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A STUDY OF THE RELATIONSHIP
BETWEEN TELEVISION EXPOSURE AND LANGUAGE
ACQUISITION OF PRE-SCHOOL CHILDREN

By

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ABSTRACT

A STUDY OF THE RELATIONSHIP
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This research focused on the relationship between
television viewing and language development of pre-school
children. It also considered relationships between language
development and maternal factors, then language development
and sibling variables.

In the first series of analyses, child language ability
was correlated with total television viewing time and then
with five subcategories of program types. The next series
considered language ability in terms of a composite exposure-
language level index which represented program exposure
weighted by language sophistication modeled by television
programs. Language ability, total television viewing and
viewing of programs by category were then considered in terms
of the mother's education level. Finally, there was an
analysis of two elements of Zajonc's Confluence Model which
predicted relationships between (1) sibling number and
language ability and (2) birth order and language ability.

Language samples were collected according to clinical
procedures outlined by the Developmental Sentence Scoring
Analysis for 93 children ages three years and five months
to five years and eleven months. In addition to language

samples, data on television viewing patterns of subjects were collected from logbooks maintained for a one week period by parents. Demographic information was also obtained. Scripts of frequently viewed programs were then analyzed according to Developmental Sentence Scoring procedures.

The analysis revealed a relationship between television viewing and language development for this sample. Viewing time across all program types was negatively related with language ability and this negative relationship was strongest for cartoons and family drama programs. Using the exposure-language level index, it was discovered that children who viewed a greater number of hours of language-sophisticated shows tended to score higher on the language assessment instrument. Those who viewed a greater number of language-poor shows tended to score lower on language measures.

Mother's education level was positively related to the child's language ability, as sociolinguistic theory predicts. Mother's education level was also positively related to the language sophistication of programs viewed by children. Partialling out mother's education reduces, but does not eliminate, the correlation between language ability and television viewing.

Finally, language ability was substituted for standard intelligence measures used in previous research on the Confluence Model, and the analysis supported two key propositions: as the number of children in a family increased,

the child's language ability tended to decline. Similarly, language ability scores tended to decline with birth order of a child.

of his encouragement and guidance cannot be overstated. Professor Bill Crano, one of the truly gifted men in social psychology research left me spellbound in a course six years ago where I first explored the relationships between communications principles and elements of human thought. This man is a scholar who inspires scholarship in his students; his input to my personal development has been substantial. More than ten years ago, at Rutgers University, I took an undergraduate journalism course with Dr. Maurice Cullen, and largely because of his enthusiasm for understanding the processes of human communication, I abandoned a previous major and turned to a life of study in this field. Professor Cullen, paradoxically, projects the spirit which drove traditional American journalists while he no less ranks among the contemporary scholars of communications. His guidance has been invaluable; his example has been inspirational.

I am grateful to each of these people for their participation in my studies and my life.

TABLE OF CONTENTS

Table of Contents (cont'd.)

LIST OF TABLES

LIST OF APPENDICES

CHAPTER I

RATIONALE AND LITERATURE REVIEW

Introduction

The principal purpose of this research is to explore
the relationship between television viewing and child lan-
guage development. A number of related variables are drawn
into this investigation and contribute to the following
objectives:

1. To examine the relationship between (a) language
    ability and television viewing overall, then (b)
    to explore the connection between language ability
    and specific subcategories of programs.

2. To consider the relationship between (a) mother's
    education and child language development, and (b)
    mother's education with television viewing pat-
    terns of children.

3. To investigate the relationship between (a) lan-
    guage ability and sibling numbers, and (b)
    language ability and birth order.

Scope of the Relevant Issues

To the extent that most language theorists will grant
environmental influences on language development processes,
there is general agreement that parental and especially ma-
ternal language displays provide the single most dominant
input to a child's language learning process. Such an

1

assertion is axiomatic to most environmentalist theories which argue that constant daily contact between the parent and child assure such a direct influence; more succinctly, a child speaks as his parents speak.

For almost three decades with the presence of television, there has been a notable change in daily activities and interaction patterns of children in the United States and other developed countries. With the proliferation of television, refinement of targeted programming and social reinforcement of the medium, television has begun to share a greater proportion of the young child's time, to an extent that recent surveys suggest children spend more time watching television than they do interacting with parents (Winn, 1977). Given that this is the case, an intriguing question begs attention: If, as some theories hold, the child speaks as his parents speak because he spends more time with them, will it follow that greater exposure to television will lead to the development of language heavily influenced by television?

There are a sufficient number of distinctions between parent-child and television-child language encounters to invalidate any simple argument based upon exposure alone. For one, parents can provide immediate feedback, television cannot; parents can direct their messages to a single child, television, being a mass medium, does not have this capacity. But television does offer messages pitched with a keen appeal to young viewers which engages

them in the content, and television can embark on a variety
of language trips potentially exceeding the capability
of a single set of parents. Beyond all this, television
is always there, always available to a child with the touch
of a button when parents may be preoccupied with other
activities; television is for the young child, "language
on call."

Reasons for the Present Study

The principal objective of this research is to examine
the relationship between the language of young children and
the nature of their exposure to television programs. The
literature suggests that language development can be in-
fluenced by external factors and that television has the
capacity to influence its viewers in a variety of ways. It
appears reasonable to propose the conjunctive position
which predicts a relationship between a child's language
development and his television viewing behavior. The
present study probes this relationship. A variety of other
factors which influence a child's language development have
been recorded in the literature, and two of the most promi-
nent -- mother's influence and sibling influence -- are
explored in this research.

This chapter provides a summary review of literature
from several disciplines which have been brought together in
the present investigation. The following categories have
been given particular attention: (a) theories of language

acquisition, with an emphasis on environmental influence and intervention, (b) issues related to the instructional and influential potentials of television, (c) consideration for maternal and sibling influence on child language development.

Theories of Language Acquisition

Methodology Problems

Language acquisition theories span a wide range of philosophical positions reminiscent on the one hand of empiricism and on the other of rationalism. These two viewpoints, respectively characterized by the environmentalist and nativist positions on language acquisition, split on the fundamental issue of whether language is generated within the individual as a creative psychological process, or whether it is acquired by the child through lessons provided by other language users. Disciples of both positions offer supporting evidence, but disputes arise at every phase of data collection and interpretation.

Data collection during the very early and, thus, perhaps the most important years of language acquisition, is a particularly limited activity given that the only source of data is the child himself who may or may not produce a language sample upon request or provocation. Most researchers believe the basic process of grammatical speech development is completed by three-and-a-half years of age (McNeill, 1966)

and so research prior to this age must be accomplished if there is to be understanding of these earliest developmental stages. Difficulties arise, however, in that children typically do not speak in lucid phrases, but in enigmatic fragments and single-word utterances, and it is precisely here, in the subjective interpretation of this behavior that language theorists begin to draw sides. Even as Slobin outlines four levels of evidence for discovering rules in child and adult grammars, problems inherent to the subjective nature of analysis become obvious:

1. Analyze speech for regularities.

2. Search for the extension of regularities to new instances.

3. Look for a normative sense of rules.

4. Analyze responses to direct questions.
   (Slobin, 1971:10)

Language during the first few years is restricted to single word utterances, and because of the child's ego-centric orientation during this period (Piaget, 1955), even these generally lack communicative purpose (Piaget, 1955; Vygotsky, 1962). Without an intent to communicate, the utterances may appear to be random, so the discovery of regularities becomes a frustrating and often fruitless task. If regularities cannot be established, then it follows that an extension cannot be expected nor can rules be considered a relevant issue. Finally, Slobin

considers the matter of a child's response to direct questions, a task which requires competence on three levels: first to interpret the question, then to generate an answer, and finally to express it verbally. A deficiency at any level would lead to the production of an uninterpretable response, hence, such attempts can result in futility:

> Interviewer: Adam, which is right, "two shoes" or
>
> "two shoe?"
>
> Adam: Pop goes the weasel (Brown and Bellugi,
>
> 1964:135).

So, it is important to establish at the outset that methodologies available to examine the earliest stages of language formation are imprecise and thus invite the creativity of subjective interpretations.

It appears that the tentative data base for early language production contributes substantially to the diversity of positions held for language acquisition. This point becomes obvious in reviewing the dominant theories.

Nativist Positions

The essential tenet of deterministic nativist theories postulates that the development of language originates from within an individual. It is an innate process which remains relatively unaffected by external forces and so can neither be substantially hastened nor retarded by environmental

intervention. Two broad subcategories of the nativist position include (1) the biolinguistic theories which view language development as a biological process and disallow nearly all environmental impact, and (2) the linguistic theories which assume a more modified position and provide for some environmental intervention on language-learning processes. A review of these nativist positions is important to this study which seeks to determine if television, as an environmental factor, has any effects on children's language development. Generally, these theories would not predict a substantial influence by television on language development processes.

Biolinguistic Position. According to biolinguistic propositions, language development closely parallels biological development of a child, and as physiological growth continues so the development of language proceeds step-by-step. Similar reasoning leads to the biolinguist's explanation for the species-specific nature of human language where biological deficiencies in all animal forms below man render them incapable of speech (Osser, 1975). From birth, however, man develops special coordination centers for motor speech, perception of specialized temporal patterns, cerebral growth, tolerance for prolonged speech activities and other biological traits which equip him as a language-capable being. Language development is a function of these maturational factors and language acquisition can be explained by the "synchrony between the

attainment of each language milestone and the development

of particular motor skills." (Osser, 1975:290)

This position, also known as the "Critical Age Model"

has been summarized by Golub:

1. Language learning is determined by physiological and psychological development which in turn is determined by chronological age.

2. An individual must pass through each preceding critical age to get to the next in a particular linear order.

3. Language cannot be taught, it can only be learned in its prescribed biological and psychological sequence.

4. Passage through critical ages requires the placement in social environments which stimulate, energize and provide the conditions for an individual to pass from one critical age to the next (Golub, 1975:1099).

Lenneberg and followers offer three defenses for the

biolinguistic position, citing (1) cross-cultural similari-

ties, which they interpret as support for the pan-human

nature of this theory, (2) clinical research data comparing

deaf and hearing infants during prelinguistic developmental

stages, and (3) analogue studies relating the progress of

normal children to retarded development of abnormal child-

ren.

First, Lenneberg's studies of cross-cultural data

lead to the following generalizations:

--Language is a form of behavior present in all cultures of the world.

--The age of onset is the same for all children in all world cultures.

--The acquisition strategy is the same in all
  cultures.

--The formal operating characteristics have
  remained the same in recorded history
  (Lenneberg, 1969:645).

With these observations, Lenneberg proposes to demon-
strate that language development is not affected by en-
vironmental factors, but is exclusively a function of
biological progressions which exist uniformly among all
humans.

As a second defense for the biolinguistic position,
Lenneberg places heavy emphasis upon his research of
prelinguistic sounds by comparing deaf and hearing infants
(Lenneberg, Rebelsky, and Nichols, 1965). In this series
of studies his arguments are based on environmental
differences between hearing infants who are exposed to the
sounds of language from birth, and deaf infants whose
environment is devoid of language models. Findings of
these studies confirm that deaf infants proceeded through
the same sequence of vocalizations as hearing infants, and
they also produced as much noise (Osser, 1975). It would
seem reasonable to conclude from these observations that
prelinguistic utterances are based on maturational factors
and not environmental stimulation.

Finally, Lenneberg submits studies with mongoloid
children who display the usual stages of development
experienced by normal children, only at a greatly reduced
rate of progression. In these studies, he found the same

synchronous patterns of language achievement and motor development. Since language kept pace with biological development even in these pathological instances, Lenneberg holds this as one of the principal demonstrations of proof for the biolinguistic theory.

It is important to note, however, that in each exhibit of defense for this theory, Lenneberg limits his observations to the prelinguistic phase of language development, that is, during the first 12 months when a child's vocalizations are generally limited to cooing and babbling, but have not yet entered the linguistic stage of actual language production. In light of Piaget's notions concerning the non-communicative function of egocentric speech, or in this case merely of sounds and babbles, it appears difficult to extend beyond this formative period into more advanced stages of language.

When Lenneberg does attempt to extrapolate his data beyond the conditions under which they were collected, he faces some difficult problems. While he claims that the same maturational processes are at play when the child progresses into word production stages, he relies on more tenuous data and cumbersome explanations to account for obvious discrepancies between findings and theory. His principal defense rests on research by Morley (1957) who discovered, in an extensive longitudinal language study, that irrespective of subjects' environmental backgrounds and linguistic milieus, the onset of language was invariant.

However, Morley was unable to substantiate the nature of parent-child interactions in her sample, a deficiency which has become the major flaw in this research. Contrary to Morley's findings, other researchers have documented differences among varied environmental conditions in actual language production (McCarthy, 1954; Nelson, 1973).

It is important to note that there is little to recommend biolinguistic theory as valuable in guiding therapy or designing remedial programs for the language deficient child. The deterministic orientation disallows environmental intervention as a productive influence on the child, and, except for recommending adequate nutritional care, can prescribe little else.

Linguistic Position. As a subset of nativist positions on language learning, linguistic theories (subsuming psycholinguistic theories for purposes of this review), too, propose that language is an innate capacity of the child. They differ, however, from biolinguistic theories on the fundamental explanation of how language integrates into growth and development processes of an individual. Rather than synchronous gearing between biological and language maturation processes, linguistic models explain language acquisition as a function of innate language concepts available to the child which integrate incoming language information into meaningful sets of rules. The concept of a sentence is the nucleus around which all

environmental language data forms; this existing structure enables the child to organize and interpret language input (McNeill, 1970). So, this theory proposes that linguistic principles are not a learned phenomenon, but are inherent, conceptual abilities available for language learning tasks (Chomsky, 1965).

Brown describes the focus of rules in language acquisition:

> The emphasis is, to put it simply, that in acquiring a first language, one cannot possibly be said to acquire a repertoire of sentences, however large that repertoire may be, but must instead be said to acquire a rule system that makes it possible to generate a literally infinite variety of sentences, most of them never heard from anyone else (Brown, 1973:102).

While the role of environmental factors holds only limited importance in linguistic theories, exposure to language models of fluent speakers enables the child to sort through his existing preknowledge of language universals, which are rules and constituents underlying all languages, and discover the rules appropriate for his own language (Chomsky, 1965). So, by birthright, the child possesses a notion for correct grammars and the ability to evaluate and cull out appropriate grammatical elements for the language to which he is exposed (Osser, 1975). Hence, language environments serve as models and so are passive in the language development process. The child plays an active role since he listens and compares, then eliminates false rules and adopts appropriate elements for the language he will use.

The admission of environmental influences to this nativist position is an important trait of linguistic theory and serves well in the explanation of many observed language phenomenon. For instance, Osser, Wang and Zaid (1969) reviewed language samples and environmental data of black lower-class and white middle-class pre-schoolers and discovered that the two groups displayed different syntactic structures of standard English. Linguistic theory accounts for this observation by proposing that the presence of different environmental language data would lead the child to choose a different set of rules appropriate to his own language.

Several elements of the nativist theories are important for purposes of this review. First, they offer to explain an underlying structure which allows human language learning to take place in a remarkably constant manner for all individuals irrespective of greatly varying environmental factors. With only minor differences, people speaking the hundreds of existing languages appear to progress through similar stages of development as do individuals within language groups who demonstrate little variance in their progression through these developmental stages. Second, nativist theories provide an explanation for individual creativity of language where novel sentences, never precisely modeled, can be generated by speakers. Nativist rule-learning explanations seem to account well for this occurrence where environmentalists' reinforcement

schedules meet with problems.

An obvious shortcoming of nativist theories, however, is recognized in failure to provide for adequate environmental intervention in the remedy of speech deficiencies. As a deterministic philosophy it offers little encouragement for remedial programs and therapy for the disadvantaged.

Environmentalist Positions

Environmentalist positions remain distinct from nativist viewpoints on fundamental philosophical issues, holding that learning is primarily a function of environmental interactions, rather than the application of an innate set of rules. Here the environment becomes an active agent and imposes on the individual who remains passive in the learning process.

Principles of learning theory are most dominant among environmentalist positions and are particularly relevant to the present study. Advanced chiefly by Skinner (1957) and Mowrer (1960), learning theory attends to the more encompassing issue of learning in general, and has been applied extensively in clinical therapy situations. But, in dealing with language learning, similar principles of reinforcement and generalization apply.

In most general terms, elements of reinforcement provide that when an individual receives a positive reward (something pleasant) for a behavior, he will tend to repeat

that behavior. Conversely, if he receives a negative reward (something unpleasant) he will tend not to repeat that behavior.

The basic tenet of this position, applied to language acquisition, has been summarily described by Mowrer:

> The infant begins to learn language by associating the sounds of the human voice, particularly his mother's, with need-satisfying circumstances (e.g. milk drinking). The result of this is that when he hears his own random babbling, he is more likely to repeat those sounds that are similar to the pleasurable sounds made by his mother. Thus the pleasure associated with the mother's voice now becomes transferred to the child's own vocalizations (Mowrer, 1960; summarized by Osser, 1975:299).

Language development continues following the reinforcement schedule of rewards by the mother for sounds which approximate adult language models. These rewards are pleasurable and so to elicit continued positive reinforcement, the child proceeds to voice adult-like speech; he talks like mother to be rewarded by mother. This continues throughout the language development process. Therefore, language is modeled, then through reinforcement schedules, the child builds his own language repertoire.

Learning theory specifies just how environmental factors influence the language development process, and while other researchers support environmentalist positions, they do not become involved in the dynamics of this process. For instance, a variety of recent investigations have uncovered a strong relationship between parent and

child language patterns on several dimensions without
adopting a learning theory explanation (Cazden, 1972;
Medinnus and Bohannon, 1975; Fox, 1976). Fox noted that
the issue is one of environmental intervention and in-
fluence on language development, and her studies clearly
indicate that "the adult enriches the child's linguistic
environment by extending the child's ideas and introducing
different grammatical elements, words, meanings and idea
relationships." (Fox, 1976:668) Similarly, Cazden (1972)
concluded from his studies that adult interaction does
improve language in children.

The environmentalist position has important implica-
tions for this research which investigates the influence
of television on children's language. If, as the theory
holds, the environment displays an impact on language, then
there is room for television, as part of that environment,
to contribute to language development.

Sociolinguistic Position

The sociolinguistic position represents a subset of
the environmentalist category, and remains neutral with
respect to the controversy between nativists and behav-
iorists over the origin of language behavior (Osser,
1975), and deals with derivatives of language in terms of
social structural factors (Hess and Shipman, 1965;
Bernstein, 1966; Hymes, 1967; Labov, 1970).

Bernstein, whose name is most associated with

contemporary sociolinguistic theories, distinguishes two major codes as elaborated and restricted, stating that they generally can be discriminated by the ease with which linguistic alternatives can be predicted. The restricted code system selects from a smaller set of syntactical and lexical options than the elaborated system, and is consequently more predictable in nature. It is generally less specific and informative in that the repertoire of speech structures are limited or considerably constrained, restricting the individual's ability to make fine discernments. Furthermore, it impedes a continuous learning process by discouraging verbal inquiries through frequent role-directed displays of social power. By contrast, the elaborated code system selects from a more extensive range of syntactic and lexical alternatives available in the language, and enables users to differentiate a greater spectrum of objects and events in the environment. This suggests that although elaborated and restricted code users may experience identical events, these events become more linguistically differentiated for the elaborated code user, and effectively create more experiences for him. Acquisition of these linguistic codes takes place apart from the individual's intellectual capabilities and depends almost entirely on his family's social class orientation.

Hess and Shipman (1965) support Bernstein's position with research suggesting that lower-class mothers are not as explicit as middle-class mothers, and convey only

limited information in messages to their children. Their
data was collected on four groups of mothers differing
in education level, various language variables and problem-
solving approaches. They found that better educated
mothers used more complex syntax, longer sentences, more
qualifying modifiers and more total verbal output. Studies
involving similar variables reviewed in a number of other
research contexts tended to confirm these results (Bee, et.
al. 1969; Brophy, 1970; Steward and Steward, 1973).

Other research lends support to Bernstein's notions of
social influence on language including work by Petersen
(1970) who demonstrated the dominant maternal influence on
language development and Lawton (1968) who found a greater
peer influence.

There is also evidence, however, which suggests that
language style is situationally determined and the child
can modify his use of language appropriately to meet
demands imposed by given conditions. So, he does not
possess abilities for only a single language style, but
can alter his styles to meet demands of a given situation
(Lawton, 1968; Williams and Naremore, 1969). In these
studies, when the child was encouraged to provide elabora-
tion in answer to a question, lower-class children, too,
could offer more complex descriptions. Williams and
Naremore did find in their study, however, that lower-class
children provided answers from a limited, first-person
perspective (self-focused mode of discourse), but that

middle-class children generally described events from the third person which allowed them to assume a variety of perspectives in their communications.

Pozner and Saltz (1974) found that both middle and lower-class children would learn rules of communication with equal skill, but middle-class subjects were much more effective as communicators. These researchers suggest that distinctions may not necessarily be found in an ability to communicate, but rather in realizing the need for expression; they further submit that such difficulty might be viewed as an egocentric orientation in the lower SES child.

Tulkin (1972) strongly objects to conventional standards for language assessment which, he claims, largely employ middle-class orientations, so that many differences which may have been recorded reveal little valid information about the speaker. When observed in a naturally occurring group interaction, and not in the constrained laboratory environment, Tulkin argues that language deficiences are not apparent (Chandler and Ericson, 1968). Birren and Hess offer a powerful conclusion for their research.

> Studies of peer groups in spontaneous inter-
> actions in Northern ghetto areas show that there
> is a rich verbal culture in constant use. Negro
> children in the vernacular culture cannot be con-
> sidered 'verbally deprived' if one considers them
> in a favorable environment - on the contrary their
> daily life is a pattern of continual verbal stimula-
> tion, contest and imitation (Birren and Hess, 1968:
> 42).

Throughout all of the sociolinguistic literature there appears to be no contention with the proposition that language differences exist among members of different social classes, and that environmental differences inherent to these classes account, at least indirectly, for observed language use differences.

This issue of language quality, as measured in a variety of terms centering around the capacity to accomodate abstractions or complex conceptual notions, or even minimally to provide an accurate description of physical occurrences is, it seems, the nuclear issue for all language research, at least for environmentalists who believe the course of learning can be modified. If language used by any class of individuals is deficient and provides its users with an impoverished system for communicating ideas, then the issue of language quality assumes a renewed significance surpassing class sensitivities.

Television - - Its Power to Influence and Instruct

According to recent surveys, young children typically watch television for an average of five hours per day (Nielson, 1977). This substantial exposure rate has prompted many investigations of the impact of television on viewers who stand to learn from the medium, be aroused by the medium or in other ways be influenced by the sights and sounds of television.

When television was introduced into the American mass

communication system, it assumed the information function
of traditional media, but also displayed a fidelity,
immediacy and social significance unique to itself. In-
dustry accurately envisioned flourishing financial oppor-
tunities in television, audiences were immediately attract-
ed to its format of sound and picture, and social watchdogs
stirred restlessly in the presence of this innovation.

Penetration statistics of television reflect the
enthusiasm with which American people accepted television.
In 1949, each of 4 percent of the homes had a set, and
only five years later television was in over 60 percent of
American homes. By the late sixties, television reached its
saturation level with 97 percent penetration (Defleur, 1970).

Largely because television grew so quickly there was
no available information on which to predict the breadth
and depth of the effects this medium would have, and so
immediate responses tended to be extreme. "Attitudes were
on the one hand fraught with great hope for realization of
the potential of this new medium for education and enter-
tainment." (Christenson, 1969) In review of early studies
on television, Coffin (1955) noted that the medium was
found, in some research, to increase family opportunity
for common experiences and shared interests, but at the
same time interfered with family conversation and face-to-
face interaction. While some proponents of the medium
offered television as a format to present new information

and thus broaden children's experiences, critics denounced the disruptive influence on family life, home study and further contended the medium would yield harmful effects because of violence displayed so routinely.

Even though debate over these same issues continues today the spirit of such urgency appears to have abated and research has assumed a more dispassionate and analytical tenor (Christensen, 1969). Even so, information about the effects of television and its power to influence viewers is no less critical than before. On the contrary, as television viewing occupies a greater proportion of daily schedules, the matter assumes a renewed significance. Recent Nielson survey findings (Spring, 1977) confirm the persistence of a trend toward greater television use generally among all viewers. More significantly, pre-school children are reported in this survey to use more television than previously reported for this group and more than any other age category as well.

Schramm (1961) noted in 1960 that young children watched an average of 2 hours per day compared to the two-fold increase of 4.5 to 5 hours recorded in the 1977 Nielson survey. While a direct relationship between the extent of television exposure and potential to influence a viewer may not be firmly established, Siegal (1969) and Winn (1977) argue that if only because alternative activities become displaced by viewing, television has a greater opportunity to influence an individual, particularly a

child during his formative years.

The issue at present concerns the power of television to instruct and influence its audience. As this discussion turns to the possible effects of television viewing on language development, it should be noted that the relationships considered between these two variables have implications for environmentalist theories. Recall that environmentalist positions provide a major role for external elements in the development of child language. If it can be demonstrated that television viewing may effect the patterns of language growth, such evidence would underscore the validity of these theories.

Learning and Television

Nielson statistics demonstrate the extraordinary television exposure time for young children, a fact which invites speculation about the potential for learning to take place during these viewing hours. Can television serve as a format of learning for children? Data in hand suggests that television viewing can provide a learning experience.

In a study involving elementary school children, DeFleur and DeFleur (1967) assessed the amount and quality of learning about unfamiliar occupational roles when information was observed both directly and in televised film sequences. In general they found that television portrayals of various occupations imparted information which was learned by the children as successfully as through direct face-to-face exposure. They suggested,

however, that television typically presented a stereo-
typical profile of occupational roles and this distorted
view was learned and assessed as accurate by subjects.

In a similar study involving television as a source
of information about role relationships, Holloran (1967)
noted that television has the capacity to reach beyond the
direct experiential repertoire of children and present
them with role models and reference groups which would
otherwise not be available. Children integrate this
information into their general growth and learning of
socialization processes.

A number of studies have been conducted on the
effectiveness of Sesame Street as an educator of pre-
school children (Ball and Bogatz, 1970; Frye, 1972; Lesser,
1974). In this series learning has been identified as a
principal goal of programming. Although some researchers
are skeptical of the show's proclaimed success (Cook, et.
al, 1975) the weight of evidence suggests that Sesame
Street has captured young viewers' attention and facilita-
ted learning of vocabulary, numbers, the alphabet and other
fundamental academic skills. Lesser (1974) concludes from
his review that the program has reached large ethnically
and economically diverse audiences and achieved its in-
structional goals. Children, he says, can and will learn
cognitive material from television, at least when it is
presented in a format which is attractive to these

audiences.

A second dimension of television learning, reviewed by
Krugman and Hartley (1970), concerns viewing pacificity and
psychological receptivity to incoming information. These
authors provide an explanation of the neurophysiological
operatives in an individual's relaxed state noting that
frequencies of both Alpha and Beta waves slow during re-
laxation, and while individual differences exist, recepti-
vity to learning in this condition increases for most
people. Furthermore, specific to environmental influences
on an individual's relaxed state, these authors note the
amenability of environmental stimulation which plays a
principal role. The logical conclusion, then, suggests
that when environmental conditions (in this case television
shows) are conducive to a relaxed state, then passive
learning is likely to take place. Implications of this
are described here:

> The most special quality of passive learning
> is, by definition, an absence of aroused re-
> sistance to what is learned; resistance is
> exciting and a corollary, therefore, of active
> learning. This means that passively learned
> material has an important 'advantage' which some
> have also associated with so called subliminal
> perception, extrasensory perception, or hypno-
> tism. This advantage, however, is not a property
> of the stimulus but of the respondent; i.e. he
> can learn passively so long as the material is
> acceptable to him, without conflict (Krugman
> and Hartley, 1970:188).

Roberts and Schramm (1971) note a similar phenomenon
which they call "incidental learning" where children were

discovered to have learned elements of a television program which were both peripheral to the story line, and totally irrelevant to the child's daily repertoire of experiences. For instance, pre-adolescent children have recalled information pertaining to college life, dating activities and behavior appropriate to various occupational skills.

One subject area where incidental learning may be particularly relevant involves social learning and acculturation where an individual is transfused with social mores and expectations for his behavior in a social context. Bandura (1962) concluded from some of his early studies that television made available to the individual visual and symbolic models which he could assess and from which he could learn. Moreover, Bandura (1969) found additional evidence from his research during the 1960's to suggest that television's increasing pervasiveness both in society and in lives of individual viewers was leading to this medium's usurpation of parental and teacher influence as models for behavior; influence of television in social learning processes has thus become stronger.

In her work with the effects of television violence, Siegal (1969) takes a particularly pessimistic view of television as a source of social learning, and while she underscores the impact of the medium, she concludes that it produces negative outcomes.

> The evidence that we do have indicates that
> films and television are profoundly educative
> for their viewers, teaching them that the
> world is a violent and untrustworthy place,
> and demonstrating for them a variety of
> violent techniques for coping with this
> hostile environment. Whether this message
> is deemed as fact or fiction, it is accepted
> by young children. They incorporate in their
> own behavior patterns all the sequences of
> adult behavior they observe on television
> (Siegal, 1969:282).

Siegal's observations on the conduction of negative social factors may, indeed, be accurate, but if the strength of television as a source of social learning can be so demonstrated, someone must dare ask the complimentary question about television's potential to perpetuate the virtues of prosocial actions. Only a handful of studies have dealt with this question, but so far it appears that television can also serve as an instrument of positive influence. Friedrich and Stein (1975) submit evidence about kindergarten children which supports the notion that helping behavior can be learned through television viewing. And Bryan (1971) and Bryan and Walbeck (1970) found that sharing behavior increased among subjects who viewed a charitable model on television.

Perhaps the most startling demonstration of television as an instrument of socialization is found in the longitudinal studies by Gerbner (1967, 1969). Although Gerbner's methodology has often been challenged, his observations have received considerable attention in recent years, and warrant at least a brief review. In

the course of his extended "Cultural Indicators" project,
Gerbner and his staff at the Annenberg School of Communications have attempted to plot a profile of social events as
portrayed on television against viewers' perceptions of the
occurrence of these events in reality. For instance, in
most of his work which involves television's portrayal of
violence, Gerbner has attempted to learn if viewers who
watch an abundance of television perceive the real world as
a place which contains as much violence as displayed on
television. Again, methodological problems notwithstanding,
there is some evidence to suggest a positive correlation
between the amount of viewing and an individual's perception of reality in accordance with acts displayed on
television programs. It has been stated that heavy viewers
interpret reality through their television experiences;
their television is not simply a screen projecting scripted
programs, but it is seen as a window to the world. If such
a finding could be confirmed, implications for this society
would be most compelling.

Television and Language Learning

Recalling that the specific intent of this literature
review is to relate factors of language acquisition and
television as a possible source of language instruction,
any conclusions would, naturally, be conjectural in the
absence of research dealing directly with this issue. To
date there appear to be only several studies which relate,
even peripherally, to language learning and television.

In 1961, Wilbur Schramm published the first notable review of the effects of television on children and included among his various studies a section relating television to language development processes. His subjects were children in school at least two years who were drawn from either of two towns, one which did receive television signals, and the other which did not; this offered a dichotomous situation no longer available to researchers simply because U.S. towns without television no longer exist. Even if some did, their situations would represent such an aberration that their deviation would disqualify them as a comparison group. Although Schramm's measures lacked sophistication by assessing only vocabulary levels, Schramm found, with some exceptions, that children reared in the television culture enjoyed a more advanced vocabulary than their deprived counterparts. Cassirer (1966) cites studies in Caracas, Venezuela which indicate that programs produced specifically for pre-schoolers had the effect of building in viewers richer and more correct vocabularies.

Vocabulary tests as single measures of language development, however, have recently met with considerable hostility by linguists. Dale notes:

> The implicit assumption...is that vocabulary
> growth alone reflects language development;
> there is little or no supporting evidence for
> such an assumption, no correlation between
> vocabulary growth and other aspects of lan-
> guage development (Dale, 1976:306).

Indeed, the direction for language assessment has been toward more sophisticated measures which attend to syntactical, organizational and process structures of language (Zigler and Butterfield, 1968; Paraskevopoulos and Kirk, 1969; Zimmerman, 1969; Brown, 1970; Mecham, 1971).

Milkovich, Miller, Bettinghaus and Atkin (1975) undertook a task to review television and language development and utilized a word association paradigm to assess linguistic maturity of their subjects. This test appears valid and these authors cite research by Entwisle (1966) to support strength of the measurement tool. As in Schramm's study, subjects ranged from 7 to 12 years old, so have already been through, at least, two years of school, but unlike Schramm, who used dichotomous categories, Milkovich, et al. classified subjects according to a range of television viewing habits. In general, findings of this study showed that television viewing had a "consistent negative effect on the rate of language development." (Milkovich et al., 1975:12) While this study does deal with language development among older children, it does not look at language in the pre-school years where language patterns are formed. In fact, Milkovich notes that

> ...heavy viewers may enter kindergarten with
> language abilities greater than their light
> viewing counterparts; even if television then
> had strong negative effects, we would not be
> able to determine the point in time at which
> they would fall below the norms (Milkovich,
> et al., 1975:11).

One additional issue requires attention at this point concerning the specific characteristics of television which allow it to draw such large and faithful audiences and then, with viewers in its grasp, perform its voodoo of influence and instruction. Simply put, what about television makes it attractive, credible and potent?

In the relatively short period of time that it took television to become integrated into the information/entertainment schedule of people in this country, it grew in prominence over other media, specifically newspapers, as the most appealing and credible medium. The last word of print gave way to the gospel of television.

One survey (Selnow, 1977) found that the majority of people sampled first learned about most national and local news stories through television, would tend to believe the television over newspaper version of a discrepant news story, would choose television over newspapers as a sole source of information, and believed television news accounts had fewer errors than newspaper stories.

The potency of television may be locked in three principal elements: its high degree of credibility, ease of use and social sanctions.

Studies conducted in the late 1960's demonstrated that credibility of a source can generally be understood in terms of its constituent parts of trustworthiness, expertise and dynamism. In television news particularly, where viewers

are able to see and hear the reporter, a sense of identi-
fication with that individual contributes to the
believability of the story: Walter Cronkite wouldn't lie!
An even more compelling reason for viewers to place a sense
of trust in television can be found in this medium's capa-
city to bring the audience to the source of a story. Even
though it may not accurately represent the action taking
place (Lang and Lang, 1971), television footage of an event
allows the audience to witness that event and so confirm the
verbal description of the action. Seeing is believing: the
television presentation is a "replica of reality." In one
study cited earlier (Selnow, 1977) a number of respondents
indicated that on television they could see what was happen-
ing so they knew the truth.

There is little question about the dynamic qualities
of television. With the ability to manipulate variables
of sight and sound this medium can massage the two most
keen human senses. Siegal (1969) describes television as
a high-fidelity medium employing two simultaneous modes of
communication which come as close as possible to reality.
Furthermore, unlike newspapers which impose a processing
time lag between event and report, television can cover a
story live and instantly transmit this message around the
globe.

Siegal (1969) contends that the sense of expertise or
authenticity attributed to television is a function of its
vividness and fidelity. She notes that,

>...both print and film appeal solely to vision,
>but film has more intrinsic authenticity because
>its fidelity is higher...if a communication
>technique is both vivid and of high fidelity,
>as is the color film or the color television
>image, its intrinsic authenticity is especially
>high (Siegal, 1969:268).

It would also be reasonable to conclude that if over a period of time television has repeatedly demonstrated its accuracy this too would contribute to its perceived expertise.

Two situational factors have contributed to the potency of television. First, it is a medium which requires almost no effort on the part of a viewer. He neither has to fetch his morning edition nor does he have to expend a great deal of energy while viewing a program. Instead, television is always available, costs almost nothing to use, offers a continuing display of new material, and is relaxing. Perhaps these characteristics have lead to what many critics assess as an overuse of the medium.

Finally, as a function of its pervasiveness and popularity, television has earned a very prominent place in society, not only as a transmitter of culture as suggested earlier, but as an element of the culture. Television is the topic of daily discussions and the focus of critical debate: Should television be allowed in the courtroom? Should television air programs depicting scenes which might inspire antisocial acts? People watch television because other people watch television, and to keep in social tempo people must listen to the beat of

television. Social sanction and reinforcement underscore the perceived need for participation in this medium.

In summary, there is evidence to support the proposition that television can serve as an active source in the learning of academic material, and as a carrier of information for passive learning. It has been found to impart social learning and so contribute to the socialization process of young children, both as a negative influence by its grim portrayals of the world and as a source of pro-social information. Then, it was suggested that television may play an even more vital role serving as a distorted mirror of reality for growing numbers of television viewers; a confirmation of this would undeniably establish television as a most powerful influence. Finally, with specific reference to the primary issue at hand, television as a tutor of language, there is some evidence that this medium has a positive influence and some that it has a negative influence on language learning of older children. Given all this, there appears to be adequate ground upon which to conclude that television can both influence its viewers and contribute to their learning processes.

Although television viewing may influence various learning processes of children including language development, a variety of other factors influence the child's intellectual and language growth as well. For

purposes of this research, two principal elements have been
identified and will be reviewed briefly in the literature
then in light of data collected in this study. The role of
the mother is, perhaps, most salient in primary intellec-
tual growth and will be considered here in terms of socio-
linguistic theories. The effects of birth order and
number of siblings have also been identified as important
variables affecting intellectual growth, and these too will
be reviewed in this section.

Maternal Influences

If for no other reason than the mother spends more time
with a young child than anyone else spends with him, it
appears reasonable to infer that frequent interactions
between the child and mother serve most to shape intellec-
tual and language development. This is clearly recognized
by language theories which admit environmental influence,
and, perhaps, most strongly supported by sociolinguistic
positions. Bernstein describes the core of the mother-
child interaction as "a virtuous circle which is set up
and continually reinforced, for the mother will elaborate
and expand the embryo personal qualificatory statements
that the child makes." (Bernstein, 1958) Dynamics of this
mother's influence on child language and intellectual
development are set forth by Dally:

> ...In the earliest years a mother unconsciously
> restricts or elaborates her child's linguistic
> development and capacity and therefore his capacity
> for educational development according to her own
> social and educational background. She may
> transmit a 'restricted' form of language

from which once adapted, it is difficult
to expand. Or she may transmit an 'ela-
borated' form, which leads to other possi-
bilities, both linguistic and imaginative.
For instance, one mother might say 'Pick
up the red ball and put it on the small
table,' whereas another less articulate
would simply say 'Put it there' and supply
the missing details with gestures. If a
child asks 'Why do things fall when I drop
them?' there is an immense difference
in attitude and influence between a mother
who explains the laws of gravity in a
simplified form suitable to the child's
level of intellectual development and the
mother who answers 'They just do', or
'Well, why shouldn't they?' Such differences
repeated in hundreds of ways many times a
day as the child grows up, will have a pro-
found influence on his development and
personality. They affect not only his vocab-
ulary and his linguistic development but also
his feelings towards whatever is discussed
and his attitudes towards them. If he is
always encouraged or always snubbed when he
asks a question, his curiosity and responses
will develop accordingly (Dally, 1976:31).

According to this account, the mother has a substantial
influence on language development, intellectual growth,
curiosity and a host of other psychological processes. She
directly influences the child through her interactions with
him, and indirectly by controlling the events in his envi-
ronment which also affect his development. To a large ex-
tent, she controls the child's daily schedule including his
interactions with other people, his television viewing
patterns and other communications activities. It is impor-
tant to explore the nature of mother-child relationships in
this sample.

Sibling Influence on Intellectual Development

The issue of sibling influence on intellectual development has received considerable attention during the past decade. In one recent investigation, Breland examined National Merit Scholarship Qualification Test scores in terms of family size and birth order of examinees. From this study, Zajonc observed that several findings were particularly significant:

1. NMSQT scores generally decline with increasing family size.

2. Within each family size they decline with birth order.

3. The rate of decline decreases with successive birth order.

4. There is a discontinuity for the only child, who scores below a level that would be expected had intelligence declined monotonically with increasing family size.

5. Twins have comparatively low scores (Zajonc, 1976:227)

In each of these observations Breland found that birth order and number of children contributed to significant differences in performance on Merit Examinations, and while he is quick to note that a variety of diverse conditions contribute to the patterns of test scores, correlation with sibling variables cannot go unnoticed.

Zajonc and Markus (1975) proposed to describe the

dynamics of this observation with their explication of the

Confluence Model Theory:

> The basic idea of the Confluence Model is that
> within the family the intellectual growth of
> every member is dependent on that of all the
> other members, and that the rate of this growth
> depends on the family configuration. Different
> family configurations constitute different in-
> tellectual environments. 'Intellectual environ-
> ment' can be thought of in this context as being
> some function of the average of the absolute
> intellectual levels of its members. Note that
> we are not considering IQ, which is a quantity
> not related to age, but rather an absolute quantity
> such as mental age. If the intellectual environ-
> ment is conceived as an average of all the members'
> 'absolute' contribution, then it changes continually
> as the children develop and it manifests the most
> dramatic changes when there is an addition to or
> departure from the family (Zajonc and Markus, 1975:87).

Zajonc notes that spacing between siblings plays an

important role in this relationship since greater spacing

allows more time for maturation of the previous sibling.

This provides a family community which has a higher average

intelligence level than one where children are spaced close

together. In the extreme case, for instance, if a child

were born only after preceding children reached maturity,

he would enter a more advanced community than if he were

the only child. This can, perhaps, be better explained

with the following example:

> ...Consider the absolute intellectual levels
> of the parents to be 30 arbitrary units each,
> and of the newborn child to be zero. Thus,
> the intellectual environment at the birth of
> the first child has an average value of 20.
> Suppose the second child is born when the
> intelligence level of the firstborn reaches
> 4. The secondborn then enters into an en-
> vironment of $[(30 + 30 + 4 + 0)/4 = 16]$. (Note
> that since the intellectual environment is an
> average of the absolute intellectual levels

of all family members, the individual is
included as a part of his own environment.)
If a third child is born when the intellec-
tual level of the firstborn has reached, say,
7, and that of the secondborn is at 3, the
family intellectual environment will then be
reduced to 14.   (Zajonc, 1976:227)

Zajonc cautions against the apparent simplicity of
this example, noting that dynamics of the Confluence Model
are considerably more complex than portrayed here; the
essential elements, however, are represented in this example.

Although this literature makes no specific reference
to the effects of sibling variables on language development,
one might infer from the basic argument that because lan-
guage ability is strongly related to intelligence, a
similar influence might be anticipated.

Summary

Foregoing sections of this chapter have sought to
outline some of the prominent theories of language devel-
opment spanning the ideological range of positions from
environmentalist to nativist orientations. Following this,
television, a relatively new variable in education and
acculturation processes, was considered in light of con-
temporary research dealing with impact of this medium.
Undeniably, the evidence suggests that television has the
potential to serve an instructional role for its audience.
The final portion of this literature review dealt with the
maternal influence on child development and considerations
of birth order and sibling number on the rate of intellec-
tual and, perhaps, language development.

Focus of the Present Study

While some research has drawn a link between television and its impact on the language patterns of viewers, none has dealt directly with the issue of television's influence on language development of pre-school children whose language is still undergoing rapid development. Milkovich (1975) stated that his research did not attend to the language of children entering schools, but assessed language only after the influence of formal training has already begun. Milkovich noted this gap in the body of research and so the present study is concerned with this group of young viewers.

This study embarks on an exploration of the relationship between the language ability of young children and their television viewing patterns with specific attention to the kinds of programs children view. It further explores maternal influence on the child's language abilities and on the amount and kinds of television programs the child views. First, by collecting this original data, and then by establishing links among these variables, this study represents a crucial step in expanding the understanding of the potential for television to influence its viewers, and particularly in those young children during the formative years of intellectual and language development.

Based upon information from the literature reviewed in this chapter, four outcomes might be predicted for this

analysis:

1. It can be predicted that a relationship will be discovered between television viewing and language ability of a child. Long hours of exposure to television language models can be expected to stimulate some relationship between viewing and language ability. Since the literature does not deal adequately with variables of television language, the expected nature of this relationship is not particularly clear. There is some evidence, however, by Milkovich, et al. which suggests that a negative relationship between language ability and television viewing might be anticipated.

2. It can be predicted from sociolinguistic theories that a mother's education level (which serves as an index of language and socioeconomic status) will relate positively to a child's language ability measures. Furthermore, it might be expected that a relationship exists between a mother's education and the kinds of programs viewed by a child.

Several probes in this investigation will test relationships outlined in the Confluence Model. In this study, however, language ability measures are substituted for standard intelligence measures used in previous research. This will provide an added dimension to the theory on (a) intellectual performance and birth order, and (b) intellectual performance and number of children in a family. Based upon provisions of the Confluence Model the following

predictions can be advanced:

3. It can be predicted that the number of siblings will relate negatively to child language ability.

4. It can be predicted that birth order will relate negatively to child language ability.

Statement of Hypotheses

There is a clear indication from the literature that television has the capacity to influence its viewers. This was demonstrated in the review of studies on learning and television viewing summarized in this chapter. As a complimentary issue from the literature on language development, there is evidence that environmental factors can intervene in the language development of young children. By drawing both sets of theories together it appears reasonable to propose that a relationship can exist between television viewing and language ability of young viewers.

Evidence as to the nature of this relationship (whether it is positive or negative) is very tenuous, and predictions of directionality cannot reasonably be advanced from the literature. This hypothesis explores a very untested relationship and is thus stated in the null form:

Hypothesis 1: There will be no relationship between the total number of hours a child spends watching television and his score on the language ability index.

The preceding hypothesis pursues a very general issue and so addresses the broad relationship between television

viewing and language ability. But it is evident from even a casual observation that not all television programs offer identical language models; the sophistication of language varies among programs. In order to unfold the relationship between total television viewing and language ability, the following set of subhypotheses examine the relationship between child language ability and individual program categories. It is anticipated that this portion of the analysis will unpack the different relationships which may exist between child language and five categories of children's television programs which remained aggregated for the "total viewing" analysis.

There is no information in the literature on which to base a prediction concerning the relationships between each of these five program categories and language ability, so here, too, the hypotheses are stated in the null form:

Hypothesis la: There will be no relationship between the number of hours a child spends watching cartoon programs and his score on the language ability index.

Hypothesis lb: There will be no relationship between the number of hours a child spends watching family dramas and his score on the language ability index.

Hypothesis lc: There will be no relationship between the number of hours a child spends watching situation comedies and his score on the language ability index.

Hypothesis 1d: There will be no relationship between the number of hours a child spends watching educational programs and his score on the language ability index.

Hypothesis 1e: There will be no relationship between the number of hours a child spends watching action drama programs and his score on the language ability index.

If, in fact, there was a demonstrated difference in the relationships between child language and various program categories considered by the preceding set of hypotheses, a logical follow-up investigation should consider the actual language level of each program category in terms of subject exposure hours. An index which was developed to accomodate this analysis involved arithmetic operations among the elements of (1) viewing time for each category, (2) total viewing time and (3) an average language index of programs within each category. The formula for this index is presented in Chapter II.

It seems logical to propose that if a relationship were discovered, programs with more sophisticated language would lead to an advancement of child language, and programs displaying less sophisticated language would contribute less to the advancement of child language. Consistent with this argument, the following hypothesis was advanced:

Hypothesis 2: The greater the child's language ability index score, the greater his score will be on the exposure-language level index.

Sociolinguistic literature posits a strong relationship

between the mother's language and child language development, noting that language growth is largely dependent on mother-child interactions. This portion of the analysis deals specifically with this relationship. Although language variables for the mother could not be collected, information about the mother's education level was obtained and serves in this review as an index of the mother's education ability and socio-economic status. Bernstein notes close interrelationships among these three variables, and in the context of this analysis it is assumed that the more advanced the mother's education level, the more developed her language. In terms of the sociolinguistic propositions, then, the following hypothesis was advanced:

> Hypothesis 3: The higher the mother's education level, the higher the child will score on the language ability index.

Naturally, the mother might be expected to influence more than just the language of a child. During the first few years nearly all of a child's activities are controlled, to some degree by parents, and particularly the mother. Since television viewing is such an integral element of this research, it becomes important to investigate the relationship between the mother's education level (as an index of language and socio-economic status) and the television viewing patterns of children. The literature does not suggest the nature of this relationship and so directionality cannot be predicted. This hypothesis is stated in the null form, as follows:

Hypothesis 4:   There will be no relationship
                 between the mother's education
                 level and the total number of
                 hours of television viewed by
                 the child.

Beyond the general relationship between mother's education and total language viewing, it is necessary to sort among individual categories of programs to investigate the relationships between a mother's education level and specific kinds of programs viewed by a child. This unfolding process will provide specific information about the influence which mother's education has on a child's television repertoire. There is no basis on which to predict directionality of these relationships, so the hypotheses are stated in a null form:

Hypothesis 4a: There will be no relationship
                 between the mother's education
                 level and the number of hours
                 a child spends watching cartoons.

Hypothesis 4b: There will be no relationship
                 between the mother's education
                 level and the number of hours
                 a child spends watching family
                 drama shows.

Hypothesis 4c: There will be no relationship
                 between the mother's education
                 level and the number of hours
                 a child spends watching educa-
                 tional programs.

Hypothesis 4d: There will be no relationship
                 between the mother's education
                 level and the number of hours
                 a child spends watching situa-
                 tion comedies.

Hypothesis 4e: There will be no relationship
                 between the mother's education

> level and the number of hours
> a child spends watching action
> drama programs.

Two principal elements of Zajonc's Confluence Model state relationships between intelligence measures of a child and (1) the number of siblings, and (2) birth order. Details are presented earlier in this chapter. In accordance with statements of the model, the final portion of this research investigates two relationships outlined by Zajonc, but substitutes a language ability index in place of conventional intelligence measures. Application of the language ability variable will provide valuable information about the extensiveness of the theory. Based on Zajonc's predictions, the following two hypotheses are proposed:

<u>Hypothesis 5</u>: The greater the number of children in the family, the lower the child will score on the language ability index.

<u>Hypothesis 6</u>: Language ability index scores will decline with birth order.

CHAPTER II

DESIGN AND METHODS

The principle question underlying this research concerned the influence of television on language development of pre-school children. First this study considered whether or not total television viewing time had any effect on the language of children, then pursued this issue with an investigation of the relationships between particular categories of programs and language ability of pre-school viewers. Guided by literature which describes an influence of the mother on child language development, this study then considered the relationship between mother's education level and variables of child language and television viewing patterns.

Finally, as an adjunct issue of language development, the focus turned toward the effects of sibling variables on language ability. Previous research on sibling effects incorporated standard intelligence measures as dependent variables; language ability measures are implicated in this study.

Overview of the Study

Language samples were collected from 93 pre-school children between the ages of three-and-a-half to five-and-a-half years. Parents provided information about the child's television viewing habits and also various demographic

statistics. Language samples were analyzed according to procedures of the Developmental Sentence Scoring technique which provided details about the rate of language development for each child. This information was then analyzed in terms of the child's television viewing habits. Popular television programs were also analyzed according to the same analytic procedure and this information was incorporated into the analysis. Finally, this study considered the relationships between a child's language and mother's education level, number of siblings and birth order of the subject.

Several terms used throughout this discussion will first be reviewed in this chapter. Then, the sample of television programs will be described, followed by a review of the child sample used in this study. The next section will review instruments used here, then data collection methods will be considered. Finally, hypotheses will be delineated.

Terminology

Formal definitions are required for two terms used throughout this dissertation in order to avoid any misunderstanding either in the context of this study or for extension of these findings to other circumstances:

Language: There is some ambiguity in the literature concerning a precise definition of language, specifically relating to the taxonomy of verbal samples. For instance, what one researcher might term a "language sample," another might identify as a "prelinguistic utterance." The use of

"language" in this research is specific. Here, language is the verbal utterance illicited in the context of an informal interview employing procedures outlined in the Developmental Sentence Scoring procedure by Lee (1974). (See appendix for details) The words and sentences produced by subjects during these interviews are the components of language considered in this study.

Television: There are legal, technical, behavior research oriented and other definitions ready to describe the substance, operation and boundaries of television. For purposes of this research, television is defined as the audio visual content of those programs which parents have identified in viewing logs for their children participating as subjects of this research. For instance, in the statement, "what are the effects of television viewing..." this specifically refers to effects of the audio visual content of programs reported to be viewed by individual subjects.

The Child Sample

The age range for children participating in this research (3 years and 5 months to 5 years and 11 months) was selected for two reasons. First, language of children in this age range typically represents an emergence from telegraphic speech and marks the beginning period of complete adult language. Also, even the youngest children in this age category are able to respond in an interview situation. Toward the upper age limit, it is desirable to avoid subjects who

have been too immersed in formal educational processes which may impose confounding variables of curriculum differences, teaching styles, emphasis on language, reading, etc. This research departs from previous studies which dealt only with older children already well into the educational process (Schramm, 1961; Milkovich et al.,1975).

So, ideally, the present sample includes that narrow age range where children have some degree of language sophistication yet remain relatively uncontaminated by formal educational systems.

All children in this sample were recruited through neighboring day care centers and nursery schools which offered a subject pool of sufficient number to meet the needs of this research. Also, these institutions maintained an established communications channel to parents whose input was essential in a key portion of the data collection process. All arrangements with parents and children were transacted through the schools (or day care centers). Letters of introduction and appropriate forms were sent to 190 parents, 102 of whom responded. Three of these returns were incomplete and could not be used for the research, 2 children discontinued pre-school and could not be interviewed, and 5 children chose not to complete the interview and so were eliminated from the study. In all, 93 subjects were finally included in this analysis. The following institutions provided assistance in this research:

Eastminster Day Care Center, East Lansing
Edgewood Cooperative Nursery, East Lansing
Edgewood Village Children's Center, East Lansing
Haslett Child Development Center, Haslett
Little People Day Care Center, East Lansing
Okemos Nursery School, Okemos
People's Church Pre-School, East Lansing

At the outset, several characteristics must be mentioned about the sample selected from these sources. First, there is good reason to believe that the socioeconomic break from this sample drawn from day care centers and nursery schools will not be representative of the general population. Children from these schools can be expected to represent a higher SES, and their parents would, therefore, be likely to have a higher than average education level. In fact, the data bears this out. From this it follows that family activities might not be comparable for a more general population, i.e., parent-child interactions may vary on several dimensions including the nature of these interactions, duration, level of discourse, etc. Also, media activities for this sample could reasonably be expected to deviate from the norm for two reasons. First, these children may experience a different media schedule, e.g., more books or more creative activities and less television. Also, because these children attend pre-school, television time for them has often become displaced with this alternative school activity. They might generally be expected to watch fewer hours of television than the child who does not attend pre-school.

This, too, was substantiated by the data.

Another consideration which initially may appear to present a problem concerns the educational activity of pre-schools. This is particularly important in light of the previous discussion outlining a rationale for the selection of three to five year olds who are expected to be relatively uncontaminated by formal educational processes. Upon close review of this sample, however, it appears that none of the schools listed here engage in formal language training for the children on a regular basis.

Television Programs

This research also considers children's programs which were identified by viewing popularity among (a) children nationally and (b) child subjects of this research.

Seven programs with high national ratings were first selected to provide language samples for this study (identified by Nielson, 1977); they include:

--Bugs Bunny
--The Waltons
--Little House on the Prairie
--Six Million Dollar Man
--Land of the Lost
--Happy Days
--Shazam

A second sample of television programs, specific to children participating in this research, was compiled from the television viewing logs maintained by parents. With this listing of programs it became possible to focus the analysis on shows most popular with this child sample.

These programs are listed below:

- --The Electric Company
- --Captain Kangaroo
- --Sesame Street
- --Mr. Rogers
- --Shake, Rattle and Roll
- --Superfriends Cartoons
- --Wide World of Animals
- --Walt Disney

Subsequent portions of this analysis deal with these programs categorized according to program type; the following groupings were used for this purpose:

Cartoons: Bugs Bunny, Shake, Rattle and Roll, Superfriends Cartoons.

Family Dramas: The Waltons, Little House on the Prairie, Walt Disney.

Action Dramas: Six Million Dollar Man, Land of the Lost, Shazam.

Educational: Electric Company, Sesame Street, Mr. Rogers, Captain Kangaroo.

Situation Commedy: Happy Days.

Wild World of Animals was not categorized into any of these five groups.

Instrumentation

Several data collection instruments provided the information necessary for this research.

1. Language Samples. Since the essence of this research involved a comparative analysis between television and child language samples, it was necessary to gather language information from both these sources. This was accomplished according to procedures specified by the Developmental Sentence Scoring technique outlined in a

subsequent portion of this chapter.

2. Television Logs. Parents of each subject main-
tained a seven-day television log which reported all
viewing activities of their children. The form on which
they recorded this information included half-hour intervals
from 6:00 a.m. to 9:00 p.m. with provisions for any shows
which might be viewed at other times. This information was
then coded according to the name and category of each
program. An example of the television log is included in
the appendix.

3. Demographics. Demographic considerations are
standard in most social science research, and information
deemed to be pertinent for the present study was gathered
from parents in a "Confidential Background Information
Form." This questionnaire included the following elements:

    --Child's age
    --Number of children in family
    --Position of this child in family (oldest, youngest,
      etc.
    --Parents' education
    --Parents with whom the child is presently living

Frequencies within each of these demographic catego-
ries has been included in Tables 1 through 6.

Table 1. Children's Ages

Years/Months	Frequency
3/5 - 3/12	12
4/0 - 4/4	36
4/5 - 4/8	18
4/9 - 4/12	13
5/0 - 5/4	7
5/5 - 5/11	7

Table 2. Number of Children in Family

Number of Children	Frequency
Only Child	21
2 Children	55
3 Children	11
4 Children	6

Table 3. Position of Subject among Siblings

Position	Frequency
Oldest	32
Between Youngest and Oldest	8
Youngest	32
Only Child	21

Table 4. Mother's Education

Highest Grade Level	Frequency
Some High School	2
Graduated High School	8
Some College	16
Graduated College	26
Some Graduate Work	17
Master's Degree	17
Doctorate	7

Table 5. Father's Education

Highest Grade Level	Frequency
Some High School	2
Graduated High School	4
Some College	14
Graduated College	8
Some Graduate Work	12
Master's Degree	19
Doctorate	32
Not Reported	2

Table 6. Parents with whom Child is Living

Condition	Frequency
Mother Only	12
Father Only	2
Both Parents	79

Data Collection

1. Language Samples: Language used by children and language displayed by the television programs children watch rested at the core of this research. In order to develop a sound data base for language analysis, it was necessary to identify an assessment procedure which could meet several criteria. First, this tool had to employ a content analysis format to accomodate the language tran- scriptions from television programs. Then, it had to be sufficiently sensitive to detect subtle differences in language patterns of young subjects participating in this study. Finally, it was necessary to substantiate the accuracy and reliability of this instrument from its use record.

An exhaustive review of available instruments identi- fied the Developmental Sentence Scoring Procedure as most suitable for analysis of language samples collected in this study (Lee, 1974). In brief, the Developmental Sentence Scoring procedure provides a method for making a detailed, readily quantified and scored evaluation of a child's use of standard English grammatical rules. In a clinical setting, where it continues to be widely and successfully used, this method provides a tool for measuring a child's growth and progress throughout the period of clinical therapy. Furthermore, based on an extensive sampling of children, researchers have charted abstract scores in terms of normal developmental ages (year and month), which allow,

at least with some accuracy, statements concerning the translation of television and child language scores into terms of normal chronological age.

Child language samples were gathered according to prescribed techniques outlined by Lee for the Developmental Sentence Scoring assessment procedure. Essentially, each child participated in a thirty minute discussion with a trained interviewer who provided several props to facilitate the illicitation of language in the form of story telling and role playing. These sessions were audio recorded and later 50 sentences from this corpus were transcribed for content analysis according to DSS specifications.

Television language samples were collected from selected programs aired during Fall/Winter, 1977, and from each of these, 50 sentences were transcribed for analysis.

2. <u>Television Logs and Demographic Information</u>: A letter was sent to the parents of each child between the ages of 3 years, 4 months and 5 years, 10 months, and who attended one of the seven schools identified for this study. The letter provided a description of this study and explained how children would be asked to participate. Also, parents were requested to complete a questionnaire which included specific demographic data, and a television viewing log in which they were asked to record the programs watched by their child. Directions for these forms were provided, and a stamped, addressed envelope was included for return of

the completed material. Parents were invited to complete
an address card if they wished to receive an abstract of
this completed research. A copy of each of these forms,
the directions and letter of description are exhibited in
the appendix.

Data Preparation

The data base for this research was comprised of
language samples collected from 93 child subjects and 15
children's television programs. Each of these samples was
analyzed according to the Developmental Sentence Scoring
procedure designed by Lee (1974). Since the specific
procedures are quite extensive, interested readers are
encouraged to refer to Lee for details. In general terms,
though, this process involves the extraction of 50 senten-
ces from a larger corpus obtained in the full 30 minute
interview with child subjects (or from transcriptions of
television program samples). These sentences were then
analyzed according to grammatical content as outlined here:

> Eight categories of grammatical forms have been
> selected as showing the most significant devel-
> opmental progression in children's language:
> (1) indefinite pronoun or noun modifier, (2)
> personal pronoun, (3) main verb, (4) secondary
> verb, (5) negative, (6) conjunction, (7) in-
> terrogative reversal in questions, and (8)
> why-question...Credit is given only when a
> structure meets all the requirements of adult
> standard English, and this includes syntactic,
> morphological and semantic conventions...a
> score of 1 is added for every sentence which
> meets all adult standard rules (Lee, 1974:
> 136-137).

A "total point score" was computed, then, through simple arithmetic calculations, each language sample was assigned an average sentence score. Finally, based on data from previous research by Lee, this score was converted to an age rating at which an average child might be expected to achieve such a score. (See appendix for more DSS information)

In summary, this analysis yielded information about the language age of a child (and television language), the score for each grammatical category in his language sample, and a score for the average complexity of words used within each grammatical category.

Special Indices

In order to facilitate data analysis, it was necessary to develop two additional indices:

Language Ability Index: Following all of the data collection and processing procedures, two essential statistics were recorded for each subject: the chronological age and language age. In order to pursue the analysis in terms of language progress for each subject, it became necessary to relate these two elements to determine if the child's language was advanced or delayed for his particular chronological age. This could reasonably be accomplished in two ways. First, the child's chronological age could be subtracted from his language age, and this would provide an index representing language acceleration or retardation with respect to chronological age. Second, as an analogue

to conventional intelligence quota measures, the child's performance could be divided by his chronological age and the resulting index would also deal with the development of the child's language with respect to his actual age.

In fact, both procedures were accomplished and since the correlation between them was nearly perfect either one could have been used. While both of them were employed in all analyses, it is necessary to report only one because of similarity of results. In this report the second index will be presented since arithmetically it corresponds most closely to the intelligence quota measures used throughout the literature.

Exposure-Language Level Index: Language analysis of television programs revealed that different categories of programs offered different levels of language sophistication. For instance, cartoon shows displayed a more simplistic language than educational programs. From this it would follow that a child who viewed an abundance of cartoons would be exposed to a different kind of language model than a child who concentrated his television viewing on educational programs. In order to account for both the kinds of programs viewed and the number of viewing hours within each category, an index was developed which multiplied the number of viewing hours for a program category times the average language index of that particular category. All product results for each category were added together then divided by the total number of viewing

hours. This provided a weighted index of viewing hours according to category type.

hcar   --hours of cartoons viewed by a subject
           (Category weight: 441)

hsc   --hours of situation comedies viewed by a subject
           (Category weight: 575)

heduc   --hours of educational programs viewed by a
           subject (Category weight: 561)

hfd   --hours of family drama programs viewed by a
           subject (Category weight: 529)

had   --hours of action drama programs viewed by a
           subject (Category weight: 653)

ELL Index =

$$\frac{(hcar)(441)+(hfd)(529)+(heduc)(561)+(hsc)(575)+(had)(653)}{(hcar+hfd+heduc+hsc+had)}$$

Operationalization of Variables
and Specification of Variable Relationships

A variety of contemporary research has dealt with the effects of television on viewing populations. In an expansion of this body of literature, the present study undertook to examine the effects of television viewing on the language of pre-school children, an age group which has been reported nationally to be among the heaviest viewers of television programs. Because these children are exposed to such large amounts of television and because their cognitive and language abilities are undergoing such rapid development, it is particularly important to explore any effects which television may have on these children.

In this study, the nature of television viewing

included the kinds of programs watched and the hours of exposure for each subject. A complimentary set of data was generated for television program language samples which served as an indication of the kinds of language models available to children. The analysis then reviewed both sets of data together.

In addition to this principal concern for the effects of television on the language of young children, this research sought to review subject language development according to theories which consider the influence of maternal and sibling variables. Specifically, according to socio-linguistic propositions this research considered the maternal influence on child language and in light of Zajonc's Confluence Model predictions, reviewed the influence of birth order and sibling number on child language.

Data Analysis

All of the data gathered in this research was prepared for computer analysis. Each of the relationships outlined in these hypothesis statements were reviewed with correlation and partial correlation statistics.

Summary

The principal task of this study was to investigate relationships which exist between television exposure and language ability of young children. In pursuit of this objective a set of hypotheses were proposed which dealt

with the amount of viewing and categories of programs viewed by the subjects of this study. In addition, this research explored the influence of mother's education and sibling variables on language development.

The data base for this research consisted of (1) language samples from 93 pre-school children, (2) records of their television viewing patterns, and (3) language samples of popular children's television programs. Language samples from both child subjects and television programs were analyzed according to Developmental Sentence Scoring procedures. Information from the television logs was catalogued and coded for analysis.

Demographic data collected from parents provided the necessary information to explore predictions of the Confluence Model concerning the influence of sibling number and birth order on language ability.

CHAPTER III

ANALYSIS OF RESULTS

Introduction

Results of this analysis will be presented in the following order:

--The relationship between language ability and total hours of television viewing.

--Relationships between the five subcategories of programs and language ability.

--The relationship between mother's education level and child language ability.

--Relationships between mother's education level and television viewing patterns of children, including total viewing time and five subcategories of programs.

--The relationship between number of children and language ability.

--The relationship between birth order and language ability.

Total Television Viewing Time and Child Language

The first major hypothesis of this study proposed a relationship which is fundamental to the central issue in this research. In the null form, Hypothesis 1 stated that there would be no relationship between the number of hours a child spends watching television and his score on the language ability index. While total viewing time may ignore any differences which exist among program types in the subject's viewing repertoire, it was anticipated that this total figure would provide some indication of an overall

67

relationship with child language. And, since the litera-
ture offered little basis on which to predict directionality,
investigation of this relationship proceeded without a clear
expectation of how these variables would relate to each
other, thus the hypothesis was stated in a null form.

"Language ability" in this analysis was represented by
an index which divided the child's language age (as compiled
with the Developmental Sentence Scoring procedure) by his
chronological age. "Total hours of television viewing"
represents the complete viewing schedule for one week.

Results of the correlation analysis revealed that
between total viewing hours and child language level there
was a correlation coefficient of -.1669, significant at the
.055 level.

While this correlation is not impressively strong,
given that it accounts for only a small portion of the
variance between these two variables, several points under-
score the importance of this finding.

First, as described in a previous chapter, the
Developmental Sentence Scoring procedure was extracted from
its original setting in clinical speech therapy situations
where it serves to help identify speech deficient children.
With expanded resources for this research it might have
been possible to develop an instrument which was even more
suited to identify subtle distinctions among subjects and,
thereby, expand the variance in language scores. As it
stands, the Developmental Sentence Scoring procedure was

successful in identifying substantial differences in language performance.

Second, because of conditions established for subject selection, there is a very narrow age range for subjects participating in this research. This age limitation leads to a compression in the variance among language scores, which, in turn, contributes to less dramatic correlations among these variables.

Also, the subject pool was limited to children in day care centers and nursery schools, and this restriction tends to reduce variance because of the greater concentration of higher SES individuals. Most significant, however, is the imposition of a uniform daily schedule on subjects; the school setting restricts variation in television viewing patterns and other activities. If subjects had been drawn randomly from the general population, a much greater variance in viewing schedules might be anticipated.

In spite of these elements which were operating against dramatic results, a substantial correlation was obtained, significant at the .055 level. Directionality of this statistic is of principal importance and serves to portend other findings of this research. It appears from this observation that television viewing has a significant negative relationship with language development of young children in this sample. The null hypothesis is, therefore, rejected. In light of the evidence disclosed in this analysis, the hypothesis could be restated as follows:

There will be a negative relationship between the number
of hours a child spends watching television and his score
on the language ability index.

Television Viewing Time by Category and Child Language

Hypotheses la through le consider subcategories
within the general framework of all television programming.
Development of this portion of the research reflects a
recognition that there are a variety of language models
among program types, all programs are not viewed by chil-
dren with equal intensity and attention levels, nor is
child viewing time distributed equally among all program
types. The goals of this series of analyses is to unfold
the total television viewing variable into component parts
and thereby investigate specific relationships between
program types and language development.

A summary of results for the correlation analysis is
presented in Table 7.

Hypothesis la, in the null form, proposes there will
be no relationship between the number of hours a child
spends watching cartoon programs and his score on the
language ability index. As in the case of total television
viewing there was no suggestion in the literature as to the
directionality of the relationship, if any, between cartoon
viewing and child language ability.

As the correlation of -.2391 indicates, there was a
negative relationship between cartoon viewing and child
language, significant at .011. Such a strong relationship,

Table 7. Correlations of Language Ability and Five Categories of Television Programs.

	Cartoon Programs	Family Drama Programs	Educa- tional Programs	Situation Comedy Programs	Action Drama Programs	All Program Categories
Language Ability	-.2391 (.011)	-.1708 (.051)	.1077 (.152)	-.1399 (.091)	.0414 (.347)	-.1669 .055

particularly in light of the foregoing explanation of restraints on the variance in this sample, is a noteworthy finding which suggests that as cartoon viewing among subjects increases, the language ability displayed by children tends to decrease.

Given this, the null hypothesis is rejected, and a restatement of the relationship between these variables may proceed as follows: "There will be a negative relationship between the number of hours a child spends watching cartoon programs and his score on the language ability index."

Hypothesis 1b states there will be no correlation between the number of hours a child spends watching family dramas and his score on the language ability index. Here, too, with a correlation of -.1708 there appears to be a negative relationship between viewing hours of programs in the family drama category and language ability. Like cartoons, family dramas, designed with specific appeal to young viewers, appear to relate negatively to child language development. The null hypothesis here is also rejected in favor of the following proposition: "There will be a negative relationship between the number of hours a child spends watching family dramas and his score on the language ability index."

Hypothesis 1c predicted there will be no correlation between the number of hours a child spends watching

situation comedies and his score on the language ability index. With a correlation of -.1399, significant at .091, the relationship appears to be too weak to reject the null hypothesis, and with this set of data there can be no support for a relationship between viewing of situation comedies and language ability.

Hypothesis 1d deals with the relationship between educational television and child language, and so has particular interest given the stated goals of this programming type. Even though one might expect educational television to provide positive language models there is no previous research to substantiate this position, therefore, the hypothesis was stated in null form: There will be no correlation between the number of hours a child spends watching educational programs and his score on the language ability index.

Support for a relationship between hours of educational television viewing and a child's language is not very strong with a correlation of .1077, significant at the .152 level. With this sample there is no substantial indication that children who viewed more hours of educational television programs tended to score higher on the language ability index. With this evidence, the null hypothesis cannot be rejected.

The final subhypothesis in this series predicts that there will be no correlation between the number of hours a child spends watching action drama programs and his score

on the language ability index. In this case the correlation is so weak (.0414; significance level, .347), that the null hypothesis cannot be rejected, and with this set of data there can be no support for the case of a relationship between language ability and action drama viewing.

Language Ability and Exposure-Language Level Index

The first series of questions asked by this research concerned the fundamental issue of television viewing and language ability, reviewing first the relationship with television viewing overall and then viewing among individual program categories. The issue considered in Hypothesis 2 involves a related issue which accounts for (1) the differences of language level within each program category, and (2) the amount of time a child spends viewing programs within each category. Essentially, this weights viewing time by language sophistication within categories and, therefore, provides a more direct assessment of the relationship between television viewing and language ability. Readers interested in the specific calculations for the "Exposure Language Level Index" are referred to the discussion in Chapter II.

Results of the correlational analysis reveal that between the language ability index and exposure-language level index there is a correlation coefficient of .1489, significant at the .077 level. While the significance of this correlation is not particularly high, the positive directionality is a very important finding given other

evidence already reviewed in this chapter.

From the previous set of hypotheses a trend of relationships was demonstrated between language ability and television viewing within categories of programs. For instance, cartoon programs and family drama shows displayed a negative relationship with language ability. In the present analysis, programs within these categories, selected on the basis of their popularity among this sample of children, demonstrated a relative language sophistication which might be anticipated given previous findings. The underlying issue in all these instances concerns the level of language modeled by programs within each category.

By operating within this rational structure, findings of the present analysis become more meaningful. Essentially, the positive correlation suggests that as children viewed a greater proportional number of programs lower on the language level scale, their own measured language ability rating tended to be lower. Naturally, the complimentary position suggests that the greater proportional number of hours a child spent viewing programs higher on the language level scale, the higher his own measured language level score tended to be. Several explanations stand to interpret this observation and provide some alternative views on the dynamics among variables at play here. These are reviewed more thoroughly in the next chapter. Hypothesis 2 is confirmed by the

data.

Relationships with Mother's Education Level

This portion of the analysis considers the mother's influence on several variables relevant to the central issue of child language ability and television viewing. The mother plays an integral role in nearly every phase of a young child's life including fundamental language training as noted by many sociolinguistic theories. She can also be expected to influence variables of television viewing, where she is likely to control, to some degree, the amount of television watched by the child, and the kinds of programs included in the child's television viewing repertoire.

In this series of hypotheses the mother's education level was used as an index of the mother's language ability and socioeconomic status, as described in Chapter 2.

The first hypothesis in this series deals with a fundamental issue in sociolinguistic theories which predict a positive relationship between the family socioeconomic status (with particular attention to the mother) on a child's language development. Hypothesis 3 states that the higher the mother's education level, the higher the child will score on the language ability index.

Results of this correlation analysis reveal that, indeed, there is a positive correlation of .3031, which is significant at the .002 level. This is a clear correlation between the mother's education level and the child's

language ability rating and while it confirms basic tenets of sociolinguistic theory, it further substantiates the comparability of this set of data with other language research. This adds confidence that data involved in this analysis, collected even under constraints imposed here, relates positively to data collected under more general conditions. Hypothesis 3 is confirmed by the data.

While sociolinguistic theories predict directionality for the influence of mother's education on child language ability, there is no expected direction for the relationship between mother's education and television viewing by children. The following set of hypotheses deals with this issue, first by considering television viewing overall, then by looking at specific categories of programs. Because directionality could not be predicted, all hypotheses are stated in the null form.

Hypothesis 4 proposes that there will be no correlation between the mother's education level and the total number of hours of television viewed by the child. A correlation of $-.1717$, significant at the .05 level was found to describe the relationship between these variables, whereas the mother's education level increases, the child's overall television viewing decreases. Influence of the mother on a child's viewing time is evident here, the remaining question now concerns the mother's influence on program selection within specific categories.

Findings for the next series of hypotheses are reported in Table 8.

Hypothesis 4a states there will be no relationship between the mother's education level and the number of hours a child spends watching cartoons. Results of this analysis demonstrate a correlation of -.2473, significant at the .008 level. This finding adds to previous information gathered about cartoon programs: cartoons display the lowest level of language, they relate negatively to a child's language ability rating and in this analysis they are found to relate negatively to the mother's education level. The null hypothesis is, thereby, rejected and the relationship restated as follows: "There will be a negative relationship between the mother's education level and the number of hours a child spends watching cartoons."

Hypothesis 4b proposes that there will be no relationship between the mother's education level and the number of hours a child spends watching family drama shows. The correlation analysis reveals that like cartoons, family dramas are negatively correlated with mother's education level, with a coefficient of -.3217, significant at the .001 level. It should be indicated that family dramas did not score high on the language ability rating.

Hypothesis 4b is rejected, and in light of the results, the following statement is submitted as a description of the relationship between these variables: "There will be a negative relationship between the mother's

Table 8. Correlations of Mother's Education and Five Categories of Television Programs.

	Cartoon Programs	Family Drama Programs	Educational Programs	Situation Comedy Programs	Action Drama Programs	All Program Categories
Mother's Education	-.2473 (.008)	-.3217 (.001)	.1656 (.056)	-.0780 (.229)	-.0155 (.441)	-.1717 (.05)

education level and the number of hours a child spends watching family drama shows."

Hypothesis 4c dealt with educational shows and stated that there will be no relationship between the mother's education level and the number of hours a child spends watching educational programs. The analysis revealed a positive correlation of .1756, significant at the .056 level. From this it follows that as the education level of the mother increases, so do the number of viewing hours for educational programs. The null hypothesis is rejected in favor of the following restatement of the relationship: "There will be a positive relationship between the mother's education level and the number of hours a child spends watching educational programs."

Two final hypotheses in this series state:

(Hypothesis 4d): There will be no relationship between the mother's education level and the number of hours a child spends watching situation comedies.

(Hypothesis 4e): There will be no relationship between the mother's education level and the number of hours a child spends watching action drama programs.

In the first instance, between mother's education and situation comedies, this analysis revealed a correlation of -.0780 (not significant) and in the second, between mother's education and action dramas, a correlation of -.0155 (not significant). With such weak correlations it can be concluded that the null hypothesis in each case cannot be rejected.

At this point in the analysis it became evident that a series of relationships was developing among three principal variables involved in this research: mother's education level, child's language ability, and television viewing variables. First, there was a demonstrated relationship between child language ability and television viewing on several dimensions. Then it became evident that mother's education was related to child language ability and television exposure patterns of children. From this an obvious question arises concerning the independent covariation of child language and television viewing, each related only to mother's education level. Specifically, if mother's education was controlled in a partial correlation analysis, would the relationship between television viewing and child language ability diminish toward zero? If this were to occur, there would be little case for a relationship between television viewing and child language ability. Table 9 displays the results of the zero order and first order partial analysis.

Table 9. Partial Correlations of Television Viewing Variables and Language Ability Controlling for Mother's Education

	Zero Order Correlation	Language Ability Index - Significance	First Order Correlation controlling for Mother's Education	Language Ability Index - Significance
Total Viewing Hours	-.1669	(.055)	-.1251	(.117)
Cartoons	-.2391	(.011)	-.1818	(.041)
Family Dramas	-.1708	(.051)	-.0877	(.200)
Educational Programs	.1077	(.152)	.0643	(.271)
Situation Comdedies	-.1399	(.091)	-.1232	(.121)

In this partial correlation analysis, as one would expect, there was a slight reduction in the correlation between television viewing variables and the language ability index. Such a reduction is to be expected given that a portion of the variance is restricted when mother's education is partialled out. However, the significance of these findings rests largely in the maintenance of directionality between variables. Specifically, between the language ability index and total viewing hours, cartoons, family dramas and situation comedies, there continues to be a negative correlation even after the effects of mother's education are removed. Similarly, even though the correlation between language ability and educational programs is reduced a positive correlation remains. It is this observation which underscores the relationship between television viewing and language ability of children in this sample. Irrespective of the influence of mother's education, which has been demonstrated to have such a strong influence on the child and his television viewing patterns, the relationship between television viewing and language ability is maintained.

Number of Siblings and Birth Order Variables

Hypothesis 5 does not concern television viewing directly, but rather language development as influenced by the total number of siblings with which a child is raised. An explanation by Zajonc was provided earlier (Confluence Model), and the reader will recall that all previous

research has dealt with standard measures of intelligence, and not specifically with language variables. Since the literature has demonstrated that language shares a strong relationship with other intellectual activities, it becomes of interest here to review this language data in terms of propositions from the Confluence Model. According to predictions of this theory the hypothesis stated that the greater the number of children in the family, the lower a child will score on his language ability index.

Results of the analysis confirm this hypothesis with a correlation coefficient of -.1841, significant at the .039 level. Based on this finding, the Confluence Model appears to apply to language as well as standard intelligence measures employed in the mainstream of research on sibling influence. There is support here for the proposition that the number of children in a family not only effects the child's performance on standard intelligence measures, but also on the way he uses language. Hypothesis 5 is confirmed.

Hypothesis 6 deals with the position of a child in relation to his siblings and proposes that language ability index scores will decline with birth order. This hypothesis, also derived from the Confluence Model, proposes a negative relationship between numbers of children and language ability. According to provisions of the theory, children with no siblings were omitted from this analysis.

For all children with siblings, this analysis revealed a correlation coefficient of -.2005, significant at the .04 level. This second prediction of the Confluence Model was confirmed by the data, again suggesting that this theory, which initially concerned standard intelligence measures, has been accurate in predicting relationships with language ability as well. Hypothesis 6 is confirmed by the data.

Summary

This research considered three principal relationships concerning the development of child language. First, it looked at television viewing and language development, then influence of the mother on child language and finally it considered the relationship between birth order and number of siblings on language development. A summary of findings for the principal hypotheses and sub-hypotheses is presented in Table 10.

The fundamental concern here was with the effects of television viewing on language development. It was found that for television viewing overall, there was a negative correlation with language ability. Similarly, for sub-categories of program types, cartoons and family dramas had a negative correlation with language ability.

In order to assess an overall effect of television language models on children, an exposure-language level index was created which accounted for language complexity of programs within individual categories, and number of

Table 10. Summary of Results

Hypotheses	Corre-lation	Signifi-cance
Hypothesis 1: There will be no relationship between the number of hours a child spends watching television and his score on the language ability index.	-.1669	.055
Hypothesis 1a: There will be no relationship between the number of hours a child spends watching cartoon programs and his score on the language ability index.	-.2391	.011
Hypothesis 1b: There will be no relationship between the number of hours a child spends watching family dramas and his score on the langauge ability index.	-.1708	.051
Hypothesis 1c: There will be no relationship between the number of hours a child spends watching situation comedies and his score on the language ability index.	-.1399	.091
Hypothesis 1d: There will be no relationship between the number of hours a child spends watching educational programs and his score on the language ability index.	.1077	.152
Hypothesis 1d: There will be no relationship between the number of hours a child spends watching action dramas and his score on the language ability index	.0414	.347
Hypothesis 2: The greater the child's language ability index score, the greater his score will be on the exposure-langauge level index.	.1489	.077

Table 10 (cont'd.).

Hypotheses	Corre-lation	Signifi-cance
Hypothesis 3: The higher the mother's education level, the higher the child will score on the language ability index.	.3031	.002
Hypothesis 4: There will be no relationship between the mother's education level and the total number of hours of television viewed by the child.	-.1717	.050
Hypothesis 4a: There will be no relationship between the mother's education level and the number of cartoon programs viewed by the child.	-.2473	.008
Hypothesis 4b: There will be no relationship between the mother's education level and the number of family dramas viewed by the child.	-.3217	.001
Hypothesis 4c: There will be no relationship between the mother's education level and the number of educational programs viewed by the child.	.1656	.056
Hypothesis 4d: There will be no relationship between the mother's education level and the number of situation comedies viewed by the child.	-.0780	.229
Hypothesis 4e: There will be no relationship between the mother's education level and the number of action dramas viewed by the child.	-.0155	.441

Table 10 (cont'd.).

Hypotheses	Corre-lation	Signifi-cance
Hypothesis 5: The greater the number of children in the family, the lower the child will score on the langauge ability index.	-.1841	.039
Hypothesis 6: Language ability index scores will decline with birth order.	-.2005	.040

viewing hours for each program type. In this analysis the hypothesis was confirmed with the observation that the greater the child's language ability index score, the greater his score was on the exposure-level index. This suggested that as children viewed a greater proportional number of programs lower on the language level scale, their own measured language ability rating tended to be lower. Similarly, the greater proportional number of hours a child spent viewing programs higher on the language level scale, the higher his own measured language level score tended to be.

A second set of investigations dealt with the relationships between mother's education level and (1) child language ability and (2) television viewing patterns of the child. In the first instance a positive correlation was found between the mother's education level and the child's language ability index. Then a negative correlation described the relationship between mother's education level and the total number of television hours viewed by a child. Within separate program categories, negative correlations were also found between mother's education level and cartoons, and family dramas. A positive relationship was noted between mother's education and educational programs.

Finally this research considered language ability in terms of theories advanced by the Confluence Model concerning the total number of siblings with whom the child

is raised, and the birth order of a child. In the first instance, the hypothesis was confirmed noting that the greater the number of children in the family, the lower the child tended to score on the language ability index. Then, the second hypothesis was also confirmed with the finding that language ability index scores declined with birth order.

CHAPTER IV

DISCUSSION

Structure of the Investigation

The primary investigation of this study examined the
relationship between television viewing and language devel-
opment of young children. In this portion of the analysis
a child language ability index was correlated first with
total television viewing time and then with five subcate-
gories of program types. The next analysis considered
language ability in terms of a composite exposure-language
level index which represented program exposure weighted by
language sophistication modeled in different categories.
Language ability, total television viewing and viewing of
programs by category were then considered in terms of the
mother's education level. Finally, there was an analysis
of two elements of Zajonc's Confluence Model which pre-
dicted relationships between (1) sibling number and
language ability and (2) birth order and language ability.

Language samples were collected according to clinical
procedures outlined by the Developmental Sentence Scoring
Analysis for 93 children aged three years and five months to
five years and eleven months. In addition to language samples,
data on television viewing patterns of subjects was collected
from logbooks maintained for a one week period by parents.
Scripts of frequently viewed programs were then analyzed
according to Developmental Sentence Scoring procedures.

General Review of Results

The present research involves a variety of investigations, some of which confirm existing theories or expand the scope of these theories, and others which identify new sets of relationships. These findings offer a small contribution to the literature, but they also have practical implications since the issues deal with very common elements of television viewing and language development of young children.

The purpose of this section is to describe these findings in general terms and outline the relationships which have been identified in this analysis.

The underlying issue of this investigation is to determine if television viewing accelerates or retards language growth. But the present research is designed to deal only with potential relationships between these two variables and cannot attend to the causal issue. Nonetheless, the findings here represent an essential first step and lay the groundwork for additional research.

First, this data provides evidence that there is a relationship between television viewing and language development of young children. Across all program categories it was found that children who watched more than average television tended to achieve lower scores on the language ability rating. It was then speculated that the aggregation of all television programs may have masked any differential influence which exists among various types

of programs. In pursuit of this possibility, the analysis then considered each program category typically viewed by children including cartoons, educational programs, family dramas, action dramas and situation comedies. This analysis confirmed the suspicion. It appears that cartoons and family drama programs had a negative relationship with children's language ability; as viewing time of cartoons and family dramas increased, scores on the language ability rating declined. Readers should note that this does not imply a causal effect of television on child language since other interpretations exist to explain this observation. For instance, perhaps children who already have less developed language skills can only understand cartoons and family dramas, so they confine their viewing schedule to these kinds of programs. Children with more advanced language abilities may include more sophisticated programs which they can understand. These findings note a relationship between the various television categories and child language and while this is certainly an important observation, it cannot deal with causal statements.

Following this set of investigations the study then explored the relationship between the mother's education level (which served as an index of language level and socio-economic status) and child's language ability. Guided by sociolinguistic theory, a positive relationship was predicted. This was, in fact, borne out by the data. The higher a mother's education level, the higher a child

tended to score on the language ability index.

Next, a series of analyses considered the relationship between variables of television viewing and education level of the mother. The specific purpose here was to discover whether or not a mother's education level had any relationship with the kinds of television programs viewed by a child. Here, too, a pattern became evident. Generally, as the level of mother's education increased, the child's total television viewing declined, and among specific categories of programs, cartoons and family drama programs also declined. Viewing of educational programs increased with an increase in mother's education level. It appears from these results that the mother does influence television viewing patterns of a child, and mothers with more education tend to select for their children programs with more sophisticated language models.

At this point it became important to determine if television viewing and language ability of a child were each related only to mother's education level, but not related to each other. If this were the case there would be no strength in the argument that television viewing and language development are related at all. It was determined that the relationship between language and television viewing was not spurious, and, indeed, the relationship appears to exist.

Finally, as an adjunct portion of this research, this data was applied to predictions of the Confluence Model

which proposes a relationship between (1) the number of siblings and achievement on intelligence tests, and (2) birth order and intelligence. In this research, language ability was substituted for standard intelligence measures to test the extensiveness of these predictions. Complete confirmation was obtained. As the number of children in a child's family increased, his language ability index tended to decline. Similarly, language ability scores tended to decline with birth order of a child.

Limitations

Nearly all of the conditions established for this research were conservative in nature and worked against the discovery of significant findings. Subjects chosen for the study, data collection methods, analysis of language samples all contributed to a reduction in the variance among elements explored in this study, and this leads to a diminution of impressive statistical results. In other words, the setup for this research stacked the deck against significant findings. Still, a number of significant findings were obtained. A discussion of the results will be forthcoming, however, it is first necessary to elaborate on some of the specific factors which contributed to a constrained variance among elements in this study.

One very important consideration is the limitation on subject selection. All of the children represented in this sample were recruited from nursery schools and day care centers located near a major university. Such a sample

cannot reasonably be expected to demonstrate characteristics of a general population. Furthermore, to the extent these children spend their days in a controlled environment, their schedules do not permit large variations in their interactions with other children, play activities, and particularly television viewing. During their stay at pre-school they all generally watch an equal amount of television; the only variation in viewing which can occur among subjects must be at home in the evenings, on weekends and during days absent from school.

Another unusual characteristic of this sample is the exceptionally high education level of parents which could naturally be expected given the proximity of these pre-schools to a major university. Consequently, differences which might be anticipated in some variables affected by SES may not be evident because of such a skewed education distribution. If subjects were selected from the general population, a more normal distribution of parent's education level would likely be obtained and so more dramatic findings might be expected.

Another important consideration in the interpretation of these results is the age of children included in this sample. This study specifically limited the age range of subjects (roughly between three-and-a-half and five-and-a-half years old) in order to consider children whose language was sufficiently advanced to respond in an interview situation, yet not old enough to be heavily influenced by

formal language training in school. There is a reduction in the variance among elements of language here simply because such a restriction was imposed on the ages of subjects.

Finally, there is concern with the language assessment method chosen for this research. The Developmental Sentence Scoring procedure is an accurate and reliable tool in its original setting of clinical speech therapy where it is used to help identify speech deficient children. This instrument correlates highly with other testing procedures and has the confidence of researchers and speech therapists in situations for which it was designed. But, the present research extracted the DSS from its original setting and applied it to the task of analyzing the language ability of normal children and television language samples. The DSS was chosen because it most closely matched the specific needs of this research: it is a content analysis procedure, it can accomodate a fairly wide age range and it provides specific information about grammatical use categories.

Even though the DSS proved to be a very successful tool for this study, it seems likely that more sensitive language assessment instruments might be developed for future research, or a combination of assessment procedures might be utilized for even finer distinctions among language samples.

In summary, a variety of factors have led to the

compression of variance in this research and so tended
to work against the display of more dramatic correlation
coefficients among variables investigated here. Conse-
quently, even small correlations with modest statistical
significance must be carefully reviewed for information
about the nature of the relationship between two variables.
Directionality is particularly important and so is the
emergence of patterns for variables considered in a variety
of contexts.

Television Viewing and Child Language

The initial portion of this research considered the
general question of whether or not total television viewing
shared any relationship with a child's language ability.
The results demonstrated a negative correlation between
total viewing time and performance on language measures,
leading to the general conclusion that as children in
this sample watched more television their language scores
tended to be lower. While the correlation describing
this relationship is evident and clear, dynamics with
respect to a causal inference are not. It is difficult
to determine from this single investigation whether or
not this negative correlation is a result of opportunity
costs of viewing television, where alternative and perhaps
language building activities became displaced, or whether
the language models in television programs contributed
directly to the lower language performance scores. If the
first explanation accurately describes the relationship

between these variables, then, perhaps, the child who views an abundance of television is deprived of inter-actions with parents or siblings, or of playing games and reading books, activities which might engender a better language system in the child. If the second description were in operation then television itself might be respon-sible for contributing to the lower language scores of heavy viewers by providing deficient language models for the child. While none of the data collected here can confirm either position, further analysis in this study contributes to an explanation.

In order to examine this relationship more closely and unfurl the "total television" variable, this study then turned to separate investigations which considered five categories of television programs. Here language ability was reviewed in terms of the numbers of hours children spent watching cartoons, family dramas, situation comedies, educational programs and action drama shows. Significant negative correlations were found between language ability and viewing of cartoons and family dramas. There were no significant correlations obtained for language ability and situation comedies, educational programs, and action dramas.

In general terms these results contribute to the observation that as children in this sample viewed a greater number of hours of cartoon and family drama programs, their language ability index tended to be lower.

Given the sophistication of language models which one might expect to find in cartoons, for instance, as compared to educational programs, an immediate interpretation of these findings might note that television language modeling contributed to the difference in language ability among children in this sample. This position holds that heavy viewers of cartoon programs achieve lower language ability index scores because language models in cartoons are deficient. Indeed, this may be a reasonable explanation of interactions among variables, but the data here cannot confirm such a causal relationship. Alternatively, it is quite reasonable to propose that children with slower language development select cartoons more often because they can understand little more than cartoon language. At this stage of the analysis, it is only clear which program categories are negatively correlated and which ones are positively correlated with the language ability index.

Finally, in the series of investigations on television and language development, this study combined information obtained on viewing patterns of subjects with language levels for five program categories. This was accomplished with an arithmetic procedure described in Chapter II which yielded an index accounting for the exposure times by category, weighted by the average language sophistication of programs within that category. This index was then correlated with language ability indices for each child.

It was anticipated that findings from this correlation analysis would yield information relating to the language ability of the child and his exposure times to relatively simplistic or advanced language models.

Results of this analysis demonstrated a positive correlation which suggested that children with lower language indices tended to view more hours of programs lower on the language scale, and, conversely, children with higher language indices tended to view more hours of programs higher on the language scale. Such a finding reinforces interpretations submitted in previous investigations by adding objective support to the observation that program categories lower on the language scale have a negative correlation with child language ability. While this finding provides added confidence in the previous explanations of the relationship between television and child language, unfortunately, it does not contribute to the defense of either causal explanation. This positive correlation between the exposure-language level index and child language ability index could be interpreted as support for the proposition that children with poorer language skills watch programs with less language sophistication because they are only capable of understanding language of such simplistic shows. Meanwhile, their language sophisticated counterparts view more language-sophisticated shows because they understand and are attracted to these kinds of programs. But, this

finding also could be applied to the argument that children who view more language-sophisticated shows, through exposure, develop a more sophisticated language. And, similarly, those who concentrate their television viewing on less language developed programs, are stagnated in language growth because of exposure to relatively simplistic television language models.

While the causal relationship between these variables of television viewing and language ability remain unclear, one of the most valuable findings of this research is the disclosure of such a relationship. This in itself, is an essential discovery. An interaction exists between these variables: the language of television and the language of child viewers are related.

Mother's Education, Television and Child Language

In its most basic form, the theory advanced by socio-linguist Basil Bernstein proposes that children learn language from parents, and primarily from the mother, and so a child will tend to speak as his mother speaks. This position was considered by this research using mother's education level as an index of mother's language. This may be a rough measure, but a positive correlation can reasonably be expected between language sophistication and education level, and given restrictions on data gathering in this research, mother's education level served as a representation of language ability.

In the first analysis of this series, the correlation

between mother's education level and the child language ability index demonstrated a significant positive relationship. Indeed, children whose mother had higher education tended to score higher on the language ability index than those whose mother had less education. This relationship was expected and adds support to some of the principal sociolinguistic theories. It also tends to confirm the comparability of this data with other data collected under varied circumstances.

The second portion of this series concerned the relationship between mother's education level and television exposure for children in this sample. The first analysis correlated mother's education with the total number of hours of television viewing, then subsequent analysis unfolded this total viewing time and looked at the mother's education level in terms of program category type.

In the first instance, a significant negative correlation was found which suggested that as the mother's education level increases, the total number of viewing hours for the child decreases. Although this data does not attend to the dynamics of this relationship, it appears reasonable to propose that more educated mothers encourage their children to engage in alternative activities in place of a heavy television viewing schedule. Possibly these activities include more interaction between parents and child, and this may account for the more

developed language of children with higher educated mothers as demonstrated in the previous analyses. Again, it is the discovery of the relationship here that bears attention: mother's education and child exposure to television are negatively correlated.

As for the relationship of mother's education level with individual categories of programs, a recognizable pattern emerges. There is a clear negative correlation between mother's education and both cartoon programs and family drama programs. In these instances, as the mother's education level increases the child's viewing of cartoons and family dramas decreases. The other significant relationship discovered in this analysis is a positive correlation between mother's education level and educational programs, suggesting that children of higher educated mothers tend to watch a greater number of hours of educational shows.

Here, too, the data does not bear information which would support a description of the dynamics at play in the relationships between the mother's education level and the amount and kinds of programs viewed by children. It would be necessary to design an entirely different study to deal with this issue. This data does, however, establish several relationships not previously reported in the literature, and, thereby, uncovers information which may have substantial heuristic value in describing viewership patterns for young children.

The series of analysis so far portrays relationships between (a) child language and television viewing, (b) mother's education level and child language, and (c) mother's education level and child television viewing patterns. Since mother's education level is related both to child language and television viewing, an obvious question arises concerning the covariation of child language and television viewing independent of each other, but related only to mother's education level. Specifically, it is important to determine if a spurious relationship exists between television viewing and child language. This was investigated through a partial correlation analysis controlling for mother's education, which revealed that, in general, the relationships between language ability and the various elements of television viewing were maintained.

Given all the relationships presented so far it would be helpful to offer a composite sketch and draw all the variables into a single frame.

It appears that the mother's education level has two principal effects. First, it relates positively with the child's language abilities, and so as sociolinguistic theories predict, the mother has a direct influence on the language of her children. It also seems that the mother's education level has a negative relationship with total television viewing and certain categories of programs viewed by the child. Here it appears that the mother has an influence on the kinds of shows the child views; this

might be expected on logical grounds, but is substantiated here with empirical data. Finally, those television shows which the child does view have a relationship with the development of his language. Programs lower on the language ability scale tend to be viewed by children who perform lower on the language index, and programs higher on the scale tend to be viewed by children who perform higher on the language index. In summary, of the relationships among these three variables: a mother influences the child's language directly, she influences the amount and kinds of programs he watches, and then these shows, too, have an effect on the child's language abilities.

Number of Siblings and Birth Order

The final portion of this research investigated two propositions of the Confluence Model developed by Zajonc. Where all previous research on the Confluence Model involved standard measures of intelligence, for instance, the National Merit Scholarship Qualification Tests or Scholastic Aptitude Tests, this study considered sibling number and birth order in terms of language ability measures. The language ability index used here is analogous to standard intelligence quota measures since it involves test performance adjusted for age.

According to provisions of the Confluence Model, a child is born into an intellectual milieu described by an average of the intellectual capacities of all family members. As the number of children increases, by the

arithmetic of averaging, the intellectual level of that milieu is reduced (assuming children have lower intelligence levels). From this, Zajonc predicts a negative relationship between the number of children in a family and a child's performance on intelligence measures. In this present study, with the substitution of language ability for standard intelligence measures, the prediction was confirmed: language ability shares a negative relationship with the number of children.

In light of this finding, it appears reasonable to propose a similar description of the linguistic-intellectual milieu. With a greater number of children, the average level of language is reduced. Parents must apportion their attention to a greater number of children and so each child is the recipient of fewer hours of direct exposure/interaction with a sophisticated language model.

A complimentary portion of the Confluence Model proposes that birth order, too has a negative relationship with child performance on intelligence measures. In the present research a similar relationship was discovered with the measure of language performance. For each child with siblings ("only" children were excluded from this analysis according to provisions of the Confluence Model) each successive child tended to achieve a lower language ability score. The reasoning follows from a portion of the model previously reviewed, where each successive child is

introduced into a linguistic-intellectual milieu which
has already been lowered by his preceeding siblings.
Since the quality of the milieu is determined through an
averaging process, it would hold that unless all previous
siblings have reached maturity, later children arrive into
a reduced linguistic-intellectual environment.

In summary, this portion of the analysis supported
predictions of Zajonc's Confluence Model demonstrating that
the number of children and birth order of a child relate
negatively to performance on language measures employed
here. Significance of these findings is recognized in an
extension of this model from basic intelligence measures
to language performance measures.

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Three fundamental issues became the concern of this
research. First, the principal matter and focus of this
study involved the relationship between television viewing
and language ability of young children. Several findings
from this portion of the analysis demonstrate interesting
and noteworthy connections. First, it was discovered that
the total amount of television viewing relates negatively
to language ability. In other words, the more television
a child views, the lower his language ability scores tend
to be. Then, in terms of individual categories of
programs, cartoons and family dramas have a negative
relationship with language ability. A final look at this

question involved an index which considered the language level of program categories and viewing times of each category. This index was compared to language ability where, again, there was a signficant positive correlation. This suggests that as children viewed a greater proportional number of programs lower on the language level scale, their own measured language ability rating tended to be lower. The converse holds.

The second issue of concern involved the relationship between mother's education level and both language ability and television viewing patterns. In support of predictions from sociolinguistic theories, there was a positive relationship between mother's education and child language ability. As for the correlation between mother's education and television viewing patterns, total television viewing, cartoons and family dramas were found to have a negative relationship and educational programs had a positive relationship.

In order to assess the relationship between television viewing and child language with the effects of mother's education level removed, a partial correlation analysis revealed that the fundamental relationship remained between these variables.

Finally, this data was reviewed in terms of the Confluence Model which suggests relationships between sibling number and birth order on intellectual performance measures. In this series of analyses, language ability was

substituted for the usual intelligence measures used in other research. The predictions, nonetheless, were borne out. It was confirmed that the greater the number of siblings, the lower the performance on language ability measures. Also, it was found that as birth order increased, performance on language ability measures decreased. Predictions of the Confluence Model were confirmed.

Research Extensions

This study represents an initial attempt at uncovering the relationships which exist between language development processes and television viewing patterns of young children. Although the scope was narrow, the findings were significant and have considerable heuristic value for expanded research on this very important issue.

As this study has indicated in several discussions, most of the elements employed here contributed to a constrained variance, and so led to conservative results in most cases. Future research should work to expand these findings by broadening the scope of study along several dimensions.

First, it is very important to consider a more expansive population in the selection of subjects. Where this study tapped nursery schools and day care centers, and, thereby, recruited children with similar SES backgrounds, continued research must draw from a much more general population and include particularly those children from lower SES families. Studies have demonstrated that

these children typically watch more television, and so effects of the media might be most dramatic among this sample. Furthermore, these children who spend their days at home, and not in pre-schools, will have more opportunity to develop individual activity schedules unlike subjects in this study who were regimented by schedules of the institution. This kind of sample might be drawn at random from the population (using hospital birth records to identify families with young children), or a stratified sample might be considered to assure sufficient representation of lower SES subjects.

The selection of a language assessment instrument should be another concern for continued research. Without question, the Developmental Sentence Scoring procedure met the needs of the present research and it offered a valuable tool for identifying language distinctions among subjects. Particularly as the sample selection expands, and children from a wider SES spectrum are included, it may be necessary to utilize a combination of instruments to accurately assess language samples. Since the age range (three to five years) is so restricted only a precision tool will be successful at distinguishing among the variables of language and provide the necessary information about language development.

While there were significant correlations between language ability and many of the variables considered by this research, the size of these correlations were not

dramatic which suggests the influence of other factors on
language development. Naturally, this is not a startling
observation, the identification of television as an
influential variable is the noteworthy contribution of
this research, the influence of other factors was always
understood. It would be valuable for future research to
consider in a single study a wide variety of factors,
including television viewing, which may have an impact
on language development. This would provide information
about the relative strength of the television influence
in this hierarchy of variables. The literature clearly
lacks a comprehensive review of the variables which impact
on language development. Many studies point to many
factors, but it will require the statistical aggregation
of these potential influences to indicate which are
primary and which are tangential. Furthermore, as media
habits vary among age groups and change over time for the
entire population, it would be valuable to repeat the
study over the course of several years to plot the pro-
files of change. If television does play an important
role in shaping child language, does this change as the
media habits change both for an individual and for an
entire population which shifts its mass communication
activities? This kind of research would provide a major
contribution to the literature.

Finally, this study confirmed the importance of
parental influence, not only in the language development

process as sociolinguistic theories predicted, but also in the selection of television programs viewed by a child. A variety of politically active groups have called for increased parental participation in children's television viewing activities, and it seems reasonable to offer this kind of research in evidence of the value of such input. Continued research on the influence of parents in the television viewing processes of young children would make a valuable contribution to the literature and provide pragmatic information for immediate use.

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APPENDICES

APPENDIX I

DETAILS OF THE DEVELOPMENTAL
SENTENCE SCORING ANALYSIS

APPENDIX I

DETAILS OF THE DEVELOPMENTAL
SENTENCE SCORING ANALYSIS

The Developmental Sentence Scoring procedure is a
language analysis instrument born of many developmental
language theories and is an eclectic formulation derived
from the combined elements of many existing language
assessment techniques. In the development of a rationale
for this procedure, Lee has drawn liberally from many
sources including Chomsky, McNeill, Fillmore, Brown, Fries
and a host of others. The technique rests firmly on the
prepared ground of language theory from prior research.

Reliability and validity of DSS procedures were
reviewed by Koenigsknecht in the basic text outlining pro-
cedures for this instrument. A portion of the summary is
presented here.

(From: Koenigsknecht, R. "Statistical Information
on Developmental Sentence Analysis," in Lee, L.
Developmental Sentence Analysis, Evanston: North-
western University Press, 1974. Pp. 222-268).

The results of this series of investigations of the
validity and reliability of the DSS procedures and its
reweighted scoring system strongly support its usefulness
as an objective measure of syntax development in children.
The validity of the DSS measure was indicated by the

significant differences produced between age groups by the over-all scoring procedure and by each of its component grammatical categories. As age levels increased, the scores which purported to measure spontaneous syntax and morphology usage increased systematically, indicating that grammatical development was being measured. All nine of the component categories of the DSS, eight involving specific grammatical structures and one the over-all sentence point, were useful in discriminating between adjacent age groupings. The discriminating power of the categories varied. The rank order from the most to the least discriminating was (1) Main Verbs, (2) Conjunctions, (3) Indefinite Pronouns-Noun Modifiers, (4) Personal Pronouns, (5) Secondary Verbs, (6) Negatives, (7) Sentence Points, (b) Wh- questions, and (9) Interrogative Reversals. Evidence was presented which showed that the DSS successfully measures the impact of not only the developmental level or maturity of syntax usage but also the typical length of a child's utterances.

The validity of the DSS construct was further indicated by the confirmation of the grammatical hierarchies in the reciprocal averaging procedure itself. The stability and accuracy of the DSS scoring system was enhanced with this analysis through the reweighting of items within grammatical categories.

Major support for the usefulness of the scoring system was supplied by the high reliability coefficients obtained

by this measure. The over-all internal consistency of the instrument as measured by Coefficient Alpha was 0.71. The within-subject internal consistency of the scoring procedure was assessed in a split-half procedure in which odd items and even items were combined and then correlated. This resulted in an over-all estimate of reliability of 0.73 which indicated good stability of the scoring procedure within subjects on a 50-utterance sample. Each of the individual grammatical categories was positively correlated with the over-all DSS scores, indicating that each of the grammatical categories is measuring increases in oral language development and contributing to the total DSS score. Item analyses for each of the grammatical categories revealed the usefulness of each category at specific age levels.

The discriminating power of individual categories within the overall DSS instrument for sorting among the actual ages of children was presented in the summary above. A similar analysis was conducted with the present data to assess the discriminating power of the nine categories in terms of language ability index scores described in Chapter II. The following order was observed: (1) Main Verbs, (2) Conjunctions, (3) Personal Pronouns, (4) Indefinite Pronouns, (5) Sentence Points, (6) Negatives, (7) Secondary Verbs, (8) Interrogatives, (9) Wh- Questions. This rank order was determined through the Strength of Pearson Correlations between individual categories and the Language Ability Index.

Developmental Sentence Scoring
Weighted Scores

	NOUN MODIFIERS	PRONOUNS	MAIN VERBS	SECONDARY VERBS
1	it, this, that	1st and 2nd person: I, me, my, mine, you, your(s)	A. Uninflected verb: I see you. B. copula, is or 's: It's red. C. is + verb + ing: He is coming.	Five early-developing infinitives: I wanna see (want to see) I'm gonna see (going to see) I gotta see (got to see) Lemme [to] see (let me [to] see) Let's [to] play (let [us to] play)
2		3rd person: he, him, his, she, her, hers	A. -s and -ed: plays, played B. irregular past: ate, saw C. Copula: am, are, was, were D. Auxiliary am, are, was, were	
3	A. no, some, more, all, lot(s), one(s), two (etc.), other(s), another B. something, somebody, someone	A. Plurals: we, us, our(s), they, them, their B. these, those		Non-complementing infinitives: I stopped to play. I'm afraid to look. It's hard to do that.
4	nothing, nobody, none, no one		A. can, will, may + verb: may go B. Obligatory do + verb: don't go C. Emphatic do + verb: I do see.	Participle, present or past: I see a boy running. I found the toy broken.
5		Reflexives: myself, yourself, himself, herself, itself, themselves		A. Early infinitival complements with differing subjects in kernels: I want you to come. Let him [to] see. B. Later infinitival complements: I had to go. I told him to go. I tried to go. He ought to go. C. Obligatory deletions: Make it [to] go. I'd better [to] go. D. Infinitive with wh-word I know what to get I know how to do it
6		A. Wh-pronouns: who, which, whose, whom, what, that, how many, how much I know who came. That's what I said. B. Wh-word + infinitive: I know what to do. I know who(m) to take.	A. could, would, should, might + verb: might come, could be B. Obligatory does, did + verb C. Emphatic does, did + verb	
7	A. any, anything, anybody, anyone B. every, everything, everybody, everyone C. both, few, many, each, several, most, least, much, next, first, last, second (etc.)	(his) own, one, oneself, whichever, whoever, whatever Take whatever you like.	A. Passive with get, any tense Passive with be, any tense B. must, shall + verb: must come C. have + verb + en: I've eaten D. have got: I've got it.	Passive infinitival complement: With get: I have to get dressed. I don't want to get hurt With be: I want to be pulled. It's going to be locked
8			A. have been + verb + ing had been + verb + ing B. modal + have + verb + en: may have eaten C. modal + be + verb + ing: could be playing D. Other auxiliary combinations: should have been sleeping	Gerund: Swinging is fun. I like fishing. He started laughing.

Developmental Sentence Scoring
Weighted Scores
(cont'd)

NEGATIVES	CONJUNCTIONS	INTERROGATIVE REVERSALS	WH-QUESTIONS
it, this, that + copula or auxiliary is, 's, + not: It's *not* mine. This is *not* a dog. That is *not* moving.		Reversal of copula: *Isn't it* red? *Were they* there?	
			A. who, what, what + noun: *Who* am I? *What* is he eating? *What book* are you reading? B. where, how many, how much, what ... do, what ... for *Where* did it go? *How much* do you want? *What* is he *doing*? *What* is a hammer *for*?
	and		
can't, don't		Reversal of auxiliary be: *Is he* coming? *Isn't he* coming? *Was he* going? *Wasn't he* going?	
isn't, won't	A. but B. so, and so, so that C. or, if		when, how, how + adjective *When* shall I come? *How* do you do it? *How big* is it?
	because	A. Obligatory do, does, did: *Do they* run? *Does it* bite? *Didn't it* hurt? B. Reversal of modal: *Can you* play? *Won't it* hurt? *Shall I* sit down? C. Tag question: It's fun, *isn't it?* It isn't fun, *is it?*	
other negatives: Uncontracted negatives: I can *not* go. He has *not* gone. Pronoun-auxiliary or pronoun-copula contraction: I'm *not* coming. He's *not* here. Auxiliary-negative or copula-negative contraction: He was*n't* going. He has*n't* been seen. It could*n't* be mine. They are*n't* big.			why, what if, how come how about + gerund *Why* are you crying? *What if* I won't do it? *How come* he is crying? *How about* coming with me?
	A. where, when, how, while, whether (or not), till, until, unless, since, before, after, for, as, as + adjective + as, as if, like, that, than I know *where* you are. Don't come *till* I call. B. Obligatory deletions: I run faster *than* you [run]. I'm *as big as* a man [is big]. It looks *like* a dog [looks] C. Elliptical deletions (score 0): That's *why* [I took it]. I know *how* [I can do it]. D. Wh-words + infinitive: I know *how* to do it. I know *where* to go.	A. Reversal of auxiliary have: *Has he* seen you? B. Reversal with two or three auxiliaries: *Has he been* eating? *Couldn't he have* waited? *Could he have been* crying? *Wouldn't he have been* going?	whose, which, which + noun *Whose* car is that? *Which book* do you want?

APPENDIX II

CORRESPONDENCE AND FORMS FOR
PARENTS OF SUBJECTS

October 7, 1977

Dear Parents,

During the next two months I will be working with children through various nursery schools and day care centers in the East Lansing area on a project which will look at the effects of television viewing on young children. As you probably know, the impact of television on children has received considerable attention by educators, parent's groups and the U.S. government in recent days, and I feel this study will be a valuable addition to this general body of information. I have been in contact with Karen Ritts, Director of the Eastminster Day Care Center and she has reviewed our project and approved the procedures we have proposed.

Specifically, we would like to ask two things from the children and their families. First we would request that parents complete a "Television Viewing Log" for their 4/5 year old child enrolled at Eastminster Day Care Center. Essentially, this will provide information about television viewing by your child during a typical 7-day week. We have enclosed a Television Viewing Log form and set of instructions.

Second, we would ask that each child be interviewed by graduate students from MSU for 15 minutes during one class day. These students will record the child's conversation and later review it for various language patterns. There will be only one talk session with each child and it will be conducted at the school.

I would greatly appreciate your cooperation in this project and ask that you please complete the Television Viewing Log which we have enclosed and mail it back in the envelope provided. Naturally, I will be glad to answer any questions which you may have.

Sincerely,

Gary W. Selnow
Graduate student in Communication
Michigan State University
355-9578

INSTRUCTIONS FOR COMPLETION OF THE TELEVISION VIEWING LOG

Your entries on this Television Viewing Log will provide basic information about the kinds of television shows your child watches during a typical seven day week. We would ask that you select a convenient week in September or early October and list programs viewed by your child next to the appropriate time slot for each day of that week. If, for some reason, you are unable to determine the name of the program, would you please indicate which channel your child is watching or, as a minimum indication, please mark the appropriate time slot with a check. If at all possible, would you make entries in this log throughout the day as your child watches television. If this is not possible, would you record this information at the end of each day while your memory is still fresh.

Here is an example of how your entries might look.

SATURDAY (Date: _Sept 24_)

Morning	Program	
6:00-6:30	✓	← This indicates that the child watched tv, but parent is not sure of the show or channel.
6:30-7:00	Cartoon Hour	
7:00-7:30	Little Rascals	
7:30-8:00	H R Pufnstuf	
8:00-8:30	—	← A dash or blank indicates child did not watch tv during this time.

How to Return Forms

When you have completed the "Television Viewing Log" for a seven day period, please send us the form along with the Background Information form in the enclosed self addressed envelope. If this envelope should become misplaced, please send these forms to: Gary Selnow, Ext. Ag. & Mktg., 29 Chittenden Hall, Michigan State University, East Lansing, MI 48824.

SUNDAY   (Date:_____)

MORNING	PROGRAM	AFTERNOON CONTINUED	PROGRAM
6:00-6:30 _____		3:00-3:30 _____	
6:30-7:00 _____		3:30-4:00 _____	
7:00-7:30 _____		4:00-4:30 _____	
7:30-8:00 _____		4:30-5:00 _____	
8:00-8:30 _____		5:00-5:30 _____	
8:30-9:00 _____		5:30-6:00 _____	
9:00-9:30 _____		**EVENING**	
9:30-10:00 _____		6:00-6:30 _____	
10:00-10:30 _____		6:30-7:00 _____	
10:30-11:00 _____		7:00-7:30 _____	
11:00-11:30 _____		7:30-8:00 _____	
11:30-12:00 _____		8:00-8:30 _____	
AFTERNOON		8:30-9:00 _____	
12:00-12:30 _____		AFTER 9:00 p.m.	
12:30-1:00 _____		_____	
1:00-1:30 _____		_____	
1:30-2:00 _____		_____	
2:00-2:30 _____		_____	
2:30-3:00 _____		_____	

Instructions for Completion of
the Background Information Form

On this form we are requesting some information which
is important to the basic design of this study. As you will
note, due to the nature of some information requested, we
will treat your responses with complete confidentiality.
This information is important and we would appreciate your
responses to all seven questions.

CONFIDENTIAL

<u>Background Information Form</u>

Information on this form will remain confidential and will be used only to provide background statistics for purposes of this study. When all the data has been collected, identification of the respondent will be eliminated from the records for all analysis.

1. Name of child _____

2. Child's age: Years _____, Months _____

3. Number of children in family _____

4. Position of this child to brothers and sisters.

    _____ Oldest
    _____ Between oldest and youngest
    _____ Youngest
    _____ No brothers or sisters

5. How would you rate the ability level of your child compared to other children of the same age?

    _____ Well above average
    _____ Above average
    _____ About average
    _____ Below average
    _____ Well below average

6. Would you please indicate the last year of school completed by each parent.

<u>Mother</u>	<u>Father</u>
_____ Grammer school	_____ Grammer school
_____ Some high school	_____ Some high school
_____ Graduated high school	_____ Graduated high school
_____ Some college	_____ Some college
_____ Graduated college	_____ Graduated college
_____ Some graduate work	_____ Some graduate work
_____ Masters degree	_____ Masters degree
_____ Doctorate	_____ Doctorate

7. Would you please indicate with which parent(s) the child is presently living.

    _____ Mother only
    _____ Father only
    _____ Both parents
    _____ Other _____

CONFIDENTIAL

Form: Request for Research Abstract

Your help is greatly appreciated! If you would
like to receive the results of this study, please fill
out your name and address below, and send this along with
the other forms.

_____
name
_____
street
_____
city   state   zip