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dissertation entitled

PREDICTORS OF VISUAL MEDIA USE AND
ITS EFFECTS ON IMAGINATIVE PLAYFULNESS
IN PRESCHOOL CHILDREN

presented by

Nary Shin

has been accepted towards fulfillment
of the requirements for the

Ph. D. degree in Family and Child Ecology

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06/16/04
Date

PREDICTORS OF VISUAL MEDIA USE AND THEIR EFFECTS ON IMAGINATIVE PLAYFULNESS IN PRESCHOOL CHILDREN

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Family and Child Ecology

2004

ABSTRACT

PREDICTORS OF VISUAL MEDIA USE AND THEIR EFFECTS ON IMAGINATIVE PLAYFULNESS IN PRESCHOOL CHILDREN

By

Nary Shin

The main purpose of this study was an examination of the associations among preschool children's visual media use, the quality of their imaginative play, and the ecological factors of their viewing practices in their family. As a part of my research, I hypothesized that the levels of preschoolers' viewing different programming at home are influenced by ecological variables, which then affect their imaginative playfulness.

The role of children's visual media use and its ecological predictors in imaginative playfulness was researched using Structural Equation Modeling (SEM) that tested the pathways from ecological factors through children's visual media use to their imaginative playfulness. More specifically, this study examined the relationships among socioeconomic status, the viewing environment in a family, parental mediation, visual media use of three to five-year-old children, and their imaginative playfulness.

Children's visual media use and its ecological factors were collected from 202 children's primary caregivers, and the head teacher of children in childcare evaluated the imaginative playfulness component. It was found that socioeconomic status contributed to the viewing environments in the family, and in turn, the family viewing environments influenced the children's viewing

practices. However, the children's viewing did not affect their imaginative playfulness. Although no systematic pattern between children's visual media use and their imaginative playfulness was found, the final model identified the pathways among ecological factors, visual media use, and imaginative playfulness.

Implications for researchers who study media use and children's development and educators who wish to promote children's imaginative play are discussed.

ACKNOWLEDGEMENTS

I have dreamed of being Dr. Shin since I was seven years old. My inspiration came from my father, Dr. Simon B. Shin. I remember seeing his nametag on his office door or watching guests who would come to our home and marvel at my parents' bedroom filled with books. I wanted to be just like him. There have been a lot of people since then who have supported my dream and efforts in earning my doctoral degree.

I would like to express my gratitude to Dr. Whiren, my advisor and committee chair, for her advice and support throughout my doctoral program as a mentor, a colleague, and sometimes as a mother. I would also like to thank Dr. Greenberg for providing basic insights and valuable guidance in the field of telecommunications with which I was unfamiliar. I would also like to thank Dr. Soderman who challenged me to be a scholar and a researcher, Dr. Luster, who was a great listener and who guided me in a respectful and encouraging way whenever I needed his support, and to Dr. von Eye who guided the methodology I used with extra support throughout my work.

I am very appreciative of the parents and teachers who took the time out of their busy lives to complete the research questionnaires. Their interest and participation in this study resulted in my having a much deeper appreciation for their roles.

I owe my thanks to many friends who provided me with every kind of support, from encouraging remarks to wonderful meals. I would especially like to

thank my parents-in-law for their thoughtful understanding throughout the dissertation process, and a special thanks and much love to my mother for her endless prayers and to my father, the original Dr. Shin, whose special qualities instilled in me the desire to see this through. Finally, I would like to thank my husband, Seung-Jin, who is my best and life-long friend, and to my angel, Alexis, who has been in daycare since she was seven-weeks-old, for the joy that they have brought and continue to bring to my life. To all of them who have made it possible to complete my dissertation, I extend my sincere gratitude and love.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Play is a ubiquitous and key activity in child development. Traditionally, play has been appreciated as an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their overall development (Bredekamp & Copple, 1997). Imaginative play, in particular, has been the focus of much research. According to van der Voort and Valkenburg (1994), imaginative play refers to the play in which the child transcends the constraints of reality by acting in an "as if" role.

In imaginative play, children pretend that they are someone or something else, that objects represent something else, and/or that the participants are in a different place and time. Imaginative play is sometimes used interchangeably with such terms as "pretend play," "fantasy play," "dramatic play," and "make-believe play" (Fein, 1981; Johnson et al., 1999). Imaginative play has been highly regarded as a process of adaptation to the environment by practicing or representing events that children experience (Bredekamp & Copple, 1997; Creasey et al., 1998; Fisher, 1992; Singer, 1996). Accordingly, environments that children interact with have been acknowledged for playing a key role in the development of children's imaginative play (Roopnarine & Johnson, 1994).

In modern society, television has become a pervasive ecological factor, and television viewing has become a main activity for even young children. For instance, Singer and Singer (1983) reported that television viewing occupies a

larger amount of children's time than any other single activity, with the exception of sleeping. Due to the prevalence of television, many scholars studying children's imaginative play have been compelled to include the influence of television.

As stated above, television, which provides a variety of sources of information for children to use in their imaginative play, has been typically regarded as a major influence on the content of imaginative play (Huston & Wright, 1998a). What children watch on television may stimulate imaginative play by giving children ideas for certain play episodes (Johnson et al., 1999). Despite the fact that television viewing may have positive effects on the amount of imaginative play by increasing the repertoire of pretend play, such play has been speculated to be less creative and imaginative and more repetitive and simple in terms of scripts and plots (Carlsson-Paige & Levin, 1995). In other words, the "quality" of such play can be questioned, although the effects of television viewing on the quantity of imaginative play may be positive.

This presumption is supported by a series of hypotheses, which presupposes that television has a number of structural attributes that may be related to poor quality imaginative play. The first structural characteristic of television is the rapid shift of scene and the constant changes in sound level. Because this attribute provides children with few opportunities to reflect on what they are watching, young children, who have limited memory ability, remember outstanding and repetitive features or sequences, such as action sequences or aggressive behaviors rather than the whole plot of a show. Accordingly, the plots

and scripts of imaginative play triggered by watching television are simple since children may mainly retrieve the easily stored action sequences and aggressive behaviors (Greenfield & Beagles-Roos, 1988; Honig et al., 2001).

Secondly, television viewing is a cognitively receptive process. Because it does not provide direct and interactive experience, television offers children little practice in forming their own images. For this reason, the way that children watch television is a less meaningful way for them to experience the world. The repertories and scripts of imaginative play affected by viewing may not be generated as a result of children's direct experiences and, therefore, are likely to be imitative rather than creative (Singer, 1980).

Thirdly, television represents a form of vicarious play or fantasy in a sense. Namely, children's television viewing may complement their imaginative play as part of their development (Singer & Singer, 1981). Because television may be providing a major form of alternative consciousness or serving much the same role as imaginative play, television is thought to increase the "let you entertain me" attitude that undermines children's willingness to produce their own fantasies, and to contribute to less creative imaginative play (Singer et al., 1984a; Valkenburg & van der Voort, 1994).

Besides these structural characteristics of television affecting the quality of imaginative play, the linkup of television programs and toys may also be blamed for the low quality of play. Because of the marketing of television shows, highly realistic, single-purpose, and mostly stereotypical or even violent toys based on program characters are available to young children, which, in turn, may

encourage them to continue imitating what they have seen on television (Carlsson-Paige & Levin, 1990).

In conclusion, many scholars have speculated that imaginative play generated by viewing television is likely to be imitative and limited in scope. In addition, the behavior characteristics of such play may easily become aggressive and disruptive. When cognitive, social, and physical mobility in a spontaneous and pleasurable manner, is the attribute of high quality play, the imaginative play influenced by television watching may be considered to be one of lower quality (Lieberman, 1966; Rubin et al., 1983).

Therefore, efforts to understand the quality of such play and its contributions to development have taken on a growing sense of importance and urgency (Carlsson-Paige & Levin, 1987, 1990; Meidzian, 1991). Despite the increasing concern and debate regarding the effects of viewing on the quality of imaginative play, the preponderance of earlier publications tend to be arguments at the conceptual level based on developmental theories or societal values, whereas there is a paucity of empirical research on the effects of television as it pertains to the quality of imaginative play. One of the reasons for little attention in the literature may be due to the difficulty of scientifically investigating the quality of imaginative play.

Playfulness has been used as a way to describe the quality of play since Lieberman first pioneered and measured the concept. Playfulness is a feature of children's play that represents imagination, creativity, and penchant for novelty seeking, humor, emotional expressiveness, openness, and flexibility (Aguilar,

1985; Barnett, 1990; Boyer, 1997/98; Lieberman, 1966, 1977). Playfulness provides favorable opportunities to enhance play, not in a disruptive and impulsive style but in a productive and appropriate way (Aguilar, 1985; Barnett, 1990; Lieberman, 1966, 1977). Playfulness, therefore, is essential to high quality play, where play is defined as an action that promotes and integrates motor, cognitive, social, and emotional development and learning in pleasant, voluntary, child-centered, and supportive contexts (Kieff & Casbergue, 2000). In light of this, playfulness becomes the variable that needs more careful examination, when the quality of imaginative play influenced by viewing television is being questioned. Therefore, this study will examine the role that television plays in the development of children's imaginative playfulness.

There are several points that were considered in this research in studying the effects of television on imaginative playfulness based on past studies. First, according to the ecological theory of Bronfenbrenner (1989), there are environmental factors that are likely to be associated with child development at manifold levels. Multiple factors are assumed to contribute to individual differences in children's viewing practices at different ecological levels (Anderson & Bryant, 1983; Huston & Wright, 1998b; Pinon et al., 1989). For preschoolers, the most important ecology surrounding them is their family. Therefore, this study examined factors at the familial level, including socioeconomic status, the family viewing environment, and parental mediation, which are likely to be predictive of children's viewing patterns, and may indirectly influence imaginative playfulness.

Secondly, it has been widely and consistently revealed that the effect of different programming is an important factor when television influences are investigated. Earlier studies found that the influences of television may be tied to the characteristics of television programs such as violent content, educational components, or intended audiences. It has been found that children played more imaginatively after they watched educational programs designed for children in laboratory settings; on the other hand, children who watch a great deal of violent and action adventure programs are less imaginative and more aggressive (Singer & Singer, 1981; Singer et al., 1984a; Valkenburg et al., 1992; Zuckerman et al., 1980). Therefore, this study focused on the effects of different programming in terms of three characteristics: those programs designed primarily for children, those containing violent episodes, and those produced for an educational purpose.

Thirdly, although television is the most influential and accessible mass medium it is not the only mass medium. There are many types of mass media that young children experience besides television and the use and experience with television can be affected by other mass media (Funk, 2001). Among a variety of mass media, watching movies and videos by using VCRs and DVD players is also essentially a passive activity that may affect children's play at a later time by triggering the imagination in some way (Johnson et al., 1999). In light of this, videos and DVDs are included in this study to examine their influences on imaginative playfulness.

Statement of the Problem

The main purpose of this study was to examine the associations among preschool children's visual media use, the quality of their imaginative play, and the ecological factors of their viewing practices in their family. For this purpose, I hypothesized that the levels of preschoolers' viewing different programming at home are influenced by ecological variables, which then affect their imaginative playfulness. Specifically speaking, a child's viewing of different programs is expected to be influenced by aspects of the child's ecology such as socioeconomic status of the family, the environment of visual media use in the family, and parental mediation of what the child watches. In turn, in this present study, the degree to which children view different programs was assumed to contribute significantly to their imaginative playfulness.

Theoretical Framework

Human ecology, as described by Bronfenbrenner, was used as a theoretical framework for this study. Ecology is the study of the relationship between organisms and environments (Griffore & Phenice, 2001). According to the ecological perspective, individuals and environments interacting over time affect developmental processes. Bronfenbrenner (1979) asserted that research on human development should include an awareness of the environmental systems in which people are embedded.

In the ecology of human development, an individual is a psychological system that is affected by conscious and changing roles, unconscious needs, and motives. Individuals live simultaneously in multiple nested environments.

Bronfenbrenner (1979, 1989) proposes that there are five levels of environment: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem.

The microsystem is the child's immediate environment. The key elements of the microsystem are activities, role, and interpersonal relations experienced by the developing person in face-to-face settings. For preschool children, a microsystem related to visual media use can be the characteristics of their family, such as family viewing habits or parental mediation.

Children tend to spend time in more than one microsystem. The linkages and processes that occur between those settings are referred to as the mesosystem. In other words, the mesosystem is another level of environment that comprises the linkages and processes that take place between two or more settings containing the developing person. Accordingly, a mesosystem is a system of microsystems. For preschool children, the relation between the home and the child care center is a mesosystem.

The exosystem refers to events that occur in a setting that does not include the child directly but that can have an effect on the child. Peers' use of visual media at their home is an example of the exosystem influencing the visual media use of the child. The child may never directly interact with exosystems, but what happens there may affect the child through their microsystems.

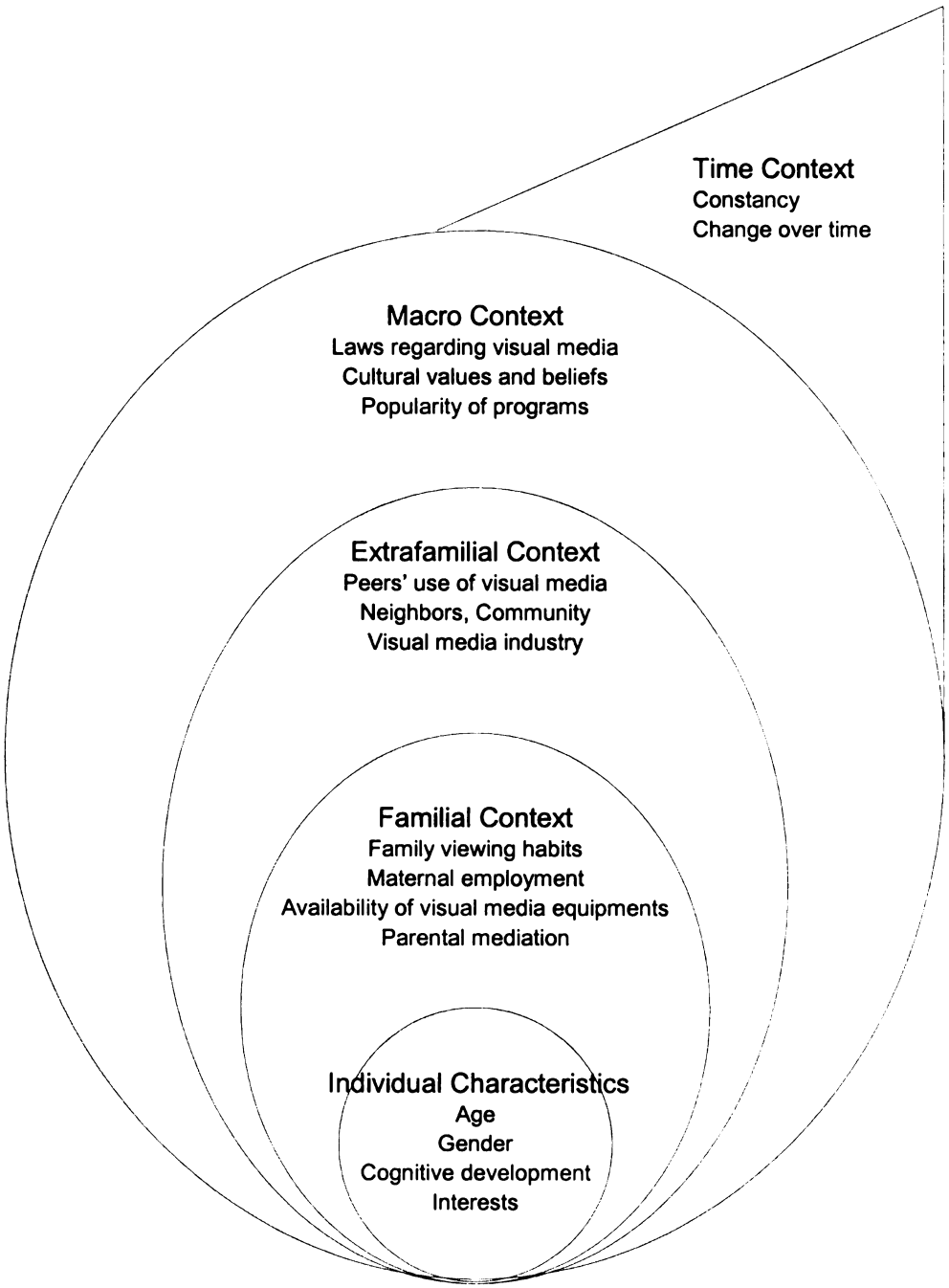
The macrosystem is the broadest level of the environment where the child and his/her family are living. The macrosystem consists of the overarching pattern of microsystem, mesosystem, and exosystem. Characteristics of a given culture, subculture, or other broader social context that the family belongs to are

examples of the microsystem influencing visual media use of the child.

Bronfenbrenner (1989) later proposed another concept for his ecological system, which was the chronosystem. The chronosystem refers to an ecological transition that occurs whenever a person's position in the ecological environment is altered as a result of a change in role, setting, or both. For example, the birth of a baby, the beginning of school, graduating from school, moving to a new community, getting a job, changing careers, getting married, and retirement are some ecological changes that individuals and families can experience.

These multiple environments, as a series of embedded and concentric circles, start with the closest environment, such as family and friends, and extend to encompass societal level factors, such as nation, social class, and ethnic group. Based on the Bronfenbrenner ecological theory of human development, a theoretical framework of factors that are likely to be associated with children's visual media use is illustrated in Figure 1. As depicted, potential ecological systems that are likely to influence visual media use are at the level of the individual and a series of contexts that are important for children, are at the level of the family, peer group, community, and other broader level of environments.

Figure 1. Theoretical Framework of Ecological Factors of Children's Visual Media Uses (Adapted from Luster & Oh, 2001, p. 718)



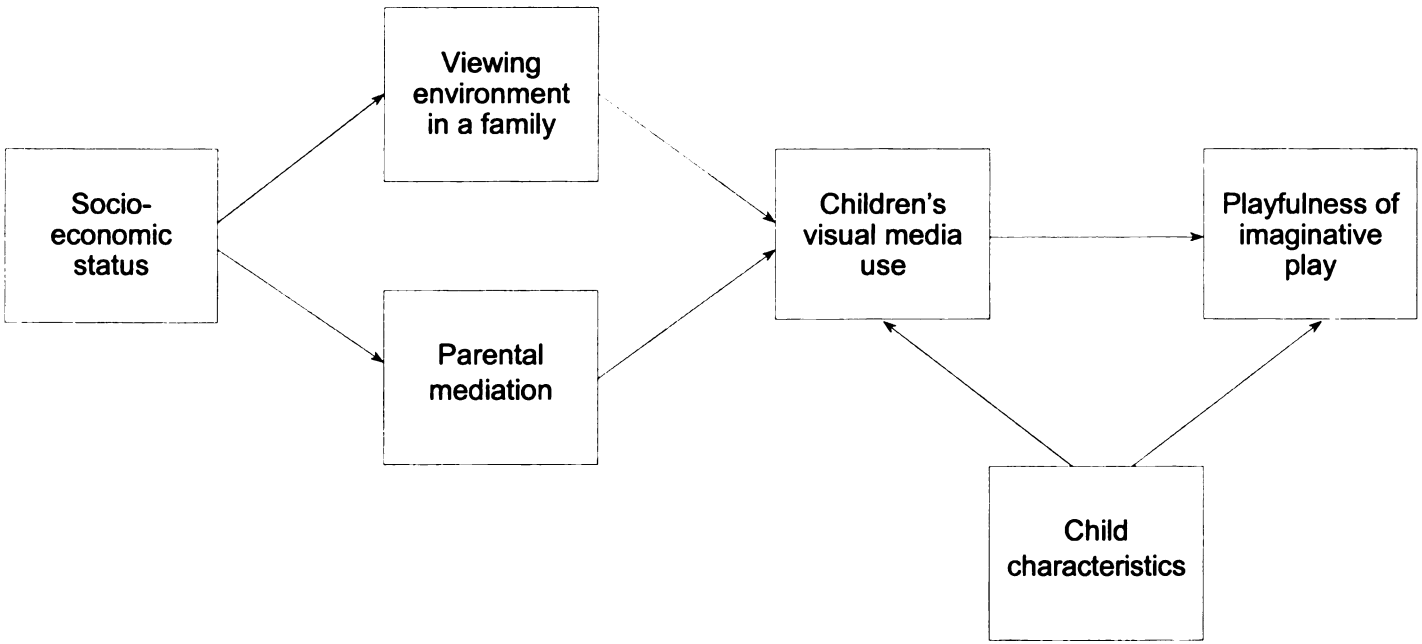
Conceptual and Operational Models

According to Bronfenbrenner (1986), the family, which is the most proximal environment, is one of the most significant influences in the child's ecology. Among the numerous ecological predictors affecting children's visual media use displayed in Figure 1, several factors at the individual level and family level were selected in this study. Figure 2 illustrates a conceptual model for this study showing the pathways of ecological predictors to playfulness through children's visual media use.

In the conceptual model, the family's socioeconomic status is expected to affect the viewing environment in a family and parental mediation, which then would be the predictors of children's viewing of television, videos, and DVDs. Besides the family viewing environment and parental mediation, the variables of child characteristics at the individual level are likely to influence children's viewing practices. Finally, children's imaginative playfulness is expected to be determined by the children's characteristics and their visual media use.

In the conceptual model, therefore, the familial factors are expected to indirectly influence children's imaginative playfulness through their visual media use. Also, child characteristics are anticipated to affect imaginative playfulness directly and indirectly through their visual media use.

Figure 2. Conceptual Model of Predictors of Children's Visual Media Use and Its Effects on imaginative Playfulness

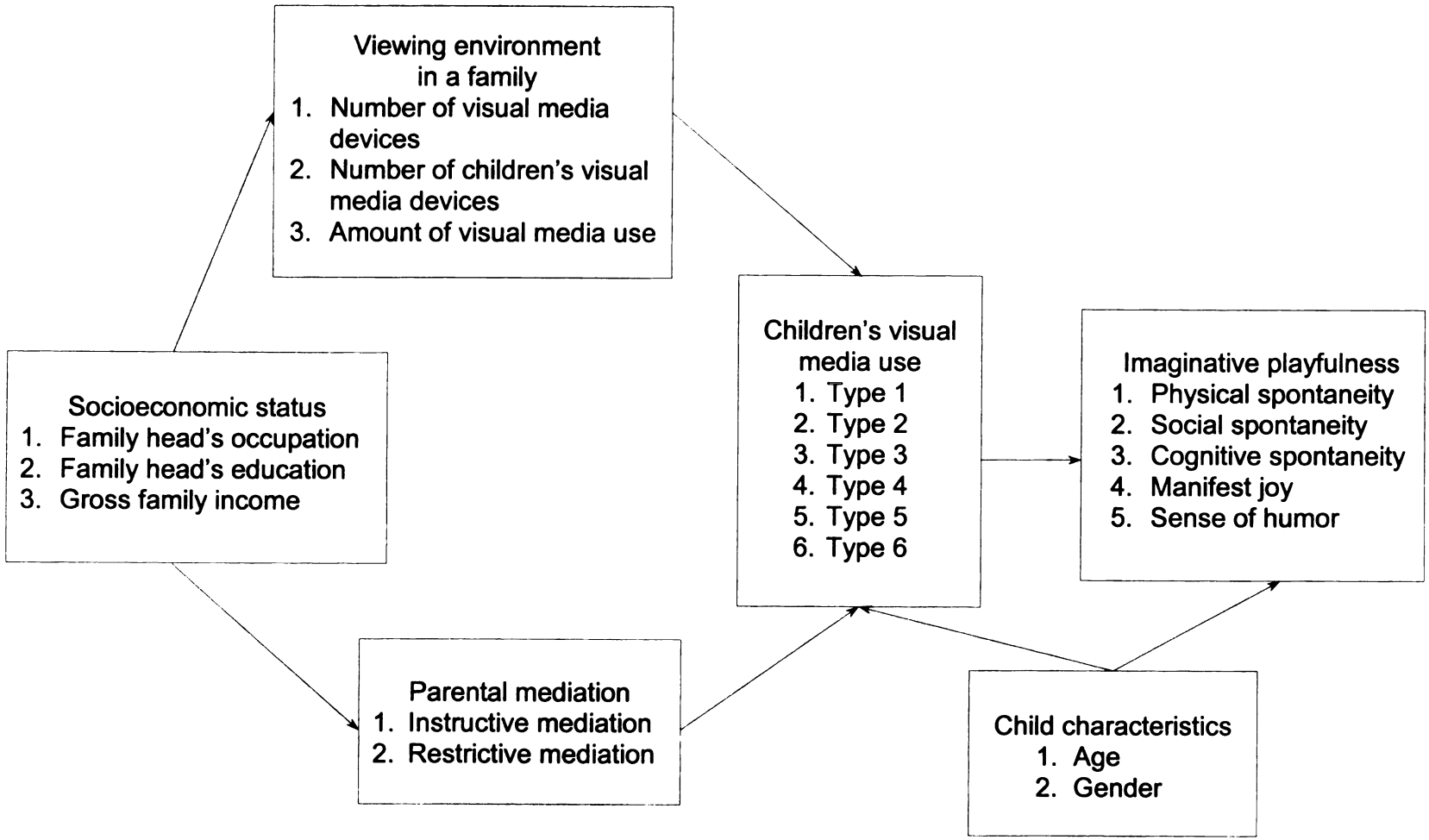


Variables, which are operationally defined and measured to indicate the constructs in the conceptual model, are listed in the operational model (see Figure 3. At the family level, socioeconomic status, which is likely to influence viewing environment in a family and parental mediation, was indicated by gross family income, family head's occupation, and family head's education. Viewing environment in a family is expected to be indicated by three observed variables, including amount of visual media use, number of visual media devices in the family, and number of visual media devices that children own. Parental mediation of visual media use is indicated by instructive mediation and restricted mediation.

At the individual level, child characteristics are likely to influence children's visual media use and their imaginative playfulness. In this study, child characteristics are indicated by age and gender.

Finally, children's imaginative playfulness is indicated by five observed variables, including physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor.

Figure 3. Operational Model of Predictors of Children's Visual Media Use and Its Effects on Imaginative Playfulness



Conceptual and Operational Definitions

Socioeconomic Status

Conceptual: Social and economic factors that distinguish people in a society (Reiss, 1961).

Operational: The reports of primary caregivers on items of gross annual income of their family and years of education of the family head on the Family Background Questionnaire (see Appendix D) and the scores of parental occupation level as coded using the Socioeconomic Index (Duncan, 1961).

Viewing Environment in a Family

Conceptual: The physical traits or attributes that influence what children watch and how much they watch on television, video, and DVD within the household.

Operational: The reports of primary caregivers regarding total minutes of visual media use at home during the week previous to the reporting day, the number of visual media devices in their family, and the number of their child's visual media devices as measured by items in the Family Background Questionnaire.

Parental Mediation

Conceptual: Parent-child interaction intended to influence the effects of watching television, videos, and DVDs on their children's development (Weaver & Barbour, 1992).

Operational: The scores on the Parental Mediation Questionnaire (see Appendix F) adapted from the inventory of Parents' Television Mediation Styles (Valkenburg et al., 1999).

Instructive Mediation

Conceptual: Parents' active efforts to discuss and criticize what their child watches on television, video, and DVD (Valkenburg et al., 1999).

Operational: The scores reported by primary caregivers on items 1-5 on the Parental Mediation Questionnaire.

Restrictive Mediation

Conceptual: Parents' active efforts to set rules on what and how much their child watches on television, video, and DVD (Valkenburg et al., 1999).

Operational: The scores reported by primary caregivers on items 6-10 on the Parental Mediation Questionnaire.

Child Characteristics

Conceptual: The individual traits or attributes of the child that can affect his/her visual media use.

Operational: The reports of the primary caregivers on their child's age and gender on the Family Background Questionnaire.

Children's Visual Media Use

Conceptual: Children's actual viewing of television, video, and DVD at home.

Operational: Children's time spent viewing Type 1, Type 2, Type 3, Type 4, Type 5, and Type 6 programs during the week previous to the reporting day at

home, as reported by primary caregivers on the Visual Media Use Questionnaire (see Appendix E).

Type 1

Conceptual: The amount of children's viewing at home of nonviolent informative programs designed for children.

Operational: The reports of the primary caregivers on the Visual Media Use Questionnaire stating the titles and frequencies of viewing of nonviolent programs designed primarily for viewers 12 or younger that included informative or educational messages.

Type 2

Conceptual: The amount of children's viewing at home of nonviolent and non-informative programs designed for children.

Operational: The reports of the primary caregivers on the Visual Media Use Questionnaire stating the titles and frequencies of viewing of nonviolent programs designed primarily for viewers 12 or younger that do not include informative or educational messages.

Type 3

Conceptual: The amount of children's viewing at home of violent and non-informative programs designed for children.

Operational: The reports of the primary caregivers on the Visual Media Use. Questionnaire stating the titles and frequencies of viewing of violent programs designed primarily for viewers 12 or younger that do not include informative or educational messages.

Type 4

Conceptual: The amount of children's viewing at home of nonviolent informative programs for general audiences.

Operational: The reports of the primary caregivers on the Visual Media Use Questionnaire stating the titles and frequencies of viewing of nonviolent programs with informative or educational messages not designed primarily for viewers 12 or younger.

Type 5

Conceptual: The amount of children's viewing at home of nonviolent and non-informative programs for general audiences.

Operational: The reports of the primary caregivers on the Visual Media Use Questionnaire stating the titles and frequencies of viewing nonviolent programs without informative or educational messages, not designed primarily for viewers 12 or younger.

Type 6

Conceptual: The amount of viewing at home of violent and non-informative programs for general audiences.

Operational: The reports of the primary caregivers on the Visual Media Use Questionnaire stating the titles and frequencies of viewing of violent programs without informative or educational messages not designed primarily for viewers 12 or younger.

Imaginative Playfulness

Conceptual: Children's disposition during imaginative play that is characterized by physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor (Lieberman, 1966).

Operational: Children's score on the adapted Children's Playfulness Scale (CPS; Barnett, 1990, 1991a), which deals with imaginative playfulness as reported by their head teacher on the Imaginative Playfulness Scale (see Appendix G).

Physical Spontaneity

Conceptual: The coordination and motor activity level during imaginative play (Barnett, 1990; Lieberman, 1966).

Operational: Children's score on items 1-4 on the Imaginative Playfulness Scale.

Social Spontaneity

Conceptual: Ability to get along with others and to move in and out of groups during imaginative play (Barnett, 1990; Lieberman, 1966).

Operational: Children's score on items 5-9 on the Imaginative Playfulness Scale.

Cognitive spontaneity

Conceptual: Imaginative quality including uniqueness, unconventionality, flexibility and variety of thoughts during the child's imaginative play (Barnett, 1990; Lieberman, 1966).

Operational: Children's score on items 10-13 on the Imaginative Playfulness Scale.

Manifest joy

Conceptual: The extent to which the child expresses enthusiasm, exuberance, enjoyment, lack of restraint, and vocalization during imaginative play (Barnett, 1990; Lieberman, 1966).

Operational: Children's score on items 14-18 on the Imaginative Playfulness Scale.

Sense of humor

Conceptual: Appreciation of comical events, recognition of funny situations, and gentle teaching during imaginative play (Barnett, 1990; Lieberman, 1966).

Operational: Children's score on items 19-23 on the Imaginative Playfulness Scale.

A summary of variables and instruments is presented in Table 1.

Table 1.

Summary of Variables and Instruments

Variable	Instrument
Exogenous variables	
Socioeconomic status	
Family head's occupation	Socioeconomic Index
Family head's education	Panel Study of Income Dynamics
Gross family income	Panel Study of Income Dynamics
Child characteristics	
Age	Family Background Questionnaire
Gender	Family Background Questionnaire
Mediating variables	
Viewing environment in a family	
Number of visual media devices	Panel Study of Income Dynamics
Number of children's of visual media devices	Panel Study of Income Dynamics
Amount of visual media use	Panel Study of Income Dynamics
Parental mediation	
Instructive mediation	Parental Mediation Questionnaire
Restrictive mediation	Parental Mediation Questionnaire
Children's visual media use	
Type 1 programs	Visual Media Use Questionnaire
Type 2 programs	Visual Media Use Questionnaire
Type 3 programs	Visual Media Use Questionnaire
Type 4 programs	Visual Media Use Questionnaire
Type 5 programs	Visual Media Use Questionnaire
Type 6 programs	Visual Media Use Questionnaire
Dependent variables	
Imaginative playfulness	
Physical spontaneity	Imaginative Playfulness Scale
Social spontaneity	Imaginative Playfulness Scale
Cognitive spontaneity	Imaginative Playfulness Scale
Manifest joy	Imaginative Playfulness Scale
Sense of humor	Imaginative Playfulness Scale

CHAPTER 2

LITERATURE REVIEW

In this chapter, a comprehensive review of research literature was organized around four topics: ecological factors of children's viewing; playfulness; effects of viewing on imaginative play; and effects of viewing on playfulness.

Ecological Factors of Children's Viewing

Socioeconomic Status

The three most commonly used measures of socioeconomic status are income, education, and occupation. The educational levels of parents have been found to have a direct impact on predicting the amount of children's viewing. There is a correlation between parents with advanced degrees and relatively low television use by their children from preschoolers to adolescents. In contrast, it is shown that the low educational level of parents has a direct influence on the higher amounts of children's viewing (Anderson et al., 2001; Bianchi & Robinson, 1997; Comstock et al., 1978; Condry, 1989; Huston et al., 1992; Huston & Wright, 1996; Pinon et al., 1989; Tangney & Feshbach, 1988). Of course, the influence of the parents' education should be discussed more specifically in terms of types of television programming. In general, preschoolers and elementary school children of better-educated parents view an equal or greater amount of informative programs, such as *Sesame Street* (Ball & Bogatz, 1970;

Cook et al., 1975; Huston et al., 1990; Truglio et al., 1996). This implies that parental educational status influences what, as well as how much, their children watch.

Similarly, occupational levels of parents also influence their children's viewing practices; the high occupational status of parents is associated with relatively low television use by adolescents, as well as preschoolers and elementary school children (Anderson et al., 2001; Bianchi & Robinson, 1997; Comstock et al., 1978; Condry, 1989; Huston et al., 1992; Huston & Wright, 1996; Tangney & Feshbach, 1988).

In regard to income level, Atkin and his colleagues (1991) found that family income levels account for the amount of television viewing of fifth-graders and tenth-graders (β = -.09, R^2 = .16, p = .04). Considering the types of programs, preschoolers and adolescents in low-income families watch an equal amount of non-animated entertainment shows and more animated entertainment shows (Anderson et al., 2001; Huston & Wright, 1996). Huston and Wright (1996), however, showed family income does not predict viewing of children ranging in age from two years to seven years when parental education is statistically controlled. Therefore, it can be concluded that the differences in the amount of children's television viewing, in accordance with income differences, are explained by differences in parents' educational levels.

As Huston and Wright (1998b) argued, these descriptive influences provide little insight into the effects of socioeconomic status on children's viewing practices. Therefore, it is important to investigate variables that are involved in

pathways from socioeconomic status to viewing practices in families.

Viewing Environment in a Family

Television Viewing Practices in a Family

Television sets are located in the common living areas of most homes, so, young children are often present and exposed to programs watched by their family members (Carpenter et al., 1989). Because much of television viewing occurs in the company of their family, the viewing practices of family members are influential on children's viewing. Huston and Wright (1996) found, for example, that a parent was present during the majority of time when their three- to seven-year-olds watched general audience programs; by contrast, parents were present for about 25% of the time that children viewed child audience programs. Consequently, television viewing habits and preferences of family members are a powerful source of early exposure to television for young children. For example, the choices of programs were guided by the parents' preferences and habits and not those of the children between three and seven years old (Desmond et al., 1985; St. Peters et al., 1991). For this reason, the presence of parents has been mainly studied as a factor influencing young children's viewing practices.

The availability of parents is determined by family structure and size. Fifth-graders and tenth-graders in single-parent homes often view without supervision, and children view programs more in homes where the father is absent (Atkin et al., 1991). Children in larger families are also likely to view more television and their parents are less likely to mediate viewing of preschool and

elementary school children (Gross & Walsh, 1980).

Maternal employment is another factor that is related to the presence of parents affecting children's television viewing. It is widely assumed that children of employed mothers view more television because the children may be less closely supervised and can access television more easily (Huston & Wright, 1998b). However, maternal employment was negatively related to viewing practices of children ranging in ages from three to seven years (Huston & Wright, 1996; Huston et al., 1999; Pinon et al., 1989). In other words, children of employed mothers watch less television than children whose mother are full-time homemakers. One of the reasons could be that many of those children are in organized childcare settings where little or no television is shown during the day.

In addition to parents, children also frequently watch television with their sisters and brothers. The presence of older siblings is likely to reduce viewing; by contrast, the presence of younger siblings increases it (Pinon et al., 1989). In particular, older children play a more powerful role in program selection than younger children (Lull, 1978) and they serve as a model of viewing for their younger siblings (Dunn, 1983). Only children, or children with younger siblings, watch more child-informative programs; however, young children view more entertainment programs with older siblings (Huston & Wright, 1996).

In summary, family structure, the number of older and young siblings, and mother's employment in a family appear to set the boundaries for children's opportunities to watch television, because they might impose constraints on viewing practices at home. Therefore, television viewing practices in a family can

be a factor that indicates the familial characteristics affecting children's television viewing.

Availability of Television Sets at Home

Time use by young children is likely to depend on opportunities and restrictions provided by the home environment or other child rearing environments (Huston et al., 1999). Accordingly, the number and the location of television devices for viewing are likely to affect the viewing patterns of children.

The effect of the number of television sets has been thoroughly investigated. Not surprisingly, children tend to watch television more when children have their own television sets than children in families with a single television set. When a family has many television sets, the parents are likely to view television with preschoolers as well as school age children (Atkin et al., 1991; Bower, 1973; Chaffee & Tims, 1976; Lull, 1978; McDonald, 1986). Gross and Walsh (1980), however, found that parents in households with fewer television sets have more chances to control viewing practices of their children ranging in age between three and 12 years and tend to discuss television programs because they usually view television together. This implies that the opportunity of parental control of children's television viewing decreases when children possess their own television sets. Therefore, the number of television sets and their location, and children's ownership of television sets can predict the practices of children's television viewing at home. Not surprisingly, the number and location of television sets in a household tends to increase with social class. Dorr and Rabin (1995), therefore, speculated that the physical environment

factors could be related to socioeconomic status of the family. Interestingly, this result and interpretation contradict the findings reported above that high socioeconomic status of parents is associated with relatively low television use of their children. Parental mediation of what their children watch may be the reason for inconsistent findings.

Parental Mediation

Parents have been consistently named as the most influential family members. It is commonly recommended that parents take an active role in mediating their children's experiences with television. Broadly speaking, parental mediation is defined as a group of behaviors that are relevant to interactions between parents and their children (Desmond et al., 1990). In a narrow sense, Desmond and his colleagues (1985) define parental mediation for young children as a form of active effort by parents to help children understand their physical and social world. Based on this definition, parental mediation of television's effects means an active and purposeful process in which parents interpret, filter, or augment some specific television message (Rothschild & Morgan, 1987). The concept of parental mediation of television viewing assumes that television is a powerful source of modeling and learning but the ability of young children to understand the messages on television is limited. Therefore, mediating roles enacted by parents are critical for intervention in television viewing of young children who are possibly in greater need of guidance.

Operational definitions of parental mediation differ across previous studies because the actual practices of parental mediation are quite diverse. Accordingly,

the categories of parental mediation that have been used in past research are also inconsistent and diverse. Weaver and Barbour (1992), who reviewed the literature on parental mediation categorized three kinds of parental mediation: restrictive mediation, evaluative mediation, and unfocused mediation that refers to coviewing and non-evaluative discussion. Recently, Valkenburg and her colleagues (1999) tried to provide a reliable instrument of measuring parental mediation with statistical scales. They found three styles of television mediation by Dutch parents and the categories are instructive, restrictive, and social coviewing.

Past studies on the effects of parental mediation on children's television viewing mainly focused on restrictive mediation rather than instructive mediation. In general, the degree of restrictive mediation was negatively correlated with the amount of children's viewing television. Atkin and his colleagues (1991) found that fifth-graders and tenth-graders were likely to watch less television when their parents set rules for viewing or prohibited some types of viewing, although recent studies found no relationship between restrictive mediation and viewing practices of preschool and elementary school children (Warren, 2003; Warren et al., 2002). If parents provided recommendations to their children of which programs to watch, and there were explanations or discussions of programs with their children, then there were few relationships between the children's nonrestrictive mediation and their frequency of television viewing (Warren, 2003; Warren et al., 2002). Rather, nonrestrictive parental mediation enhanced what children learned from television (Desmond et al., 1985, Desmond et al., 1987; Messaris & Sarett,

1981).

The influences of socioeconomic status on parental mediation have not been consistently found to be at variance. While Valkenburg et al. (1999) found that the more highly educated the parents were, the more rules they had regarding elementary school children's viewing. It was also revealed that parents' education was not a predictor of parental mediations for adolescents, (Lin & Atkin, 1989), with elementary children (Atkin et al., 1991; Gross & Walsh, 1980, Warren et al., 2002), nor for preschool children (Warren, 2003). The findings regarding income level are also inconsistent; parental income did not predict parental mediation, such as rule making in several studies (Gross & Walsh, 1980; Lin & Atkin, 1989), although Atkin and his colleagues (1991) reported parents' income was a positive predictor of nonrestrictive mediation. Accordingly, it is appropriate to examine the affects of socioeconomic status on parental mediation.

Child Characteristics

Individuals watch television to satisfy a variety of needs or to gratify a wide range of interests. Interests, goals, and motivations of viewing are formed by the sets of individual characteristics guiding their viewing.

Age

Total viewing time increases rapidly with age from infancy to the first few years of life, and the amount of viewing stagnates or declines when they enter school (Anderson & Field, 1983; Comstock, 1991; Dennison et al., 2002; Huston & Wright, 1996; Paik, 2001, Warren, 2003). Because schools require children's

attendance and participation during certain time periods, children's schooling sets boundaries for opportunities to watch television. Later on, in middle school, it was found that the time children spend watching television peaks and then declines when they become teenagers (Atkin et al., 1991; Bianchi & Robinson, 1997; Huston & Wright, 1998b; Liebert et al., 1982). This is likely a function of teenagers' social alternatives that replace television viewing.

In addition to the developmental changes that occur as a function of age-related life events, such as schooling, the types of programs that children watch change with age because of the age appropriateness of programs. For example, the viewing of informative programs for children peaked at age four (3-4.5 hours per week) and declined with age among children from ages five to seven (Pinon et al., 1989); viewing cartoons and comedies increased at age five (3-5 hours per week), then leveled off (Huston et al., 1990). No age changes occurred on other types of entertainment programs.

Gender

Gender differences in the use of time are of theoretical interest because participation in gender-stereotyped activities may be one basis for sex-differentiated behavior patterns (Huston et al., 1999). Gender differences in viewing presumably reflect the influences of the individuals' gender-typed interests and motivations. Accordingly, children's gender becomes an individual characteristic that contributes to the amount of programming they watch. On average, boys watch more television than girls in various age groups from preschoolers to adolescents (Bianchi & Robinson, 1997; Carpenter et al., 1989;

Rosengren, 1994; Singer & Singer, 1981), although some research found no gender difference (Condry, 1989).

The gender difference particularly occurs in viewing such programs as cartoons and action adventures (Huesmann & Eron, 1986; Huston et al., 1990). According to Alvarez et al. (1988), during observations in laboratories, boys were more attentive than girls to cartoons and to commercials with high rates of action, violence, and visual special effects. They interpreted the gender difference of total viewing to the greater number of masculine gender-typed programs, such as cartoons, action adventure shows, and sports, than the gender-typed programs for girls on television. That difference in choice of programs typically appears around age four or five, and usually continues into late childhood (McKenzie et al., 1992; Timmer et al., 1985) or even increases with age (Huston et al., 1999).

Playfulness

Definition

Even though the question of "what is play" has been of interest for many years, the definition of play has not been clearly stated (Garvey, 1977). According to Barnett (1990), one of the reasons why attempts to define play failed may have stemmed from the failure to provide empirical evidence regarding the definition and corresponding theory. Therefore, it has been a major issue in presenting direct empirical data on children's play in scientific ways. Matthews and Matthews (1982), who classified a variety of approaches to defining play, categorized the approach to playfulness as an attempt to define

play in terms of a psychological predisposition.

According to Aguilar (1985), playfulness is the perception or attitude that allows an individual to behave spontaneously in play. The studies on playfulness basically originate from interest in the way children play as opposed to why children play. Playfulness is the orientation of one's personality to be flexible, active, imaginative, creative, and find pleasure in what one chooses. The interest in and studying of playfulness is an attempt to focus on play as a characteristic of the individual, rather than as what the child "does" (Barnett, 1990). If being playful means that free expression, creativity, and imagination are released, then perhaps it can provide favorable opportunities for enhanced play (Aguilar, 1985).

It implies that playfulness can be viewed as a positive characteristic or individual resource for play. In other words, playfulness is a dispositional aspect of play that implies the "quality" of play, by focusing on the playful feature of the child rather than focusing on specific behavioral elements within certain time frames and physical contexts (Barnett, 1991a). Therefore, it is more useful in studying the concept of playfulness to focus on the qualities that children bring to their environment rather than on activity, as traditional scales have done.

The Studies of Playfulness

There are several groups of scholars who have developed a definitive description of playfulness, an explanation for its importance, and a method of measuring it. Lieberman (1965, 1966), as a pioneering researcher, proposed that playfulness was a stable disposition. She clearly postulated the existence of

the playful trait in children and developed a measurement for the construct that would provide direct empirical evidence of its underlying nature. In her work, Lieberman (1965, 1977) operationally defined playfulness using sub-dimensions and developed the Playfulness Scale. The items of a 5-point rating scale, which was designed to be completed by teachers, includes "While playing, how often does the child show flexibility in his interaction with the surrounding group structure" or "What degree of imagination does the child show in his/her expressive dramatic play?" According to her, playfulness is comprised of five constituent dimensions labeled as physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor. Her studies indicated that playfulness in children is a unitary behavioral dimension across the physical, social, and cognitive domains, although playfulness is conceptualized in terms of subcomponents, and goes beyond the childhood years to exist as a trait in adolescents (Lieberman, 1977).

Barnett, who was a strict follower of Lieberman, elaborated on Lieberman's early work. She thought the identification and description of playfulness in young children theoretically and conceptually contributed to the documented attempts to explain the nature, antecedents, and consequences of play behaviors. Her major work on playfulness developed an empirically sound method to assess playfulness. In order to do this, she replicated Lieberman's concepts and developed the Children's Playfulness Scale (CPS), which is a methodologically reliable and valid measurement of playfulness (Barnett, 1990, 1991a). The examples of questionnaire items, which are 5-point rating scale, are

"The child invents his/her own games to play" or "The child is restrained in expressing emotion during play." The items were developed to be evaluated by teachers, because Barnett believed playfulness was an internal personality construct that is not limited to certain time frames and physical context. The results obtained by factor analysis confirmed the existence of the general playfulness factor and its five component dimensions that are consistent with the five component traits of playfulness posed by Lieberman (Barnett, 1990, 1991b).

The third school of thought is composed of Rogers and her colleagues, who proposed playfulness as a psychological construct involving individual differences in the disposition to play (Rogers et al., 1998). They criticized Lieberman because she focused on behaviors during play, such as facial expression, laughing, or joking, rather than on the personality disposition. Therefore, Rogers and her colleagues did not focus on Lieberman's work but relied on existing definitional criteria based on other literature (Krasnor & Pepler, 1980; Rubin et al., 1983; Smith & Vollstedt, 1985), which is useful in distinguishing the playful disposition during play. They generated a pool of items representing six criteria for the disposition of play from the definitions and developed a trait-rating instrument, named the Child Behaviors Inventory of Playfulness (CBI) to measure individual differences in playfulness as a personality disposition. The items with a 5-point rating scale included, "The child uses toy/objects in unusual ways" or "the child starts activities for his/her own enjoyment." Similar to the CPS developed by Barnett, the CBI was expected to be completed by persons who have knowledge of a child's behaviors in multiple

contexts. Accordingly, rating by teachers in school settings were used instead of observation by researchers in a specific setting. Although the item pool was constructed to represent six criteria for the disposition of play, the results obtained by factor analysis reveal that children's playfulness is a uni-dimensional trait.

The last group of scholars dealing with playfulness is composed of Bundy and her colleagues who are occupational therapists. Occupational therapists have regarded play as the child's primary occupation (Bundy, 1992; Knox, 1996; Okimoto et al., 1999). They appreciate the therapeutic importance of play to help children improve functional performance (Case-Smith, 1996). Bundy's writing (1993) supports the position that playfulness is the one aspect that differentiates play from work, because without playfulness, all activities become work.

According to Bundy and her colleagues, playfulness can be determined within any transaction by evaluating the presence of four elements: intrinsic motivation, internal control, freedom to suspend reality, and framing (Bundy, 1993, 1998). Intrinsic motivation suggests motivation by some aspect of the activity itself rather than for an external reward. Internal control refers to the fact that an individual is in charge of his or her actions. Freedom to suspend reality means the individual chooses how close to objective reality the transaction will be. Framing refers to the effects that the individual creates by adjusting behaviors and the surrounding environment so that the playful act is clearly distinguishable from a serious act.

Based on the concept of playfulness as a reflection of the combined

presence of the four components, the Test of Playfulness (ToP) has been developed and revised (Bundy, 1998; Metzger, 1993). The examples of items on a 4-point rating scale are "The child is actively engaged" or "The child incorporates objects or other people into play in novel, imaginative, creative, unconventional, or variable ways." Contrary to other instruments of playfulness, ToP was designed to be scored from videotapes of children engaged in free play by trained raters, who are mostly therapists. Therefore, ToP was useful in measuring the playfulness of very young children and children with disabilities; however, uses of the measurement are limited to trained therapist observers.

Playfulness and Development

Lieberman, who postulated the concept of playfulness, argued that children's playfulness is related to their development. Among a variety of developmental characteristics, she was interested in imagination and creativity which are the important elements of children's play. According to Lieberman (1965, 1967), children's playfulness is associated with imagination and creativity. As she speculated, the relationship among them has been proposed by a number of scholars; more playful children tend to be more creative and imaginative (Iverson, 1982; Kogan, 1983).

In addition to Lieberman's early exploration of the connections between playfulness, imagination, and creativity, a number of studies that investigated the relationship between playfulness and other developmental characteristics have been implemented. Bundy (1998) examined playfulness of children ranging in age from 22 to 118 months and found that a child who has more internal control,

is more intrinsically motivated, is freer from some constraints of reality, and is better able to give and receive interactional cues than a child who is less playful. Rogers and his colleagues (1998) found that more playful children from preschool age to fourth grade appear to be more approachable, adaptable, and persistent. Arabasz (2000) found that playful children between the ages of 41 and 131 months typically show flexibility, which leads to more creative problem solving, and increased adaptability.

Similarly, the temperament of playful children is characterized by a positive mood, persistence, adaptability, and approachability (Rogers et al., 1998). Children between ages of three to six years who are more playful are also more likely to think divergently as well as creatively (Barnett & Kleiber, 1982), and show elaboration in play (Barnett & Kleiber, 1984). In addition, it has been revealed that playfulness predicts prosocial behavior, exploratory behavior, variation-seeking, competence, and coping. Also, the playful children showed flexibility, leadership, and elaboration in play (Barnett & Kleiber, 1984; Knox, 1996; Singer & Rummo, 1973; Singer et al., 1980). Interestingly, the playfulness trait and its relationship with other developmental features has been supported at later age levels, as Lieberman proposed. In conclusion, children's playfulness can be regarded as a function of a generally positive disposition that the child should possess in order to adapt to and have an impact on her environment (Singer & Singer, 1976).

Because of the relationships of playfulness to positive developmental outcomes, many studies focused on the usefulness of playfulness among

children with special needs. In general, playfulness in children with disabilities such as developmental delay or cerebral palsy is scored lower than playfulness in children who are normally developing. Play training for the children with disabilities has been widely implemented in the occupational therapy field. Intervention programs, such as play training or environmental support programs for play have been effective in increasing playfulness scores of infants and toddlers with disabilities (Okimoto et al., 1999; Lane & Mistrett, 2000)

To summarize, the research on playfulness has mostly focused on conceptualizing what is playfulness and developing instruments based on the concept of playfulness. In addition, the studies, which provided the evidence needed to validate the developed measures and reveal the important roles of playfulness in child development, were implemented. However, there is little research about the ecological factors influencing children's playfulness at multiple levels of the environment. Therefore, in addition to the awareness of the benefits of playfulness, which is the initial step of studying playfulness, it is also important to recognize the impact of ecological factors, such as that of family and peers, community institutions and organizations, such as schools, and inventions and creations, such as television, as environmental elements which influence playfulness (Aguilar, 1985).

Effects of Viewing on Imaginative Play

Effects of Viewing on the Quantity of Imaginative Play

Previous research on the association between children's television

viewing and their imaginative play examined the roles of television. The research that investigated influences of television on such play followed the tradition of communication research that focuses on the "effects approach" of television on development (Anderson et al., 2001). Past studies on how children's imaginative play is affected by television viewing mainly examine whether television viewing increases or decreases the amount of their imaginative play. There are two contradictory hypotheses speculating the influences of television on the frequency of imaginative play. The two perspectives are the stimulation hypothesis and the reduction hypothesis (van der Voort & Valkenburg, 1994).

According to the stimulation hypothesis that assumes the positive effects of television watching, it enables children to get involved in imaginative play more frequently by providing a variety of information sources for children to use in imaginative play. Young children have difficulty playing in creative forms because they are not able to mentally represent something without adequate information (Smilansky, 1968). For this reason, they imitate the entity and behaviors of what they have seen or experienced previously during their play. Television, which is an engrossing, ready-made story-telling device, provides models and storylines that can be easily imitated in children's imaginative play. Consequently, television is assumed to promote imaginative play by providing a rich source of ideas from which children can draw when engaged in imaginative play (Greenfield et al., 1990; Huston & Wright, 1998b).

The other hypothesis, the reduction hypothesis, proposes that television viewing decreases the amount of imaginative play. According to van der Voort

and Valkenburg (1994), there are several assumptions for explaining this hypothesis. The displacement assumption insists that television viewing may become an easy alternative to children's imaginative play because it provides self-entertainment for children, and eventually displaces the time to play (Singer & Singer, 1986; Winn, 1985). Structural characteristics of television as a medium also provide several possible reasons for the reduction of imaginative play. According to the passivity assumption, frequent television viewing may lead the young viewers to a passive attitude that undermines willingness or ability to engage in imaginative play, because television, an easy medium requires little mental effort to produce the children's own imaginations (Singer et al., 1984a). The rapid pacing assumption suggests that the rapid procession of television programs allows little time for children to process what they watch and leads to cognitive overload and impulsive thinking (Anderson et al., 2001). Consequently, children are less likely to engage in imaginative play. The arousal assumption also attributes the reduction of imaginative play to hyperactivity and impulsive behaviors that may be caused by watching television because watching television with the format of rapid and sophisticated visual pacing techniques has arousing effects on the viewers (Singer et al., 1984b; Valkenburg & van der Voort, 1994). To conclude, the frequency of imaginative play episodes may be reduced by frequent consumption of television for one or more of these reasons.

According to several studies on the effects of television viewing on imaginative play, few relationships between the amount of time spent in viewing television and the frequency of imaginative play of preschoolers were found

(Gadberry, 1980; Singer & Singer, 1976, 1981). The reasons for insignificant associations can be that only the overall amount of viewing time was considered as a predictor of imaginative play in the early research, since recent publications indicate that there are significant relationships between watching specific types of programs and children's imaginative play. In general, a decrease of children's imaginative play was associated with television viewing of programs with a high level of violence and action. That is, children who saw television with low violence or who saw no television, showed an increase in imaginative play; those who saw programs with high action and violence declined in imaginative play in various age groups preschoolers to school age children (Huston-Stein et al., 1981; Singer & Singer, 1976, 1981; van der Voort & Valkenburg, 1994), although several experimental studies have shown insignificant effects in children ranging in age between 3 to 6 years (Potts et al., 1986). On the other hand, the programs that were nonviolent or informative, or programs with low action and fantasy did not affect the frequency of children's imaginative play (Greer et al., 1982; Huston et al., 1999; Huston-Stein et al., 1981). Interestingly, a program for children specifically designed to stimulate imagination, such as *Mr. Rogers' Neighborhood*, increased imaginative play of preschoolers (Friedrich-Cofer et al., 1979; Singer & Singer, 1976; Tower et al., 1979).

According to the conclusion of van der Voort and Valkenburg (1994) who reviewed the studies on television's impacts on imaginative play, there is little evidence that television viewing in general stimulates or reduces children's imaginative play. However, there are strong indications that the influence of

television on the frequency of imaginative play is primarily dependent on the specific programs such as well-designed educational programs for children. In other words, it is the kind of programs watched, not the presence or absence of television that is crucial to imaginative play.

Effects of Viewing on the Quality of Imaginative Play

Although television supplies a vast array of stories and characters that may stimulate fantasy and imagination, it has been argued that much of what is generated is with low quality represented by stereotypes and constrained by the formulaic content of entertainment television (Huston & Wright, 1998b). When high quality play is supposed to provide opportunities for children to develop their understanding of how the world works (Kieff & Casbergue, 2000; Rubin et al., 1983), more imaginative and creative play script that has children concentrate on ideas and make connections between ideas is an indicator of good quality of play (Fromberg, 2002). In light of this issue, the quality of the imaginative play triggered by watching television does not seem to be high (Johnson et al, 1999). While a number of quantitative studies have been implemented focusing on the extent of imaginative play affected by television viewing, there is little qualitative research on the effects of television on the quality of imaginative play.

The ethnographic studies were likely to focus on the content rather than the frequency of the play; in general, the studies provide a number of anecdotal examples that indicate that children's imaginative play is associated with what they watch. James and McCain (1982) observed preschoolers' play episodes in order to identify patterns, themes and uses of television in children's play. They

found that children's play that is related to television involved frequent uses of fantasy superheroes. French and Pena (1991) implemented a retrospective study using interviews with adults and revealed that television generated more heroic adventure play and more fantasy heroes instead of real-life heroes, as compared to the pre-television generation. Guddemi (1985) also found that low viewers at age four did play more overall themes and more non-television related themes; and also initiated more overall themes. In particular, non-television themes had a much wider range of flexibility as to what plans could occur and as to what role or identity the character could take. Television themes were much less flexible in terms of players, roles of characters, and scripts. Van der Voort and Valkenburg (1994), however, concluded that television-related play cannot be determined to be more or less imaginative and creative than play that is not derived from television after reviewing of a series of ethnographic studies. Therefore, they suggested that scholars examine the "quality" of imaginative play that is affected by television viewing.

There are limited numbers of studies that focus on the quality of imaginative play influenced by television viewing. Singer and Singer's (1981) classic research on the systemic pattern between imaginative play and patterns of television viewing among preschoolers was the exemplary study that implies the quality of such play. After observation of preschoolers over one year, they found that children who play imaginatively in the nursery school were somewhat more likely to be watching what might by termed more "benign" programming and they did not appear to be watchers of the more active shows or the action-

detective shows.

Effects of Viewing on Playfulness

Hogue and Johnson (1999) completed a study comparing the playfulness of three- to twelve-year olds watching less than 10 hours of television a week with children watching more than 20 hours per week, using t-test analyses. They found a significant difference in the two groups' playfulness; the heavy viewers' playfulness scores on Bundy's Test of Playfulness (ToP) were significantly lower than that the scores in the low television group. It substantiates the concern that television has a deleterious effect on the playfulness of children.

In contrast, Arabasz (2000) who replicated the study of Hogue and Johnson with thirty children between the ages of 41 and 131 months, using the ToP to measure the children's playfulness, compared ToP scores of children watching 10 hours or less of television each week to the scores of children watching 20 hours or more of television each week. Interestingly, her results indicated that children watching more television scored significantly higher on the playfulness. Because results that were not consistent with Hogue and Johnson's study, the groups were compared for age and gender. Neither the means for age nor gender were statistically different between groups. She concluded that television might hold some benefit in respect to children's playfulness by promoting social skills such as reading and giving appropriate cues, persisting through difficulties and the improving the ability to skillfully clown and joke.

As reviewed, very little of the literature on the effects of television pertains

to playfulness. Only two pieces of literature exist that describe the impact of television on playfulness and the findings of the two studies were not consistent with each other. In addition, they had several limitations. First, ecological factors were not taken into account; even the demographic information of the subjects, such as race and socioeconomic status, was not considered or reported. The studies also considered only the overall amount of viewing as an influencer on playfulness without investigating the effects of different television programming on playfulness. Therefore, it is necessary to examine the effects of viewing different programming on children's playfulness based on an ecological perspective.

CHAPTER 3

METHODOLOGY

This chapter describes the methodology of this study. Five sections are included: research hypotheses; procedures; participants; measures; and data analyses.

Research Hypotheses

This study tested the model shown in Figure 3 to determine if the data were consistent with the model. For this purpose, hypotheses regarding the proposed relationships among the selected variables were generated based on previous studies described in the first two chapters. The first set of hypotheses examines relationships between variables that are proposed in the model.

H 1. The higher the socioeconomic status of a family is, the lower the level of the family viewing environment.

H 2. The higher the socioeconomic status of a family is, the more the parents of the family mediate what their child views.

H 3. The higher the level of the family viewing environment is, the more visual media a child in the family uses.

H 4. Parental mediation has mixed effects on children's visual media use. That is, children's visual media use varies by parental mediation.

H 4.1. The more the parents of the family mediate what their child view, the more Type 1 programs their child views.

H 4.2. The more the parents of the family mediate what their child view, the less Type 2, Type 3, Type 4, Type 5, and Type 6 programs their child views.

H 5. Child characteristics have mixed effects on children's visual media use. That is, children's visual media use varies by child characteristics.

H 5.1. Younger children spend more time viewing Type 1 programs than older children; older children spend more time viewing Type 2, Type 3, Type 4, Type 5, and Type 6 programs than younger children.

H 5.2. Girls spend more time viewing Type 1, Type 2, Type 4, and Type 5 programs than boys; boys spend more time viewing Type 3 and Type 6 programs than girls.

H 6. Children's visual media use has mixed effects on their imaginative playfulness. That is, children's imaginative playfulness varies by program types that children view.

H 6.1. The more Type 1 programs children watch, the more playful they are.

H 6.2. The more Type 2, Type 3, Type 4, Type 5 and Type 6 programs children watch, the less playful they are.

H 7. Child characteristics have mixed effects on imaginative playfulness. That is, children's imaginative playfulness use varies by child characteristics.

H 7.1. Older children are rated higher than younger children in playfulness including physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor in imaginative play.

H 7.2. Boys are rated higher than girls in physical spontaneity, manifest joy, and sense of humor in imaginative play; girls are rated higher than boys in social and cognitive spontaneity in imaginative play.

In addition to direct effects among the variables, a following hypothesis was generated to examine the overall explanatory power of the structural model for children's visual media use and their imaginative playfulness, integrating all the variables selected for the present study. It is stated as follows:

H 8. The hypothesized model of the relationship of socioeconomic status, children's characteristics, and three mediating variables, including the viewing environment in a family, parental mediation, and children's visual media use, to the level of imaginative playfulness in this study fits the data.

Procedures

Data were collected from 202 primary caregivers, including parents, foster parents, stepparents, and/or grandparents of 202 preschool children, and 43 head teachers of the children involved.

The recruiting process consisted of a series of stages. First, local centers providing programs for three to five-year-olds, were selected in three adjacent counties in Michigan. The procedure of center selection was accomplished using the child care center list of the State Department of Consumer and Industry Services (CIS). In the list, licensed centers for young children that were regulated by the state government were listed with the information about the age

and number of children that they served and the types of program that they provided (full-day or half-day). Because of the large sample size of this study, the more children the programs served, the more participants could be recruited. Accordingly, it was decided to select the larger programs for three, four, or five-year olds. For this study, therefore, 25 centers, which provided programs for more than 100 children, were selected as the first tier to be contacted.

Secondly, directors of the selected centers were contacted. This was completed during the period January 17 through April 3 in 2003. The initial meeting with directors was intended for gathering the center information that the CIS list did not include. There were several criteria that the participating centers should meet. In order for a valid assessment of children's imaginative playfulness, the participating children were expected to have free choice time with an assortment of play options, both indoors and outdoors, based on the philosophy of their program appreciating children's imaginative play. For this reason, the directors were asked if their center provided free choice time in a daily routine, and if their center was equipped with interest areas, especially a pretend play area and a block area in the classrooms where imaginative play episodes often occur. Also, the participating centers were expected not to use visual media on a regular basis at their centers during a day to control for the children's regular exposure to visual media. This was because the children's amount of visual media use was collected only at home.

After the initial meetings with the 25 directors and visits to their centers, there were three centers that were excluded by the author: a Montessori center

that did not value imaginative play as a main activity in their philosophy; a center where children watched video on a regular basis during the day; and a center that does not have a playground for outdoor play.

The directors of the other 22 centers, which were judged to be appropriate for the research, were asked about their willingness to recruit the families and head teachers who will be invited to participate in this study. After the meeting with the directors, seven directors declined to participate in the research. Ultimately, the directors of 15 centers in two counties granted permission to recruit research participants at their centers.

Head teachers of the 15 centers whose classes were for three, four and/or five year-old children were contacted in order to obtain their consent to participate in this study. The head teachers sent survey packets, which included parental questionnaires and an envelope for return, to every family with three, four, or five-year olds.

With the head teachers' agreement, primary caregivers, including parents or guardians of all children whose head teacher agreed to participate, were contacted. The packets of the parental questionnaires, including an overview and general introduction to the purpose of this research with the set of questionnaires for primary caregivers, were distributed (see Appendix B, C, D, E, and F). The primary caregivers who voluntarily completed and returned the questionnaires in a sealed envelope to their head teacher were considered as participating families. A total of 1,021 packets were sent to families and 239 families returned their packet to the head teachers. Thus, the response rate of

the research was 22.63%. The questionnaires for parents were completed by 10 fathers and one grandmother; the others were done by mothers of participating preschoolers.

Finally, 43 head teachers whose children participated in this research collected the returned packets and completed the Imaginative Playfulness Scale for each child of the participating families (see Appendix G).

Participants

For this study, the participants were 202 primary caregivers of preschoolers and 43 head teachers. Although 239 packets were originally returned, 37 of them were not included in this research for one of four reasons. First, some programs that the participating children watched as reported by primary caregivers, were either not identified or not available during the data coding period. Second, some packets had missing items. Because structural equation modeling (SEM) results can be adversely affected by the presence of missing values, these had to be discarded. Third, the families whose parents were full-time students were dropped because students were not coded either in the employment or unemployment categories in the occupational prestige scale. Fourth, one response with an outlier was excluded because gross income was too high ($500,000).

The deletion from the analysis of the outlier was judged based on their contribution to kurtosis (Bentler, 1989; Raykov et al., 1991). The kurtosis statistic, which represents the tendency for observations to cluster both tightly around the

mean and broadly in the tails (Harris, 1985), was 17.06 with the sample, including the income outlier. After deleting the case, the kurtosis statistic that had been skewed to a significant degree became .89. Accordingly, it was decided to exclude the case with the income outlier.

Table 2 presents a summary of the demographic and background characteristics of the sample of this study. The mean age of the 202 preschoolers sampled was 52.24 months, with a range from 36 months to 72 months. The sample children consisted of 104 boys (51.5%) and 98 girls (48.5%). There were 171 European-Americans (84.7%), three African-Americans (1.5%), six Hispanics (3.0%), 13 Asian Americans (6.4%), and nine others (4.4%). The sample included 119 first-born children (58.9%), 50 second-born children (24.8%), 22 third-born children (10.9%), and 11 fourth-born or later-born children (5.5%). Most of the children (92.6%) attended only one early childhood program; 15 children attended another program such as Kindergarten or Montessori school. Because visual media uses are controlled at the programs, the children who attended two programs were included in this study.

The primary caregivers of this study were composed of 202 mothers between the ages of 20 and 52, with a mean of 35 years. The number of years of mothers' education in the sample ranged from 9 to 24 years, with a mean of 16.50 years. One hundred forty-seven of the 202 mothers (72.6%) were employed full-time or part-time. Their mean income was $27,407.92 (SD = $26,506.73), and the average occupational prestige was 61.28 (SD = 21.51) whose possible points were from one to 96.

Table 2.

Characteristics of Participants

Characteristics	Percentage	Mean	SD
Child (N= 202)			
Age (in months)		52.22	8.03
Sex (Male)	51.5		
Ethnicity (European-American)	84.6		
(African-American)	1.6		
(Hispanic)	3.0		
(Asian)	6.4		
(Others)	4.4		
Birth order (First born)	58.9		
(Second born)	24.8		
(Third born)	10.9		
(Fourth born or greater)	5.4		
First language (English)	93.2		
Attending programs (None)	92.7		
Mother (N= 202)			
Age (in years)		35.00	5.89
Educational level (in years)		16.50	2.94
Employed mother (including part-time)	72.6		
Father (N= 181)			
Age (in years)		37.07	5.97
Educational level (in years)		16.55	3.46
Employed father (including part-time)	98.3		
Family Characteristics (N= 202)			
Annual income (Dollars)		78,719.31	45,540.35
Occupational level		64.95	22.76
Married status (Married)	82.7		
(Divorced)	4.5		
(Separated)	1.0		
(Never married)	7.4		
(Others)	4.3		
Number of adults in the family		1.97	.37
Number of children in the family		2.08	1.06

The demographic information for 181 fathers out of 202 participating families was reported (89.6%), because mothers of the separated and divorced families did not report the information. The fathers were between 24 and 55 years of age, with a mean of 37.07 years. On average, they achieved 16.55 years of formal education, ranging from 8 to 26 years. Their average income was $61,790.12 (SD = $39,786.60), and the mean occupational prestige was 65.71 (SD = 23.48).

About 167 participating families (82.7%) included married couples; the sample contained only nine divorced families (4.5%), two separated families (1.0%), 15 families whose mother never married (7.4%), and nine families that did not belong to anyone of them (4.4%) such as engaged couples.

Measures

Socioeconomic Status

The child's family background information, including socioeconomic status, was obtained by the Family Background Questionnaire. The questionnaire included questions about the level of income, occupation, and education of participating parents. Primary caregivers of the participating children reported their annual income, years of education, and the occupation of themselves and their spouses. The items regarding income and education were adapted from the questionnaires of the Panel Study of Income Dynamics (PSID) implemented by the Institute for Social Research at the University of Michigan (Hofferth et al., 1998).

The sum of the annual incomes of the parents was coded as family income. The years of education of the family head were coded as educational level of families. The occupational status of a family head was coded using the Socioeconomic Index (Duncan, 1961), which assesses the general standing of occupations to evaluate occupational prestige. Although Duncan's Socioeconomic Index is somewhat outdated, it has been used as a comprehensive scale to quantify occupational status until recent times (Lemelle, 2002). The range of the occupation scale is from one to 96.

As for the family head issue, the employed person was regarded as the head of the family. In the case of dual income families, a parent who made more money was regarded as the head of the family. When the income level of parents was equal, occupational levels of parents were considered for deciding the head in a family.

Viewing Environment in a Family

In the Family Background Questionnaire, three items regarding viewing environment in a family were included. Primary caregivers responded to the items regarding total amount of visual media use at home yesterday, the number of visual media devices including television sets, videos, and DVD players in their family, and the number of visual media devices that children own. The items from the questionnaires of the study of 1997 Child Development Supplement (CDS) to the Panel Study of Income Dynamics (Hofferth et al., 1998) were adapted for this study.

Parental Mediation

Measure Modification I

Parental Mediation was obtained by the Parental Mediation Questionnaire designed by Valkenburg and her colleagues (1999). The original Parental Mediation Questionnaire consisted of 15 items of instructive mediation, restrictive mediation, and social co-viewing with five questions regarding each mediation style. The items were scored on a 5-point scale (never = 1, rarely = 2, sometimes = 3, often = 4, always = 5).

The Valkenburg's questionnaire was modified by the investigator. As stated above, the original questionnaires were designed to report parental mediation of television only. For this study, the items of the measure, which do not include video and DVD, were adapted to report average viewing of video and DVD as well as television. For example, the original item of "How often do you and/or your spouse try to help the child understand what s/he sees on television was changed to "How often do you and/or your spouse try to help the child understand what s/he sees on television, video, or DVD?"

The modified instrument for this study was reviewed by a focus group in a pilot study prior to data collection. The pilot study was done with a convenience sample of 17 primary caregivers of 3-5 year olds. Most of the parents barely answered the items of social co-viewing and commented that social co-viewing did not occur with their preschooler. The examples of social co-viewing questions were: "How often do you and/or your spouse watch together because you both like the same television, videos, or DVDs? How often do you and/or

your spouse watch together because of a common interest in the television programs, videos, or DVDs?" These results could be due to the fact that the original measure was developed for children between five and 12 years old. Social co-viewing that implies children as partners of parents' viewing might not be plausible for preschoolers who are much younger. Accordingly, another modification made was to exclude the social co-viewing items. Therefore, only the 10 items of instructive mediation and restrictive mediation were rated by the children's primary caregiver in this study.

Measure Modification II

Exploratory Factor Analysis (EFA) using Principal Component Analysis was performed to evaluate the parent mediation measure by providing explicit measurement errors through uncovering the underlying structure of the sets of variables. Because the original measurement of Valkenburg and her colleague (1999) was modified to assess only two constructs out of three, EFA was necessary prior to the main analysis of the hypothesized model.

As expected, two components were extracted; there were two eigen values greater than one (F1= 3.90, F2 = 1.84). After rotation using the Varimax with Kaiser Normalization to maximize the variance of the loadings, it was found that item six of the measure had weak loadings on both factors (F1 = .36, F2 = .30), while the other items primarily loaded on one factor with high loadings from .68 to .82 (See Table 3). Although the meaning of the factor loading magnitudes varies by the research context, factor loadings of the item were marginally on the minimum cut-off of loadings, so they could be termed as weak (Norman &

Streiner, 1994). In fact, item six "How often do you and/or your spouse ask your child to turn off television, video, or DVD when s/he is watching an unsuitable program?" was not answered by nine parents; it was the item that was most frequently left blank. Additional comments stated that they never turned off any visual media device because of inappropriate content. Therefore, item six was not included for the later analyses.

Cronbach's alpha coefficients for the nine items of the modified measure for this sample was .80; Cronbach's alpha coefficient for the five instructive mediation items was .86 and Cronbach's alpha coefficient for the four restrictive mediation items was .76. In this study, the sum of the indicators of each factor was calculated and used in subsequent analyses.

Children's Visual Media Use

Procedure

Primary caregivers reported television shows, videos, and DVDs watched by their children at home during the week previous to the reporting day, on the Visual Media Use Questionnaire. They tracked the name and frequency of each individual program being watched in the report in order to consider content as well as frequency of a program that children watched.

Table 3.

Factor Loadings of Parental Mediation Indicators

Theoretical Component	Item	Factor Loading	
		F1	F2
Instructive Mediation	How often do you and/or your spouse point out why some things actors do on television, video, or DVD are good? (2)	.82	
Instructive Mediation	How often do you and/or your spouse point out why some things actors do on television, video, or DVD are bad? (3)	.81	
Instructive Mediation	How often do you and/or your spouse try to help the child understand what s/he sees on television, video, or DVD? (1)	.78	
Instructive Mediation	How often do you and/or your spouse explain what something on television, video, or DVD really means? (5)	.78	
Instructive Mediation	How often do you and/or your spouse explain the motives of the characters on television, video, or DVD? (4)	.73	
Restrictive Mediation	How often do you and/or your spouse set specific viewing hours for your child? (7)		.79
Restrictive Mediation	How often do you and/or your spouse restrict the amount of child viewing? (9)		.78
Restrictive Mediation	How often do you and/or your spouse specify in advance the television programs, videos, or DVDs that may be watched? (10)		.77
Restrictive Mediation	How often do you and/or your spouse forbid your child to watch certain programs? (8)		.68

Note. 1) The number of parentheses is the item number on the Parental Mediation Questionnaire. 2) F1: Instructive Mediation, F2: Restrictive Mediation.

A pilot study was also done with the convenience sample of 17 primary caregivers to test the measure. To measure the total amount of children's viewing per program, the participants who completed the pilot Visual Media Use Questionnaire commented that reporting frequency of viewing per program would be more convenient and accurate than reporting actual time of viewing per program. Also, they suggested that ten rows to report programs on the questionnaire that their child watch during a week would be enough.

After the revision based on the comments of the pilot sample, the Visual Media Use Questionnaire was distributed and returned. One hundred and sixty two television shows and 340 videos/DVDs were reported by the participants of this study. The viewing reports were tabulated initially according to the number of minutes each child watched each program; the total minutes of watching the individual programs were computed by multiplying the frequency and the running time of each program. At the same time, each program was also coded by dimensions of the coding schemes (see 4.2 in Chapter 4). Eventually the minutes that children watched during a week were obtained per program category.

Coding Schemes

There were two rating scales that were adapted to classify the reported programs in this research. First, a coding system by Anderson and his colleagues (2001), which has been used for their earlier studies (Center for Research on Influences of Television on Children, 1983) was adapted. In their research, there were three dimensions used to categorize all the television

programs: (a) Intended Audiences, (b) Animation Components, and (c) Informative Purposes. Among the three elements, only rating scales of the Intended Audience and the Informative Purpose were adapted from the Anderson's study; the scale of Animation Components was not used in this study. According to the researchers, they included the animation components in their research to identify whether a program includes aggression or not, which is a major factor in this research. As they admitted, however, not every animated program contained violence and other program types sometimes show violence. For this reason, it was concluded that animation cannot be the component used to rate the prevalence and salience of violence.

A second rating scale, named Television and Movie Violence Rating developed by Huesmann and his colleagues (2003), was adapted as a scale measuring violence components. Their coding instructions were specifically developed to rank the degree of violence components on television shows and movies.

As shown in the Rating Instructions (see Appendix A), all the programs reported by participants were coded in terms of three dimensions in the present study as follows: (a) Intended Audiences (child audiences or general audiences), (b) Violence components (yes or no), and (c) Informative Purposes (yes or no).

Intended Audiences. The operational definition for the Intended Audiences was whether a program is intended primarily for viewers under 13 years old or not. When a program is determined to be primarily designed for children 12 years old or younger, the program was classified as a children's

program; other programs were coded as programs for general audiences.

One problem which was found at the first coder training session was rating so-called family movies, which were produced for all the family members together. They were appropriate for young children but were not judged to be designed only for children. Accordingly, the coders were provided with specific instructions that could be referred to in order to make a decision: the characteristics of programs, including age of a main actor/actress, appropriateness of theme, complexity of story, and rating of the Motion Picture Association of America (MAPP) such as G, PG, or PG13. If the age of a main actor/actress was under 13, a movie does not include an inappropriate theme for children such as sexual content, a story line was not too complex to be understood by children, and/or a movie is rated G, then the movie was considered as a program intended for child-audiences.

Violence Components. Analyses of the prevalence and salience of violence as a feature of programming through assessing content directly has been done based on a content-analytic perspective (Gunter, 1981). Instead of rating schemes employed in content analysis studies, a violent rating on a scale based on the decision of raters was necessary for this study in order to judge whether a program is a violent one or not. For this reason, the Television and Movie Violence Rating Instructions of Huesmann and his colleagues (2003) were adapted.

In the rating scheme, a violent act was conceptually defined as "a physical act intended to harm another person" (Eron, 1963, 1993; Huesmann & Eron,

1986). Their rating instruction was based on the established theory that visible physical violence has much more influence than invisible violence, while all violence in shows has some influence on the viewer (Huesmann et al., 2003). In their rating scheme, a violent act was operationally defined as "an explicit act that was committed intentionally and interpersonally to harm others". Based on the lengths and frequencies of episodes with violence in a show, the coders rated the degree of aggression in a program.

Although their rating scheme was useful to judge the degree of violence in each program to categorize a show into a violent show or nonviolent show, it was found that more details of operational definitions were needed after peer reviewing and coder training sessions. Because some acts were not clear such as contact sports, theft, chasing, and scaring, the rating scheme of Greenberg (1980) was used to supplement the Huesmann's measure. Contact sports in dramatic plots, which are not basically intended to harm others despite physical contact in a common and tolerated way, was not coded as a violent act; theft was also not coded as an aggressive one, because it is not a violent act but an antisocial behavior that harms others. Chasing and scaring, which are visible, intentional, and interpersonal behaviors, were rated as violent acts.

Another adaptation of Huesmann's measure was his response categories. The original scale was a 5-point scale (0 = No violence, visible or invisible, or perhaps a very little invisible violence, 1 = A very little visible violence or a little to medium invisible violence, 2 = A lot of invisible or implied violence with only a little visible violence, 3 = Medium to high visible violence, 4 = High visible

violence). Based on feedback from coders that the term 'invisible' violence in the scales was confusing and inconsistent with the operational definition of violence in the present study, the original scales were simplified. Therefore, the violence components measure in this study included a 4-point scale (1 = no violence, 2 = a very little violence, 3 = medium violence, 4 = high violence).

Informative Purposes. Based on operational definitions of Anderson and his colleagues (2001), programs primarily designed to be educational or informative were rated as informative programs. The decision was based on the apparent intention of the producer.

At the first coder training and reliability session, it was found that educational components in children's programs were not clearly differentiated from social morality messages delivering a message, which encourages good and punishes evils typically in fairy tales. For this reason, specific coding schemes were added based on components of educational shows that Singer and Singer (1998) presented. The content of children's informative programs should be designed to provide information, knowledge, or cognitive skills; to help children to develop constructive prosocial attitudes or actions such as sharing, turn taking, and self-esteem; to expose children to the varieties of culturally and physically different types of children and adults and fostering a sense of mutual respect for these cultural and physical differences like ethnic diversity, disability, and single parent family; or to encourage awareness of one's own and others' emotional responses.

In addition to coding instructions based on Anderson and his colleagues

and Singers' schemes, another direction about messages regarding religious beliefs was added in the coding scheme of this study. This direction was included because there were several reported programs which were based on Christianity designed in an informative manner. Religious programs were regarded as informative only if they included non-religious messages that promote children's socially constructive attitudes. For example, a message that Christmas is not all about presents but about love for others was coded as informative. On the other hand, a message that God has a plan for you was regarded as non-informative.

Reliability

Coding was done by two graduate students who majored in natural science and telecommunication. The coders had a one-hour training session to be introduced to the research and the coding instructions. After the instruction session, ten programs were randomly picked and used for the first intercoder reliability training. The two coders and the author discussed the difficulties in coding family movies according to their intended audiences, and scary episodes, antisocial episodes, and chasing episodes according to their violence components. Accordingly, there was further clarification of the coding schemes.

The second training session and a pilot reliability test with the revised coding schemes took place with another 17 programs. At that point, satisfactory intercoder reliability was not produced (Intended Audiences = .71, Violence Components = .62, and Informative Purposes = .79). After the testing, religious movies according to their informative purposes and shows of contact sports

according to their violence components were discussed and further clarification was added in the coding schemes.

The main intercoder reliability test was performed with 49 shows randomly selected from the program list reported by participating parents, because approximately 10 percent of the population is recommended for the reliability test (Riffe et al., 1998). In order to exclude programs for the reliability test from the shows for the main analyses, an episode of the selected programs was used for the reliability test in the case of television shows; for the test of videos and DVDs, a sequel of either movies or shows from the same series, or a movie made by the same production company of the selected programs, were randomly selected as long as it was not included on the program list.

The researcher conducted the intercoder reliability tests, using the Program for Reliability Assessment with Multiple Coders (PRAM), a Windows – based application for the PC, designed to simplify the calculation of intercoder reliability coefficients (Neuendorf, 2002). The reliability per dimension was calculated respectively. For Intended Audiences and Informative Purposes dimensions, which were dichotomous, percent agreements were obtained; for Violence Components dimension, on the other hand, Pearson correlation was calculated because the scores were done with 4-point scale. The final intercoder reliability on each dimension were obtained as follows: Intended Audiences, .93, Violence Components, .91, and Informative Purposes, .96 for the 49 programs.

Coding

After a satisfactory interrater reliability was obtained, 502 programs that participants reported were reviewed and coded by the two coders. Each coder analyzed 251 programs. In the case of television shows, a randomly selected episode from May 18 to June 21, 2003 was analyzed. When a show had more than one independent episode in one segment, only the first episode was coded for this study. Title rolls and commercials during a show were not included in the analysis. The running time of television programs were obtained from *TV Guide*. In the case of videos and DVDs, the reported programs were reviewed and the official running time on each tape or DVD was used. The content and amount of the previews at the beginning of tapes and DVDs were not considered in this research.

After each of the reported programs was categorized, the total number of minutes was calculated by categories in order to estimate the amount of children's visual media use by summing the running minutes of programs by categories. Based on these three dimensions of the coding schemes, all programs reported were originally classified into 16 different categories.

Table 4 summarizes the number of minutes viewed by program dimensions, as reported on Visual Media Use Questionnaire by primary caregivers during the one-week sampling period. Total time spent on viewing per child was 951 minutes (SD = 622.40) during the sampling week watching television and videos/DVDs; the children spent 500.03 minutes (SD = 349.59) on viewing television, and total time spent on viewing videos or DVDs per child was

449.68 minutes (SD = 408.57).

Child audience/No violence/Informative programs were viewed most frequently (387.52 minutes). Most programs of this category were television shows (television = 80.8%, video/DVD = 19.2%); virtually, all Public Broadcasting System (PBS) shows for children were coded here (see Table 5). Children spent 42.4% of their total viewing time watching programs of this type on television, videos and DVDs.

The second most frequently viewed type was child audience/medium violence/ non-informative programs. Children watched 227.27 minutes and spent 22.6% of their total viewing minutes with these programs; in actual minutes, children watched 215.17 minutes of videos/DVDs and 12.10 minutes of television in this category of programs. Because Disney movies which were the favorite programs of young children were categorized as child audience/medium violence/non-informative programs (see Table 5), videos and DVDs were the majority of this category's programs.

Following in descending hours viewed was child audience/little violence/non-informative programs (122.80 minutes). This type included a variety of children's television shows and movies. Children watched almost the same amount of television shows (61.20 minutes) as they watched movies of this type (61.60 minutes).

Table 4.

Average Viewing Amount by Dimensions and Visual Media Type (N = 202)

Visual Media Type	Child Audiences		General Audiences	
	Informative	Entertaining	Informative	Entertaining
		<u>No Violence</u>		
Television	313.3 (267.5)	29.1 (74.5)	26.1 (82.9)	22.9 (63.3)
Video/DVD	74.2 (157.5)	35.4 (79.1)	2.0 (20.3)	9.1 (38.3)
Total	387.5 (327.6)	64.5 (112.3)	28.2 (85.1)	32.0 (81.0)
		<u>Little Violence</u>		
Television	8.8 (26.6)	61.2 (129.4)	.0 (.0)	2.1 (15.1)
Video/DVD	.7 (5.6)	61.6 (96.7)	.0 (.0)	5.4 (37.2)
Total	9.4 (28.2)	122.8 (166.6)	.0 (.0)	7.4 (42.5)
		<u>Medium Violence</u>		
Television	.0 (.0)	12.1 (48.1)	.0 (.0)	.0 (.0)
Video/DVD	1.9 (17.5)	215.2 (260.5)	.0 (.0)	12.1 (49.7)
Total	1.9 (17.5)	227.3 (268.6)	.0 (.0)	12.1 (49.7)
		<u>High Violence</u>		
Television	.0 (.0)	24.5 (61.7)	.0 (.0)	.9 (9.4)
Video/DVD	.0 (.0)	21.1 (63.8)	.0 (.0)	11.0 (48.5)
Total	.0 (.0)	45.6 (101.8)	.0 (.0)	11.9 (49.2)

Note. 1) The unit of the time spent on the viewing activity is minute, 2) Values enclosed in parentheses represent standard deviation.

Table 5.

Program Titles by Dimension and Visual Media Type

Dimensions	Program Type	Television	Video/DVD
Child audience/ No violence/ Informative	1	Angelina Ballerina, Berenstain Bears, Barney and Friends, Book of Pooh, Dragon Tales, Madeline, Out of the Box, Stanely, Teletubbies, Wiggles	Baby Bach, Kids Yoga, Schoolhouse Rock, There Goes a Bulldozer, Arthur Series, Blue's Clue Story Time, Berenstain Bears Series
Child audience/ Little violence/ Non-informative	1	Liberty's Kids, Anne of Green Gables, Seven Little Monsters	American Legends, Peter and the Wolf
Child audience/ Medium violence/ Non-informative	N/A		Care Bears Movie
Child audience/ No violence/ Non-informative	2	As told by Ginger, Cousin Skeeter, Hamtaro, Lizzie McGuire, Recess, Rugrats	Country Bears, Fantasia, Tigger movie, Willy Wonka and the Chocolate Factory
Child audience/ Little violence/ Non-informative	2	Amanda Show, Doug, Hey Arnold! Jimmy Neutron, Johnny Bravo, Scooby-doo, Sponge Bob Square Pants, Yu Gi Oh	Barbie as Rapunzel, Beethoven, E.T., Fly Away Home, Free Willy, Muppet Show, Mary Poppins, Stuart Little, Toy Story, Wizard of Oz
Child audience/ Medium violence/ Non-informative	3	Acme Hour, Aladdin, Bugs Bunny, Kim Possible, Transformers Armada	101 Dalmatians, Aladdin, Atlantis, Barbie in the Nutcracker, Beauty & the Beast, Harry Potter Series, Spy Kids
Child audience/ High violence/ Non-informative	3	Buzz Lightyears, Digimon, Dragon Ball Z, Justice League, Pokemon, Power Rangers, Powerpuff Girls	Batman Beyond, Peter Pan II, Power Rangers, Powerpuff Girls
General audience/ No violence/ Informative	4	Antiques Roadshow, Emeril Live Changing Rooms, Jack Hannah's Animal Adventures, Jeopardy	Crocodile Hunter
General audience/ No violence/ Non-informative	5	Brady Bunch, Cosby Show, Fear Factor, King of the Hill, Wheel of Fortune, Will & Grace, Star Treck	Billy Elliot, My Big Fat Greek Weeding, Shallow Hal
General audience/ Little violence/ Non-informative	5	Boy Meets World, Cops, Diagnosis Murder	Knight's tale, Sound of Music
General audience/ Medium violence/ Non-informative	6		Back to the Future, Cats and dogs, Chicken Run, Ghost Busters, Home Alone, Master of Disguise, Matilda
General audience/ High violence/ Non-informative	6	Malcolm in the Middle, WWE Wrestling	Charlie's Angels, Jurassic Park series, Men in Black, Mouse Hunt, Mummy, Star Wars series

As shown in Table 4, children watched a relatively small amount of the other types of programs. In particular, there was no program which was coded as the following types: child audience/high violence/informative programs, general audience/little violence/informative programs, general audience/medium violence/informative programs, and general audience/high violence/informative programs. Additionally, child audience/medium violence/informative television shows and general audience/medium violence/non-informative television shows were not viewed by the participating children. In Table 5, examples of each program type are reported.

Categorization

For most analyses in previous studies on children's viewing practices, the coding dimensions were used to generate mutually exclusive content categories (Anderson et al., 2001; Huston et al., 1990, 1999; Pinon et al., 1989; St. Peters et al., 1991; Wright et al., 2001). In the present study, the large number of initial categories in Table 4 was abridged to generate simpler groups of programs that the children watched.

One grouping decision involved the placement of programs into one of only two categories: violent or nonviolent. In this study, the programs rated as 'no violence' and 'little violence' were combined as 'nonviolent programs' although the programs with little aggressive episodes were conceptually programs containing violence; the programs rated as 'medium violence' and 'high violence' were coded as 'violent programs'.

There were two main reasons to combine categories of the violence

component. First, the episodes on the programs with little violence were too short and infrequent to be retrieved in children's imaginative play. Although both programs without violent episodes and programs with little violence were conceptually different, it did not seem to be reasonable to differentiate the two types of programs. Second, the decision about whether a program is 'nonviolent' or 'little violent' was dependent on the episodes that were chosen. In other words, violent segments in the coded programs with little violence seemed to be included by chance in the case of television series.

As reported above, children had no viewing in children's informative programs with high violence, general informative programs with little violence, general informative programs with medium violence, and general informative programs with high violence. Accordingly, these four types were not categorized for analysis in this study.

Besides these four types, child audience/medium violence/informative programs were excluded for categorization also. The *Care Bear Movie* was the only program that was intended for child audiences programs and contained a medium level of violent episodes. Only three children viewed this program; the average amount of watching that type of program was very little (1.86 minutes) with a large standard deviation (17.45 minutes). Because of the small number of programs that were reported and the small number of children who viewed the program, the effects of viewing the movie was unlikely to be powerful and representative of a single category of visual programs. Therefore, child informative programs with medium violence were not analyzed for hypothetical

models using SEM.

Thus, a total six mutually exclusive categories of programs were identified for further analyses in this study. Table 6 summarizes the types of programs and the numbers of minutes viewed by program types.

Table 6.

Categories and Viewing Amount of Visual Media Uses by Dimensions

Violence Level	Child Audiences		General Audiences	
	Informative	Non-informative	Informative	Non-informative
Nonviolent Programs	Type 1 (M = 396.94, SD = 335.60)	Type 2 (M = 187.28, SD = 223.91)	Type 4 (M = 28.18, SD = 85.07)	Type 5 (M = 39.44, SD = 101.42)
Violent Programs		Type 3 (M = 272.88, SD = 304.37)		Type 6 (M = 24.02, SD = 76.85)

Note. The unit of the time spent on the viewing activity is minutes.

Imaginative playfulness

Original Measure: Children's Playfulness Scale

The Children's Playfulness Scale (CPS) developed by Barnett (1990, 1991a) was modified to measure imaginative playfulness in this study. The CPS consisted of five dimensions as Lieberman originally found: physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor. Because the CPS was designed to measure the overall characteristics of

playfulness as a whole and each dimension of playfulness, it is useful to identify the specific influences of television on different dimensions of playfulness as well as playfulness itself. There are 23 items which were scored on a 5-point scale (doesn't sound at all like the child = 1, sounds a little like the child = 2, sounds somewhat like the child = 3, sounds a lot like the child = 4, sounds exactly like the child = 5) by the children's head teacher.

Reliability and validity for the original CPS have been determined (Barnett, 1990). The reliability of CPS was acceptably high with Cronbach's alpha coefficients representing internal consistency ranging from .70 to .89, depending on the child care settings that the participating child attended, and test-retest reliabilities ranged from .89 to .95 depending on test sessions. Construct validity was assessed by examining correlations with other play measures including Lieberman's Playfulness Scale (Lieberman, 1965, 1977), Child Behaviors Inventory of Playfulness (CBI; Rogers et al., 1987), and Rubin's Play Observation Scale (Rubin, 1977, 1982). All comparisons of CBI with other play measures were positive and statistically significant; correlations of CPS with Lieberman's Playfulness Scale ranged from .51 to 82; correlations with the CBI ranged from .29 to .55, and correlations with the Play Observation Scale ranged from .38 to .81, depending on sub-dimensions of the CPS.

Measure Modification I

There were several modifications made on the original CPS by the investigator for the purpose of this study. First, the CPS was designed to evaluate children's playfulness in general, so adaptation of the measure to

indicate imaginative playfulness was necessary. For this reason, the original items were specified to evaluate the playfulness of imaginative play. Pretend play, which is an interchangeable term with imaginative play, was used on the imaginative playfulness scale of this study, because pretend play was more easily understood in the pilot study. For example, the item of "The child is physically active during play" was changed to "The child is physically active during pretend play."

Second, an item regarding children's playfulness in general was also added to get information about the general tendency of children to be playful (see item 24 of the questionnaire in Appendix G). Therefore, there were 24 items with scores on a 5-point scale (doesn't describe the child at all = 1, describes the child a little = 2, describes the child somewhat = 3, describes the child a lot = 4, describes the child exactly = 5), which were rated by the children's head teachers.

Because the original CPS was modified for this study, a pilot study was done to refine the instrument packet prior to data collection. A focus group, composed of student teachers majoring in child development (n = 27), provided written and verbal feedback regarding the modified CPS. They also reported that pretend play is an easier term to understand. In addition, directions for the questionnaire were modified based on their comments.

Measure Modification II

Exploratory Factor Analysis (EFA) using Principal Component Analysis was performed to determine the number of underlying dimensions. Like EFA of

the parental mediation measurement above, this analysis was necessary for this present study because the original measurement, that is, CPS assessing children's playfulness in general, was modified for this study to measure imaginative playfulness.

The results found in the original CPS identified the same five underlying variables but sets of items that were correlated with each other were a little bit different from the original CPS.

As expected, the results of EFA of imaginative playfulness revealed that the number of clusters of indicators was the same as the original CPS: five groups were found out of 23 items of imaginative playfulness. According to Garson (n.d.), a rule-of-thumb for factor loadings to be considered weak is less than .4, strong as more than .6, and otherwise as moderate, although the meaning of the factor loading magnitudes can vary by research context. Based on his proposition, there were four items that did not load high on any factor, although they loaded moderately on at least one. Those items were items 1, 6, 13, and 18. Item 1 "The child's movements are generally well-coordinated and playful during pretend play" which was an indicator of physical spontaneity, was moderately cross-loaded on the social spontaneity (.51) and cognitive spontaneity (.47) factors. Item 6 "The child initiates pretend play with others" which was an indicator of social spontaneity, was moderately cross-loaded on social spontaneity (.48) and manifest joy (.42). Item 13 "The child stays with one activity rather than changing activities during pretend play" which was an indicator of cognitive spontaneity, showed a moderate load on physical

spontaneity (.51). Item 18 "The child sings and talks during pretend play" which was an indicator of manifest joy, was moderately cross-loaded on cognitive spontaneity (.41) as well as manifest joy (.48). The results for indicators with moderate and weak loadings show that the items do not measure the factors that they are designed to indicate. Consequently, it was decided to remove the items that did not have a high factor loading for further analyses.

Additionally, there was an indicator that loaded on another factor that it was not expected to represent. Item 9 "The child assumes a leadership role when playing with others during pretend play" which was an indicator of social spontaneity, was highly loaded on cognitive spontaneity (.80). It was conceptually understandable that children's leadership can be related to cognitive spontaneity as well as social playfulness in the context of imaginative play, because leadership can be derived from creative and unconventional play themes as well as social ability to lead during imaginative play. Accordingly, it was decided to consider item 9 as an indicator of cognitive spontaneity.

In addition to the empirical criteria, the conceptual clarity of the modified model was also supportive of a five-factor model. Thus, the measure of imaginative playfulness for this study included 19 items that indicate five factors: three items for physical spontaneity, three items for social spontaneity, four items for cognitive spontaneity, four items for manifest joy, and five items for sense of humor. Table 7 summarizes the components and their loadings of the 19 items. Cronbach's alpha coefficient representing the internal consistency of 23 items was .93; Cronbach's alpha coefficient for the physical spontaneity items was .90;

Cronbach's alpha coefficient for the social spontaneity items was .89; Cronbach's alpha coefficient for the cognitive spontaneity items was .89; Cronbach's alpha coefficient for the manifest joy items was .86; and Cronbach's alpha coefficient for the sense of humor items was .90. This is generally considered a very high level. In this study, the sum of indicators of each factor was calculated and used for further analyses.

Data Analyses

Preliminary Analyses

The data in this study were analyzed in two steps. First, preliminary statistics were obtained using the Statistical Package of the Social Science (SPSS). Descriptive statistics including the mean, standard deviation, skewness, and range were calculated for each of the 21 variables. Correlation matrices were also computed to examine the extent of associations among the indicators.

Principle component analyses were also performed to test the appropriateness of two measurement models containing a latent variable, using: (a) the measurement model of parental mediation indicated by instructive mediation and restrictive mediation, and (b) the measurement model of the imaginative playfulness indicated by its five sub-dimensions. These analyses were to ensure that the constructs and their indicators are acceptable.

Table 7.

Factor Loadings for the Imaginative Playfulness Indicators

Theoretical Component	Item	Factor Loading				
		F1	F2	F3	F4	F5
Sense of Humor	The child tells funny stories during pretend play (21)	.82				
Sense of Humor	The child laughs at humorous stories during pretend play (22)	.77				
Sense of Humor	The child gently teases others during pretend play (20)	.75				
Sense of Humor	The child enjoys joking with other children during pretend play (19)	.75				
Sense of Humor	The child likes to "clown around" during pretend play (23)	.74				
Cognitive Spontaneity	The child invents his/her own games during pretend play (10)		.81			
Social Spontaneity	The child assumes a leadership role when playing with others during pretend play (9)*		.80			
Cognitive Spontaneity	The child assumes various characters' roles during pretend play (12)		.70			
Cognitive Spontaneity	The child uses unconventional objects during pretend play (11)		.68			
Social Spontaneity	The child responds easily to others' approach during pretend play (6)			.90		
Social Spontaneity	The child plays cooperatively with other children during pretend play (7)			.88		
Social Spontaneity	The child responds easily to others' approach during pretend play (8)			.82		
Manifest Joy	The child is restrained in expressing emotion during pretend play (17)				.82	
Manifest Joy	The child shows enthusiasm during pretend play (16)				.72	
Manifest Joy	The child demonstrates exuberance during pretend play (15)				.69	
Manifest Joy	The child expresses enjoyment during pretend play (14)				.62	
Physical Spontaneity	The child prefers to be active rather than quiet during pretend play (3)					.81
Physical Spontaneity	The child is physically active during pretend play (2)					.74
Physical Spontaneity	The child runs (skips, hops, jumps) a lot during pretend play (4)					.73

Note. 1) The number of parentheses is the item number on the Imaginative Playfulness Scale.
2) F1: Sense of Humor, F2: Cognitive Spontaneity, F3: Social Spontaneity, F4: Manifest Joy, F5: Physical Spontaneity.
* Reclassified as Cognitive Spontaneity.

Structural Equation Model

After these statistics were examined, the second step was an examination of the Structural Equation Modeling (SEM) using the Analysis of Moment Structure (Amos) in order to evaluate the hypothetical model.

What is SEM?

SEM is a path analysis with latent variables, so it allows testing the explicit representation of direct and indirect effects among latent variables as well as observed variables (Kline, 1998). That is, SEM is useful to evaluate the hypothetical model of this study that includes latent variables and observed variables. In SEM analysis, relationships among the variables are examined simultaneously via analysis of covariance. When a model fits the data, the reasonableness of the model can be confirmed. In this study, Generalized Least Square (GLS) estimation was used to estimate model parameters and to test the fit of the equations of the model to the data.

Fit Indices

There are several fit indices to check model fit. Because each fit index tells goodness-of-fit in a particular way, sets of them are generally used to examine the reasonableness of the model. For this study, χ^2, the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA; Root mean square residual) were obtained. The structural models were considered to fit if the χ^2 is not significant, the χ^2/df ratio is less than 3, if GFI, AGFI, and CFI are each greater than .90, and if RMSEA is less than .1 (Bagozzi & Yi, 1988;

Kline, 1998).

Procedures

When a SEM model consists of latent variables and their indicators, a two-stage process should be followed: testing measurement models and analyzing a hypothetical model with the tested measurement models. The first stage is to test a measurement model and the second stage is to test an initial hypothetical model.

Measurement Model Testing. Prior to the estimation of the initial hypothetical model, measurement model testing was done as a first step of SEM. Measurement model testing is a type of Confirmatory Factor Analysis (CFA) conducted to corroborate its underlying constructs. Traditionally, CFA is performed to give evidence for convergent and discriminant validity prior to the main analysis (Rogers, 1987).

According to Garson (n.d.), high loadings of indicators on the predicted factors indicate convergent validity. In order to examine convergent validity, estimates of regression weights, that is, factor loadings, the critical ratio (C.R.), and significance level were obtained to test null hypotheses.

Discriminant validity demonstrates that the correlation between factors is not so high as to lead one to think the factors overlap conceptually. Correlations among latent variables of the measurement model were obtained and examined in the present study.

Depending on statistical evidence of convergent and discriminant validity and a good fit, the researcher did further evaluation of the adequacy of the

measurement model and modified it based on conceptual reasonableness.

Hypothetical Model Testing. The measurement model testing is followed by data analyses to test hypothetical models to examine the research hypotheses. That is, the subsequent analyses of measurement models are done to test the data for the degree to which they fit the proposed patterns (Bryne, 1994). In this study, the second stage of modeling, including the structural paths between the latent constructs and the observed variables that were exogenous variables, was tested. Fit indices, including χ^2, GFI, AGFI, CFI, and RMSEA, were calculated to test the fits of the hypothetical models.

Model Trimming and Model Building. In addition to testing the overall fit of an initial model, efforts to improve the initial model can be done using SEM. Model improvement was done by constraining some of the insignificant paths (model trimming) or by adding some of the significant paths (model building). Modification indices, which are calculated for every parameter that is fixed to zero, would guide possible changes of χ^2 test statistics in the initial model.

After the initial model was modified in order to obtain a better fitting model, χ^2 difference statistics, which refer to the difference between the overall fit of the initial model and revised models, were used to compare the fit of revised models with the fit of the initial model to test model improvement. In addition to statistical evidence, respecification and reestimation of these values were guided by theory in order for conceptual plausibleness (Benishek, 1992).

After modification, χ^2 difference statistics were obtained to examine significant improvement of the modified models. Modification of the initial model

was finally decided when it was conceptually reasonable and statistically supported.

Regression Analyses

Multiple regression and hierarchical regression analyses were performed as supplementary analyses to investigate the contributions surrounding the two indicators of parental mediation, that is, instructive mediation and restrictive mediation.

Data Transformation

Data transformation of some of the variables was done. First, the range of the raw scores for income and the amount of family visual media use was too large a range with large standard deviations; family income ranged from zero to $250,000 with an average of $78,719.31 (SD = 45,540.35) and family visual media use varied from zero to 2,700 minutes with an average of 360.74 (SD = 290.63). Therefore, they were transformed as standardized values, whose mean is zero and standard deviation is one.

Another data transformation was completed for data whose distributions were not normal. The first transformed variable was restrictive mediation, which was an indicator of parental mediation. When the researcher conducted an "eyeball check" of the distribution of each variable to identify normality assumption violations, the distribution of restrictive mediation was found to be extremely negatively skewed. Restrictive mediation ranged from eight to 25 with an average of 16.40 (SD = 3.21). The median of restrictive mediation was 17 with a skewness statistic of -.72. Because the possibility of a skewed distribution

increases as the skewness statistic departs further from zero (Brown, 1997), the distribution of restrictive mediation was ascertained as a skewed one. Therefore, raw data of restrictive mediation measure was transformed using the square root transformation, which is a general approach to handling non-normal data, was done in this study. In addition to restrictive mediation, instructive mediation, which indicates parental mediation construct with restrictive mediation (M = 18.88, SD = 2.89), was also transformed using the square root transformation in order to be consistent with the other measure, although its normality of distribution was acceptable (Skewness = -.29).

The six variables of children's visual media use were also not normally distributed. All the distributions of the variables were zero-inflated ones, so they were extremely positively skewed. In addition to the visual inspections of the distributions of the variables, the statistics of skewness were also very large (Type 1 programs = 1.31, Type 2 programs = 2.16, Type 3 programs = 1.67, Type 4 programs = 4.28, Type 5 programs = 3.79, Type 6 programs = 4.08). For this reason, the six variables were also converted using square root transformation due their skewed distribution.

CHAPTER 4

RESULTS

This chapter describes the findings of this study. Six sections are included: the relations among the observed variables; the measurement model; the structural equation model; multiple regression; hierarchical regression; and a summary of the findings.

Relations among the Observed Variables

Correlational analyses were performed to determine the extent of the associations among the 21 observed variables. Those at the familial level included family head's occupation (OCP), gross income (INC), family head's education (EDU), number of visual media devices (FVMD), number of children's devices (CVMD), amount of family visual media use (FMVU), instructive mediation (IPM), and restrictive mediation (RPM). At the individual level, the variables included age (AGE) and gender (GNDR). As mediators, there were the amount of viewing Type 1 programs (TYPE1), amount of viewing Type 2 programs (TYPE2), amount of viewing Type 3 programs (TYPE3), amount of viewing Type 4 programs (TYPE4), amount of viewing Type 5 programs (TYPE5), and amount of viewing Type 6 programs (TYPE6). The outcome variables were physical spontaneity (PSIP), social spontaneity (SSIP), cognitive spontaneity (CSIP), manifest joy (MJIP), and sense of humor (SHIP). Table 8 presents the zero-order correlations among the variables.

Table 8 Means, Standard Deviations, and Correlations of Indicators (N = 202)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. OCP	1.00										
2. EDU	.67***	1.00									
3. INC[1)]	.58***	.51***	1.00								
4. FVMD	-.03	-.15**	.15**	1.00							
5. CVMD	-.24***	-.27***	-.14**	.42***	1.00						
6. FMVU[1)]	-.20***	-.25***	-.09	.36***	.27***	1.00					
7. IPM[2)]	.11	.04	.11	-.03	-.03	.01	1.00				
8. RPM[2)]	.15**	.06	.09	-.22***	-.18**	-.16**	.31***	1.00			
9. TYPE1[2)]	.03	.02	.01	.11	-.03	.31***	-.12	-.05	1.00		
10. TYPE2[2)]	-.24***	-.32***	-.24***	.17**	.16**	.20***	.02	-.19***	-.04	1.00	
11. TYPE3[2)]	-.11	-.07	-.00	.36***	.13*	.29***	.01	-.21***	.07	.25***	1.00
12. TYPE4[2)]	-.02	.01	.00	-.01	-.08	-.04	.09	-.05	-.02	-.17**	.16**
13. TYPE5[2)]	-.28***	-.18***	-.19***	.15**	.05	.18**	.04	-.11	-.01	.21***	.24***
14. TYPE6[2)]	-.16**	-.11	-.18***	.09	.08	.11	.06	-.04	-.09	.08	.14**
15. AGE	-.17**	-.17**	-.15**	.09	.01	.00	-.04	.03	-.14**	.08	-.04
16. GNDR[3)]	.03	.01	-.11	-.16**	-.11	-.03	-.07	-.01	-.03	-.02	-.08
17. PSIP	-.15**	-.16**	-.13*	.08	.02	.03	-.10	-.09	-.03	.11*	.14**
18. SSIP	-.01	.01	-.05	-.06	-.14*	-.02	-.14**	-.08	-.07	.07	.07
19. CSIP	-.08	-.16**	-.13*	.02	-.05	.00	-.16**	-.03	-.09	.06	.03
20. MJIP	-.13*	-.19***	-.16**	.04	-.01	.03	-.18***	-.10	-.04	.05	.03
21. SHIP	-.11	-.16**	-.08	.09	-.01	.08	-.07	-.01	-.03	.02	.08

Reference. 1. Family head's occupation, 2. Family head's education, 3. Gross income, 4. Number of visual media devices, 5. Number of children's devices, 6. Amount of visual media use, 7. Instructive mediation, 8. Restrictive mediation, 9. Amount of viewing Type 1 programs, 10. Amount of viewing Type 2 programs, 11. Amount of viewing Type 3 programs, 12. Amount of viewing Type 4 programs, 13. Amount of viewing Type 5 programs, 14. Amount of viewing Type 6 programs, 15. Age, 16. Gender, 17. Physical spontaneity, 18. Social spontaneity, 19. Cognitive spontaneity, 20. Manifest joy, 21. Sense of humor

Table 8 (Cont'd)

Variables	12	13	14	15	16	17	18	19	20	21	Means	SD
1											64.95	22.76
2											16.79	3.54
3											.00	1.00
4											5.34	2.44
5											.36	.76
6											.00	1.00
7											4.33	.34
8											4.03	.42
9											17.75	9.07
10											11.07	8.07
11											13.42	9.65
12	1.00										2.04	4.91
13	.13*	1.00									2.67	5.70
14	.29***	.21***	1.00								1.73	4.60
15	.10	.11	.21***	1.00							52.22	8.03
16	-.11	.05	-.11	.03	1.00						.49	.50
17	.09	.13*	.19***	.17**	-.15**	1.00					10.82	3.02
18	.01	.11	.02	.16**	.19***	.24***	1.00				10.85	2.91
19	.03	.05	.09	.38***	.12*	.50***	.36***	1.00			13.35	4.13
20	.09	.11	.15**	.23***	.09	.55***	.38***	.62***	1.00		19.17	4.17
21	.02	.15**	.22***	.26***	-.10	.57***	.24***	.63***	.60***	1.00	14.41	5.31

Note. 1) Z scores, 2) Converted using square root transformation, 3) Boy = 0, Girl =1.
*$p < .10$. **$p < .05$. ***$p < .01$.

Most of all, the variables indicating the same construct were found to be correlated with each other. In the measurement model, there were four latent variables: socioeconomic status (SES), viewing environment in a family (FVE), parental mediation (PM), and imaginative playfulness (IP). Family head's occupation, family head's education, and gross income indicating socioeconomic status, were significantly related to each other in a positive direction ($p < .001$). Correlations between the number of visual media devices, the number of children's devices, and amount of visual media use, which indicated a construct, that is, viewing environment in a family, were also positively significant ($p < .001$). A significant correlation between instructive mediation and restrictive mediation that were indicators of parental mediation was found in a positive direction ($p < .001$). The indicators of imaginative playfulness, which were physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor, were also positively related to each other ($p < .001$).

Several significant correlations between the variables were found as hypothesized, mostly in the expected directions. For example, socioeconomic status indicators were negatively related to the indicators of the family viewing environment. Among nine correlations between three socioeconomic status indicators and three family viewing environment indicators, seven of them were negative and significant ($p \leq .005$); only two correlations between occupation and the number of visual media devices ($p = .69$) and between income and amount of family visual media use were not significant ($p = .22$).

On the contrary, the relationships between indicators of socioeconomic

status and parental mediation were expected to be positive. Although associations between three socioeconomic status indicators and the two parental mediation indicators were positive, only the correlation between income and restrictive mediation was significant (p = .04).

Children whose family viewing environment was rated with high scores tended to watch more television, videos, or DVDs. Three family viewing environment indicators and six program types were mostly positive as expected but they were small to moderate in magnitude and sometimes were not significant ($.07 \leq p \leq .51$). There were four correlations between the family viewing environment indicators and the six visual media use variables which were negative, but they were very small and not significant ($.26 \leq p \leq .87$).

However, parental mediation of what their children watched was likely to be related to the children's visual media use. Interestingly, the relationship between parental mediation and visual media use depended on the type of parental mediation. Instructive mediation was related to visual media use variables positively ($.20 \leq p \leq .77$) except for the amount of viewing of Type 1 programs (p = .10). On the other hand, restrictive mediation was negatively related with visual media use variables. Among the correlations among parental mediation indicators and visual media use variables, only the relations between restrictive mediation and Type 2 and 3 programs were significant (p = .01); children whose parents restricted what children viewed were unlikely to watch Type 2 and 3 programs.

As for the relationships of child characteristics with visual media use

variables, children's gender was not associated with all types of programs ($.12 \leq p \leq .82$). On the other hand, there were two significant correlations between age and visual media use variables. That is, older children tended to watch more Type 6 programs ($p = .002$) and less Type 1 programs ($p = .05$).

The correlations between child characteristics and imaginative playfulness indicators were mostly compatible with the hypotheses. Older children tended to be more playful in terms of their physical, social, and cognitive spontaneity, manifest joy, and sense of humor during imaginative play ($p \leq .02$). Boys tended to have higher scores on physical spontaneity ($p = .04$), and girls were likely to have higher scores on social spontaneity ($p = .01$).

The relationships between the five imaginative playfulness indicators and the six observed variables of visual media use were contradictory to the hypotheses. The amount of viewing Type 1 programs was negatively related to imaginative playfulness indicators ($.21 \leq p \leq .66$), while correlations between other types of programs and imaginative playfulness indicators were mostly positive but were not significant.

Several relationships which were not hypothesized were found. For example, indicators of the family viewing environment were significantly correlated with restrictive mediation ($p \leq .003$), while instructive mediation was not statistically correlated with any indicator of family viewing environment ($.79 \leq p \leq .85$). Additionally, indicators of socioeconomic status were also found to be related to viewing amounts of several programs; children of a higher socioeconomic status family tended to watch fewer Type 2, Type 5, and Type 6

programs ($p \leq .03$). The socioeconomic status of a family was also found to be related to the imaginative playfulness of their child. In general, socioeconomic status indicators were negatively correlated with imaginative playfulness indicators; children of a higher socioeconomic status family were less likely to be playful. In particular, the level of physical spontaneity, cognitive spontaneity, and manifest joy tended to be low when socioeconomic status was high ($.03 \leq p \leq .07$).

Measurement Model

A measurement model refers to a model with a single latent variable indicated by observed variables. Prior to the main analysis to test hypotheses using SEM, measurement model testing is conventionally required for measure validation. Convergent validity and discriminant validity, which together give evidence for construct validity, were tested using Confirmative Factor Analysis (CFA). In CFA, a finding that indicators have high loadings on the predicted factors indicates convergent validity. In an oblique rotation, discriminant validity is demonstrated if the correlation between factors is not so high as to lead one to think the two factors overlap conceptually (Garson, n.d.).

Estimation Procedure

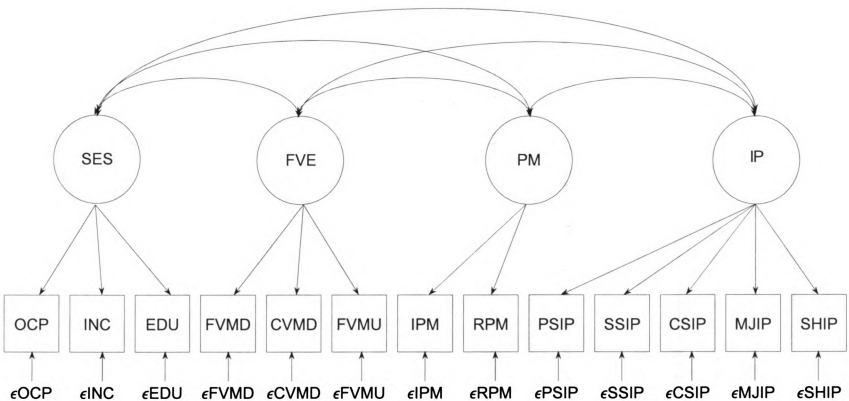
As stated in Chapter 3, socioeconomic status, parental mediation, family viewing environment, and imaginative playfulness measures were the latent variables indicated by observed variables. On the other hand, age, gender, and visual media use were treated as one-item scales. Therefore, these variables

were not included in the measurement model testing in the CFA prior to the analyses of the hypothetical models (see Figure 4).

Although the square root transformation was performed to normalize the distributions of parental mediation indicators, particularly the restrictive mediation variable, such change was not powerful enough to transform the original distribution into an acceptable normal distribution. This presents a problem for the hypothesis testing in SEM using Maximum likelihood (ML) estimation that has been conventionally used in most studies. Because ML assumes a normal distribution in the population from which you drew your sample data, non-normally distributed data are more likely to cause problems for CFA. A violation of normality may lead to a rejection of models that may not be false and decide that particular parameter estimates are different from zero when in fact this is not the case (type 1 error) because the chi-square test statistic of overall model fit will be inflated and the standard errors used to test the significance of individual parameter estimates will be deflated (Information Technology Services, 2002).

Generalized Least Squares (GLS), which is another estimation to compute goodness-of-fit indices, parameter estimates, and standard errors, was used to deal with the non-normal data. GLS is widely recommended to test data with non-normal distribution because it is more robust, nevertheless it under-performs relative to ML in the testing of overall model fit and the significance of individual parameter estimate values relative to ML (Osborne, 2002). Therefore, GLS estimators were obtained to test the measurement models instead of ML estimation, as is conventionally used in most studies.

Figure 4. Measurement Model



Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, PM: Parental mediation, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, IPM: Instructive mediation, RPM: Restrictive mediation, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor, ϵ: Measurement error.

Discriminant Validity

Discriminant validity, referring to the distinctiveness of the factors measured by different sets of indicators, can be determined by examining estimated correlations between the factors. In this study, therefore, discriminant validity was tested by examining relationships between each pair of constructs. Conventionally, the correlations which are not excessively high (e.g., >.85) can be evidence of discriminant validity (Kline, 1998).

As shown in Table 9, there were no high correlations among the constructs. The correlation between the family viewing environment and parental mediation was the highest one (r = -.43, p = .10); the family viewing environment and imaginative playfulness was the lowest correlation (r = .10, p = .37). The results show that an adequate level of discriminant validity among the constructs was achieved in the measurement model. Therefore, it was concluded that socioeconomic status, family viewing environment, parental mediation and imaginative playfulness measured different concepts.

Convergent Validity

Table 9 summarizes key parameter estimates, and indices from the confirmatory factor models, showing directions, significance, and effect sizes of indicators.

Table 9.

Summary of Measurement Model

Parameter estimates

Parameters			Initial measurement model Estimates[1]	C.R.	Significance	Modified measurement model Estimates	C.R.	Significance
SES	→	OCP	.83	7.37	.00	.81	8.88	.00
SES	→	INC	.62	—[2]	—	.68	—[2]	—
SES	→	EDU	.82	7.87	.00	.85	9.16	.00
FVE	→	FVMD	.72	4.74	.00	.78	4.24	.00
FVE	→	CVMD	.62	4.72	.00	.59	4.71	.00
FVE	→	FVMU	.51	—[2]	—	.48	—[2]	—
PM	→	IPM	.35	1.77	.07			
PM	→	RPM	.84	—[2]	—			
IP	→	PSIP	.70	9.58	.00	.70	9.67	.00
IP	→	SSIP	.38	4.65	.00	.41	5.03	.00
IP	→	CSIP	.77	10.65	.00	.78	10.85	.00
IP	→	MJIP	.78	10.37	.00	.79	10.55	.00
IP	→	SHIP	.81	—[2]	—	.80	—[2]	—
SES	↔	FVE	-.39	-3.01	.00	-.44	-3.33	.00
SES	↔	PM	.17	1.24	.22			
SES	↔	IP	-.26	-2.67	.01	-.23	-2.60	.01
FVE	↔	PM	-.43	-1.65	.10			
FVE	↔	IP	.10	.90	.37	.08	.85	.40
PM	↔	IP	-.12	-1.01	.31			
INC	→	FVMD				.35	4.39	.00

Goodness of fit summary

Model	χ^2	*df*	χ^2/df	GFI	AGFI	CFI	RMSEA
Initial model	68.70	59	1.16	.95	.92	.94	.03
Modified model	34.63	40	.86	.97	.95	1.00	.00

Modification indices[3]

Path			Modification indices
INC	→	FVMD	10.49
ϵINC[4]	↔	ϵFVMD[4]	7.62
ϵFVMD[4]	↔	SES	7.37
FVMD	→	INC	5.99
OCP	→	FVMD	4.65
SES	→	FVMD	4.46

Note. 1) Standardized regression weights, 2) Constrained parameters to 1.0, 3) M.I. of the initial measurement model, 4) Measurement error of the variables.

With convergent validity, all constructs except parent mediation showed significant coefficients; the regression coefficient of instructive mediation indicating parental mediation was 1.77 (p = .07) although parental mediation was found as a latent variable significantly indicated by instructive mediation and restrictive mediation when the measurement model was tested using EFA. On the other hand, the remaining measures showed sufficiently significant scores, indicating measures of the respective constructs are internally consistent. That is, the results of CFA showed that all loading parameters except PM were large and loaded significantly on the latent variables which they were intended to represent.

Indicators having non-significant factor loadings are conventionally dropped unless there is a compelling reason to keep them. As an example, parental mediation has been shown to be as an important mediator of children's viewing practices in past studies. However, convergent validity of the parental mediation measurement model was revealed as poor, because instructive mediation and restrictive mediation were not loading on parental mediation which they were intended to represent. In other words, the measure of parental mediation in the present research was statistically not appropriate despite the theoretical significance. Thus, it was decided to eliminate the parental mediation measurement model from the hypothetical model.

Measurement Model Modification

There were two major modifications to improve the model fit of the measurement model. The first modification was to remove the parental mediation measurement model as stated above. Another modification was to

add a significant path to the measurement model.

The researcher inspected the modification indices (M.I.) to find paths to be added. As showed in Table 9, six paths were found that could improve the overall fit of the measurement model. Because the fit of the initial measurement model was already good, it was decided that a path from income to the number of visual media devices in a family, which had a M.I. of 10.49, was added in the model because the M.I. of the path was higher than the other paths.

Besides the statistical significance, the addition of the path from income to the number of visual media devices in a family was also conceptually important because the direction of the path was opposite to the direction of the path between the indicators' latent variables. That is, the path from income to the number of visual media devices in a family is the relationship between indicators representing their latent variables, which are socioeconomic status and family viewing environment. Accordingly, the effects of income on the number of visual media devices in a family were covered by the influences of socioeconomic status on family viewing environment. While the coefficient of the path from socioeconomic status to the family viewing environment was negative, the path from income to the number of visual media devices in a family was positive. That is, the relationship between income and the number of visual media devices could not be covered by the relationships between the two latent variables. In fact, it is reasonable that families with low income cannot afford to purchase multiple visual media devices. Based on this rationale, income, which has unique effects on the number of visual media devices, was decided to be added

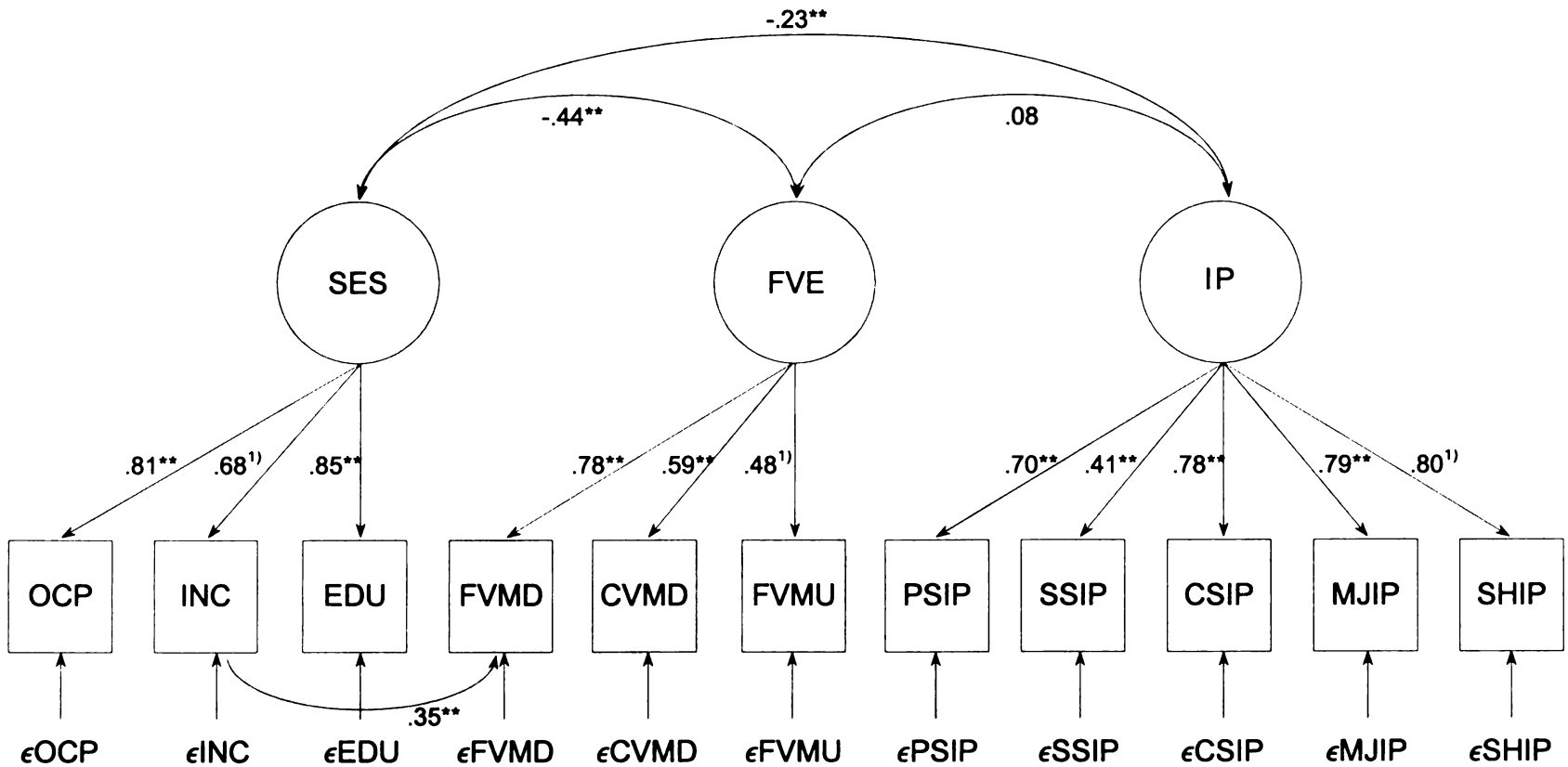
to the measurement model.

Therefore, it was hypothesized that the indicator, income, statistically influenced another indicator, the number of visual media devices, separately from the path of its effect through socioeconomic status and the family viewing environment in the measurement model. The modified measurement model appears on Figure 5.

Model Fit

The fit indices of the overall measurement model were obtained, and the results indicated the confirmatory measurement model was a good representation of the data (see Table 9). The χ^2/df and RMSEA statistics were small enough to indicate a good fit; the values of GFI, AGFI, and CFI were also sufficient to accept the model as a good fit (χ^2/df = 1.16, GFI = .95, AGFI = .92, CFI = .94, RMSEA = .03). Examination of the modified measurement model, after allowing for the path from income to the number of visual media devices and removing the parental mediation measurement model, provided a better fit; χ^2/df and RMSEA decreased, and GFI, AGFI, and CFI increased (χ^2/df = .86, GFI = .97, AGFI = .95, CFI = 1.00, RMSEA = .00). After modifying the measurement model, the significance of improvement was examined using χ^2 difference tests. According to the result, the difference in χ^2 was significant $d\chi^2$ (1) = 34.07 ($p < .001$). The χ^2 difference test results led to the conclusion that the modified measurement model was more adequate than the original measurement model.

Figure 5. Modified Measurement Model



Note. 1) Constrained parameters to 1.0.
Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor, ϵ: Measurement error.
**$p < .01$.

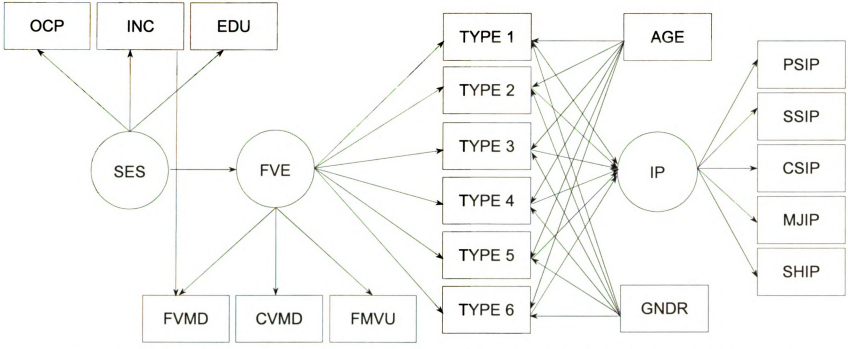
From the overall evidence on discriminant and convergent reliability, and fit indices of the original and modified measurement models, the researcher concluded that adequate levels of the measurements were achieved. Thus, three constructs, socioeconomic status, family viewing environment, and imaginative playfulness, were utilized in the initial hypothetical model to be tested.

Structural Equation Model

Figure 6 presents the initial hypothetical model that incorporated the hypotheses for the present study. This model was a revised model of the original hypothetical model shown in Figure 4, adjusted for the results of the measures validation.

In the initial structural model, there were 19 observed variables and three latent variables, namely: occupation, education and income indicating socioeconomic status; the number of visual media devices, the number of children's devices, and amount of family visual media use indicating viewing environment in a family; physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor indicating imaginative playfulness; age and gender which were child characteristics variables treated as exogenous variables; and six exogenous variables assessing the amount of viewing of Type 1 programs through Type 6 programs.

Figure 6. Initial Hypothetical Model



Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, TYPE 1: Amount of viewing Type 1 programs, TYPE 2: Amount of viewing Type 2 programs, TYPE 3: Amount of viewing Type 3 programs, TYPE 4: Amount of viewing Type 4 programs, TYPE 5: Amount of viewing Type 5 programs, TYPE 6: Amount of viewing Type 6 programs, AGE: Age, GNDR: Gender, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor.

In the initial model, visual media use was assumed to be influenced by socioeconomic status through the family viewing environment and eventually affecting imaginative playfulness. Age and gender were hypothesized to influence the six program types and imaginative playfulness respectively. In addition, a path from income to the number of visual media devices was added.

Hypotheses Testing

The key parameters obtained for testing the hypotheses is reported in Table 10. The hypotheses, based on theoretical grounds and previous empirical findings in Chapter 3, were examined. Among a large number of hypotheses, 2 and 4 were not examined using SEM because the parental mediation measurement model was not included in the structural model testing.

H1. The higher the socioeconomic status of a family is, the lower their level of the family viewing environment.

The hypothesis predicted socioeconomic status to have a negative effect on family viewing environment. For the data of the present study, the hypothesized effect of socioeconomic status on the family viewing environment was supported. That is, higher levels of socioeconomic status were associated with lower levels of family viewing environment.

H 3. The higher the level of the family viewing environment is, the more visual media a child in the family uses.

Table 10.

Summary of Initial Hypothetical Model

Parameter estimates

Parameters			Estimates[1)]	C.R.	Significance
SES	→	OCP	.85	— [2)]	—
SES	→	INC	.62	7.39	.00
SES	→	EDU	.77	8.33	.00
FVE	→	FVMD	.75	5.69	.00
FVE	→	CVMD	.55	— [2)]	—
FVE	→	FVMU	.63	5.11	.00
IP	→	PSIP	.70	9.34	.00
IP	→	SSIP	.42	5.06	.00
IP	→	CSIP	.82	10.77	.00
IP	→	MJIP	.77	10.27	.00
IP	→	SHIP	.82	— [2)]	—
INC	→	FVMD	.32	4.50	.00
SES	→	FVE	-.47	-3.87	.00
FVE	→	TYPE1	.21	2.08	.04
FVE	→	TYPE2	.44	3.97	.00
FVE	→	TYPE3	.54	4.41	.00
FVE	→	TYPE4	-.03	-0.32	.75
FVE	→	TYPE5	.37	3.45	.00
FVE	→	TYPE6	.19	2.02	.04
AGE	→	TYPE1	-.11	-1.42	.16
AGE	→	TYPE2	-.02	-.26	.79
AGE	→	TYPE3	-.04	-.58	.57
AGE	→	TYPE4	.16	1.75	.05
AGE	→	TYPE5	.05	.67	.50
AGE	→	TYPE6	.26	3.22	.00
GNDR	→	TYPE1	-.04	-0.50	.61
GNDR	→	TYPE2	-.03	-0.39	.69
GNDR	→	TYPE3	.04	.53	.60
GNDR	→	TYPE4	-.11	-1.21	.23
GNDR	→	TYPE5	.10	1.36	.18
GNDR	→	TYPE6	-.04	-.53	.60
AGE	→	IP	.28	3.26	.00
GNDR	→	IP	-.01	-.01	.99

Table 10 (Cont'd)

Parameter estimates

Parameters			Estimates	C.R.	Significance
TYPE1	→	IP	-.04	-.43	.67
TYPE2	→	IP	-.07	-.76	.44
TYPE3	→	IP	.07	.79	.43
TYPE4	→	IP	-.04	-.43	.67
TYPE5	→	IP	.05	.59	.55
TYPE6	→	IP	.10	1.09	.28

Goodness of fit summary

χ^2	*df*	χ^2/df	GFI	AGFI	CFI	RMSEA
192.43	132	1.46	.90	.86	.71	.05

Modification indices

Path			Modification index
SES	↔	AGE	6.18
ϵTYPE4	↔	ϵTYPE2	8.75
ϵTYPE4	↔	ϵTYPE6	6.98
ϵTYPE3	↔	ϵTYPE2	4.03
ϵTYPE3	↔	ϵTYPE4	6.24
ϵSHIP	↔	ϵTYPE4	5.26
ϵPSIP	↔	GNDR	4.89
ϵEDU	↔	ϵTYPE2	4.84
ϵOCP	↔	ϵFVMD	6.20
ϵFMVU	↔	ϵTYPE1	9.08
ϵCVMD	↔	ϵTYPE1	4.01
TYPE4	→	TYPE2	8.38
TYPE4	→	TYPE6	6.67
TYPE2	→	TYPE4	6.58
TYPE6	→	TYPE4	6.24
TYPE4	→	TYPE3	5.95
TYPE4	→	SHIP	4.72
GNDR	→	PSIP	4.89
TYPE2	→	EDU	5.56
FVMD	→	OCP	4.90
TYPE1	→	FMVU	8.84

Note. 1) Standardized regression weights, 2) Constrained parameters to 1.0.

In this hypothesis, the family viewing environment was expected to have a positive effect on visual media use regardless of the type of programs. This hypothesis was mostly supported. In particular, the family viewing environment contributed to children's visual media use. Following in descending magnitude in the family viewing environment effects, were Type 5, 2, 3, 1, and 6 programs. Only Type 4 programs did not show a significant pathway from family viewing environment. That is, the children whose family rated higher in the level of family viewing environment tended to watch more Type 1, 2, 3, 5, and 6 programs, but Type 4 programs were not related to that level.

H 5. Children's visual media use varies by child characteristics.

H 5.1. Younger children spend more time viewing Type 1 programs than older children; older children spend more time viewing Type 2, Type 3, Type 4, Type 5 and Type 6 programs than younger children.

As expected, children's age had mixed effects on children's visual media use by program types. In addition to Type 1 programs that were hypothesized to have negative effects, children's time spent watching Type 2 and Type 3 programs also decreased with age. On the other hand, older children spend more time viewing Type 4, Type 5 and Type 6 programs than younger children as anticipated. In short, programs designed for children tended to be viewed by younger children, and general audience programs were likely to be watched by older children regardless of the presence of violence components and educational purposes.

Among these six paths from family viewing practice to each program type,

only two programs were influenced by family viewing practice; family viewing practice had significant positive effects on Type 4 and Type 6 programs but did not contribute to the other programs. That is, older children spent more time viewing Type 4 and Type 6 programs than younger children.

H 5.2. Girls spend more time viewing Type 1, Type 2, Type 4, and Type 5 programs than boys; boys spend more time viewing Type 3 and Type 6 programs than girls.

The results indicated that the hypothesis was not supported for all the types of programs; all coefficients were insignificant. That means children's viewing practices did not vary by children's gender.

H 6. Children's imaginative playfulness varies by their visual media use.

H 6.1. The more Type 1 programs children watch, the more playful they are.

H 6.2. The more Type 2, Type 3, Type 4, Type 5 and Type 6 programs children watch, the less playful they are.

Both sub-hypotheses were not supported for all the types of programs. There were no significant relationship for the hypotheses even at a marginal level. The results were consistent across all six program types. Thus, children's viewing practices were not related to their imaginative playfulness.

H 7. Children's imaginative playfulness use varies by child characteristics.

H 7.1. Older children are rated higher than younger children in playfulness including physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor in imaginative play.

In the hypothesis, children's age was expected to have a positive, direct effect on their imaginative playfulness regardless of its dimension. For the data of the present study, the level of imaginative playfulness increased by age as expected. The results were consistent for all five dimensions. That is, children's age contributed to a higher level of imaginative playfulness.

H 7.2. Boys are rated higher than girls in physical spontaneity, manifest joy, and sense of humor in imaginative play; girls are rated higher than boys in social spontaneity and cognitive spontaneity in imaginative play.

The results indicated that the hypothesis on the influence of gender on imaginative playfulness was not supported. Regardless of the dimension of imaginative playfulness, the level of children's imaginative playfulness did not vary by their gender.

H 8. The hypothesized model of the relationship of socioeconomic status, children's characteristics, and three mediating variables, including the viewing environment in a family, parental mediation, and children's visual media use, to the level of imaginative playfulness in this study fits the data.

The χ^2/df ratio was less than 3, the value of GFI was greater than .90, and RMSEA was less than .10. On the other hand, AGFI and CFI were each less than .90. That is, only three fit indices of the initial hypothetical model succeeded to show the model was a good representation of the data. Despite the results of fit measures representing fairly adequate fit of the model, the model did not fit the data well.

Modified Models

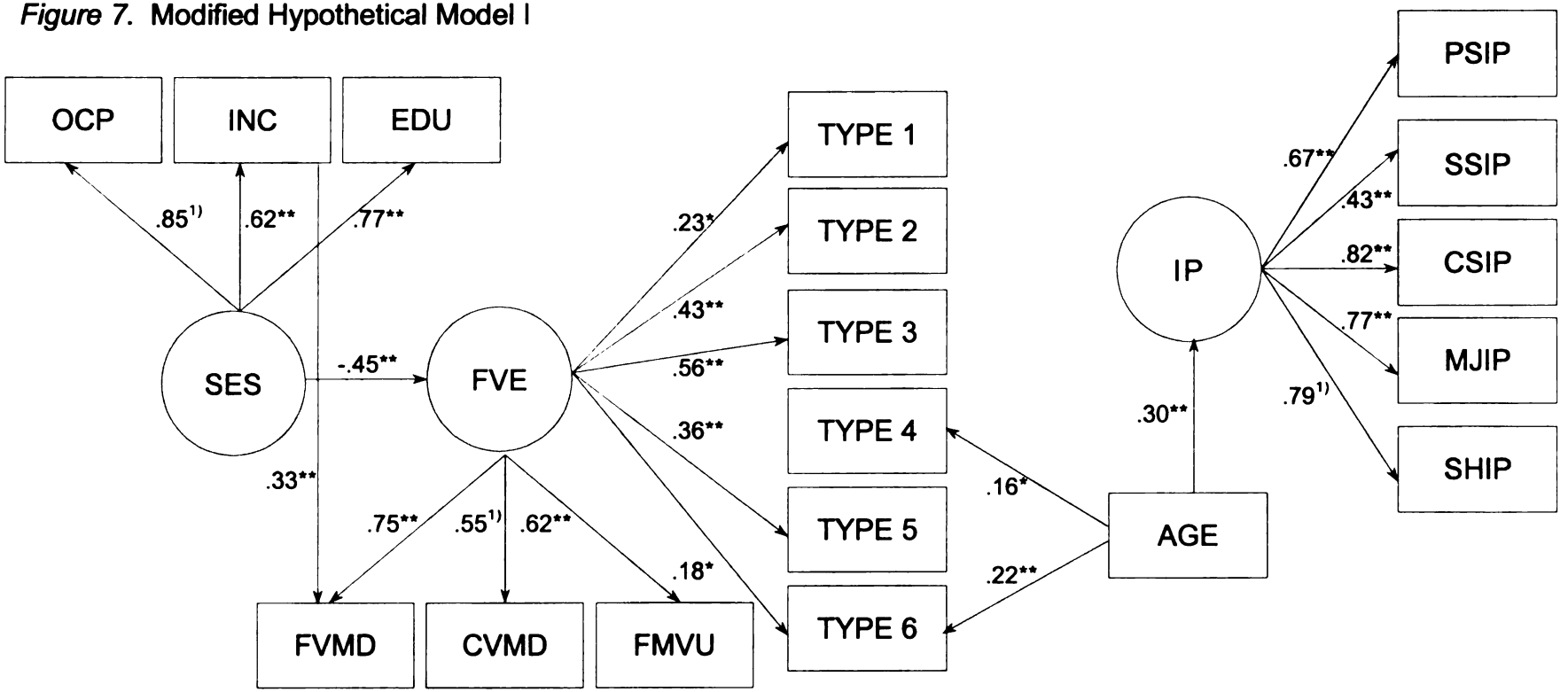
In addition to the fit measures indicating a quite unsatisfactory fit, there were too many constraints in the initial model. Based on the coefficients and modification indices (M.I.), the model was modified in order to create a more parsimonious model with better fit in several steps.

Modified Model I

In the first modification, the model was obtained by constraining all the insignificant paths, p-values less than .10, to be zero (see Figure 7). The first modified model which removed statistically insignificant paths became a more parsimonious model. This is more desirable because of its relative simplicity.

A total of 17 paths of the initial model were constrained in the modified model I; the path from the family viewing environment to Type 4, from Type 1 to imaginative playfulness, from Type 2 to imaginative playfulness, from Type 3 to imaginative playfulness, from Type 4 to imaginative playfulness, from Type 5 to imaginative playfulness, from Type 6 to imaginative playfulness, from age to Type 1, from age to Type 2, from age to Type 3, from age to Type 5, from gender to Type 1, from gender to Type 2, from gender to Type 3, from gender to Type 4, from gender to Type 5, and from gender to Type 6 were excluded. Because there was no significant path involving gender, the variable gender was removed from the model. Therefore, there were 18 observed variables and three latent variables in this model with 20 paths.

Figure 7. Modified Hypothetical Model I



Note. 1) Constrained parameters to 1.0.
Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, TYPE 1: Amount of viewing Type 1 programs, TYPE 2: Amount of viewing Type 2 programs, TYPE 3: Amount of viewing Type 3 programs, TYPE 4: Amount of viewing Type 4 programs, TYPE 5: Amount of viewing Type 5 programs, TYPE 6: Amount of viewing Type 6 programs, AGE: Age, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor.
$^{*}p < .05$. $^{**}p < .01$.

The χ^2 difference test, which evaluates the significance of the change in the model, was not available. The χ^2 difference test is available only for the relative fit of two hierarchically related models. The modified model that does not contain an exogenous variable, gender, is not hierarchically related to the initial model. Although significance of improvement of the revised model could not be statistically tested, the fit indices in Table 11 indicate that the revised model is still not satisfactory although the model was improved a bit (χ^2/df = 1.35, GFI = .90, AGFI = .87, CFI = .77, RMSEA = .04).

Modified Model II

The next modification to enhance model fit was to add pathways. The M.I. estimates of the modified model I were used for the additional paths. As for the modifications, some paths which were not empirically and theoretically supported were not included in the second modified model even if the M.I. indicated that they would produce a numerically acceptable fit (Arbuckle & Wothke, 1999). For example, the paths between program types were not included because causal relationships among uses of visual media types could not be inferred in this study. Also, the paths whose estimate of M.I. was marginally greater than 4, which is the threshold in the Amos statement, were also excluded, because there were too many paths displayed on the output. The paths among indicators of latent variables were also not included because their relationships were already explained by the relationship among latent variables.

Table 11.

Summary of Modified Model I

Parameter estimates

Parameters			Estimates[1)]	C.R.	Significance
SES	→	OCP	.85	— [2)]	—
SES	→	INC	.62	7.25	.00
SES	→	EDU	.77	8.18	.00
FVE	→	FVMD	.75	5.75	.00
FVE	→	CVMD	.55	— [2)]	—
FVE	→	FVMU	.62	5.19	.00
IP	→	PSIP	.67	8.92	.00
IP	→	SSIP	.43	5.02	.00
IP	→	CSIP	.82	10.44	.00
IP	→	MJIP	.77	9.88	.00
IP	→	SHIP	.79	— [2)]	—
INC	→	FVMD	.33	4.80	.00
SES	→	FVE	-.45	-3.87	.00
FVE	→	TYPE1	.23	2.26	.02
FVE	→	TYPE2	.43	3.94	.00
FVE	→	TYPE3	.56	4.56	.00
FVE	→	TYPE5	.36	3.41	.00
FVE	→	TYPE6	.18	2.05	.04
AGE	→	TYPE4	.16	2.76	.05
AGE	→	TYPE6	.22	1.84	.01
AGE	→	IP	.30	3.71	.00

Goodness of fit summary

χ^2	*df*	χ^2/df	GFI	AGFI	CFI	RMSEA
178.72	132	1.35	.90	.87	.77	.04

Modification indices

Path			Modification index
ϵTYPE4	↔	ϵSHIP	6.14
ϵTYPE4	↔	ϵTYPE2	8.75
ϵTYPE4	↔	ϵTYPE6	7.72
ϵTYPE3	↔	ϵTYPE4	5.65
ϵFVMD	↔	AGE	4.35
ϵEDU	↔	ϵTYPE2	5.73

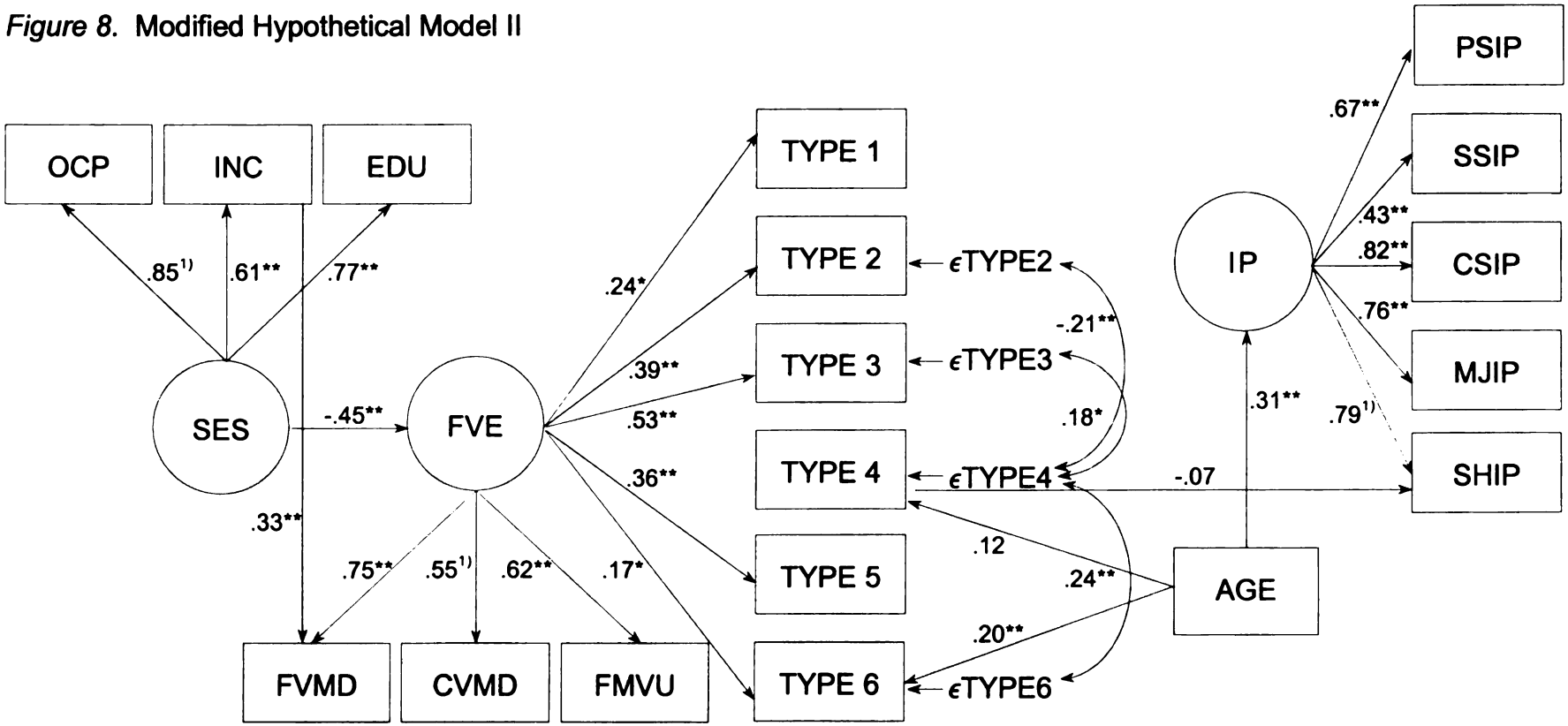
Table 11 (Cont'd)

Modification indices			
Path			Modification index
ϵFMVU	↔	ϵTYPE1	8.57
ϵCVMD	↔	ϵTYPE1	4.94
TYPE4	→	SHIP	6.12
TYPE4	→	TYPE2	8.77
EDU	→	TYPE2	5.31
FMVU	→	TYPE1	4.64
TYPE4	→	TYPE6	7.49
TYPE2	→	TYPE4	7.10
TYPE6	→	TYPE4	6.95
TYPE4	→	TYPE3	5.00
EDU	→	TYPE3	4.05
AGE	→	FVMD	4.35
TYPE2	→	EDU	6.50
FVMD	→	OCP	4.38
TYPE1	→	FMVU	8.16
TYPE1	→	CVMD	4.46

Note. 1) Standardized regression weights, 2) Constrained parameters to 1.0.

Accordingly, four paths were added that could be conceptually justified among 25 paths identified as relationships that could improve the goodness of fit. The four paths were from Type 4 programs to sense of humor, and between measurement error (ϵ) of Type 2 programs and ϵ of Type 4 programs, between ε of Type 3 programs and ϵ of Type 4 programs, and between ϵ of Type 4 programs and Type 6 programs. The modified model II derived empirically and theoretically is depicted on Figure 8.

Figure 8. Modified Hypothetical Model II



Note. 1) Constrained parameters to 1.0.
Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, TYPE 1: Amount of viewing Type 1 programs, TYPE 2: Amount of viewing Type 2 programs, TYPE 3: Amount of viewing Type 3 programs, TYPE 4: Amount of viewing Type 4 programs, TYPE 5: Amount of viewing Type 5 programs, TYPE 6: Amount of viewing Type 6 programs, AGE: Age, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor, ϵ: Measurement error.
$^{*}p < .05$. $^{**}p < .01$.

The fit indices of the modified model II indicated that the model fit the data better. GFI and RMSEA showed the model fit the data, although AGFI and CFI were marginally unsatisfactory for good-fit. The results of the χ^2 difference test, which used the modified model I as the baseline model to be compared with, indicated the modified model II was improved significantly after the modification (see Table 12). Therefore, the results indicated that the model was a substantial improvement over the modified model I and is adequate in terms of the relative fit.

Modified Model III

Although the modified model II was a fairly good representation of the data, the model was modified again. This modification was done because the regression weights of two paths became insignificant in the modification model II. Therefore, insignificant paths were removed in the modified model III to create the desired more parsimonious model. One path was from Type 4 to sense of humor, which was found to improve the model in the earlier analysis. The other excluded path was from age to Type 4 programs. This had been a significant path in the earlier models but not significant after new paths were added. The other one was the path from Type 4 programs to sense of humor, which was newly added in the modified model II. Although M.I. of the modified model II indicated that the path from Type 4 programs to sense of humor would improve the model, the coefficient of the path was not significant. Therefore, the two paths dropped from the modified model III (see Figure 9).

Table 12.

Summary of Modified Model II

Parameter estimates

Parameters			Estimates[1)]	C.R.	Significance
SES	→	OCP	.85	— [2)]	—
SES	→	EDU	.61	8.12	.00
SES	→	INC	.77	7.19	.00
FVE	→	FVMD	.75	5.76	.00
FVE	→	CVMD	.55	— [2)]	—
FVE	→	FVMU	.62	5.10	.00
IP	→	PSIP	.67	8.91	.00
IP	→	SSIP	.43	5.05	.00
IP	→	CSIP	.82	10.46	.00
IP	→	MJIP	.76	9.88	.00
IP	→	SHIP	.79	— [2)]	—
FVE	→	TYPE1	.24	2.01	.02
FVE	→	TYPE2	.39	3.18	.00
FVE	→	TYPE3	.53	4.58	.00
FVE	→	TYPE5	.36	3.40	.00
FVE	→	TYPE6	.17	2.12	.04
AGE	→	TYPE4	.12	1.61	.11
AGE	→	TYPE6	.20	2.67	.01
AGE	→	IP	.31	3.77	.00
INC	→	FVMD	.33	4.79	.00
SES	→	FVE	-.45	-3.75	.00
TYPE4	→	SHIP	-.07	-1.26	.21
ϵTYPE2	↔	ϵTYPE4	-.21	-2.80	.00
ϵTYPE3	↔	ϵTYPE4	.18	2.30	.02
ϵTYPE4	↔	ϵTYPE6	.24	3.13	.00

Goodness of fit summary

				Contrast with Baseline model					
	χ^2	*df*	χ^2/df	$\chi^2_{difference}$	$df_{difference}$	GFI	AGFI	CFI	RMSEA
Model I	178.72	132	1.35	—	—	.90	.87	.77	.04
Model II	150.13	128	1.17	28.59**	4	.92	.89	.89	.03

Table 12 (Cont'd)

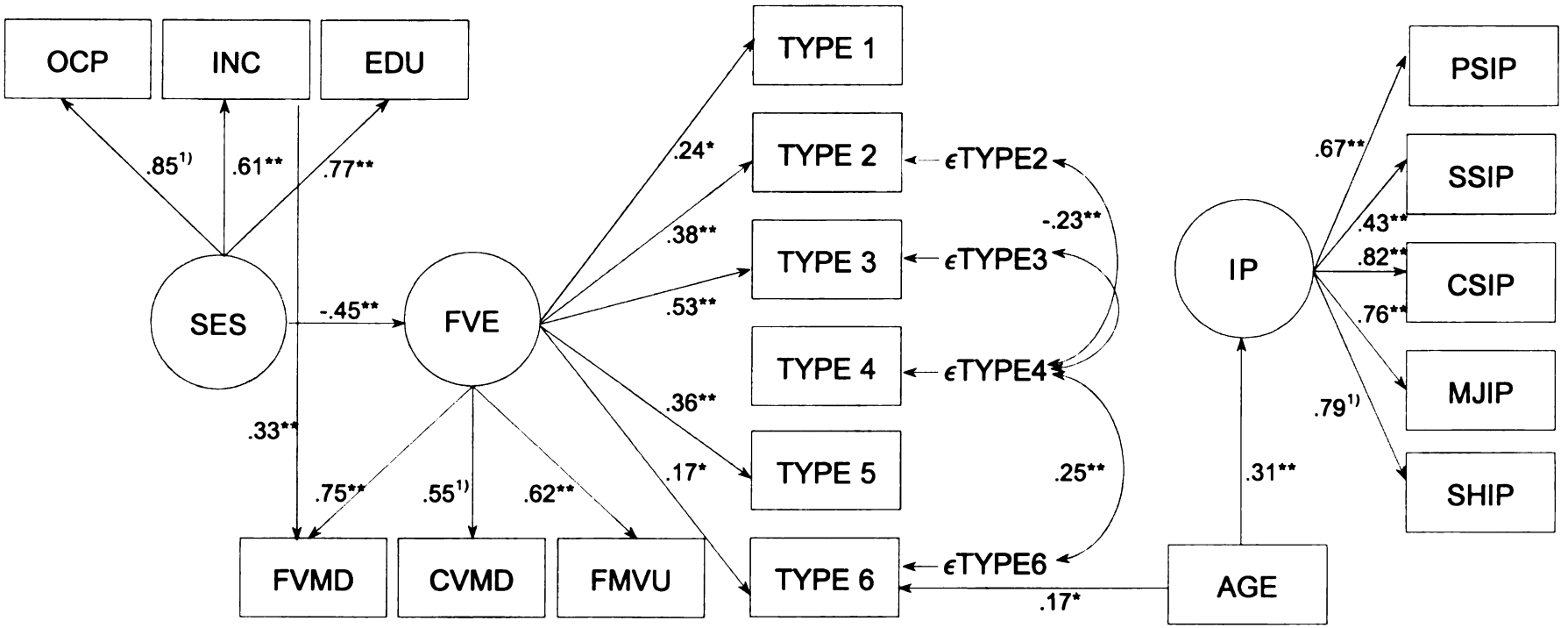
Modification indices

Path			Modification index
ϵFVMD	↔	AGE	14.53
ϵFVMU	↔	ϵTYPE1	8.52
FVMU	→	TYPE1	8.09
ϵOCP	↔	ϵFVMD	5.83
TYPE2	→	EDU	5.64
EDU	→	TYPE1	5.35
ϵEDU	↔	ϵTYPE2	5.28

Note. 1) Standardized regression weights, 2) Constrained parameters to 1.0.
** $p < .01$.

The results in Table 13 showed that the model fit was slightly improved after modification but the achievement in increasing the fit was trivial; the improvement was not significant according to the χ^2 difference test. In the modified model III, however, there were no insignificant paths, so the hypothetical model became simpler. Because a more parsimonious model is a better model, the modified model III was selected as the final model, as it has the most adequate and satisfactory fit representing the pathways of the effects among latent and observed variables.

Figure 9. Modified Hypothetical Model III



Note. 1) Constrained parameters to 1.0.
Reference. SES: Socioeconomic status, FVE: Viewing environment in a family, IP: Imaginative playfulness, OCP: Family head's occupation, INC: Gross income, EDU: Family head's education, FVMD: Number of visual media devices, CVMD: Number of children's devices, FVMD: Amount of visual media use, TYPE 1: Amount of viewing Type 1 programs, TYPE 2: Amount of viewing Type 2 programs, TYPE 3: Amount of viewing Type 3 programs, TYPE 4: Amount of viewing Type 4 programs, TYPE 5: Amount of viewing Type 5 programs, TYPE 6: Amount of viewing Type 6 programs, AGE: Age, PSIP: Physical spontaneity, SSIP: Social spontaneity, CSIP: Cognitive spontaneity, MJIP: Manifest joy, SHIP: Sense of humor, ϵ: Measurement error.
$^{*}p < .05$. $^{**}p < .01$.

Table 13.

Summary of Modified Model III

Parameter estimates

Parameters			Estimates[1)]	C.R.	Significance
SES	→	OCP	.85	—[2)]	—
SES	→	INC	.61	7.18	.00
SES	→	EDU	.77	8.11	.00
FVE	→	FVMD	.75	5.71	.00
FVE	→	CVMD	.55	—[2)]	—
FVE	→	FVMU	.62	5.10	.00
IP	→	PSIP	.67	8.90	.00
IP	→	SSIP	.43	5.06	.00
IP	→	CSIP	.82	10.45	.00
IP	→	MJIP	.76	9.87	.00
IP	→	SHIP	.79	—[2)]	—
FVE	→	TYPE1	.24	2.30	.02
FVE	→	TYPE2	.38	3.77	.00
FVE	→	TYPE3	.53	4.51	.00
FVE	→	TYPE5	.36	3.42	.00
FVE	→	TYPE6	.17	2.90	.04
AGE	→	TYPE6	.17	2.68	.01
AGE	→	IP	.31	3.71	.00
INC	→	FVMD	.33	4.79	.00
SES	→	FVE	-.45	-3.73	.00
ϵTYPE2	↔	ϵTYPE4	-.23	-3.06	.00
ϵTYPE3	↔	ϵTYPE4	.19	2.30	.01
ϵTYPE4	↔	ϵTYPE6	.25	3.39	.00

Goodness of fit summary

				Contrast with Baseline model					
	χ^2	*df*	χ^2/df	$\chi^2_{difference}$	$df_{difference}$	GFI	AGFI	CFI	RMSEA
Model II	150.13	128	1.17	—	—	.92	.89	.89	.03
Model III	153.97	130	1.18	3.84	2	.92	.89	.89	.03

Table 13 (Cont'd)

Modification indices			
Path			Modification index
ϵFVMD	↔	AGE	14.79
ϵFVMU	↔	ϵTYPE1	8.63
FVMU	→	TYPE1	8.20
ϵOCP	↔	ϵFVMD	5.82
TYPE2	→	EDU	5.54
EDU	→	TYPE1	5.28
ϵEDU	↔	ϵTYPE2	5.16

Note. 1) Standardized regression weights, 2) Constrained parameters to 1.0.

Multiple Regression

As stated above, parental mediation was dropped from the hypothetical model and the effects of the construct were not examined using SEM. Accordingly, multiple regression analyses were performed to test the hypothesis 2 as a supplementary analysis. As shown in Table 14, no statistically significant variable of socioeconomic status influencing either instructive mediation or restrictive mediation was found. The levels of income, occupation and education of parents were unlikely to affect their mediation while their child watched television, video, or DVD. Therefore, hypothesis 2 was not supported with the data.

Table 14.

Multiple Regression of Indicators of Parental Mediation

Predictor Variables	Instructive Mediation	Restrictive Mediation
OCP	.11	.19
EDU	-.08	-.08
INC[1)]	.09	.01
F	1.20	1.62
R Square	.00	.01

Note. 1) Z scores.
Reference. OCP: Family head's occupation, EDU: Family head's education, INC: Gross income.
$^{*}p < .05$, $^{**}p < .01$.

Hierarchical Regression

Hierarchical regression analyses were used to examine the contributions of instructive mediation and restrictive mediation on six different types of programs after the effects of other predictors, including indicators of socioeconomic status indicators and the family viewing environment, were controlled. The results of the supplementary analyses provide partial support for hypothesis 4. As shown in Table 15, there were only two significant relationships between the two indicators of parental mediation and program types when the effects of other indicators were controlled.

Table 15.

Hierarchical Regression of Indicators of Children Visual Media Uses

Predictor Variables	TYPE 1		TYPE 2		TYPE 3	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
OCP	.05	.06	.01	.02	-.15	-.14
EDU	.08	.08	-.20*	-.21	.12	.11
INC[1)]	-.05	-.04	-.15	-.15	-.02	-.02
FVMD	.05	.05	.13	.11	.34**	.32**
CVMD	-.12	-.11	.01	-.00	-.07	-.08
FMVU[1)]	.35**	.36*	.09	.08*	.19**	.18**
IPM[2)]		-.14*		.10		.08
RPM[2)]		.05		-.16*		-.13
F	4.40**	3.84**	5.31**	4.74**	6.94**	5.72**
R Square	.09	.10	.11	.13	.15	.16
R Square Change		.01		.02		.01
Predictor Variables	TYPE 4		TYPE 5		TYPE 6	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
OCP	-.08	-.07	-.28**	-.28**	-.08	-.09
EDU	.03	.02	.08	.08	.06	.07
INC[1)]	.01	.00	-.10	-.11	-.18*	-.19*
FVMD	.04	.03	.18**	.18**	.10	.11
CVMD	-.10	-.11	-.12	-.13	-.01	-.01
FMVU[1)]	-.04	-.05	.09	.09	.06	.06
IPM[2)]		.13		.09		.09
RPM[2)]		-.10		-.06		-.02
F	.35	.71	4.68**	3.71**	1.84	1.57
R Square	-.02	-.01	.10	.10	.02	.02
R Square Change		.01		.00		.00

Note. 1) Z scores, 2) Converted using square root transformation.
*$p < .05$, **$p < .01$.

First, instructive mediation was found to be negatively predictive of viewing Type 1 programs. In other words, the more the parents of the family instructively mediated what their child viewed, the less Type 1 programs their child viewed. This result was contrary to the hypothesis 4.1 that assumed positive effects of parental mediation on the uses of Type 1 programs (r = -.14, p = .05).

Second, restrictive mediation negatively predicted uses of Type 2 programs. That is, children whose parents restrictively mediated were likely to watch less Type 2 programs. This result partially supported the hypothesis 4.1 that assumed negative effects of parental mediation on the uses of Type 2, Type 3, Type 4, Type 5, and Type 6 programs (r = -.16, p = .03).

Despite the significant relationships from parental mediation variables, R Square Change after the two predictors added were very trivial even in the models of Type 1 and 2 programs. It implies that instructive mediation and restrictive mediation are the predictor variables are not good predictors of the criterion variable.

Summary

A summary of the research hypotheses tested and the findings of the study is presented in Table 16.

Table 16.

Summary of Hypotheses and Findings

Hypotheses		Findings
H 1.	The higher the socioeconomic status of a family is, the lower the level of the family viewing environment.	Supported
H 2.	The higher the socioeconomic status of a family is, the more the parents of the family mediate what their child view.	Not supported
H 3.	The higher the level of the family viewing environment is, the more visual media a child in the family uses.	Partially supported
H 4.1.	The more the parents of the family mediate what their child view, the more Type 1 programs their child views.	Not supported
H 4.2.	The more the parents of the family mediate what their child view, the more Type 2, Type 3, Type 4, Type 5, and Type 6 programs their child views.	Partially supported
H 5.1.	Younger children spend more time viewing Type 1 programs than older children; older children spend more time viewing Type 2, Type 3, Type 4, Type 5, and Type 6 programs than younger children.	Partially supported
H 5.2.	Girls spend more time viewing Type 1, Type 2, Type 4, and Type 5 programs than boys; boys spend more time viewing Type 3 and Type 6 programs than girls.	Not supported
H 6.1.	The more Type 1 programs children watch, the more playful they are.	Not supported
H 6.2.	The more Type 2, Type 3, Type 4, Type 5 and Type 6 programs children watch, the less playful they are.	Not supported
H 7.1.	Older children are rated higher than younger children in playfulness including physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, and sense of humor in imaginative play.	Supported
H 7.2.	Boys are rated higher than girls in physical spontaneity, manifest joy, sense of humor in imaginative play; girls are rated higher than boys in social spontaneity and cognitive spontaneity in imaginative play.	Not supported
H 8.	The hypothesized model of the relationship of socioeconomic status, children's characteristics, and three mediating variables including the viewing environment in a family, parental mediation, and children's visual media use to the level of imaginative playfulness in this study fits the data.	Partially supported

CHAPTER 5

DISCUSSION

The present study investigated the factors affecting children's visual media use and their effects on their imaginative playfulness. Overall, this research found that children's visual media use was influenced by its predictors, including socioeconomic status and the family viewing environment. Socioeconomic status contributed to the viewing environments in the family, and in turn, the family viewing environments influenced the children's viewing practices. However, the children's viewing did not affect their imaginative playfulness. Because no association between children's viewing practices and their imaginative playfulness was found, this study failed to find the pathways from children's visual media use and imaginative playfulness, even though the fit indices of the final model, including all the variables, were acceptable. In this chapter, the results of each hypothesis are given and suggestions for future research are made.

Socioeconomic Status and Family Viewing Environment

Socioeconomic status, which was indicated by income, education, and occupation, negatively affected the family viewing environment, supporting Hypothesis 1. Therefore, this study confirmed numerous past studies demonstrating that socioeconomic status is an important predictor of the viewing environment in a family (Anderson et al., 2001; Bianchi & Robinson, 1997;

Tangney & Feshbach, 1988).

An interesting predictor was family income, which was an indicator of socioeconomic status, because it positively predicted the number of visual media devices in a family. That is, the higher the income level of a family, the more visual media devices the family owned. The pathway between two indicators was exclusive because the finding was contradictory to the relationship between the latent variables that each indicator represented. That is, income positively predicted the number of visual media devices in a family, while socioeconomic status negatively contributed to family viewing environment. This distinctive pathway between the two indicators, which might be imbedded in the effects of socioeconomic status on family viewing environment, was identified using SEM in this study. It is reasonable that affordability is an important factor in the possession of visual media devices in a family. Therefore, family income should be carefully considered as a unique factor when the environmental characteristics in a family are studied.

Parental Mediation

Parental mediation has been a key variable predicting children's viewing in previous literature. Despite the importance, parental mediation was excluded in the hypothetical models for several reasons after the measurement model testing. The measurement model test found the indicators of parental mediation were not adequate for analyses using SEM; the coefficients of the indicators were not significant. Therefore, hypothesis 2 and 4 were not tested with the SEM models.

The main rationale of insignificant coefficients can be said to be a problem with the measure. Even after the exploratory factor analysis showed the existence of two variables, instructive mediation and restrictive mediation did not represent parental mediation significantly in the SEM models. In other words, the results of the measurement model testing showed the coefficients for instructive mediation and restrictive mediation were not significant.

There are several reasons for the inadequate measure that can be considered. Statistically speaking, first, a measurement model with a latent variable indicated by only two manifest variables is not recommended for SEM because too many constraints are needed to identify the measurement model (Kline, 1998). Parental mediation in this study was a construct represented by only two indicators. Therefore, it might result in an inadequate measure.

Another possible reason why the parental mediation measure was not a good one can be explained by difficulties in adapting the measure of Valkenburg and her colleagues (1999). First, the original measure was designed to assess parental mediation of elementary school children, whose viewing practices and whose parents' interaction might be different from preschoolers. According to the parents who did not provide all the answers in the Parental Mediation Questionnaire, for example, interaction related to items 6 and 10 barely occurred in their family (see the Appendix F). The parents commented that preschoolers' viewing practices were likely to be controlled by their parents before viewing activities occur, because the parents mediated before their child's viewing begins, not while their child is viewing. Although the social coviewing items in the original

measure were excluded for an appropriate measure for parental mediation of preschoolers, some of the other items might not be sufficiently applicable to the preschool children.

Another characteristic of the Valkenburg's measure is that it was designed to assess parental mediation of children's viewing of television, while this research uniquely included their mediation of children's viewing of videos and DVDs. Because young children needed parental approval and technical supports in order to view videos and DVDs, the parents' restrictions on an unsuitable program that their child was watching (item 6) and their prior-to-specification of the program that their child could view (item 10) seems to be inappropriate. That is, such mediation may differ when their child is viewing television from when their child is viewing videos and DVDs. Accordingly, the adaptation of the original measure to assess parental mediation of videos and DVDs uses might have created unanticipated measurement problem.

These reasons for unsuccessful adaptation of the measure imply that parental mediation may be beyond interpersonal and verbal actions that are traditionally regarded as mediating strategies; In addition to such mediation, parental mediation may include structuring the physical and psychological environments related to children's viewing. Therefore, it would be valuable to develop a measure to investigate different practices of parental mediation of young children during the viewing of videos and DVDs with questions considering this matter.

Socioeconomic Status and Parental Mediation

In order not to lose a chance to examine the relationships related to parental mediation, multiple regression analyses were used as supplementary analyses. There was no relationship between socioeconomic status and parental mediation, so hypothesis 2 was not supported with the data. Accordingly, this result of multiple regression implies that retention of the parental mediation measurement model would also be insignificant and would not improve fits of the SEM models.

As reviewed in Chapter 2, the influences of socioeconomic status on parental mediation have not been consistent. The findings of multiple regression, which indicate that parents' socioeconomic status did not contribute to parental mediation of children's viewing, provide evidence that supports no influence of socioeconomic status on parental mediation. Thus, the data strongly suggest that other factors should be taken into account in any study of parental mediation.

Parental Mediation and Children's Visual Media Use

The results of hierarchical regression showed that the effects of parental mediation were trivial. There were only two significant relationships between the two indicators of parental mediation and six different program types; instructive mediation was found to be negatively predictive of viewing Type 1 programs and restrictive mediation also negatively predicted uses of Type 2 programs.

It is an interesting finding that children whose parents mediated in an instructive way tended to watch fewer Type 1 programs, because it was contrary

to the hypothesis 4.1. Instructive mediation is the parents' efforts to enhance their child's learning from visual media through providing comments to maximize positive effects and minimize negative effects of viewing. Instructive mediation is the active, deliberate parental behaviors to enhance children's knowledge and behaviors. The parents try to make sense of and evaluate content of what they watch (Austin et al., 1990), and to increase children's critical viewing skills, thereby to make children more capable of managing their own interactions with visual media (Door & Rabin, 1995). Therefore, parents who mediate in an instructive way may be more concerned about cognitive functioning and mental skills. Nevertheless, children's visual media use is basically a passive and receptive process that does not involve direct hands-on experiences. Perhaps, such parents are more interested in activities that supplant viewing. Accordingly, an alternative reason might be that parents who instructively mediate engage children in other activities instead of watching even Type 1 programs that are well designed programs for children.

Another significant path was from restrictive mediation to Type 2 programs; children whose parents mediated what they watch in an instructive way tended to watch fewer Type 2 programs. Restrictive mediation involves the implementation and enforcement of parental rules regarding what their children watch and how much their children view. Parental restrictive mediation tends to prohibit children from being exposed to television programs with violent, sexual, or frightening content (Jordan, 2001). Based on this explanation, it can be speculated that parents tried to mediate the negative influences of programming that contains violent episodes like Type 3 or 6 programs and programming that is

not designed for young children like Type 4, 5, or 6 programs. Accordingly, the finding of a significant relationship between restrictive mediation and Type 2 programs is an unexpected result. This unexpected finding can be interpreted, considering the added paths in the SEM models. In the modified model II and III, systemic patterns between the programs were found because paths between measurement errors of Type 2, 3, 4, and 6 were found as significant relationships. Hence, the data indicate that more careful examination of the systemic patterns between measurement errors would be very helpful to interpret the effects of restrictive mediation on children's visual media use.

Socioeconomic Status and Children's Visual Media Use

The relationships between socioeconomic status and children's visual media use were not assumed, although many studies found that the levels of income, education, and occupation of a family could predict viewing practices of children from preschoolers to adolescents. In this study, socioeconomic status did not directly affect children' viewing practices. Instead, it appears to have had impact on the more general family viewing environment, which in turn, had an effect on the children's visual media use. This implies that the association between socioeconomic status and viewing practices is more complex then previously understood. Therefore, it will be useful to investigate additional mediating functions that may exist as well.

As hypothesized, SEM found no path from socioeconomic status to children's viewing variables, although they were partially correlated with each

other. In other words, socioeconomic status contributed to other factors such as the family viewing environment as originally hypothesized; in turn, the ecological factors such as the family viewing environment are likely to predict what children view. Thus, further research focusing on investigating mediators between socioeconomic status and children's viewing would be meaningful.

Family Viewing Environment and Children's Visual Media Use

Hypothesis 3 was partially supported in this study. The number of visual media devices in a family, the number of children's devices, and the amount of visual media use in a family indicated the family viewing environment as a latent variable as hypothesized. It implies that the family viewing environment can be understood as a construct that is adequately indicated by a series of characteristics related to family viewing practices. Accordingly, the results showed that the viewing environment of a family had positive effects on children's media use in the family. Therefore, the findings of this study confirm many studies showing that features of the family viewing environment are important predictors of children's viewing behaviors (Atkin et al., 1991; Bower, 1973; Chaffee & Tims, 1976; Dorr & Rabin, 1995; Huston et al., 1999; Lull, 1978; McDonald, 1986).

Considering the result supporting Hypothesis 1, it can be said that socioeconomic status was not a factor that directly predicted children's viewing practices; rather, socioeconomic status was a variable that influenced indirectly the children's visual media use mediated by the family viewing environment. In

particular, the effects of socioeconomic status on visual media use were not substantial after the effect of the family viewing environment was controlled. Therefore, the family viewing environment should be interpreted as an important factor which mediates the effect of socioeconomic status.

Among the six program types, there was one program type that was not influenced by family viewing environment. The coefficient from the family viewing environment to Type 4 programs was not significant in the initial model. Therefore, it can be said that the family viewing environment mainly influenced the children's viewing of non-informative programs, including Type 1, 2, 3, 5, and 6 programs. On the other hand, there was no systematic pattern between viewing Type 4 programs and family viewing environment.

Type 4 programs, which are designed to deliver information without aggression for general audiences, are likely to include content that may be of less interest to preschool-aged children and are unlikely to contain the visual/auditory effects with a rapid pace to catch the eyes of children. Consequently, the programs that are not attractive to children may not be watched, even though their family viewing environment is more susceptible for the children to be exposed to such programs.

Children's Visual Media Use

Children's visual media use, which was the major variable of this study, had several characteristics. The descriptive data of visual media use provide insights into the viewing practices of preschoolers.

First, individual differences of visual media use were very large; in particular, the distributions of visual media use were zero-inflated. Because of this attribute of the presence of excess zeros, statistics assuming linear relationships among variables seem to be less appropriate. Accordingly, it was thought that investigating group differences would be a valid alternative method for analyses. In order to investigate associations between children's viewing practice and other related variables, it will be valid to compare the characteristics of heavy viewing groups with light-viewing groups in further studies.

Second, the final model indicated that there are many relationships among measurement errors of program types: a negative relationship between errors of Type 2 and 4 programs, positive relationships between errors of Type 3 and 4 programs, and errors of Type 4 and 6 programs. These findings are the most powerful aspects of SEM assuming that observed variables are measured with errors. This error component is an attempt by SEM to model the imperfection of measuring the true scores of each variable. In the context of SEM, the measurement error term is the unique factor associated with each measure. First, indicators of the same construct might share variance because they were measured by a common method. Second, the associations among measurement errors may imply that there were systematic variances that are not explained by viewing different types of programs. That is, there might be other variables affecting children's viewing in addition to the ecological factors included in this study. In further research, therefore, the efforts to identify the additional variables will be important.

Child Characteristics and Children's Visual Media Use

Earlier studies showed that children's gender contributed to their viewing. Typically, it has been known that boys tend to view more than girls. Despite these earlier findings, no pathway from gender to visual media use was found in this study. In particular, the most interesting finding was that even uses of Type 3 and 6 programs, which contained violent episodes, were not different by gender, although previous research found that programs with violence including cartoons and action adventure programs are more often watched by boys than girls among preschool-aged children (Huston et al., 1990; Huston & Wright, 1998b; Singer & Singer, 1981).

One of the possible reasons for no gender difference in consuming violent programs is the inclusion of videos and DVDs. The majority of violent programs that the preschoolers watched were videos and DVDs for child audiences. Typical programs that were categorized in this type were the *Disney* movies, which are mostly intended for moralizing and didactic themes but include violent episodes. In addition, female characters as a heroine became more available in action adventure programs which were likely to be very violent. For example, *Powerpuff Girls* and *Kim Possible*, which were rated as highly violent programs, were frequently reported in the questionnaire. For these reasons, girls' might also become frequent viewers of violent programs when their uses of videos and DVDs are included.

During the preschool years, children are frequent viewers of media. In this research, preschoolers' viewing patterns changed with age depending on the

types of programs. In the final model, older children viewed more Type 6 programs, which contain violence designed for general audiences with entertaining purposes, than younger children; on the other hand, uses of the other programs did not change by age. A large number of reported programs were movies mostly with action-adventure content such as the *Star Wars* series, *Jurassic Park* series, *Mummy*, and *Back to the Future*. According to Cantor (1994), the viewer's age is an extremely important determinant of emotional reactions to media that may cause fright. Based on her statement, it would appear that older children can endure stress produced by exposure to aggressive movies and find enjoyment in watching such programs which younger children cannot.

Child Characteristics and Imaginative Playfulness

Children's imaginative playfulness was expected to change by age and gender. However, only children's age contributed to their imaginative playfulness. The findings are consistent with Barnett's (1991b) research investigating correlates between playfulness and individual attributes: children's social spontaneity, cognitive spontaneity, and sense of humor scores increased from age two to five. The results of this study using SEM, in particular, provide useful evidence that young children's imaginative playfulness as a construct as well as its individual sub-dimensions increases by age. It implies that children become more playful as they grow through developing their social, cognitive, and physical skills. Thus, the data strongly suggest that age be taken into account in any

study of imaginative playfulness.

No relationship between gender and imaginative playfulness was found. In addition, no individual path from gender to the individual playfulness sub-dimensions was found. The result showing that children's gender did not contribute to their imaginative playfulness was inconsistent with the findings of previous studies. Barnett and Kleiber (1982) implemented early research on the relationship between playfulness and cognitive functioning including divergent thinking and intelligence between the ages of three and six years. They found gender differences between males and females for the mediating effect of intelligence on the relationship between playfulness and divergent thinking. Later, Barnett (1991b) found that a significant gender effect was obtained for the physical spontaneity and manifest joy dimensions in children ranging in age from 21 to 61 months. On the other hand, girls were rated higher than boys in cognitive spontaneity and no gender differences were detected for either social spontaneity or sense of humor. Using SEM, however, this research was able to discover no contribution of children's gender to any sub-dimension of imaginative playfulness. As a result, imaginative playfulness may not differ by gender, even though there are small differences across its dimensions.

Socioeconomic Status and Imaginative Playfulness

It has been widely known that children's imaginative play varies from child to child, not only seen from their unique personalities, but also from differences stemming from their socioeconomic status. The famous work of Smilansky

(1968), in discussing sociodramatic play of children from economically disadvantaged children, sparked this interest. In particular, Smilansky and other researchers, influenced by her work, have characterized the imaginative play of disadvantaged children, compared to that of middle-class children as of lower quality (Weiner & Weiner, 1974). Typically, their imaginative play was described as "unimaginative", "repetitive", "simplistic", "desultory", and "concrete" (Johnson et al., 1999, p. 131). Accordingly, children's imaginative playfulness indicating its quality of imaginative play was also assumed to be negatively related to their socioeconomic status.

As demonstrated in Chapter 4, however, neither direct nor indirect pathway from socioeconomic status to imaginative playfulness in the hypothetical models was identified. It implies that there may be other mediators between socioeconomic status and imaginative playfulness. Thus, the effort to identify other variables that mediate the influences of socioeconomic status on imaginative playfulness will be useful for further understanding of these dimensions.

Children's Visual Media Use and Imaginative Playfulness

The key pathway of this study was from children's visual media use to their playfulness. Despite the wealth of literature speculating the link between children's viewing practices and their quality of imaginative play, children's viewing practices did not make a significant contribution to their imaginative playfulness regardless of the types of programs. This finding is consistent with

the conclusion of van der Voort and Valkenburg (1994) who reviewed the empirical research on this relationship. The results of this study will be discussed with regard to the program types that have been the main focus of previous literature.

Children's Use of Educational Programs for Child Audiences and Imaginative Playfulness

The first program type that has been studied is well-designed programs with educational purposes for young children (Type 1 programs). In this study, Type 1 programs were assumed to promote children's playfulness during their imaginative play. Type 1 programs were deliberately designed to enhance children's physical, language, social, and logical knowledge. Accordingly, the children who watched more Type 1 programs were assumed to show enhanced imaginative play. Contrary to the hypothesis, no relationship between children's visual media use and imaginative playfulness was found. In addition to this result, SEM also failed to find any individual path from the types of visual media programs to the indicators of imaginative playfulness; even cognitive spontaneity and social spontaneity in imaginative playfulness, which might be more directly related to the information that Type 1 programs deliver, were not influenced by viewing Type 1 programs.

There are many studies showing that children learn and enhance their cognitive ability and social skills by watching and learning from children's educational programs; these programs such as *Sesame street*, *Barney and friends*, and *Mr. Rogers' neighborhood* were effective in promoting particular

attributes, including cognitive skills, language, school readiness, and prosocial interactions (Comstock, 1991; Huston & Wright, 1998b; Singer & Signer, 1998; Zill et al., 1994). However, the results of this research showed that the effects of learning cognitive and social skills through watching these programs were not enough to be incorporated in children's imaginative play and ultimately enhance the quality of such play. As pointed out earlier, children's imaginative play shows the development of each child comprehensively. If watching Type 1 programs does not enhance playfulness in imaginative play, it implies that knowledge and skills that children acquire from Type 1 programs are not fully assimilated. Information delivered in Type 1 programs tends to be fairly easily acquired and readily forgotten or not sufficiently assimilated into youngsters' performance. Thus, it would be very beneficial to develop educational programs that are designed to promote children's dispositions such as imagination ability and self-control that can encourage positive development and quality play.

Children's Use of Violent Programs and Imaginative Playfulness

The second kind of programs that have been debated were those containing aggressive episodes. In this study, it was thought viewing violent programs would result in a lower quality of imaginative play. Contrary to the hypothesis, neither Type 3 nor Type 6 programs, which were programs containing violent segments, predicted children's imaginative playfulness in this study.

Preschoolers' imaginative play with aggression involves frequent uses of fantasy superheroes, play-fighting, and/or war play, and has been blamed due to

its low quality (James & McCain, 1982; Johnson et al., 1999). Mass media, particularly television with violent content, has been blamed as the source of such play. Although the aggressive imaginative play has been recently coupled with mass media, children's pretend play involving violence has existed in various themes and forms before the mass media was prevalent; it has been common with popular toys, such as bows and arrows, spears, or daggers, usually made of sticks, reeds, or grasses, and guns that shoot corn, peas, or thorns in children's imaginative play (Power, 2000). Children also engage in symbolic play-fighting in other cultures. For example, children in New Guinea pretend to be sharks in their play-fighting. Sutton-Smith (1988) pointed out that mass media may influence, but is largely subordinate to, preexisting themes in children's play. That is, violence components of mass media are used and transformed by children because it contributes to their desired play scripts. The interpretation of Sutton-Smith is consistent with the major play theorists of our time, Garvey (1977), Schwartzman (1978), and Fein (1975), who consider imaginative play to be largely a transformational, rather than an imitative activity. If the themes, scripts, characters, and other attributes of aggressive programs are to serve as instruments or vehicles to satisfy certain developmental needs in imaginative play as Sutton-Smith pointed out, it is understandable that children's viewing of violent programs does not harm the children's imaginative playfulness because imaginative play with aggression dealing with children's developmental needs would occur among children who do not watch the violent programs as well as among heavy viewers.

Play materials have been regarded as an important factor in children's imaginative play. The effects of commercialized toys typically tied in to mass media have been considered when the influences of mass media on children's play is discussed. In particular, the toys related to the characters of action-adventure programs and war toys have been the center of such concern because the toys do provoke the behaviors, scripts, and themes relevant to their character during imaginative play (Carlson-Paige & Levin, 1988; Pott et al., 1986). Even Sutton-Smith (1986), who appreciated children's imaginative play with aggression, was concerned that the range of what children will think about has been increasingly influenced by commercialized toys, which are tied to mass media. Consequently, Line and Pentecost (1990) insisted that the link that is being forged between television fiction and toys may have significant implications for the styles and content of children's imaginative play. One contextual characteristic of commercialized toys tied to mass media that should be considered is that such play materials are rarely available in school settings (Shin, 2001). On the other hand, Davie et al. (1984), who observed children's play at home, found how important these young people's heroes still are for their pretending. Allowing for the above, further research investigating the effects of viewing programs with violence on playfulness in imaginative play should consider pretend play 'at home' where commercialized toys are more available.

Contextual factor is another ecological factor that should be discussed in interpreting the findings of no relationship between viewing programs with violence and imaginative playfulness. According to King (1982), there are three

types of play at school: instrumental play, real play, and illicit play. Instrumental play includes activities that are required by, controlled by, and evaluated by the teachers. Real play is recreation that includes voluntary and self-directed activities. Illicit play, which is unauthorized and surreptitious interaction, is unlikely to be permitted at school. It includes such actions as making faces, goofing off, or giggling. It has been widely accepted that children's play with pretend action-adventure characters containing violence is discouraged. That is, imaginative play incorporating the content in Type 3 or Type 6 programs is regarded as illicit play and is likely to be restrained at school where instrumental play is preferred. Due to this reason, school settings might not be the best context where children act out what they would like to pretend. Consequently, the imaginative playfulness that teachers assessed in this study might be found not to be influenced by viewing Type 3 or Type 6 programs. Therefore, further studies investigating the effects of viewing programs with violence on playfulness in imaginative play should consider pretend play 'at home' where children are able to play out what they see on television and video with fewer restrictions.

Although imaginative play influenced by watching aggressive programs may contribute to child development and tend to be unavailable even at school settings (Shin, 2001), there has been increasing and wide-spread vocal opposition and concerns of educators about perceived violence involved in children's imaginative play. The opponents blame violent programs as the sources of play with aggressions in various position papers (Carlsson-Paige & Levin, 1987, 1990). Therefore, strict opponents of children's imaginative play

with violence insist children should be discouraged from engaging in such kinds of play (Nilsson, 1995); even if scholars believe that such behavior serves important developmental functions, they propose that it should be channeled into more constructive activities (Carlsson-Paige & Levin, 1987, 1990). Considering the results of this study, the reason for debates on the effects of viewing violent programs on the quality of children's imaginative play can be questioned (Carlsson-Paige & Levin, 1990; Crosser, 1995; Levin, 1998; Levin & Carlsson-Paige, 1989).

There are several reasons why many teachers as well as researchers have become aware of pretend play with violence. First, children's playful aggression is easily misinterpreted as real aggression in school settings. According to Connor (1989) who had various adults interpret children's play, people use their own subjective criteria in classifying a particular behavior as aggressive. Observer characteristics, such as gender and occupation, were an important determinant of what is considered as aggressive behavior even though most children can differentiate between play-fighting and real aggression (Smith & Lewis, 1985; Snow, 1974). Second, according to Boyd (1997), what teachers are sincerely concerned with was not about the developmental outcomes of violent play but the safety of children when children engaged in such play at school. Third, the contemporary trend toward controlling real school violence is likely to lead to restrictions on any episode involving perceived aggression in school settings (Achenbach et al., 2002; Lickel et al., 2003; Slater, 2003). Therefore, it can be said that the arguments on the negative aspects of pretend

play influenced by viewing Type 3 and 6 programs may not be based on the concerns about the quality of children's imaginative play but have gone beyond an academic debate about play to concerns about general aspects of child behavior related to aggression.

To conclude, the findings of this research show that the use of visual media on imaginative playfulness cannot be justified as beneficial or harmful, despite the increasing concerns and debates at the conceptual level on the negative effects of viewing on the quality of imaginative play. As Lull (1980) argued, however, the nature of the relationship between imaginative play and viewing practices would be more implicit and subtle than explicit, if the influences of visual media use are embedded in the children's daily activities and are unintentional and inconspicuous. Children's visual media use does not affect imaginative playfulness, but it would significantly contribute to marketing media tied in to toys that leads certain play themes, producing children's shared experiences that can be sources of their imaginative play, and triggering peer pressures as to what to play. Therefore, a more sophisticated model related to the variables should be hypothesized to explore the pathways from visual media use to imaginative playfulness.

Limitations

Although this research provided empirical data examining the relationships between different program types and imaginative playfulness, there are several limitations that should be considered when the findings are interpreted.

The measure of visual media use can be an issue. In this study, the title roll and the advertisements during television shows were not included for categorization. In the case of serial television shows, only one randomly selected episode was represented. In the case of videos and DVDs, previews arranged before each show or movie were not included either. Because the content of programs is inconsistent with the characteristics of their title roll, advertisements or previews, the effects of visual media use might be contaminated due to the exclusion of children's experiences that they were exposed to but not analyzed.

Among the three dimensions of the program categorization, the violence components should be also discussed. Verbal violence, which was traditionally overlooked as compared to physical violence, has been the focus of scholars of mass media (Glascock, 2003; Greenberg et al., 1980) as well as developmentalists studying young children (Halperin et al., 2003; Kostelnik et al., 2002). Despite the significance and prevalence of verbal violence in programming, it was not included in this study due to several reasons, which follow. When children's imaginative play was debated in terms of the effects of viewing aggressive programming, mostly action adventure programs were reproached (Carlsson-Paige & Levin, 1990; Crosser, 1995; Frontis-Diaz, 1997; Levin, 1998; Levin & Carlsson-Paige, 1989) because it is more easily imitated in imaginative play by young children than verbal aggression. In particular, most of programs were likely to be categorized as violent programs when verbal aggression was included because verbal aggression is very prevalent in

programming. For these reasons, it was decided that the inclusion of verbal aggression would not be helpful for the valid categorization of violent/nonviolent programs. Therefore, the programs with violence in this research should be carefully interpreted considering the scope of the meaning of violence.

Low response rate can be another limitation of this study. Only 22.6 percent of the parents who were invited to participated in this research completed and returned their survey packet. The parents who did not participate in this study might have felt it an imposition to complete three different questionnaires that were fairly long. Also, they might have some items that they did not feel comfortable in reporting. The most common missing item that participating parents were reluctant to report was family income, although their confidentiality was guaranteed. Because certain characteristics of parents who refused to participate in this research is assumed, it is important to this point to be careful in generalizing the results of this study despite the large sample size.

There is another problem of generalization in terms of the final model. SEM was very useful in modifying the initial model to find the final model explaining the relationships between visual media use, imaginative playfulness, and their ecological factors well. Although it is statistically acceptable to modify the initial model based on the results of modification indices to improve the overall fit, the final model has many weights in the model. Accordingly, the error of the final model may be estimated when the same coefficients and model fit are computed in another sample. Because of the potential cross validation problem, the prediction errors of the final model can be estimated. Therefore,

generalization of the final model of this research should be done carefully, even though there is a large sample size.

APPENDICES

APPENDIX A Rating Instructions

Dimension 1. Intended audiences

1 = Programs intended primarily for viewers 12 years old or younger: Programs for child audiences.

2 = Programs not intended primarily for child audiences: Programs for general audiences.

- Decision is based on producer's intentions.
- Focus on the primary target audiences of each program. General programming can entertain children under 13-year-olds; general audiences also can enjoy children's program.
- When intended audiences are not clear, consider the following components
  1) Age of a main actor/actress: A program whose main actor/actress's age is under 13 can be children's programming.
  2) Theme: A program dealing with the issues or interests of young children can be children's programming.
  3) Complexity of story: A program with a simple storyline can be children's programming. Programs for children do not necessarily satisfy all three components. For example, *Harry Potter* whose main actor is under 13 and whose theme deals with children's interest can be classified as children's programming despite the complex story. These components can be referred when target viewers are both children and general audiences, mostly family movies.
  4) Ratings of which *TV Guide*: Television shows, which *TV guide* classified as children's programs, mostly indicate child programming.
  5) Rating of the *Motion Picture Association of America* (MAPP): Movies, which are rated G, mostly indicate child programming; PG13 movies are mostly programs for general audiences; however, PG movies cannot be automatically categorized as programs for child audiences (e.g. Star Wars).

Dimension 2. Violence components

1 = No violence:

There is no episode with violence. e.g. Cosby Show, Barney and Friends, Fantasia, Winnie the Pooh

2 = A very little violence:

There are only several short episodes with violence. e.g. Muppets, Snow White, Cops .

3 = Medium violence:

There are several long episodes or somewhat frequent short episodes with violence. e.g. Bugs Bunny, Lady & the Tramp, Harry Potter, Little Mermaid

4 = High violence:

There are long episodes with violence appearing very frequently through programs. e.g. Mummy, Powerpuff Girls, Power Ranger

- Decision is based on an aggressor, not a victim.
- For the purposes of rating programs, a violent act is a physical act intended to harm someone. In other words, it is visible, intentional, and interpersonal.
- What to include: Acts that include all the following three components are regarded as violence.
    1) Visible: Violent acts include visual portrayals of physical performances of aggressors. Physical aggression includes assaulting without an object (e.g. hitting, kicking, pushing, pinching, strangling, scratching, grabbing, jerking), assaulting with an object (e.g. bombing, burning, shooting, stabbing), detention, chasing, physical scaring, and physical threatening (e.g. pointing a gun, physically menacing others, holding knife against others). Invisible violence episodes in which explicit acts of aggression are not shown do not count as violence, although commitment of violent acts is implied. For example, a detective's investigation after a crime does not count as a violent act. Also, verbal aggression that involves sending noxious symbolic messages (e.g. messages with criticism, insult, cursing, a negative affective reaction, verbal threat, yelling, screaming, shouting) generally does not count as violence, unless the verbal act results in a physical act.
    2) Intentional: Violent acts include antisocial acts with the potential to do harm, but

from which the victim escapes uninjured. Accidental aggression is not included. For example, if someone tries to run down another individual with an automobile, it counts as a violent act whether or not he/she is successful; on the other hand, if someone accidentally crashes into another automobile in which a person is injured, this is not a violent act by our definition.

3) Interpersonal: Violent acts must be performed by a human or a character (e.g. Stuart Little or King Kong) against another human or character. Episodes of property damage or injuring/killing uncharacterized animals and beings, which are not intended to harm others would not be rated as violent acts. For example, if an angry throws plates on the ground and breaks them does not count as a violent act. Episodes of property damage or injuring/killing uncharacterized animals, which are intended to harm others would be rated as violent acts. For example, if a couple who are angry to each other breaks other's items are rated as violence.

- What not to include
  1) Slapstick episodes or adventure episodes driven by catastrophes (e.g. fire) and acts of nature (e.g. volcanoes, tornados) are not regarded as violence although people and personified character are harmed.
  2) Common and tolerated physically aggressive behaviors (e.g. contact sports, hunting and fishing for game animals, hunting or butchering of animals in real world events, and legal demolition of property) are not considered as aggression.
  3) Make sure that aggression is one behavioral category of antisocial behaviors. Theft and deceit, which are antisocial behaviors, would not be regarded as violence.

Dimension 3. Informative Purposes

1 = Program primarily designed to be educational or informative.

2 = Program not primarily designed to be contain educational or informative.

- This distinction refers to apparent intention of the producer.
- It does not refer to the entertainment value. A program may be both educational and entertaining. In particular, educational programs designed for children can be highly entertaining.
- Programs for general audience: Programs about real world events are usually informative. These include news, public affairs, sports events, religious services, cultural events, discussions and analysis.
- Programs for child audience: Programs are primarily designed to contribute the following items.
  1) Providing information on knowledge or cognitive skills.
  2) Helping children to develop constructive prosocial attitudes or actions (e.g., sharing, turn taking, self-esteem, self-restraint, cooperation, manner).
  3) Exposing children to the varieties of culturally and physically different types of children and adults and fostering a sense of mutual respect for these cultural and physical differences (e.g., ethnic diversity, disability, single parent family).
  4) Encouraging awareness of one's own and others' emotional responses.
- The messages should be specific. Do not include just because a social message or religious beliefs could be extracted.

APPENDIX B Explanatory Letter

(for primary caregivers)

Dear Parents:

I am a doctoral student at Michigan State University in the Department of Family and Child Ecology. I am conducting a study about the relationship between visual media use practices and the play of young children. This research is being conducted under the supervision of Dr. Alice Whiren.

Attached are three sets of questionnaires that you are being asked to complete, if you choose to participate. It is hoped that you will take time to complete these materials. It should take no more than 30 minutes of your time. Also, your participation will include granting permission to the researcher to gather research information from your child's head teacher. The teacher will be asked to share information about your child's playful behavior, e.g., tells funny stories during imaginative play.

Because your child's name will be written on this survey packet and on the questionnaire that your head teachers will complete, your reports may be identified. Your privacy will be protected to the maximum extent allowable by law and your responses will be kept confidential. To protect against a breach of confidentiality, all forms I collect will be stored in a secure place that is accessible only to project staff, and no names will be used in any report of the research findings. After your questionnaires are coded, they will be destroyed. Your responses will not be discussed with school staff, and no private information from school records will be used.

Your participation is voluntary and you have the right to refuse to participate in this study. Further, you may discontinue your participation at any time. Also, your non-participation will not in any way be used to penalize you.

If you have any question about this study, please feel free to contact me by phone: (517) 272-2980, e-mail: shinnary@msu.edu, or regular mail: 3015 Staten Ave. #5, Lansing, MI 48910, or Dr. Alice Whiren, by phone: (517) 432-0893, e-mail: whiren@msu.edu, or regular mail: 3 Human Ecology, East Lansing, MI 48824. If you have any questions or concerns regarding your right as a research participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - Dr. Ashir Kumar, Chair of the University Committee on Research Involving Human Subjects (UCRIHS) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: uchris@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

I appreciate your time and cooperation in advance. In appreciation of your participation in this research, you will receive two children's books upon receipt of your completed questionnaires. Also, your head teacher will receive a gift certificate for the classroom because of your participation and completion of their questionnaire. You and your head teachers will not receive books if you do not complete questionnaires for this study. You indicate your voluntary agreement to participate by signing below. After you sign and complete the questionnaires, please seal and return the packet in the enclosed envelope to your head teacher without indicating the name of you or your child.

Sincerely,

Nary Shin

_____	_____
Child's name (Please print)	Name of the parent/legal guardian
_____	_____
Signature of the parent/legal guardian	Date

(For head teachers)

Ecological factors as predictors of visual media uses and its effects on imaginative playfulness in preschool children

Letter and Consent Form

Dear Head Teachers:

I am a doctoral student at Michigan State University in the Department of Family and Child Ecology. I am conducting a study about the relationship between visual media use and the play of young children. The purpose of the study is to examine the associations among children's practices of visual media use, environmental factors that can affect the practices, and the quality of their imaginative play. This research is being conducted under the supervision of Dr. Alice Whiren.

Your participation will involve distributing a survey packet to every family with three, four, or five-year olds, collecting returned packets to your director, and completing questionnaires for each pair of participating children. The questionnaire is regarding children's playful behaviors. An estimate of time to complete a questionnaire is no more than 15 minutes. Because you are expected to complete one copy per participating child, your time that will take for participation will vary depending on the number of participating children in you class. While you may experience inconvenience for participation in this study, there is no personal risk involved with this research.

Your participation is voluntary and you have the right to refuse to participate in this study. Further, you may discontinue your participation at any time. Also, your non-participation will not in any way be used to penalize you.

Because the child's name whom you rate will be written on the questionnaire, your responses may be identified. Your privacy will be protected to the maximum extent allowable by law and your responses will be kept confidential. To protect against a breach of confidentiality, all forms I collect will be stored in a secure place that is accessible only to project staff, and no names will be used in any report of the research

findings. After your questionnaires are coded, they will be destroyed. Your responses will not be discussed with parents and other school staff.

While specific benefits for participating in this research cannot be guaranteed, the results will be valuable to those who are interested in the relation between children's visual media use and their play.

If you have any question about this study, please feel free to contact me by phone: (517) 272-2980, e-mail: shinnary@msu.edu, or regular mail: 3015 Staten Ave #5, Lansing, MI 48910, or Dr. Alice Whiren, by phone: (517) 432-0893, e-mail: whiren@msu.edu, or regular mail: 3 Human Ecology, East Lansing, MI 48824. If you have any questions or concerns regarding your right as a research participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - Dr. Ashir Kumar, Chair of the University Committee on Research Involving Human Subjects (UCRIHS) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: uchris@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

I sincerely appreciate your participation in this project. In appreciation of your participation in this research, upon receipt of your completed questionnaires, you will receive a $5 gift certificate of the *Teachers' Store* in Lansing for your evaluating of each pair of participating children. You will not receive the gift certificate if you do not complete questionnaires for this study. By signing below, you indicate that you have read the information in this form and that you voluntarily agree to participate.

Sincerely,

Nary Shin

_____ _____ _____

Name (Please print) Signature Date

I would be interested in receiving a summary of the results of this study. Yes _____

No _____

(For directors)

Ecological factors as predictors of visual media uses and its effects on imaginative playfulness in preschool children

Letter and Consent Form

Dear Directors:

I am a doctoral student at Michigan State University in the Department of Family and Child Ecology. I am conducting a study about the relationship between visual media use and the play of young children. The purpose of the study is to examine the associations among children's practices of visual media use, environmental factors that can affect the practices, and the quality of their imaginative play. This research is being conducted under the supervision of Dr. Alice Whiren.

Data will be collected from primary caregivers and head teachers of three, four or five olds who will complete questionnaires. Your participation will involve allowing me to recruit head teachers voluntarily participating in this study and collecting survey packets completed by the participating families and head teachers. Participating families will receive two children's books and head teachers will receive a $5 gift certificate of the *Teachers' Store* in Lansing for your evaluating of each pair of participating children, upon receipt of their completed questionnaires. While you may experience inconvenience for participation in this study, there is no personal risk involved with this research.

Your participation is voluntary and you have the right to refuse to participate in this study. Further, you may discontinue your participation at any time. Also, your non-participation will not in any way be used to penalize you.

Because the name of participating children will be written on questionnaires rated by their primary caregiver and head teacher, their responses may be identified. The privacy of participating families and head teachers will be protected to the maximum extent

allowable by law and their responses will be kept confidential. To protect against a breach of confidentiality, all forms I collect will be stored in a secure place that is accessible only to project staff, and no names will be used in any report of the research findings. After the questionnaires are coded, they will be destroyed.

While specific benefits for participating in this research cannot be guaranteed, the results will be valuable to those who are interested in the relation between children's visual media use and their play.

If you have any question about this study, please feel free to contact me by phone: (517) 272-2980, e-mail: shinnary@msu.edu, or regular mail: 3015 Staten Ave #5, Lansing, MI 48910, or Dr. Alice Whiren, by phone: (517) 432-0893, e-mail: whiren@msu.edu, or regular mail: 3 Human Ecology, East Lansing, MI 48824. If you have any questions or concerns regarding your right as a research participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - Dr. Ashir Kumar, Chair of the University Committee on Research Involving Human Subjects (UCRIHS) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: uchris@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

By signing below, you indicate that you have read the information in this form and that you voluntarily agree to participate.

Sincerely,

Nary Shin

_____	_____	_____
Name (Please print)	Signature	Date

I would be interested in receiving a summary of the results of this study. Yes _____

No _____

APPENDIX C Coversheet of Questionnaire Packet for Parents

Ecological factors as predictors of visual media uses and its effects on imaginative playfulness in preschool children

Thank you for your participation.

Please seal your completed questionnaire in the enclosed envelope and return it to your head teacher.

In appreciation of your participation, please select two books. The list below includes Caldecott honored books. They are the most distinguished American children's books awarded by the American Library Association.

The books will be delivered to your family after your questionnaires are received.

BOOK LIST

_____ *Click, clack, moo cows that type* by Doreen Cronin
_____ *In the small small pond* by Denise Fleming
_____ *Inch by inch* by Leo Lionni
_____ *Madeline* by Ludwig Bemelmans
_____ *Make way for ducklings* by Robert McCloskey
_____ *No David* by David Shannon
_____ *Officer Buckle and Gloria* by Peggy Rathmann
_____ *Strega Nona* by Tomie De Paola
_____ *Swimmy* by Leo Lionni
_____ *The paperboy* by Dav Pilkey

APPENDIX D Family Background Questionnaire

Ecological factors as predictors of visual media uses and its effects on imaginative playfulness in preschool children

Questionnaire 1

Please fill in the blanks or check the appropriate responses.

Name of the participating child _____

Age of the child _____ years _____months

Sex of the child _____ Male _____Female

Position of the child

_____ First born _____ Second born _____ Third born

_____ Fourth born _____ Fifth born _____ Sixth born or greater

The first language of the child _____

Does the child attend more than one early childhood program? _____ Yes _____ No

If yes, please name the programs 1) _____

2) _____

3) _____

Number of adults living in the household _____

Number of children living in the household _____

Number of total family members living in the household _____

Your age _____ years

Your spouse's age (if applicable) _____ years

Sex of person completing the questionnaire _____ Male _____ Female

Relationship to the child _____

Your current marital status

_____ Married _____ Divorced

_____ Widowed _____ Separated

_____ Never married _____ Other _____

Your ethnic origin

_____ White _____ African American _____ Hispanic

_____ Asian _____ Others _____

Your spouse's ethnic origin (if applicable)

_____ White _____ African American _____ Hispanic

_____ Asian _____ Others _____

Your child's ethnic origin

_____ White _____ African American _____ Hispanic

_____ Asian _____ Others _____

Your education

_____ Some middle school
_____ Some high school
_____ Some college/no degree
_____ 4-year college degree
_____ Doctoral degree
_____ Middle school degree
_____ High school degree
_____ Associate degree (2 years)
_____ Master's degree

Total years of your education (beginning with the lowest elementary grade with the exception of kindergarten) _____ years

Your spouse's education (if applicable)

_____ Some middle school
_____ Some high school
_____ Some college/no degree
_____ 4-year college degree
_____ Doctoral degree
_____ Middle school degree
_____ High school degree
_____ Associate degree (2 years)
_____ Master's degree

Total years of your spouse's education (beginning with the lowest elementary grade with the exception of kindergarten) _____ years

Your current occupation (please specify. ex: Homemaker, Owner of factory that employs about 100 people; public school teacher for second grade children; official of an international labor union; farm owner and operator)

_____

_____

Are you a full-time student? _____ Yes _____ No

If yes, please specify your former occupation and current part-time job (if applicable)

_____

_____

If no, please check the category of your occupation.

_____ Unemployed
_____ Workers requiring no training or skill
_____ Owner of small business, clerical, sales, technician
_____ Administrative personnel, small independent business, minor professional
_____ Business managers, proprietors of medium sized business
_____ Executive and proprietors of large concern, major professionals
_____ Homemaker
_____ Skilled worker

Your annual income _____ dollars

Your spouse's current occupation (if applicable) _____

_____

Is your spouse a full-time student? _____ Yes _____ No

If yes, please specify your spouse's former occupation and current part-time job (if applicable)

_____

_____

If no, please check the category of your spouse's occupation.

_____ Unemployed _____ Homemaker
_____ Workers requiring no training or skill _____ Skilled worker
_____ Owner of small business, clerical, sales, technician
_____ Administrative personnel, small independent business, minor professional
_____ Business managers, proprietors of medium sized business
_____ Executive and proprietors of large concern, major professionals

Your spouses' annual income _____ dollars

Gross annual income of your family _____ dollars

Number of television set(s) in your home _____

Please list the location of each TV set in your home in the first column below.

	Location	Hours watched
TV Set 1	_____	_____
TV Set 2	_____	_____
TV Set 3	_____	_____
TV Set 4	_____	_____

Now in the second column, please indicate how many total hours it was watched **yesterday** by any family members.

Does the participating child have a television set in his/her room? _____ Yes _____ No

Do you have cable? _____ Yes _____ No

Please specify the type of cable _____ Basic cable
_____ Premium cable
_____ Cable plus movie channel(s)

Number of VCR(s) in your home _____

Please list the location of each VCR in your home in the first column below.

	Location	Hours watched
VCR 1	_____	_____
VCR 2	_____	_____
VCR 3	_____	_____
VCR 4	_____	_____

Now in the second column, please indicate how many total hours it was used **yesterday** by any family members.

Does the participating child have a VCR in his/her room? _____ Yes _____ No

Number of DVD player(s) in your home _____

Please list the location of each DVD PLAYER in your home in the first column below.

	Location	Hours watched
DVD player 1	_____	_____
DVD player 2	_____	_____
DVD player 3	_____	_____
DVD player 4	_____	_____

Now in the second column, please indicate how many total hours it was used **yesterday** by any family members.

Does the participating child have a DVD player in his/her room? _____ Yes_____ No

APPENDIX E Visual Media Use Questionnaire

Questionnaire 2

Please reflect back on the LAST WEEK and base the answers to these questions on the amount and type your participating child viewed television shows, videos, or DVDs during that week.

Please list up to ten television shows that your child watches regularly, including children's shows and shows for general audiences, and report how many times your child watched those shows in the last week. Please report the full name of the shows as clearly as you can.

Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____
Program _____ Frequency_____

Please recall videos or DVDs that your family members owned, borrowed, or rented. Please list up to ten videos and DVDs that your child watched in the last week, including children's programs and programs for general audiences, and report how many times your child watched them. Please report the full name of the programs as clearly as you can. (e.g. Veggie Tale-Jonah, Spiderman-the movie)

Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____
Name _____ Frequency_____

APPENDIX F Parental Mediation Questionnaire

Questionnaire 3

Please read each statement and circle the number next to the statement that **BEST** describes your participating child and your family.

How often do you and/or your spouse	Never	Rarely	Sometimes	Often	Always
1. try to help the child understand what s/he sees on television, video, or DVD?	1	2	3	4	5
2. point out why some things actors do on television, video, or DVD are good?	1	2	3	4	5
3. point out why some things actors do on television, video, or DVD are bad?	1	2	3	4	5
4. explain the motives of the characters on television, video, or DVD?	1	2	3	4	5
5. explain what something on television, video, or DVD really means?	1	2	3	4	5
6. say to your child to turn off television, video, or DVD when s/he is watching an unsuitable program?	1	2	3	4	5
7. set specific viewing hours for your child?	1	2	3	4	5
8. forbid your child to watch certain programs?	1	2	3	4	5
9. restrict the amount of child viewing?	1	2	3	4	5
10. specify in advance the television programs, videos, or DVDs that may be watched?	1	2	3	4	5

Note 1. Original measure sub-dimensions: 1-5 = Instructive mediation, 6-10 = Restrictive mediation.
Note 2. Modified measure sub-dimensions: 1-5 = Instructive mediation items, 7-10 = Restrictive mediation items.

APPENDIX G Imaginative Playfulness Scale

Ecological factors as predictors of visual media uses and its effects on imaginative playfulness in preschool children

This questionnaire is regarding children's playful behaviors during their **IMAGINATIVE PLAY**. Imaginative play refers **PRETEND PLAY** that children make believe that they are someone or something else, that they are in a different place and time, and/or that playthings represent something else. Please read each statement and circle the number next to the statement that best describes the characteristics of imaginative play **INDOORS** and **OUTDOORS**.

Name of child: _____

	Doesn't describe the child at all	Describes the child a little	Describes the child somewhat	Describes the child a lot	Describes the child exactly
1. The child's movements are generally well-coordinated and playful during pretend play.	1	2	3	4	5
2. The child is physically active during pretend play.	1	2	3	4	5
3. The child prefers to be active rather than quiet during pretend play.	1	2	3	4	5
4. The child runs (skips, hops, jumps) a lot during pretend play.	1	2	3	4	5
5. The child responds easily to others' approach during pretend play.	1	2	3	4	5
6. The child initiates pretend play with others.	1	2	3	4	5
7. The child plays cooperatively with other children during pretend play.	1	2	3	4	5
8. The child is willing to share playthings during pretend play.	1	2	3	4	5
9. The child assumes a leadership role when playing with others during pretend play.	1	2	3	4	5
10. The child invents his/her own games during pretend play.	1	2	3	4	5

	Doesn't describe the child at all	Describes the child a little	Describes the child somewhat	Describes the child a lot	Describes the child exactly
11. The child uses unconventional objects during pretend play.	1	2	3	4	5
12. The child assumes various characters' roles during pretend play.	1	2	3	4	5
13. The child stays with one activity rather than changing activities during pretend play.*	1	2	3	4	5
14. The child expresses enjoyment during pretend play.	1	2	3	4	5
15. The child demonstrates exuberance during pretend play.	1	2	3	4	5
16. The child shows enthusiasm during pretend play.	1	2	3	4	5
17. The child is restrained in expressing emotion during pretend play.*	1	2	3	4	5
18. The child sings and talks during pretend play.	1	2	3	4	5
19. The child enjoys joking with other children during pretend play.	1	2	3	4	5
20. The child gently teases others during pretend play.	1	2	3	4	5
21. The child tells funny stories during pretend play.	1	2	3	4	5
22. The child laughs at humorous stories during pretend play.	1	2	3	4	5
23. The child likes to "clown around" during pretend play.	1	2	3	4	5
24. The child is playful during general play as well as pretend play.**	1	2	3	4	5

* indicates inverted coding.
** not included in the playfulness score.
Note 1. Original measure sub-dimensions: 1-4 = Physical Spontaneity, 5-9 = Social Spontaneity, 10-13 = Cognitive Spontaneity, 14-18 = Manifest Joy, 19-23 = Sense of Humor.
Note 2. Modified measure sub-dimensions: 2-4 = Physical Spontaneity, 6-8 = Social Spontaneity, 9-12 = Cognitive Spontaneity, 14-17 = Manifest Joy, 19-23 = Sense of Humor.

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