the HVQ and to return it with their consent form. After obtaining completed parental consent forms and the HVQ questionnaire,

the investigator conducted individual interviews with child subjects during school hours.

The subject was escorted to a designated interview area, i.e., to an empty classroom, the cafeteria, or the library. At the beginning of the interview, the investigator showed the child four circles. One circle was entirely yellow, the second circle had one-fourth of the area colored red, the third had one-half colored red, and the fourth circle had three-fourth's of the area in red. The child was given four labels; one of the TVIG response options of none, very little, some, and very much was printed on each label. The child matched the label to the circle which had that amount of area in red, i.e., none with the yellow circle, very little with the one-fourth red circle, some with the one-half red circle, and very much with the circle colored three-fourth's red.

After the child successfully matched the circles and labels, the investigator asked the child several questions about watching a film at school. For example, the child was asked to say if he/she concentrated none, very little, some, or very much when watching a film in the classroom. The child was then told to think about the television programs which he/she usually watched at home. The format of the TVIG was explained and the child was instructed to answer each question by either touching or saying one of the circle's labels. To ascertain that the child understood

each program sub-category, the child also was asked to name his/her favorite programs in each sub-category. The investigator immediately recorded the child's responses on the TVIG form.

To assess test-retest reliability of the TVIG, half of the boys and girls at each grade level were randomly selected for repeat interviews. Retest interviews occurred five to seven days after the initial interview. Due to illness, classroom tests, and other factors, only 19 (48%) of the second-graders, 15 (36%) of the fourth-graders, and 14 (41%) of the sixth-graders completed the second interview. Repeat interviews followed the procedures described for the initial interview.

CHAPTER IV

RESULTS

The results presented in this chapter include analyses of the children's viewing patterns, psychometric properties of the instruments used, and principal analyses of developmental differences in children's invested mental effort during televiewing. Scores for Likert-scale responses to the Home Viewing Questionnaire (HVQ) and the Television Viewing Interview Guide (TVIG) were assigned as follows. For each of the questions in the second and third HVQ sections, scores ranged from one point for a "never" response to five points for an "almost always" response. Points assigned to all TVIG items ranged from 1 for a "none" response to 4 for a "very much" response. If the child reported having no familiarity with a sub-category's programs, the subsequent three mental effort questions for that sub-category were coded as not applicable.

Preliminary Analyses

Planned principal analyses of the study's hypotheses call for comparisons of mean AIME scores for child and adult types of programs. Preliminary analyses focused on whether children reported viewing sufficient numbers of program sub-categories in each of the two general program types (i.e.,

child versus adult) to carry out the comparative analyses. Analyses also focused on whether the items on the HVQ and the TVIG demonstrated sufficient inter-item homogeneity to allow for the combining of individual item responses.

Children's reported familiarity with child and adult programming. Table 1 summarizes the children's responses to question 1 of the TVIG and shows percentages of subjects at each grade level purporting themselves to be familiar with programs in the various program sub-categories. As can be seen in Table 1, some of the children reported no familiarity with several of the nine television program sub-categories. Since lack of program familiarity resulted in non-applicable responses to the mental effort questions, the investigator questioned whether each subject viewed a sufficient number of child and adult types of programs for the creation of separate mean AIME scores per program type. Thirty (26%) of the 116 children reported watching all nine television program sub-categories. Other subjects reported no familiarity with one to three of the sub-categories. All subjects, however, reported familiarity with at least 2 of the 3 program sub-categories labeled as child, and at least 3 of the 6 adult program sub-categories. These findings indicated that computation of separate mean AIME scores for child and adult programs would be feasible.

Table 1

Percentage of Subjects Reporting Familiarity with Program Sub-Categories

Program Category	Second Grade Subjects (n = 40)	Fourth Grade Subjects (n = 42)	Sixth Grade Subjects (n = 34)	All Subjects (n = 116)
Cartoons	100	100	94	100
Children's Programs	93	93	65	85
Family Shows	100	100	100	100
Situation Comedies	100	100	100	100
Adventure Program	93	81	82	85
Entertainment Shows	88	81	85	85
News/Documentary Shows	85	95	82	88
Sports Programs	63	81	85	76
Soap Operas	65	60	71	65

Consistency of children's responses to TVIG mental effort questions. The three mental effort investment questions of the TVIG were adapted from Salomon's (1984) questionnaire work with sixth-grade subjects. The questions appeared to have concurrent validity based on Salomon's consistent findings of correlations ranging from r = .67 to r = .69 between children's self-reported mental effort investments and their comprehension of program content. Creation of AIME scores for each program sub-category and each general program type (i.e., child versus adult) necessitated homogeneity among the child's responses to the mental effort investment items. Since numbers of subjects reporting familiarity with program sub-categories varied, numbers of responses used to compute Cronbach alpha coefficients also varied. Inter-item estimates were first computed for each of the nine program sub-categories (see Appendix B, Table 1). Sub-category alpha coefficients ranged from .71 to .86, indicating an acceptable level of internal consistency within each program sub-category.

Computation of AIME scores for child and adult program types also require internal consistency among sub-category responses within program types. To compute inter-item reliability for child programs, responses for the cartoon, children's program, and family show sub-categories were grouped together. The resulting Cronbach alpha coefficient was .80. When the children's responses to the remaining six

sub-categories (i.e., adult program sub-categories) were grouped, the Cronbach alpha coefficient for adult programs was .73. Based on the responses of subjects who viewed each of the nine program sub-categories, internal consistency for all AIME responses was .80. Thus, creation of a composite score for each program type (i.e., child and adult programs) appeared reasonable, both on the grounds of children's' familiarity with both types of programs, and on grounds of the consistency with which they reported levels of AIME for sub-categories of the two general types of programs.

Test-retest reliability of AIME questions on the TVIG. Preliminary analyses also addressed the issue of whether children could reliably report their mental effort investments. Data from the 48 subjects who were interviewed twice were used to determine test-retest reliabilities for the mean child program AIME, adult program AIME, and total AIME reported on the TVIG. Respectively, the computed Pearson Moment coefficients were r (48) = .88, r (48) = .90, and r (48) = .92. Reliability coefficients for the mean child program AIME, mean adult program AIME, and total AIME were also computed separately by each grade level (see Table 2). As shown in Table 2, reliability coefficients were lowest for the second grade subjects; however, all Pearson Moment coefficients were r = .75 or higher. Thus, the data suggested that the self-reported amounts of

invested mental effort during viewing were relatively stable over a one week period.

Table 2

Test-Retest Reliability Coefficients for Mean AIME Scores by Grade Level

	Grade Level		
Score	Second (n = 19)	Fourth (n = 15)	Sixth (n = 14)
Child	.85	.76	.97
Adult	.75	.95	.97
Total	.84	.93	.97

Consistency of parental participation responses on the HVQ. Computation of a parental participation score also necessitated combining parents' responses to the HVQ questions. Question 1 asked parents to rate their frequency of co-viewing, questions 2 and 3, their tendencies to discuss program content, and question 4, their discussion of program-irrelevant topics. The literature suggested that the discussion of program content and discussion of program irrelevant topics differentially influence children's cognitive processing of television programs. Therefore, the

homogeneity of these items was examined. When Cronbach alpha coefficients were computed using responses to all four questions, the coefficients for each of the 9 program sub-categories ranged from .22 to .50. Further examination revealed that the coefficients increased markedly when responses to question 4 (i.e., distractive discussion) were not included. Consistent with the literature, the present data indicated that questions 1, 2, and 3 measured one component of parental participation and that question 4 measured another component.

Responses to the first three items were subsequently labeled as representing facilitative parental participation and the responses to the fourth item as representing distractive parental participation. Based only on responses to the first three questions, Cronbach alpha coefficients for the nine program sub-categories ranged from .74 to .87 (see Appendix B, Table 2). Alpha coefficients for grouped sub-categories of child programs and adult programs were .87 and .84, respectively. Computation of facilitative parental participation scores across the nine sub-categories yielded an alpha coefficient of .89.

Inter-item reliability of the distractive parental participation responses (i.e., question 4) among the child and the adult sub-categories were .74 and .78, respectively. The internal consistency of the nine distractive sub-category item responses was .86. Since the separation of

the four parental participation questions into facilitative and distractive participation resulted in demonstrations of acceptable estimates of internal HVQ consistency, parental co-viewing was considered to consist of two separate variables in the principal analyses.

Parental education, qualities of parental co-viewing, and children's AIME scores. The final set of preliminary analyses addressed the issue of whether parental education level is significantly related to (1) facilitative and/or distractive parental participation in the child's viewing environment, and (2) the child's performance of other (i.e., non-viewing) activities while viewing. Mothers' education levels were more consistently reported on the HVQ than were fathers'. Therefore, correlations were conducted with maternal education level. No significant relationships ($p > .05$) were observed between maternal education levels and facilitative parental participation, or the child's performance of other activities while viewing. Mothers' education level bore a low but positive relationship to distractive parental discussion during co-viewing of adult programs, r (112) = .18, p= .046). That is, discussion of irrelevant topics was reported more frequently by mothers having higher education levels.

Relationships between maternal education and children's self-reported AIME scores were not significant ($p > .05$) at any grade level. The general lack of significant

relationships between maternal education level and the study's other independent and dependent variables suggests that no statistical control for parental education was needed in the principal analyses.

Principal Analyses

The primary purpose of the study was to examine developmental differences in children's reported amounts of invested mental effort when viewing child television programs and adult programs. Analyses of relationships between each of the study's independent variables (i.e., parental participation, child's performance of other activities while viewing, and the child's familiarity with the programs) with the dependent variable (AIME) were also performed.

Developmental differences in AIME. The first hypothesis predicted that reported amounts of invested mental effort during home television viewing vary significantly as a joint function of both the grade level of the viewer and the type of program being viewed. Specifically, it was hypothesized that (1) reported AIME scores for child programs would decrease as the grade level of the child increased, and (2) reported AIME scores for adult programs would increase with increasing grade level. A 2 (type of program; child, adult) by 3 (grade level; second, fourth, and sixth) repeated measures analysis of variance was performed on mean AIME scores. The results of

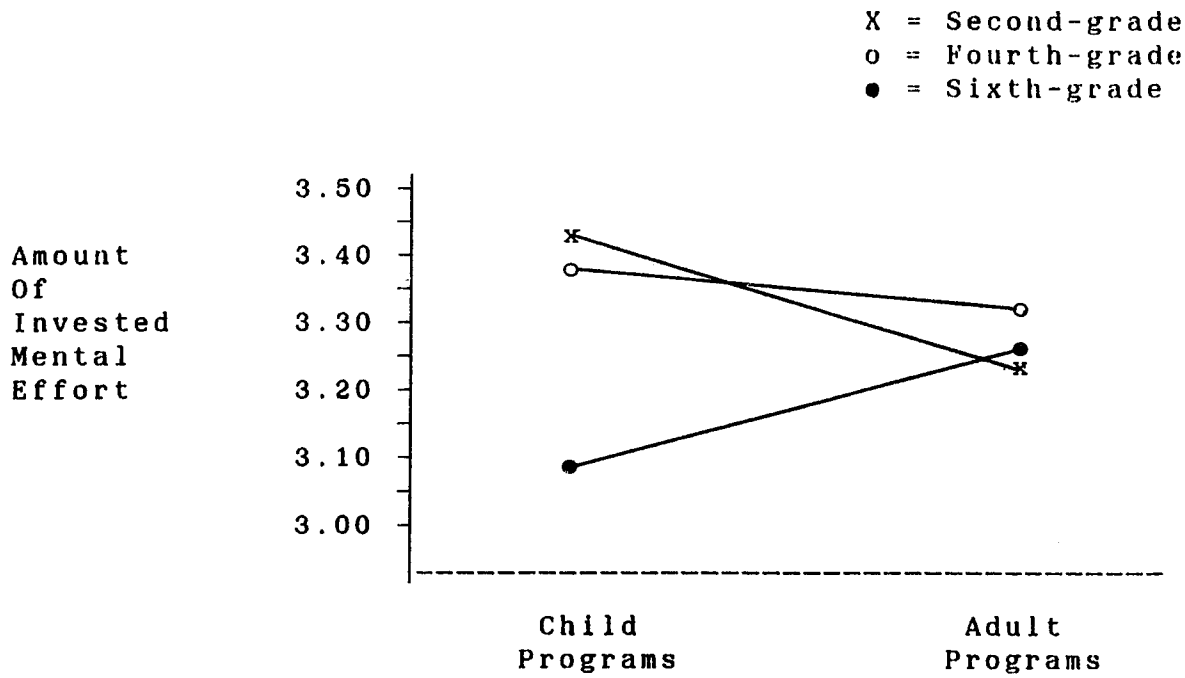
this analysis revealed no significant main effects for program type or grade level ($p > .05$). A significant interaction between program type and grade level was observed, F (2, 113) = 7.50, p = .001. The means contributing to this interaction are shown in Figure 1.

As predicted, second-graders reported investing more mental effort when viewing child programs (M = 3.44) than when viewing of adult programs (M = 3.23). Fourth-graders' reported comparable amounts of invested mental effort when viewing child programs (M = 3.38) and adult programs (M = 3.32). Among sixth-graders, reported amounts investment of mental effort were higher when watching adult programs (M = 3.25) than when viewing child programs (M = 3.09).

The interaction between type of program and grade level was examined with analyses of simple main effects. As predicted, investment of mental effort during child programs decreased as the grade level of the child increased. The mean child AIME scores of second-graders were significantly higher than the older subjects' scores, t (1, 113) = 2.26, p = .03; fourth-graders' scores were significantly higher than sixth-graders' scores, t (1, 113) = 2.79, p = .006. The predicted increased mental effort investment when viewing adult programs with increasing grade level was, however, not supported. Mean adult AIME scores of second-, fourth-, and sixth-graders' were not significantly different

Figure 1

Grade Level By Type of Program Interaction on AIME Scores



($p > .05$). Thus, the present results yield only partial support for hypothesis 1.

AIME differences among child programs. Among the three child program sub-categories, it was hypothesized that second-grade children would purport themselves to invest more mental effort when viewing family shows than when viewing cartoons and children's programs. Using data from the 36 second-grade subjects who indicated familiarity with all three program sub-categories, a repeated measures univariate analysis of variance was performed on mean AIME scores. The independent variable in this analysis consisted of the three sub-categories of child programs. Mean AIME scores were comparable for cartoons ($M = 3.40$), children's programs ($M = 3.46$), and family shows ($M = 3.49$), resulting in a non-significant effect for program sub-category ($p > .05$). Thus, hypothesis 2 was not supported.

AIME differences among adult programs. Sixth-graders were expected to invest significantly more mental effort when viewing news/documentary programs, adventure shows, and soap operas than when viewing situation comedies, sports, and entertainment shows. For each of the 34 sixth-graders, mean AIME scores were calculated for each of these two classifications of adult programs. Results of a repeated measures univariate analysis of variance demonstrated a significant difference between program classifications,

F (1,33) = 8.51, p = .006. The mean AIME score for the combined news, adventure, and soap opera programs (M = 3.37) was significantly higher than the mean AIME score for the other combined three adult programs (M = 3.15), thereby, supporting hypothesis 3.

Relationship between AIME scores and program familiarity. The schema perspective of information processing suggested that moderate levels of familiarity with presented material promotes elaborative cognitive processing (Kessin, 1971). Based on this theoretical perspective, it was predicted (i.e., hypothesis 4) that the children's reported amounts of invested mental effort during television program viewing would be a curvilinear function of their program familiarity. Visual inspection of the bivariate scatterplot of subjects' mean familiarity scores with their mean AIME scores indicated that no curvilinear relationship existed. A regression analysis of AIME and quadratic function of familiarity scores confirmed this observation ($p > .05$). Separate scatterplots of the subjects' mean child and adult program familiarity scores with their respective AIME scores also failed to reveal a curvilinear relationship. Thus, hypothesis 4 was not supported.

To examine the possibility of a linear relationship between AIME scores and program familiarity scores, Pearson Moment correlations were performed. The subjects' mean

familiarity scores collapsed over all nine program sub-categories were not significantly related to their mean AIME scores, r (116) = .11, p = .24. Separate correlations were performed for combined child programs and for combined adult programs. Mean familiarity scores for child programs were not significantly related to mean child AIME scores for these programs, r (116) = .10, p = .30. Familiarity with adult programs was, however, significantly related to reported mental effort investment for these programs, r (116) = .27, p = .004. Thus, for adult programs, subjects reported investing more mental effort when watching more familiar programs.

Relationships between AIME scores and parental participation. Parental co-viewing and discussion of program events can encourage the child to engage in active cognitive processing, i.e., more investment of mental effort (Collins, 1979, 1983). Parental discussion of non-related program topics during co-viewing may distract the child from relevant program material and be associated with lower investment of mental effort. Based on the psychometric properties of the parental HVQ responses, AIME scores were correlated separately for each of the parental participation variables. Using data from all nine sub-category responses, mean AIME scores were not significantly related to mean facilitative parental participation scores (r (116) = .15,

p = .10) or to mean distractive parental participation scores (r (116) = .13 , p = .18).

Separate correlations were performed for child programs and adult programs. For adult programs, no significant relationship existed between mean AIME scores and mean facilitative participation scores (r (115) = .11, p = .24) or mean distractive participation scores (r (115) = - .001, p = .99). Facilitative parental participation scores for child programs were significantly related to mean AIME scores for these programs (r (116) = .23, p =.014). Contrary to expectations, mean AIME scores for child programs increased significantly with parents' increased engagement in distractive conversation, r (116) = .23, p = .014. Thus, hypothesis 5 was supported for child programs. Hypothesis 6 was not supported.

Relationship between AIME scores and performance of other activities. Children frequently play, eat, or perform some other activity while watching television. Lyle (1982) suggested that performance of other activities while viewing leads the child viewer to divert concentration away from the television program. Performance of other activities while viewing was predicted to be inversely associated with the reported amounts of invested mental effort. Data for other activities while viewing were solicited on the TVIG as a separate question for child and for adult types of programs. Therefore, two correlations were performed. The reported

performance of other activities while watching child programs was not significantly related to the reported amount of invested mental effort (r (116) = .04, p = .64). Similarly, performing other activities while viewing was not related to reported investment of mental effort during adult-program viewing (r (116) = .06, p =.49). Thus, hypothesis 7 was not supported.

Predictive contribution of AIME. The literature suggested that each of the study's independent variables (i.e., grade level, program familiarity, facilitative parental participation, distractive parental participation, and performance of other activities while viewing) could potentially influence the amount of mental effort a child invests while watching television. Multiple regression analyses were conducted to explore the explanatory power of these independent variables for AIME scores.

Grade level of viewer, program familiarity, and the two parental participation variables were hypothesized to be the strongest predictors of variation in subjects' reported amounts of invested mental effort when viewing child programs (i.e., hypothesis 8). As shown in Table 3, intercorrelations of the independent variables with the mean child AIME score were relatively low. Using a forward stepwise entry method, three variables entered the equation (see Table 4). As shown in Table 4, grade level was the

Table 3

Correlation Matrix of Mean AIME Scores for Child Programs with Independent Variables

	1	2	3	4	5	6	7	8
1. AIME Score	1.00	.05	.24*	.23*	.23*	.10	.04	.18
2. Grade 2 vs. 4		1.00	-.53***	.08	.10	.12	.13	.15
3. Grade 4 vs. 6			1.00	.22*	.02	.15	-.04	.08
4. Facilitative Parental Participation				1.00	.59***	.01	.05	-.14
5. Distractive Parental Participation					1.00	-.12	.03	-.01
6. Program Familiarity						1.00	.25**	-.01
7. Performing Other Activities							1.00	.09
8. Sex								1.00

* $p < .05$
** $p < .01$
*** $p < .001$

best predictor of child AIME scores, accounting for 6% of the variance. After grade level, distractive parental participation explained an additional 5% of the variance. Inclusion of sex of child into the regression equation accounted for an additional 3% variance, favoring girls. Together, these three variables explained only 14% of chid AIME scores' variance.

Table 4

Regression Analysis of Mean AIME Scores for Child Programs

Variable	Standard Beta Coefficient	t	p	R^2
Grade level	.25	2.83	.005	.06
Distractive Parental Participation	.22	2.56	.012	.11
Sex	.20	2.27	.025	.14

Overall F (3, 112) = 6.32, $p < .001$

Hypothesis 9 predicted that grade level, program familiarity, and parental participation contributed to the observed variance in mean adult program scores. Correlation of adult AIME scores with the predictor variables yielded low coefficients (see Table 5). A forward stepwise multiple regression for adult-program AIME scores was performed (see

Table 5

Correlation Matrix of Mean AIME Scores for Adult Programs with Independent Variables

	1	2	3	4	5	6	7	8
1. AIME Score	1.00	-.10	.08	.11	-.001	.27***	.06	.02
2. Grade 2 vs. 4		1.00	-.54***	-.10	.08	.005	.21*	.14
3. Grade 4 vs. 6			1.00	.22*	-.02	-.16	-.13	-.08
4. Facilitative Parental Participation				1.00	.57***	-.08	-.08	-.21*
5. Distractive Parental Participation					1.00	.09	-.08	-.03
6. Program Familiarity						1.00	.02	.04
7. Performing Other Activities							1.00	.11
8. Sex								1.00

* $p < .05$
** $p < .01$
*** $p < .001$

Table 6). Familiarity with adult programs was the only variable to enter the equation; program familiarity explained 7% of the AIME variance. These analyses suggested that the variation in children's reported amounts of invested mental effort is primarily due to factors other than the independent variables included in this study.

Table 6

Regression Analysis of Mean AIME Scores for Adult Programs

Variable	Standard Beta Coefficient	t	p	R^2
Program Familiarity	.27	2.93	.004	.07

Overall model F (1, 113) = 8.60, p = .004

CHAPTER V

DISCUSSION

Previous research on children's investment of mental effort during televiewing has been restricted largely to the study of a single age group (i.e., sixth-grade children) in laboratory conditions. The present survey research was designed to extend what is known about children's engagement in active, conscious cognitive processing of television program material in the following ways: (1) examining developmental differences in children's reported amounts of invested mental effort (AIME); (2) describing children's mental effort investment when viewing different types of programs (i.e., child and adult programs); and (3) exploring the contribution of factors in children's natural (i.e., home) viewing environments to their reported AIME. The results of this research serve to document the reliability of children's self-reports of AIME, and point to interesting and important developmental trends in children's reported AIME which vary for child and adult types of television programs. The results are less informative about factors in children's natural viewing environments that influence AIME.

Reliability of Children's Self-Reports of AIME

Salomon's (1984) previous findings of significant correlations between sixth-grade subjects' responses to AIME questions and their comprehension of inferential film content afforded validity for the measurement of AIME in children. Whether subjects' self-reports of mental effort investment, particularly those of young school-aged children, would be reliable was unknown. The AIME questions asked here through the TVIG instrument (i.e., how much to you concentrate, how hard do you try to figure out program events, and how much do you think about what program characters are doing and why) appear to have provided reliable assessments. Subjects demonstrated remarkable consistency in their responses over a one-week period. Test-retest reliabilities of children's responses at each grade level were high, ranging from r = .75 to r = .97. These findings, coupled with high inter-item consistency (i.e., high Cronbach alpha coefficients) and in light of Salomon's demonstration of concurrent validity, suggest that these questions are an appropriate assessment of AIME.

Developmental Differences in AIME

Data from related television research suggested that children's knowledge of program format, their ability to recognize discrepancies between expected and actual program content, and their general world knowledge influenced cognitive processing of television program material

(Collins, 1982). The literature also suggested that child and adult types of programs differed in the nature and complexity of program content. Based on developmental trends in children's familiarity with child and adult programs, and age-related differences in children's cognitive abilities, developmental differences in children's reported amounts of invested mental effort for child and adult types of television programs were expected. Consistent with this expectation, analyses revealed that children's reported amounts of invested mental effort for child programs significantly decreased for older children. This finding supports the view that older children, due to repeated familiarity and the relatively easy content of these programs, perceive child programs as readily understandable and presenting little content warranting mental effort investment.

The predicted developmental trend of increased AIME with increased grade level for adult programs was not supported. Sixth-graders' mean adult AIME scores were higher than their mean child AIME scores, suggesting that these children perceive that comprehension of adult programs necessitates more mental effort investment. Sixth-graders' mean adult AIME scores were, however, comparable to those of second-graders, and lower that those of fourth-graders. Consistent with Collins' (1982) position, young children's less-well developed cognitive abilities may lead them to

fail to perceive and mentally process much of the implicit, complex content of adult. Although second-, fourth-, and sixth-graders may actually comprehend differing amount of adult programs' information, their mental effort investment is directed by their program scripts. The similarity of the adult AIME scores of the three grade levels may, therefore, reflect scripts of different elaborative complexity resulting in similar self-perceptions of mental effort.

Contributions of Viewing Environment Variables to AIME

Children's program familiarity, parental participation in the children's viewing situation, and children's performance of other activities while viewing were expected to be related to reported amounts of invested mental effort. Although three significant relationships were noted, namely, adult programs' familiarity scores with adult AIME scores, and facilitative and distractive parental participation scores with child AIME scores, correlations of each of these variables with AIME scores resulted in low Pearson Moment coefficients, i.e. r - .27. Regression analyses also showed that these variables explained little of the observed variation in subjects' AIME scores.

One plausible explanation of why the predicted relationships were not observed concerns the difficulty of measurement of these predictor variables. Parental participation scores were derived from parental ratings on the HVQ. As with any self-report measure, the parents may

have given what they perceived to be the "desirable" response and consequently over- and/or under-reported the extent of their program relevant and non-relevant participation. The rating scale (i.e., never, seldom, sometimes, often, and almost always) provided only a general measure of participation. The use of an analog scale or an open-ended question asking parents to estimate the percentage of participation may provide more precise data. Although the HVQ questions provided data on the quantity of parental participation, the instrument did not assess the quality of parental participation. For example, HVQ questions on facilitative participation asked how often the parent answered questions and discussed program events. The manner in which parents discuss program material may serve as a better predictor of children's investment of mental effort. For example, one child subject in this study reported that she invested little mental effort when viewing sports programs. She stated that she watched the programs with her father and that he always explained exactly what was happening in the programs. In this situation, the father's discussion appeared to provide sufficient information that the subject perceived additional cognitive processing as unnecessary.

Difficulty of measurement may also account for an apparent lack of explanatory power of the performance of other activities predictor variable. Asking one TVIG

question about performance of other activities when viewing child programs and one question about other activities when viewing adult programs provided only an overall measure. Inquiring about performance of other activities for each program sub-category may provide more accurate data.

Another likely reason for the present difficulty in accounting for variations in AIME scores is the failure to include other related, potentially relevant variables. Salomon (1982, 1984) has proposed that the viewer's perceptions of the task or purpose for viewing determine the amount of mental effort investment. During the TVIG interviews, subjects frequently reported that they watched certain programs to learn new information. For example, a fourth-grade subject said that he always concentrated and thought about events in the program "Star Search", because he wanted to be an entertainer. Other children reported watching "Mr. Wizard's World" so that they could learn how to do the experiments. Salomon's research (1984) supports the view that children invest more mental effort when viewing for "learning" than when watching for entertainment. Children do not have universal perceptions of what information a particular television program offers or of the relevance of this information for them (Salomon, 1984). Assessment of children's motivation (i.e., entertainment or learning) for viewing child and adult program sub-categories would be appropriate to include in future studies.

Cohen and Salomon (1979) proposed that children's perceptions of the demand characteristics of television were derived from the environmental contexts in which current and previous viewing occur. The related television research also indicated that the variables included in this study could influence children's investment of mental effort. Although measurement of these variables may have been less than optimal, this study's findings raise the question of what additional variables, such as motivation, contribute to children's decisions of how much mental effort to invest in a viewing situation. Salomon (1984) has demonstrated that children's two general television metascripts (i.e., self-efficacy and television demand characteristics) are related to reported mental effort investment. Exploration of the nature of the relationship between each of children's metascripts (i.e., self-efficacy and perceptions of television demand characteristics) with parental participation, children's performance of other activities, and program familiarity may be a more useful approach in future research. Knowledge of these relationships may suggest other variables that are needed in an explanatory model of AIME, as well as the unique contributions of variables.

CHAPTER 6

CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

This investigation of children's reported investment of mental effort when viewing child and adult television programs revealed two important aspects of children's cognitive processing of television. Children as young as second-graders were shown to be reliable reporters of their mental effort investment. Secondly, a fairly clear developmental trend in children's mental effort investments emerged from the present analyses for child types of programs. Children's reported amounts of invested mental effort for these programs significantly declined after second-grade. A developmental trend of reported mental effort investment when viewing adult programs was not clearly shown. While fourth-graders' AIME scores were higher than sixth-graders', both of these older age groups reported higher AIME than second-graders. These findings offer partial support for the existence of developmental differences in children's mental effort investment. Examination of relationships of home viewing characteristics and children's reported amounts of invested mental effort revealed that variables included in this study had low explanatory power.

Interpretation and generalization from the present study are limited by several factors. On the one hand, the TVIG mental effort questions were adapted from Salomon's (1984) investigations, which did reveal concurrent validity between AIME self-reports and program comprehension. Concurrent validity for the TVIG questions was not, however, obtained in the present study. Secondly, when completing the HVQ, parents frequently circled specific programs which their children watched or wrote comments on the questionnaire. Parents were not requeried during data collection; thus, reliability of the parental reports is not known. It is possible that parental reporting was unreliable, thereby, contributing to the observed low contribution of parental variables to AIME scores in this study. Thirdly, subjects in the present study represented only one race and based on parental education level, a potentially restricted socioeconomic stratum. Results of the present study may not be generalizable to other populations.

Continued examination of developmental trends in children's mental effort investment when televiewing is needed. Obtaining both validity and reliability data from the same subjects is recommended to further support using children's self-reports to measure mental effort investment when televiewing. Nevertheless, the observed reliability of young children's self-reports should encourage other

investigators to consider inclusion of young children in studies of effortful cognitive processing of television content.

Additional studies of elementary school-aged children are needed to clarify differences in children's mental effort investment when viewing adult programs and to establish the generalizability of the observed developmental trends. Inclusion of mental effort questions in other studies of children's comprehension of televised content may also help to explain subjects' differences in comprehension.

How the home viewing context influences AIME remains unanswered. Before concluding that the home viewing environment does not influence children's effortful cognitive processing, refinement of measurement and additional correlational research are necessary. The absence of systematic predictor-AIME results in the present study also suggest that the theoretical determinants of AIME need to be further explored.

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APPENDIX A

DATA COLLECTION FORMS

HOME VIEWING QUESTIONNAIRE

I. FAMILY INFORMATION

Please answer each of the following questions.

1. Questionnaire completed by: (circle one) mother father

2. Birthdate of child: _____(month) _____(day) _____(year)

3. Sex of child: (circle one) female male

4. Last school grade which your child completed:_____

5. Age and sex of child's brothers and sisters:

age	sex	age	sex
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

6. Age of father _____ and mother _____

7. Highest school grade completed by father_____ and by mother_____

8. Number of television sets in the home: _____

9. A television set is located in the following room(s): (circle the room)

family room	living room
kitchen	dining area
parent's bedroom	child's bedroom

10. List any rules you have on how much television your child may watch or what kinds of programs he/she may not watch.

II. *Television Viewing of Programs*

Instructions: The following questions ask how often each behavior happens when your child views different types of television programs. Some examples of television show are given for each type of program. You may think of other example shows which your family typically watches. For the question on watching television with your child, think of how often your child watches these programs and then think of the amount of your child's time that you watch with him/her. For each question, place an X in the box beside the one BEST answer that describes how often these behaviors usually happen.

CARTOONS

Examples of cartoons are animated shows such as Smurfs, He-Man, Care Bears, Flintstones, Transformers, She Ra Princess.

1. Of the time your child watches cartoons, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

2. How often does your child ask questions about characters or events in cartoons..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

3. How often do you talk with your child about what happens in cartoons..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

4. When watching cartoons, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

5. When watching cartoons, how often does your child really try to understand the program..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

CHILDREN'S PROGRAMS

Examples of children's programs are Sesame Street, Kidsworld, Mr. Wizard's World, Mr. Roger's Neighborhood, Kidscene, Punky Brewster

6. Of the time your child watches children's programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

7. How often does your child ask questions about characters or events in children's programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

8. How often do you talk with your child about what happens in children's programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

9. When watching children's programs, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

10. When watching children's programs, how often does your child really try to understand the program..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

FAMILY PROGRAMS

Examples of family programs are Our House, Cosby Show, Walt Disney Movie, Andy Griffith, Leave It to Beaver, Dick Van Dyke, Family Ties, Webster

11. Of the time your child watches family programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

12. How often does your child ask questions about characters or events in family programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

13. How often do you talk with your child about what happens in family programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

14. When watching family programs, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

15. When watching family programs, how often does your child really try to understand the program. [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

COMEDY PROGRAMS

Examples of comedy programs are Newhart, Perfect Strangers, Head of the Class, Gimme A Break, Night Court, Cheers, Three's Company, Gilligan's Island, Sanford and Son, Newhart, Alf, Golden Girls, Growing Pains

16. Of the time your child watches comedy programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

17. How often does your child ask questions about characters or events in comedy programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

18. How often do you talk with your child about what happens in comedy programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

19. When watching comedy programs, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

20. When watching comedy programs, how often does your child really try to understand the program. [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

ADVENTURE/ACTION PROGRAMS

Examples of adventure/action programs are Murder She Wrote, Magnum P.I., Starman, Matlock, Macgyver, Airwolf, Outlaws, Sidekicks, Sledge Hammer, Miami Vice, all western and police shows

21. Of the time your child watches adventure programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

22. How often does your child ask questions about characters or events in adventure programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

23. How often do you talk with your child about what happens in adventure programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

24. When watching adventure programs, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

25. When watching adventure programs, how often does your child really try to understand the program..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

SOAP OPERAS

Examples of soap operas are Dallas, Dynasty, General Hospital, Bold And Beautiful, Knots Landing, Guiding Light, Santa Barbara

26. Of the time your child watches soap operas, how often do you watch these shows with your child.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
27. How often does your child ask questions about characters or events in soap operas.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
28. How often do you talk with your child about what happens in soap operas.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
29. When watching soap operas, how often do you and your child talk about other topics.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
30. When watching soap operas, how often does your child really try to understand the program.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always

NEWS/DOCUMENTARY PROGRAMS

Examples of news/documentary programs are Evening News, 60 Minutes, Nova, MacNeil-Lehrer Newshour, Business Reports, National Geographic, Carolina Saturday

31. Of the time your child watches news programs, how often do you watch these shows with your child.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
32. How often does your child ask questions about characters or events in news programs.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
33. How often do you talk with your child about what happens in news programs.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
34. When watching news programs, how often do you and your child talk about other topics.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always
35. When watching news programs, how often does your child really try to understand the program.....	[ ]never	[ ]seldom	[ ]sometimes	[ ]often	[ ]almost always

ENTERTAINMENT PROGRAMS

Examples of entertainment programs are P.M. Magazine, Prime Time, Donahue, Hee Haw, Solid Gold, American Bandstand, Entertainment Tonight, Star Search

36. Of the time your child watches entertainment programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

37. How often does your child ask questions about characters or events in entertainment programs.. [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

38. How often do you talk with your child about what happens in entertainment programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

39. When watching entertainment programs, how often do you and your child talk about other topics... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

40. When watching entertainment programs, how often does your child really try to understand the program..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

SPORTS PROGRAMS

Examples of sports programs are Monday Night Baseball, Basketball games, Wrestling, Wide World of Sports

41. Of the time your child watches sports programs, how often do you watch these shows with your child..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

42. How often does your child ask questions about characters or events in sports programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

43. How often do you talk with your child about what happens in sports programs..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

44. When watching sports programs, how often do you and your child talk about other topics..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

45. When watching sports programs, how often does your child really try to understand the program..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

III. Other Activity with Viewing

Children often play, read, eat meals, or do some other activity when they watch television.

46. How often does your child do other activities when he/she watches cartoons, children's programs, and family shows..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

47. How often does your child do other activities when he/she watches action, comedy, news, sports entertainment, and soap opera shows..... [ ]never [ ]seldom [ ]sometimes [ ]often [ ]almost always

Thank you for completing this questionnaire. Please recheck that you selected one answer for each question. Please have your child bring this form and the signed consent form to school tomorrow.

TELEVISION VIEWING INTERVIEW GUIDE

ID_____
NAME_____ DATE_____

I. TELEVISION VIEWING HABITS

INSTRUCTIONS: Think about the television programs that you watch at home and how much time you watch these programs. I am going to ask you about different types of television programs. To answer each question, you need to point to or say the circle label that best says how much you do each of these activities. If you are not sure what the question means, just tell me and I'll try to help you understand.

CARTOONS

Example shows are Smurfs, Transformers, He-Man, Sha Ra Princess, Flintstones, Care Bears

1. How much do you watch cartoons..... [ ]none [ ]very little [ ]some [ ]very much

2. When watching a cartoon, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

3. When watching a cartoon, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

4. When watching a cartoon, how much do you use your brain (think) to understand what the characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

CHILDREN'S PROGRAMS

Example shows are Kidsworld, Kidscene, Mr. Wizard's World, Sesame Street, Punky Brewster, Mr. Roger's Neighborhood

5. How much do you watch children's programs..... [ ]none [ ]very little [ ]some [ ]very much

6. When watching a children's programs, how much do concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

7. When watching a children's programs, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

8. When watching a children's programs, do you use your brain (think) to understand what the characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

FAMILY PROGRAMS

Example shows are Cosby, Our House, Leave It To Beaver, Andy Griffith, Family Ties, Webster, Walt Disney Dick Van Dyke

9. How much do you watch family programs..... [ ]none [ ]very little [ ]some [ ]very much

10. When watching a family program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

11. When watching a family program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

12. When watching a family program, how much do you use your brain (think) to understand what characters are and why..... [ ]none [ ]very little [ ]some [ ]very much

COMEDY PROGRAMS

Example shows are Perfect Strangers, Head Of The Class, Three's Company, Gilligan's Island, Gimme A Break, Growing Pains, Cheers, Night Court, WKRP, Newhart, Alf, Golden Girls

13. How much do you watch comedy programs..... [ ]none [ ]very little [ ]some [ ]very much

14. When watching a comedy program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

15. When watching a comedy program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

16. When watching a comedy program, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

ADVENTURE/ACTION PROGRAMS

Example shows are Magnum P.I., The Wizard, Murder She Wrote, Matlock, Airwolf, Miame Vice, Outlaws, MacGyver Sidekicks, Sledge Hammer, Starman, and any police, detective or western show.

17. How much do you watch adventure programs..... [ ]none [ ]very little [ ]some [ ]very much

18. When watching an adventure program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

19. When watching an adventure program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

20. When watching an adventure program, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

ENTERTAINMENT PROGRAMS

Example shows are P.M. Magazine, Star Search, Prime Time, Entertainment Tonight, Solid Gold, American Bandstand, Hee Haw, Donahue

21. How much do you watch entertainment programs..... [ ]none [ ]very little [ ]some [ ]very much

22. When watching an entertainment program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

23. When watching an entertainment program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

24. When watching an entertainment program, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

NEWS/DOCUMENTARY PROGRAMS

Example shows are the Six O'Clock Evening News, Nova, National Geographic, Carolina Saturday, 60 Minutes MacNeil-Lehrer Newshour, Business Reports

25. How much do you watch news programs..... [ ]none [ ]very little [ ]some [ ]very much

26. When watching a news program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

27. When watching a news program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

28. When watching a news program, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

SPORTS PROGRAMS

Example shows are Wide World of Sports, Basketball, Baseball, Wrestling, Golf, Auto Racing, Sports Saturday

29. How much do you watch sports programs..... [ ]none [ ]very little [ ]some [ ]very much

30. When watching a sports program, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

31. When watching a sports program, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

32. When watching a sports program, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

SOAP OPERAS

Example shows are Dallas, Knots Landing, Dynasty, General Hospital, Another World, Bold and Beautiful, Santa Barbara

33. How much do you watch soap operas..... [ ]none [ ]very little [ ]some [ ]very much

34. When watching a soap opera, how much do you concentrate (pay attention to the show)..... [ ]none [ ]very little [ ]some [ ]very much

35. When watching a soap opera, how hard do you try to figure out what is happening in the show..... [ ]none [ ]very little [ ]some [ ]very much

36. When watching a soap opera, how much do you use your brain (think) to understand what characters are doing and why..... [ ]none [ ]very little [ ]some [ ]very much

II. Other Activities When Viewing

37. Think about the times when you watch cartoons, children's programs, and family shows. How much of the time that you watch these shows do you do other things such as play, read, eat meals, or some other activity.. ..... [ ]none [ ]very little [ ]some [ ]very much

38. Now think about the times when you watch other kinds of television programs such as police shows or comedies. How much of that time do you do other things such as play, read, eat meals, or some other activity..... [ ]none [ ]very little [ ]some [ ]very much

39. Tell me your three favorite television shows:

APPENDIX B

TABLES

Table B-1

Cronbach Alpha Coefficients for Children's Responses to Mental Effort Questions on the TVIG by Program Sub-Category

Program Sub-Catgory	Number of Respondents	Alpha Coefficient
Cartoons	114	.71
Children's Programs	98	.76
Family Programs	116	.72
Situation Comedies	116	.78
Entertainment Programs	98	.81
Adventure Programs	99	.86
News Programs	102	.83
Sports Programs	88	.81
Soap Operas	75	.86

Table B-2

Cronbach Alpha Coefficients for Parents' Responses to Facilitative Participation Questions on the HVQ by Program Sub-Category

Program Sub-Catgory	Number of Respondents	Alpha Coefficient
Cartoons	115	.74
Children's Programs	108	.84
Family Programs	116	.80
Situation Comedies	110	.78
Entertainment Programs	106	.87
Adventure Programs	110	.83
News Programs	107	.81
Sports Programs	100	.87
Soap Operas	85	.80