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SELECTED FAMILY FACTORS AS PREDICTORS OF HOME ENVIRONMENT AND THEIR EFFECTS ON THE COGNITIVE COMPETENCE OF FOUR TO SIX YEAR-OLD CHILDREN IN PAKISTAN

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By

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ABSTRACT

SELECTED FAMILY FACTORS AS PREDICTORS OF HOME ENVIRONMENT AND THEIR EFFECTS ON THE COGNITIVE COMPETENCE OF FOUR TO SIX YEAR-OLD CHILDREN IN PAKISTAN

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The goals of this investigation were to determine the relation between selected family factors and the quality of the home environment for children, and to identify factors that predict the cognitive competence of children in Pakistan. Bronfenbrenner's ecological framework influenced the conceptual model used in this study.

A number of family factors were expected to influence the home environment and cognitive development of children. Factors included in this study were: maternal education, fathers' occupational status, number of children in the family, mothers' satisfaction with their jobs, traditional religious beliefs of mothers and maternal values.

Fifty, 4 to 6 year-old children and their mothers were included in the sample. The sample was drawn from randomly selected schools in Peshawar, the capital city of North West Frontier Province of Pakistan.

Data analyses techniques included descriptive statistics, t-test analyses, and Pearson Product Moment Coefficients. Multiple regression analyses were also performed to examine the effects of family variables on the

quality of home environment and children's cognitive competence when other variables were controlled.

The results of the study indicated a positive relationship between mothers' education, fathers' occupational status, mothers' satisfaction with their work life and the quality of home environment mothers provided for their children. Number of children was negatively related to the quality of the rearing environment. Traditional religious beliefs had an indirect effect on the home environment via the number of children. Mothers with relatively traditional beliefs tended to have more children. Maternal values did not show any significant relationship with the quality of home environment when other factors were controlled.

Additional analyses showed that the quality of the rearing environment was positively related to the cognitive competence of children. Mothers who provided more cognitively stimulating home environments had children who received higher scores on the Peabody Picture Vocabulary Test.

I hereby dedicate this work to my parents, and to my husband, Hassan, my daughter, Anum, and to my future child, who is as yet unnamed.

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Praise and thanks be to God, first and last, Lord and Cherisher of all the worlds who taught humankind everything they knew not.

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I wish to express my sincere gratitude to Dr. Tom Luster, my dissertation advisor, for constant guidance and encouragement throughout this research project. I benefitted a great deal from his extensive research experience and deeper research insight.

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I am deeply indebted to my parents, their love, encouragement, and prayers have helped me to achieve my educational goals. Though geographically distant from me, they have always been with me in spirit and their love and emotional support made it all possible for me, so that I might attain greater fulfillment and happiness in my career.

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Although I cannot claim that birth of my daughter Anum speeded my progress, she has made it easier to leave the library and the glare of my computer for the warmth of family life and has given me added incentive to be done with school. It is very hard for me to express my appreciation for her patience and love for her.

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CHAPTER 1

INTRODUCTION

The study of family factors that determine parent-child interaction and their effect on children's developmental outcomes, particularly cognitive development in the developing nations of the world, has been a major focus of research in the past few years. There are at least two reasons for this. The first is the extreme shortage of research on families and children in the developing countries of the world. The second reason is that most of the world's children live in the developing nations.

Differences among families including differences in socioeconomic status, number of children, traditional religious beliefs, and parental values are some of the ecological factors that are likely to influence parent-child interaction and subsequently children's development. According to Bubolz and Sontag (in press), environments pose limitations and constraints as well as provide opportunities and possibilities for the development of individuals and families.

There are wide differences in the way children perform on tests of mental ability, in their achievements in school,

and in their eventual life chances. The relative importance of genetic and environmental contributions to individual differences in cognitive development has been debated for more than a century. Although the view point of genetic differences as the primary cause of individual variation in cognitive development predominated, the more prevalent view among politically liberal social scientists of the past two decades is that family factors are responsible for substantial variance in parenting behavior and the cognitive performance of children (Henderson, 1981).

The principal task of parents is to help children develop from dependent infants to young adults capable of functioning independently in society. Much of human development is a consequence of the manner by which this is accomplished. Research on the effects of family factors on home environment and cognitive development has generated a substantial body of research, notably studies by Bee (1985), Belsky (1984), Blake, (1989), Bradley and Caldwell (1984), and Kallaghan and Macnamara (1972). Most of the research on the topic, however, has been conducted in western cultures with relatively little attention given to other cultures and other countries.

In developed countries like the United States and developing countries like Pakistan, the researcher's home country, many children live in families where the concept of environmental stimulation does not exist. Large numbers of

children live in physical, socioeconomic and emotional deprivation. Families are so concerned with providing the basic necessities of life that the cognitive and socioemotional aspects of the environment are largely ignored. This situation is not only the consequence of limited resources but also a lack of knowledge about the role of family environment and environmental stimulation in enhancing the development of children (Arnold & Bulatao, 1975).

There is empirical evidence that demonstrates that the nature of the home environment can modify a child's cognitive competence (Bloom, 1964; Bradley & Caldwell, 1984). Belsky (1984) argues that developmental differences in capabilities such as intelligence, social competence, and sex role orientations result from differences in parental care that children experience in their families during the preschool and childhood years.

The quality of the parent-child relationship is thought to play a crucial role in the development of individual differences in children's early cognitive and language development (Hess & Halloway, 1984). It has been argued that the correlational association between maternal behavior and child's competence is an artifact of shared genetic variance. Genetic factors undoubtedly contribute to individual differences in children's early developmental competence. However, significant relationships between

maternal behaviors and infant developmental competence have been found for mothers and their adopted infants (Plomin & Defries, 1981).

Socioeconomic status has been seen as one of the main factors contributing to differences in home environment and the intellectual performance of children. Socioeconomic status (SES) of a family which includes income, occupations, and education of family members has been found to be positively correlated with the quality of the home environment (Bradley & Caldwell, 1984). The stress of how to make ends meet in the lower SES groups affects the behavior of parents. Research has consistently indicated that families in the middle and higher SES groups provide more cognitively stimulating environments for their children (Elder & Caspi, 1988; Luster & Dubow, 1990). Parents' occupations, income, and education determine the resources they have for providing nurturing and stimulating environments for their children. Also, conditions at work and parents' satisfaction or dissatisfaction with their work affect the behavior of parents toward their children. The type of occupation of parents also influences the values they have for their children (Kohn, 1977).

The financial situation of the family and the family environment in which a child is raised depend to a large extent on the size of the family which is found to be inversely related to the cognitive competence of children

(Zajonc & Marcus, 1975). In Pakistan, the large family is the norm. Desire for more male children, pressure from relatives, lack of and ignorance of proper birth control methods, traditional religious beliefs, and limited means of recreation, are some possible reasons for larger family size (Population Welfare Division, 1986). Blake (1989) found that verbal ability, which is a predictor of educational success, is also negatively related to number of siblings. She proposed that verbal ability is associated with parental interaction and attention, and in large families parental attention is divided among many children.

Islamic religion plays a large part in the lives of families in Pakistan. The social activities of families are mostly based on religion. Families vary greatly in the degree to which they hold traditional religious beliefs. Some show greater dependence on the kinship system, greater adherence to religious institutions and a greater reliance on the institutional doctrine than is true of other families. Religious families are assumed to be more traditional in their child rearing behavior. Klien (1986) found that more religious women resist the use of birth control methods which could be expected to affect the cognitive development of children through its impact on family size.

Kohn (1977) argued that parents pass on to their children the lessons they have learned on the job. He has

shown that white collar workers who have a great deal of leeway in how they do their job tend to value self-direction for the children. In contrast, blue collar workers who work in highly routinized and highly supervised jobs with little substantial complexity tend to value conformity for their children, for example, obedience, politeness, and good manners.

Children take to school the values learned at home, the language used, ways of interacting and dealing with people, and attitudes toward learning; therefore what children learn at home is often manifested in their behavior at school. The type of home environment in which children are raised affects their attitude towards and behavior in school as well as performance in academic activities.

Statement of the Problem

A review of literature reveals many studies of the effects of family factors on the parenting behavior and the intellectual achievement of children in the United States and European countries (Belsky, 1984; Bradley & Caldwell, 1984; Brophy, 1970; Kohn, 1977; Radin, 1971; Zajonc & Marcus, 1975). Less well researched are the effects of these factors on the home environment and cognitive competence of children in other countries and cultures. It is not assumed that findings from research in western

countries would generalize to Pakistan. Therefore it is necessary to study the effects of selected family factors on the home environment and cognitive competence of children in Pakistan.

A large number of factors in the child's ecosystem can influence the home environment and thus the child's developmental outcomes. These factors may operate on their own or in combination with other factors; cognitive competence, for example, may be influenced not only by home environment but also by socioeconomic status and other family factors.

A myriad of factors such as socioeconomic status, size of the family, parents' satisfaction with the job, religiosity of the mother, and values important to parents may affect the parenting behavior and cognitive competence of children. Additional information is needed about which factors in the child's ecosystem are related to the home environment and cognitive development of children. The purpose of this study then, is to explore how selected family factors affect the home environment mothers provide for their children and their effects on the cognitive development of 4 to 6 year-old children in Pakistan.

Objectives of the Study

The primary objective of the study is to determine the effects of selected family factors on the home environment and cognitive competence of 4 to 6 year-old children in Pakistan. The specific objectives of the study are to:

1. Determine the relation between family's demographic variables (age of the mother, marital status, socioeconomic status and number of children) and quality of the home environment mothers provide.
2. Determine the relation between mothers' satisfaction with their job and quality of the home environment mother's provide.
3. Determine the relation between traditional religious beliefs of the mothers and quality of the home environment mothers provide.
4. Determine the relation between values held by the mothers and quality of the home environment mother's provide.
5. Determine the relation between quality of the home environment mothers provide and the cognitive competence of children.
6. Determine the relation between demographic characteristics of the sample and the cognitive competence of children.
7. Determine the relation between mothers' satisfaction

with their job and the cognitive competence of children.

8. Determine the relation between traditional religious beliefs of the mothers and the cognitive competence of children.

9. Determine the relation between the values held by the mothers and the cognitive competence of children.

10. Determine the relation between teachers' perceptions of the children's cognitive competence and children's scores on a measure of verbal intelligence.

Significance of the Study

This study has practical significance for policy making for families and children in Pakistan. Results of this study could be used to make policies regarding provision of information to parents about the role of family factors in determining parenting behavior and its effects on the cognitive competence of children, birth control, school and family interaction, and financial aid to families. The results could suggest the importance of providing enriched and stimulating environment for children that could enhance the cognitive performance of children. Parent education programs could also be influenced by the results of this study.

Theoretical Framework

The theoretical framework used in this study is an ecological one as proposed by Bronfenbrenner (1979), who asserted that human development research should include an awareness of the environmental systems within which people are operating. Environment has been defined differently by different authors. According to Bubolz and Sontag (in press) environment consists of the totality of physical, biological, social, economic, political, aesthetic, and structural surroundings for human beings and provides the context for their behavior and development. Bronfenbrenner identified four layers of environment that can influence the developing person (see Figure 1).

The microsystem is the individual's immediate context, and the elements of the microsystem are the activities, roles, and relationships that involve the developing person. In the present study in a north western city of Pakistan, the child's microsystem is the child's home and his/her interaction with the mother.

Mesosystem is the relation among various microsystems of the individual and is an extension of the microsystem; it is the interactions among settings containing the developing person. According to Bronfenbrenner, the child's development is facilitated by positive linkages between settings. For example, the home environment of the child

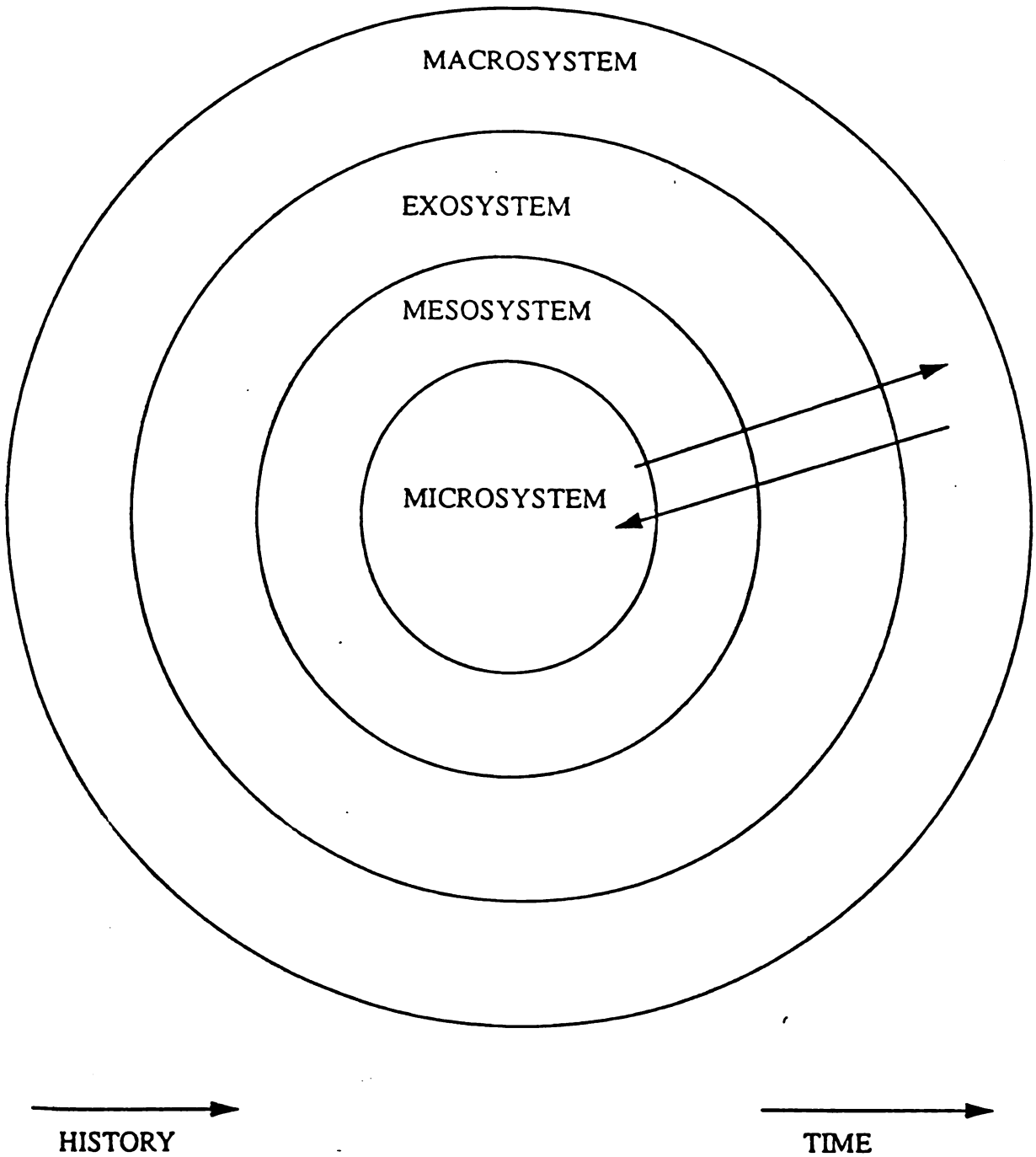


Figure 1. Bronfenbrenner's model of human ecosystem

can have an effect on the teacher's perception of the child's cognitive competence, and the teacher's behavior.

Exosystem refers to other settings that do not contain the developing person, but do impinge upon the developing person. An example of an exosystem is the parents' work place. Involvement of parents in the work setting can influence how much time and energy parents have for interacting with the child and the morale of parents. Parents' occupations also influence the resources they have for providing nurturing and stimulating environments for their children. Conditions at work and parents' satisfaction or dissatisfaction with their work can affect the behavior of parents towards their children and thus have an indirect effect on children's competence. The type of parents' occupation can also influence the values they hold for their children (Kohn (1977).

The macrosystem, may be referred to as the ideology, values, regulations, rules, beliefs, and customs of a particular culture. Cultural values, beliefs, and rules influence children's experience in the microsystem such as the type of home environment, size of the family, and mother-child interaction in Pakistan. For example, the high value placed on having more male children in the family leads to large family size in Pakistan. Religious beliefs about the use of contraceptives and ignorance of proper

birth control methods are other reasons for having large families. The size of the family, in turn, affects the resources available to each member of the family. In addition, the intellectual environment of the family may be diluted by the addition of young members. Mothers may have a difficult time giving individual attention to children when they have to take care of several young children. All these factors affect the general atmosphere of the home, and have their effects on the developmental outcomes of children.

Based on the Bronfenbrenner's theory of human development and findings from past studies, the conceptual model for this study is illustrated in Figure 2. The major independent variables are education, income and occupations of parents, mothers' satisfaction with their job, traditional religious beliefs of mothers, and values held by mothers. The dependent variables are the quality of home environment mothers provide for their children and children's scores on the test of cognitive competence. Home environment was also considered as a mediating variable that mediates the relation between the independent variables and the cognitive competence of children.

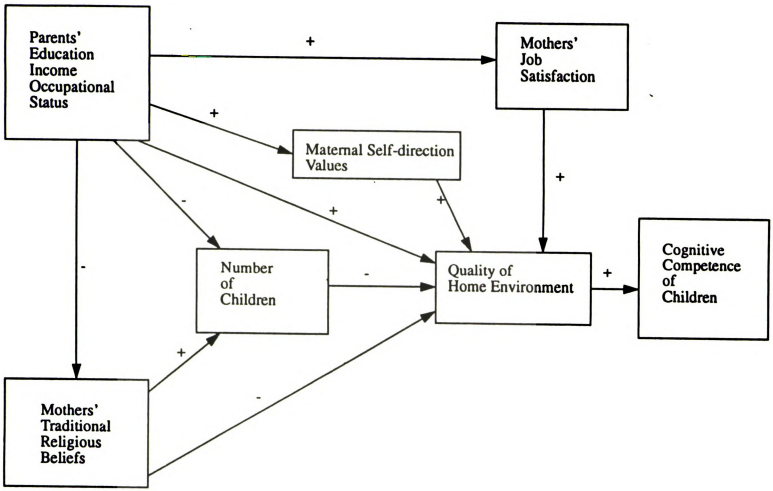


Figure 2. Conceptual model

Research Hypotheses

The following hypotheses were formulated for this study.

Ha 1. There is a positive relation between mothers' level of education and quality of the home environment mother's provide.

Ha 2. There is a positive relation between fathers' occupational status and quality of the home environment.

Ha 3. There is an inverse relation between number of children in the family and quality of their home environment.

Ha 4. There is a negative relation between traditional religious beliefs of mothers and the quality of the home environment.

Ha 5. Number of children in the family mediate the relationship between traditional religious beliefs of mothers and quality of home environment.

Ha 6. There is an inverse relation between traditional religious beliefs of mothers and the socioeconomic status of the family.

Ha 7. Working mothers who are satisfied with their jobs provide better quality home environments for their children than mothers who have lower scores on the job satisfaction scale.

Ha 8. There is a positive relation between self-direction

values held by mothers and the quality of the home environment.

Ha 9. There is a positive relation between SES of the family and the self-direction values held by mothers.

Ha 10. There is a positive relation between children's scores on the test of cognitive competence and the quality of their home environment.

Ha 11. There is a positive relation between years of mothers' education and cognitive competence of children when the quality of the home environment is controlled.

Ha 12. There is a positive relation between fathers' occupational status and cognitive competence of children when the quality of the home environment is controlled.

Ha 13. There is a positive relation between mothers' satisfaction with their job and the cognitive competence of children.

Ha 14. There is an inverse relation between number of children in the family and children's scores on the test of cognitive competence when the quality of the home environment is controlled.

Ha 15. There is an inverse relation between traditional religious beliefs of mothers and children's scores on intelligence test when the quality of the home environment is controlled.

Ha 16. Mothers who value self-direction in children will have children who have higher scores on the test of

cognitive competence.

Conceptual and Operational Definitions

The following concepts are used in this study.

Cognitive Competence

Conceptually, cognitive development refers to the knowledge possessed by the child, the organization of knowledge, and the processes available to child for using this knowledge in the every day activities of attention, learning, memory, comprehension, and problem solving.

Operationally, it refers to the child's score on the Peabody Picture Vocabulary Test (PPVT).

Home Environment

Conceptually, home environment refers to the caregivers' behavior and to the qualitative and quantitative atmosphere of the rearing environment.

Operationally, it refers to the mothers' score on the "Home Observation for Measurement of the Environment" (HOME) and "Pakistani Home Observation for the Measurement of Environment" (P-HOME) scales.

Socioeconomic Status (SES)

Conceptually, SES refers to social and economic factors that distinguish among people in a society.

Operationally, it refers to mothers' score on the items in the Family Background Interview Schedule dealing with parents' occupations (item no. 15 and 16), parents' education (item no.17, 18, 19, 20) and family income (item no. 21).

Number of Children

Conceptually, it refers to the number of children in the family.

Operationally, it includes the mothers' responses regarding the number of children related to her by blood, marriage, and/or adoption.

Traditional Religious Beliefs/Religiosity

Conceptually, it refers to the extent to which people hold traditional religious beliefs.

Operationally, it refers to the Pakistani mothers' score on the "Traditional Religious Beliefs Scale" related to Islamic beliefs.

Job Satisfaction

Conceptually, it refers to mothers' opinions about the quality of their work life.

Operationally, it refers to the mothers' score on the Job Satisfaction Scale.

Values

Conceptually, they refer to a particular person's conception of what is right and desirable.

Operationally, they refer to the mothers' score on the Schaeffer and Edgerton Values Scale.

Teachers' Perception of Child's Cognitive Competence

Conceptually, it refers to the teacher's opinion about the cognitive competence of the particular child.

Operationally, it refers to the teachers' rating of the child on a four point Likert scale.

Research Assumptions

The following assumptions are made in this study.

1. Families in all cultures take care of their children in ways that affect the growth and development of

children, particularly cognitive development. Similarly all socioeconomic groups organize their rearing environment in ways that affect the development of children.

2. Mothers/primary caregivers of children are the persons most familiar with the activities involving the children and can give accurate reports of such activities when interviewed.
3. Mother-child interaction is best studied in the home.
4. Teaching and learning occur in the family environment.
5. Fathers and other family members play a very active role in the family's home environment and the cognitive competence of children.
6. There are wide differences in the traditional religious beliefs of families in Pakistan.
7. Children 4 to 6 year-old are generally able to understand the instructions given to them to take the vocabulary test.

Limitations

The potential limitations of the study concerns the sample, and generalizability of the findings. The sample size of 50 mother and child dyad may be too small to allow the findings to be generalized to a population of Peshawar families with 4 to 6 year-old children that the sample is

intended to represent.

Only children in school were included in the sample. Children who were not going to school, or who were working or disabled were not included in the sample.

Although the research was conducted in the natural home environment, the presence of an observer might have affected the behavior of the respondents. Two hours of observation might not give a complete picture of the home environment and mother-child interaction.

Only mothers were interviewed and observed. Findings apply, therefore, only to mothers and not to parenting in Pakistan in general. Similarly, only mothers residing in the urban setting of Peshawar were included as respondents. Results of the study, therefore, are only generalizable to similar populations.

Another limitation of the study was the use of some of the research instruments standardized in the United States. Although efforts were made to overcome this problem, the instruments might have affected the results of the study. Also the instruments devised by the investigator were based on the initial ideas and were not tested before on any population. Caution is, therefore, needed in drawing conclusions from the study.

CHAPTER II

REVIEW OF LITERATURE

The previous chapter presented the problem examined by this study, the questions posed, and the rationale for conducting the research. This chapter offers a review of the literature related to the effects of selected family factors on the home environment and cognitive development of young children.

The review of literature is divided into two parts. The first part examines the application and usefulness of a family ecosystem theory to this study, specifically Bronfenbrenner's model; the second part contains the review of literature which contributed to the development of hypotheses for this study.

Family Ecosystem Theory

> The ecology of human development involves the scientific study of the progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by relations between these settings, and by the larger contexts in which the settings are embedded (Bronfenbrenner, 1979, p. 21).

Families and children do not live in isolation, but in a variety of physical and social environments. The physical environments of some families may remain somewhat but not completely constant. Their geographic location and climate, their homes and neighborhoods, the parents' work places, local shopping centers, educational, and religious institutions change slowly, if at all. Other more transient families may see regular changes in their physical environments. Social environments tend to be more fluid for everyone. Neighbors move into and out of the area, children grow and advance in school, make new friends, and learn from different teachers, parents may move up or down the economic ladder, or join different community groups. The family, the school, the neighborhood, parents' work place may be thought of as subsystems of the larger system the community as a whole.

The systems approach to the study of families and young children has several advantages that make it useful for this study. It allows the researcher to look at interfaces and interaction processes among subsystems and is inclusive of "structure, sources, pathways, repository sites and integrative functions" in addition to content (Auerswald, 1968, p.204). "It examines phenomena in context, rather than in isolation, and allows the use of several theoretical models while ensuring that those models, and any recommendations growing out of them remain rooted in

reality" (Grossman, 1992, p.8).

Family life is dynamic and in a state of constant flux. Social institutions created to serve children like family and school, must change to meet their evolving needs. To ensure that changes are based upon actual needs, in addition to the perceptions and opinions of experts, research must be reality based (Smith & London, 1981).

Bronfenbrenner's Model

Bronfenbrenner's (1977, 1979, 1986, 1989) theory of the human ecosystem focuses upon the individual and his or her relationship to the environment. His theory provides the basis for understanding family's influences on the developmental outcomes of children.

Bronfenbrenner has systematically defined the environment as a four level system: microsystem, mesosystem, exosystem and macrosystem. These levels may be thought of as a nested arrangement of structures, each contained within the next.

The microsystem is the innermost and immediate environment for the parents and children. At this level, parents and children have opportunities for face-to-face interaction. Early in the parent-child interaction, parents have greater power than children and have long-term goals for their children (Sussman & Steinmeitz, 1987). Therefore

they raise their children in ways that are relevant to their goals. This means that the quality of care parents provide for their children will affect the children's developmental outcomes. Individual microsystems of the child, such as the family, the neighborhood, the day care center or the school have been the subjects of many authors' research and writings (Belsky & Steinberg, 1979; Minuchin, 1987; Power & Bartholomew, 1987).

According to Bronfenbrenner (1979), with in each microsystem 'reciprocity' is very important in any dyadic relationship, especially in the course of joint activity. As a result one member, for example the mother, has to coordinate her activities with those of the other, for example, the child. For a young child, the necessity of such coordination not only fosters the acquisition of interactive skills, but also stimulates the evolution of the concept of interdependence, an important step in cognitive development.

The principles of reciprocity, interaction, and interconnectedness are seen as applying not only within settings but with equal force and consequence to linkages between settings or between microsystems. Parents and children live in a collection of microsystems, (for example, home, classroom, work) and they are linked by what Bronfenbrenner terms the mesosystem. The most common form of relation for the child is between home and school. The

developmental potential of both settings is enhanced if the roles, activities, and dyads in which the child engages in the two settings are compatible with each other. Several studies have explored how the relation between these two settings might affect children's behavior and development in school environments (Becker & Epstein, 1982; Bronfenbrenner, 1974; Burns, 1982). Few researchers have examined how school experiences affect the behavior of children and parents in the home. According to Bronfenbrenner (1986), almost all of the investigations have focused on techniques of parent involvement rather than on the associated processes taking place within family and classroom and their joint effects on children's learning and development. Epstein's (1983) research on "Longitudinal Effects of Family-School-Person Interactions on Student Outcomes" is an exception. Using almost 1000 eight graders, Epstein studied the joint impact of family and classroom processes on change in pupils' attitude and their academic achievement during the transition between the last year of middle school and the first year of high school. Greater initiative and independence were demonstrated and higher grades were received by the children from homes and classrooms affording greater opportunities for communication and decision making. Family processes were considerably more powerful in producing change than classroom procedures. The effects of family and school processes were greater than those

attributable to socioeconomic status or race.

The child's exosystem is the set of relationships among settings in which the child does not personally participate, but in which events occur that directly affect him or her. Those settings might include the parents' social groups and their work places. Most of the studies on the effects of parental unemployment on family life are based on the period of the Great Depression (Angell, 1936; Elder, 1974; Komarovsky, 1940; Morgan, 1939). Except for Elder, all of the studies focused on the disruptive effects of unemployment on family processes in general with no particular reference to children. They were treated simply as participants playing secondary roles in the family drama. It was not until the 1970s that Elder (1974) began his exploitation of archival data to trace the life course of "Children of the Great Depression". He found some long term effects of the loss of family income and parental unemployment on children. Compared with the controls from non deprived families, the deprived youngsters did less well in school, showed less stable and successful work histories, and exhibited more emotional and social difficulties, some still apparent in middle adulthood. These negative outcomes were much more marked in boys than in girls and were more extreme in families from lower class backgrounds. Elder and his coworkers also emphasized the importance of mediating processes and conditions within the

family as the vehicles through which economic hardship reaches into the child's life and shapes the course of subsequent development. Perhaps the most important factors in this regard were the personality characteristics of fathers and children. The presence of an irritable father or an irritating child in the family significantly increased the chances that unemployment would have long term negative consequences for life course development. Marital discord also became more common following the father's loss of a job (Elder, Caspi, & VanNguyen, 1986).

Miller and Swanson (1958) called attention to another aspect of the father's work situation that appeared to affect parental childrearing attitudes and practices. The investigators distinguished between two main types of work organization: bureaucratic and entrepreneurial. The first, represented by large-scale businesses, was characterized by relatively more secure conditions of work, manifested by such features as regular hours, stabilized wages, unemployment insurance, and retirement funds. The second, exemplified by small-scale family-owned businesses, involved greater initiative, competitiveness, risk taking, and insecurity regarding the future. Miller and Swanson reported that wives of men from bureaucratic backgrounds described styles of upbringing that were more permissive and laid greater stress on the development of interpersonal skills; by contrast, wives of husbands working in

entrepreneurial settings were found to be more concerned with individual achievement and striving.

Kantor (1977) introduced the concept of "work absorption" to describe the extent to which work makes demands on one's physical and mental energy. Among fathers, work absorption tended to generate guilt and increased irritability and impatience in dealing with the child.

Bronfenbrenner and Crouter (1982) analyzed the research on the effects of maternal employment on children and concluded that mothers' work outside the home tends to have positive effect on girls but negative effect on boys. The results indicated that daughters from families in which the mothers worked tended to admire their mothers more, had a more positive conception of the female role, and were more likely to be independent. In the case of boys, mothers' work outside the home is associated with lower academic achievement in middle-class but not in low-income families.

The effects of parents' work life on the relations between different environmental settings in which children live are very different in different cultures and societies. The beliefs, values, laws and ideologies of a particular society or culture come under the heading of what Bronfenbrenner termed the macrosystem which is the outermost and broader environment that provides patterns for societal institutions, cultural and subcultural ideologies, that in turn give character to life at the

micro- meso- and exosystem levels. Bronfenbrenner (1989) defined macrosystem as follows:

> The macrosystem consists of the overarching pattern of micro; meso; and exosystems characteristic of a given culture, subculture, or other broader social context, with particular reference to the developmentally instigative belief systems, resources, hazards, life styles, opportunity structure, life course options, and patterns of social interchanges that are embedded in each of these systems. The macrosystem may be thought of as a societal blueprint for a particular culture, subculture, or other broader social context (p. 31).

Bronfenbrenner's ecological theory of human development is the basis upon which this study was designed. This study examined portions of the child's microsystem, exosystem and macrosystem. Mesosystem effects were not studied. The research investigated the interaction among these systems in affecting the cognitive development of the child.

Factors Predicting the Home Environment

This part presents the review of studies that examined the combined influence of selected family factors on the quality of the home environment. Several factors, some of which have been discussed briefly in Chapter 1, are likely to contribute to differences in the home environments mothers provide to their children.

Socioeconomic Status

Parents' education, income, and occupation are among the most powerful but least understood influences on child rearing. These three factors are usually related and it is difficult to separate their effects; most studies have used a combined index of two or more of these factors to assess socioeconomic status (SES) (Maccoby, 1980).

According to Hess (1970) an SES index does describe meaningful differences among the majority of families. Comparisons between high and low SES families have revealed some consistent differences:

1. Lower-SES parents tend to stress obedience, respect, neatness, cleanliness, and staying out of trouble. Higher SES parents are more likely to stress happiness, creativity, ambition, independence, curiosity, and self-control.

2. Lower-SES parents are more controlling, power-assertive, authoritarian, and arbitrary in their discipline, and they are more likely to use physical punishment. Higher-SES parents are more democratic and tend to be either permissive or authoritative (to use Baumerind's terms). They are more likely to use induction and to be aware of and responsive to their children's perspectives.

3. Higher-SES parents talk to their children more, reason with them more, and use more complex language.

4. Higher-SES parents tend to show more warmth and affection toward their children (p. 10).

Hess and Shipman (1965) have found that these differences in child rearing practices in different social classes hold across race and culture, in different societies and among both black and white families in the United

States.

Socioeconomic status has proven to be a consistent and powerful predictor of parenting behavior. Having established that socioeconomic status is a powerful marker variable, there has been a shift in the interest from socioeconomic status to the processes through which socioeconomic status influences the home environment or parenting behavior. There is a growing body of evidence which suggests that socioeconomic status influences parental ideology (beliefs, values and expectations) which in turn influences parents' behavior (Luster, 1985). He found out in his study that low-SES mothers were more likely than middle-class mothers to worry about spoiling their children by being too responsive and/or affectionate. This belief by the low-SES group led them to provide less stimulating rearing environments than other mothers. He also found that well educated mothers believed in the importance of early verbal stimulation, and also frequent and contingent verbal stimulation. These were the mothers who provided better care for their children, as assessed with the HOME inventory. In the same study Luster (1985) found that social support proved to be an important variable. High SES mothers had more extensive social support networks, and the availability of social support was positively related to the quality of the rearing environment.

Menaghan and Parcel (1991) examined the effects of

mothers' and fathers' occupational conditions on children's home environment and of changes in occupational and family conditions on change in home environment. The study used the 1986 and 1988 child supplement to the National Longitudinal Survey of Youth. Subjects were 795 employed mothers with children aged three to six years (in 1986). The study found that mothers who work in occupations with more complex activities provide a more enriched home environment than those who work in occupations with less complex activities.

In summary, studies examining the relation between SES and children's home environment have typically found a positive relation between SES of the family and the quality of home environment. Possible factors mediating the relation between SES and quality of home environment include child-rearing beliefs, values, and expectations of parents.

Mothers' Job Satisfaction

With the increasing number of mothers in the work force, especially among mothers with preschool children, there is a need to understand how this important social change affects parenting behavior. The present study deals with one aspect of mothers' employment, that is the effect of mothers' satisfaction or dissatisfaction with job on the quality of the rearing environments mothers provide for their children.

Attitudes of employees toward their job have received considerable attention. Though frequently studied, there seems to be a lack of a clear and widely accepted definition of just what is meant by the term job satisfaction. Sometimes, the term has been used in a very narrow sense of attitudes regarding the job itself, while other times it has been given a broad meaning of morale (Hinrichs, 1968).

Job satisfaction has been defined in a variety of ways. Hoppock (1935) defined job satisfaction as any combination of psychological, physiological, and environmental circumstances that cause a person truthfully to say 'I am satisfied with my job'. According to Brayfield and Rothe (1951), job satisfaction refers to the individual's attitude (feeling) toward the work. According to Vroom (1964), job satisfaction refers to the positive affective orientation of individuals toward the work role which they are presently occupying.

Porter (1968) states that satisfaction is the difference between what people think they should receive and what they feel they actually do receive. This is similar to how Locke (1968) viewed job satisfaction: a function of the perceived relationship between what one wants from one's job and what one perceives it is offering.

As is evident from the preceding definitions, there is great variation in the definitions of job satisfaction. This reflects different theoretical orientations. For some,

job satisfaction is the positive affective feeling or orientation toward the job, but for others, it is the degree to which an individual member's needs, values, or expectations are fulfilled in a job situation. There seems to be no agreed-upon definition of job satisfaction.

The relationship between the mother's employment and her emotional well-being has been studied by Hoffman (1974). She concluded that if the mother derived satisfaction from work and had adequate support for fulfiling the dual mother and professional role, then negative emotional consequences could be avoided, and the mother's emotional well being might even be enhanced by employment.

Lerner and Galambos (1988) found that mothers' personal satisfaction with and attitude toward work were significantly correlated with outcomes such as less reported stress and the ability to coordinate job and family responsibilities. They conducted a multivariate study examining the role of mothers' employment on children's cognitive and social development, their home environment, and mothers' attitude toward employment. One hundred and thirty middle-class children were evaluated for a period of one to five years. Data on their cognitive and social development, home environment, maternal employment status and family structure variables were collected. At five years mothers' attitudes were assessed.

Correlational analyses revealed a pattern in which

mothers' and fathers' job flexibility, and mothers' personal satisfaction with work were positively related to their favorable perceptions of the influence of mothers' employment on child development. Further, working for personal satisfaction was positively related to the perception that the child is not upset when mother goes to work, satisfaction with current employment, ability to coordinate job and family responsibilities, job flexibility, and fathers' involvement with the child. Greater personal satisfaction was negatively related to stress in dealing with the child. Working for family income was negatively related to personal satisfaction with employment and ability to coordinate family and job responsibilities, and positively related to stress in dealing with the child. While number of hours worked was positively related to working for income, it was not related to maternal attitudes. Maternal attitudes and number of hours worked were unrelated to children's cognitive development at five years.

Piotrowski and Katz (1983) found that mothers who reported less positive moods at work were described as less interpersonally available by their daughters. Grossman and Pollack (1988) found that, in addition to being less tolerant, parents who were relatively less satisfied with their careers also displayed less warmth, attention, and responsiveness during interactions with their children.

Repetti (1987) conducted a study to examine the short term association between daily parental job stress and subsequent patterns of interaction between parents and children. Subjects were 30 mothers with a child between the ages of three and five years. Mothers were employed in a variety of white collar occupations. For five consecutive days, mothers completed a questionnaire concerning the job stress during the work day. Two occupational conditions, namely, perceived work load and quality of social interaction with coworkers and supervisors, were measured. Each evening, mothers completed another questionnaire assessing aversiveness and withdrawal during their interactions with their children that evening. Results indicated that there was no increase in aversiveness after high stress days at work. There was a relation between daily work load and parent-child withdrawal, but no relation between distressing social interaction and parent-child withdrawal.

Family's socioeconomic position may also interact with employment status to affect maternal and child behavior. Women with less education may have less interesting and lower paying jobs. Women with lower incomes may be more likely than women with higher incomes to work out of necessity, to work longer hours, and be less able to buy services and labor-saving devices that reduce demands on time and energy at home. There is evidence, moreover, that

low-income women as a group experience less role satisfaction and less social support than higher income women (Crockenberg, 1988) and their parenting may be more adversely affected when they are employed as a consequence.

In summary, the studies on the effects of maternal employment on parenting behavior reported consistently that if mothers are satisfied in their roles, there appears to be no adverse effects of maternal employment on their parenting of young children. There is some indication that role dissatisfaction and role strain may adversely affect the parenting practices of employed mothers, but also that role satisfaction may beneficially affect parenting.

Number of Children

There is substantial evidence that number of children in the family negatively affects the home environment of children (Baharudin, 1992; Bradley and Caldwell, 1984; Luster, 1985). Unfortunately large families are more common in the third world countries where economic resources are already scarce.

Pakistan has experienced a rapid rate of population growth since acquiring independence in 1947. The growth rate has remained almost stable at 3% annually for the past few decades, and this implies a doubling of the population size every 23 years. By 1990, the size of the Pakistani population had grown to 114.6 million people, which made

Pakistan the tenth most populous nation in the world (Population Reference Bureau, 1990). The most recent figures of Total Marital Fertility Rates (TMFRs) available from the 1986 and 1987 Pakistan Demographic Surveys (PDS) and Pakistan Contraceptive Prevalence Survey (PCPS) of 1984-85 are eight and 8.09 children respectively. These rates mean that Pakistan has the second highest level of human reproduction in South Asia (after Afghanistan) (Zaki, 1991).

The new household economics predicts negative correlations between family size and investment in a child's education (Mueller, 1984). Analysis of data from rural Botswana showed that the presence of an infant significantly reduced school participation while the presence of another child 7 to 14 in the household significantly increased the probability that a child was in school controlling for the education of household head, land ownership and value of livestock owned (Chernichovsky, 1985). On the other hand, a study in rural northern Thailand, where fertility had been declining rapidly, showed that while younger siblings had no effect on the schooling of those 6 to 14, they did have a significantly negative effect on the participation and years completed of those 15 to 25 (Cochrane & Jamison,1982).

For urban children in Pakistan, research shows that the number of children of various ages in the household has differential effects on the participation of male and female

children in school. The number of children under 5 has a significantly negative effect on the participation of girls, but not of boys. The number of children 5 to 14 has no significant effect for either. The presence of one child under five would reduce the participation rate for girls aged 5 to 20 from 42% to 35% and the rate for boys from 65% to 51%. These effects probably reflect in part the fact that female children are given the responsibility for the care of younger siblings and this pulls them out of school. This is partially confirmed by the findings that the more adult woman there are in the household, the more likely girls are to participate in school. The education of daughters has been found in many countries to be more sensitive to the economic conditions of the household than is the education of sons (Bowman & Anderson, 1982).

These findings were also confirmed by Blake's (1989) study in the United States. She based her research on six large scale national surveys in the United States undertaken from 1955-1986. These surveys were performed both by the federal government and by major research organizations in the country. She found that individuals from small families get substantially more education than those from large families even after statistical controls for other background variables and the respondent's age. However, the years of schooling lost by those from large families occur primarily before high school completion, not as a

consequence of the expenses of college.

Besides the provision of education to children, it is likely to be harder for parents to organize the environment for each particular family member. Similarly, it may be difficult for them to provide constant encouragement for their children's development. Also in large families it is generally harder for parents to be mindful of their children's need for developmentally stimulating toys and materials.

Almost all the studies dealing with the effects of number of children on families and children show negative effects of large family size. The negative influences are through limited resources including lack of time, money, and energy on the part of parents for children, lack of schooling overcrowding, and lack of stimulating activities and materials for all children.

Traditional Religious Beliefs

It is hypothesized in this study that traditional religious beliefs are positively related to the number of children in the family, which would negatively affect the rearing environment mothers provide for their children. Shah (1986), in her attitudinal data about Pakistani women's intentions to use contraceptives, found that 47% of the urban and 41% of the rural women said they would not use any contraceptives in the future. Half of the rural and

urban woman cited religious beliefs as the reason for not using any birth control method in the future.

In the United States, compared to the general population, it has been found that couples who have a Catholic religious background tend to want and have more children (Smith & Tickamyar, 1978). Also it has been found that among Catholics, more religious couples tend to want and have more children than less religious couples (Alvirez, 1973). The Roman Catholic Church prescribes strict codes concerning birth control, abortion, and the duty to procreate. Catholic woman must consider this added factor when making decisions regarding child bearing (Wilson, 1982).

Although literature on the effects of traditional religious beliefs on other family factors and children's cognitive competence was not located, families in Pakistan vary greatly in terms of the degree to which they hold traditional religious beliefs. Some families show greater adherence to religious institutions and a greater reliance on religious doctrine than other families. Casual observations suggest that the religious families tend to be more traditional in their child-rearing practices and hold values that put more emphasis on obedience to authority than on personal autonomy or self-direction. They may be more likely to use physical punishment, and more likely to exact obedience from children. Although there is little research

on which to build, traditional religious Islamic beliefs play a central role in the lives of many parents and the relation between these beliefs and parenting practices merits attention from researchers.

Maternal Values

The values parents hold for their children are another family factor that can affect parenting behavior. According to Kohn (1969, p.18), parental values are the "values that parents would most like to see embodied in their children's behavior--the characteristics they consider most desirable to inculcate in their children".

One common hypothesis is that a relationship exists between social class and parental values. According to Kerchoff (1972) and Kohn (1969), parents in different social strata develop value systems that are consistent with the social life in their stratum. They pass these values to their children through socialization, thus equipping them to remain in the same stratum once adulthood is reached. Middle-class parents put more emphasis on self-direction, achievement, creativity, deferred gratification, and other values that facilitate success in school and better opportunities for middle-class employment. Working-class parents on the other hand value different traits, making upward mobility less likely. Values, then, mediate the relationship between parents' and children's socioeconomic

status.

Prior research and theory suggest that conditions adults experience on the job, particularly their opportunities to exercise self-direction at substantively complex work, affect their cognitive functioning, their attitudes and values, including the values they hold for their children (Kohn, 1986). When parents' work is more substantively complex and offers greater opportunities for self-direction, parents place greater value on their children developing self-direction and they are somewhat less concerned with behavioral conformity (Kohn & Schooler, 1983). Such parents put less emphasis on parental control and are less likely to worry about spoiling children by responsive and affectionate behavior; accordingly they display more warmth and involvement, restrict the child's actions less frequently, and report less frequent spankings as well (Luster, Rhoades & Hass, 1989).

Factors Predicting Children's Cognitive Competence

Chapter 1 gave a brief description of the factors that affect the cognitive competence of children. The factor that is of special interest to the study is the home environment of children. Therefore, in this section the review will focus mainly on the effects of the quality of home environment mothers provide on the cognitive competence

of children. Effects of other family factors on the achievement of children will be discussed briefly.

Quality of the Home Environment

In 1970, Caldwell and Elardo examined the relation of the early home environment to children's development during the preschool years and found that specific aspects of the children's home environment were strongly related to cognitive and language competence through age five (Bradley and Caldwell, 1976, 1979, 1981; Elardo & Caldwell, 1972). According to these authors, mother's emotional and verbal responsivity, avoidance of restriction and punishment, involvement with her child, use of age-appropriate toys, and provision of variety in daily routine have all been demonstrated to be positively related to child intelligence.

Caldwell and Bradley (1979), devised an instrument called Home Observation for the Measurement of Environment (HOME), that measures the quality of the rearing environment. In an initial study, Elardo, Bradley and Caldwell (1975) observed and scored the homes of 77 children from poor and working-class families. The homes were first observed when the children were 6 months old and again at 24 months. The children's IQ scores were assessed when they were 36 months old and again at 54 months. They found that the 6 month and 24 month HOME scores were positively related to 36 month and 54 month Binet scores. The study

also found that mothers who were emotionally responsive to their 6 or 24 month-old infants, and provided variety in the child's experience, had children who later had higher IQs. The study by Ramey and Haskins (1979) lends support to these findings. They found that mothers who were more physically restrictive and more punitive toward their children, especially around 24 months of age, had children who had lower IQs later on.

In a more recent study, Sigman, Neumann, Carter, Cattle, and Bwido (1988) found that home environment contributed significantly to the cognitive development of children between 15 and 30 months living in monogamous families in Kenya. The study indicated that children who lived in an environment where they were talked to frequently, whose vocalizations were responded to, and who engaged in sustained social interactions passed more of the items on a revised version of the Bayley Mental Scale and showed more positive affect than children who had been less involved in verbal and social interaction.

The longitudinal study of the children of Kauai found that children that came from homes that were emotionally responsive and academically stimulating had higher IQ scores than children from unresponsive and unstimulating homes (Werner, Bierman & French, 1982). This study was designed to follow the course of development of every identified child born on the island of Kauai, Hawaii during the year

1954-55. The study showed that the best predictors of the child's IQ at age ten were the parenting practices of moderate warmth, low physical punishment, responsiveness, moderate verbalness, and encouragement to develop.

Based on her review of past studies, Bee (1985) has summarized five general characteristics of families whose children achieve higher IQ scores: (a) They provide play materials that are appropriate for the child's age and developmental level, (b) they are emotionally responsive to the child, spend time with them, encourage play and problem-solving, (c) they use richly descriptive and accurate language when talking to the child, (d) they encourage the child to explore, allow the child to make mistakes and avoid being restrictive or punitive, and (e) they have high expectations for the child.

McGowan and Johnson (1984) used causal models incorporating observational assessments of mother-child interaction, home environment, maternal attitudes, and demographic variables as antecedents of verbal and performance IQ for 69 Mexican-American children. They found a positive influence of number of years of mothers' education and maternal attitudes that encouraged child's independence and reciprocal parent-child interaction on child's intellectual performance at 3 years of age. These factors also contributed to maternal behaviors thought to promote child competence.

According to Wiegerink and Weikart (1976), within the parent-child relationship several parental characteristics are positively related to the child's IQ during the early childhood years. These include parental encouragement of independent child behavior, warmth and affection toward the child (Radin, 1971), the level of mother-child interaction, and teaching styles that stress reasoning, and reciprocal interaction between parent and child (Brophy, 1970).

Socioeconomic Status

In the previous section, the effect of socioeconomic status on the quality of home environment was discussed. A considerable body of literature suggests a positive relationship between the socioeconomic status of the family and the cognitive competence of children (Bogin & MacVean, 1983; Brophy & Good, 1974; Deustch, 1973; Henderson, 1981).

The correlation between the two ranges from about .30 to .40 (Anastasi, 1958; Coleman et al. 1966). Lesser, Fifer and Clark (1965) conducted a study that examined the mental abilities of 6 to 7 year-old children of different SES groups and from four different racial-ethnic groups. The results of the study showed that over the entire sample which consists of 40 middle-class and 40 lower-class children from each of the four ethnic groups, the middle-class children performed better than lower-class children on the mental ability, reasoning, verbal ability, and spatial

ability measures.

Findings by Kennedy, Van De Riet, and White (1973) are consistent with other studies. Kennedy and his colleagues administered the Binet to a stratified random sample of 1800 first to sixth grade black children from the southeastern states. In the study, they found that higher SES children had higher IQ scores than lower SES groups. The difference in IQ scores between the lowest and highest SES groups was about 25 points.

Bogin and MacVean (1983) used longitudinal data on child development in Guatemala City to describe the influence of socioeconomic status and sex on physical and cognitive growth status. The sample included 144 Guatemalan children, 46 of low SES, 52 of middle SES, and 46 of high SES. Two cognitive variables, general intelligence and reading ability, were measured in grades 1, 3, 4, and 5. Significant differences between SES groups existed for all the variables with a gradual rise in scores as SES becomes higher.

Utilizing a national study of over 50,000 children born in the United States in 1959 and 1966, Bromen (1975) examined the relationship between children's IQ and social class. In this study, parents' occupation, income and education were used as indicators of socioeconomic status. Bromen found that the average IQ of the children rises as the social class rises and as the mothers' education rises.

Longstreth et al. (1981) also noted that mothers' education made a significant contribution to the prediction of child's IQ independently of mothers' IQ and home environment.

Number of Children

Closely related to socioeconomic status is the size of the family which in turn seems to have some influence on measured IQ. On the average, the more children there are in the family, the lower the average IQ of the children (Bee, 1985).

One classic study to examine the effects of family size on intellectual ability was conducted by Zajonc and Markus (1975). Besides family size, the study also examined the effect of birth order and spacing on the intellectual attainment of the children. To investigate the effect of these factors, the investigators developed a model called the "confluence model". One assumption of this model was that average level of intellectual performance in any one family depends upon the number of members in that family. The study was conducted on 40,000 Dutch children between 1963 and 1966. They found that children's IQ declined as the family size went up and that within each family size, later born children had lower scores.

However, Page and Grandon (1979) examined the confluence model with data on a sample consisting of 10,662 children from the United States National Longitudinal Study

of Education Effects (NLS). They subjected the NLS data to a path analysis, with social class and ethnicity added to the equation as predictor variables. In the analysis, family size appeared to have a very small relationship to ability, accounting for less than 1 IQ point difference, while socioeconomic status and race accounted for nine to ten points. The results of the study therefore demonstrated that the apparent effects of family size were best explained by ethnic group and social class variables.

Blake (1989) found that verbal ability, which is a predictor of educational success, is negatively related to number of siblings. Because verbal ability is associated with parental interaction and attention, the size of the family can have a very early influence on children's performance in school.

Maternal Values

The values parents hold for their children are also related to cognitive development. Edgerton and Schaefer (1978) used three different samples of kindergarten children, and consistently found significant negative correlations between mothers' conforming values and measures of their children's cognitive abilities (e.g. WPPSI scores, Test of Basic Experience (TOBE) scores, and teachers' ratings of creativity/curiosity). On the other hand the correlations between the self-direction values and these

measures were all positive and significant.

Subsequent analyses demonstrated a significant relationship between values and both WPPSI scores and teachers' ratings of creativity/curiosity when income, mothers' education and race were controlled. In the same study, a separate analysis was conducted using mothers from a very low socioeconomic group. For this subsample, conforming values were negatively related to WPPSI Information (-.67), TOBE Math (-.49), Language (-.40), and General Concepts (-.58), and teachers' ratings of creativity/curiosity (-.35). The self-direction values were positively related to all of these outcomes. These findings suggest that parental values contribute to differences in the cognitive abilities of children.

Literature on the effects of mothers' job satisfaction and traditional religious beliefs on the cognitive competence of children was not located. It is assumed that these factors have an indirect effect on the cognitive competence of children via the home environment or some other variable. Research is needed to determine the influence of the above mentioned factors on the cognitive competence of children.

Summary

In conclusion, the literature review presented supported Bronfenbrenner's notion that human development research should include an awareness of the environmental systems within which the people are operating. In general the studies indicated that a variety of environments in an individual and family ecosystem interact and produce differences among parents in their approaches to child-rearing. Findings from the studies suggest that several factors may influence the behavior of parents. Some of these factors can have a direct influence, while others can have an indirect influence on the quality of home environment.

Studies that examined factors that influence children's cognitive competence were also presented. Specifically the review focused on the effects of the quality of home environment on the achievement of children. Overall the studies provide evidence that suggests a strong relation between the quality of home environment and the cognitive competence of children. Studies examining the effects of socioeconomic status and number of children on the cognitive competence of children were also presented. These studies suggested a positive relation between SES and the cognitive competence of children, while a negative relation was found between number of children and the intellectual achievement of children.

CHAPTER III

RESEARCH METHODOLOGY

This section provides a discussion of the research design, and the selection and description of the population and sample. The instruments, methods for data collection, and data analysis used in this study are also discussed in this chapter. Procedures used to safeguard the mothers and children are also described.

Research Design

This study of selected family factors as predictors of child's home environment and cognitive competence is cross-sectional and non-experimental in nature. Due to the limited amount of research on Pakistani children and their ecological context, it was considered appropriate to conduct an exploratory study. The unit of analysis in this study is the Pakistani mother and her 4 to 6 year-old child. All the observations and interviews were conducted in the home environment. Teachers also provided information on the sampled children's cognitive competence relative to other

children.

Research Sample

The population being studied consists of 4 to 6 year-old male and female children attending school and their mothers residing in the city of Peshawar which is the capital city of the North West Frontier Province of Pakistan. Children in Pakistan usually start school around the age of five, but many schools admit four year-olds as well. Rules regarding age in admissions policy are not very strict. In some schools children between the ages of four and six are in the kindergarten. In others, 4 and 5 year-olds are in the preschool class of the same school and 5 to 6 year-olds are in the kindergarten.

The sample included families from a wide range of socioeconomic classes. Fifty mother-child pairs were observed and interviewed. The pairs were selected using a stratified random sampling technique. First ten schools from Peshawar were randomly selected using the list of schools in the area. The actual sample was to be from five schools, but ten were selected in case any of the principals of the schools refused to participate or any other problem arose. Ten pairs for the pilot study were selected from the schools not used in the study.

A very informal pilot study using relatives, friends,

and neighborhood servants was done upon arrival of the investigator to Pakistan. This pilot study conducted on six respondents gave useful information about the clarity of the consent form. The second pilot study on ten respondents was conducted to simulate the larger study and to pilot the instruments created for this study.

After selecting the schools, the investigator randomly assigned the sequence numbers to schools and started calling the principals for appointments; in cases where a telephone was not available personal visits were made. One principal was out of town and the person in charge was not very comfortable in giving permission for the study. In another school, because of some administrative problems, the preschool and kindergarten classes were canceled. In another school the principal told the investigator that the school has one class of 4 to 6 year-olds but the class teacher is on leave and children will be having new teachers for the next several weeks.

After the first seven principals agreed to participate in the study, the investigator visited all the selected schools, five for the study sample and two for the pilot study. A brief description of the purpose of the study was given to the principals and their cooperation was requested. The principals provided the class admission registers to the investigator so that she could select the children of the desired age group. Children less than 4 and more than 6

years-old were excluded from the study. In schools where there was more than one section, all sections were combined. To be on the safe side, it was decided to have twelve children from each school. If the schools had thirty-six children, the number was divided by twelve and every third child was included in the sample. If the number of children was sixty or more every fifth child was taken. If the total number of 4 to 6 year-old children in the school was around 12, all the children were included. Five children each from the remaining two schools were selected for the pilot study using the same procedure. The sample to be studied is comprised of 50 children, but 70 children were selected, including 10 for the pilot study and 10 as possible substitutes, in case any mother was unable or unwilling to participate or in case of any other problem.

After the selection of 70 children, the cooperation of teachers was requested. All the teachers who were contacted agreed to participate in the study. The principals asked teachers to give the consent forms to the sampled children to take home for their mothers along with a note from the teacher requesting that the mothers return the consent form the next day. The teachers also gave information about the languages the mothers could understand. The consent forms were translated into Urdu and were sent to the households where there was a possibility that Urdu could be more easily comprehended than English. All the forms were sent within a

week period. Forms for the pilot study were the first ones to be sent.

In most cases the consent form was completed and returned to the school the next day. However, in a few cases the researcher had to send reminders because the child or the mother either misplaced the form or waited for the father or some other person to read the form to them and to provide the information requested in the consent form (see Appendix A).

The return and acceptance rate was very high. A total of 70 forms were sent. Through the efforts of the teachers, and several visits to the schools made by the investigator, 66 forms were collected. Most of the forms had very welcoming comments. The acceptance rate was 91%. Two forms were returned untouched, while four mothers refused to participate. One refusal was due to sickness, another had some family problem, while two families clearly stated that they only wanted financial assistance.

After receiving the signed consent forms, the investigator started contacting the mothers either by telephone or through personal visits to set the time for the interview and observations. In cases where children lived very far away or in hard to reach places without a telephone, appointments were made by giving notes to the children, and the children would bring the date and time for the interview.

Research Instruments

The following research instruments were used in this research: (a) The Peabody Picture Vocabulary Test - Revised (PPVT-R), (b) Home Observation for Measurement of the Environment (HOME), (c) Pakistani HOME, (d) Family Background Interview Schedule, (e) Job Satisfaction Scale, (f) Traditional Religious Beliefs Scale, (g) Schaefer and Edgerton Rank Order of Parental Values, (h) Teachers' Perception Scale, and (i) Personal Evaluation of Home Environment.

Peabody Picture Vocabulary Test - Revised (PPVT - R)

Children's cognitive competence was measured by the Peabody Picture Vocabulary Test - Revised (PPVT-R) developed by Dunn and Dunn (1981). "The PPVT measures an individual's receptive (hearing) vocabulary and provides, at the same time, a quick estimate of verbal ability or scholastic aptitude" (Dunn & Dunn, 1981, p. 2). This assessment is appropriate for children aged 3 and over. The assessment consists of 175 vocabulary items of generally increasing difficulty. The child verbally or nonverbally selects one of four pictures which best describes a particular word's meaning.

Children enter the assessment at an age appropriate level although this is not essential to the scoring. A

"basal" is established when a child correctly identifies eight consecutive items (An exception to this is in those cases where a basal cannot be established. In these instances, a child is given a raw score of one). A "ceiling" is established when a child incorrectly identifies six of eight consecutive items. A child's raw score is determined by adding the number of correct responses between the basal and ceiling to the basal score. To make the raw scores more meaningful they were converted into standard scores using the table for derived scores.

The PPVT was standardized on a nationally representative sample of children and youth in the United States. The norming sample included 4,200 children from the 1970 U.S. Census. Norm development took place in 1980. Subjects ranged in age from 2 years, 6 months, through 18 years, 11 months. A total of 200 persons were included within each of 21 age groups. The sampling plan specified that equal numbers of females and males be tested within each age group. Four geographic regions of the coterminous United States, as defined by the 1970 U.S. Census, were used -- Northeast, South, North Central, and West. Occupation of the major wage earner in the family was used to ensure appropriate socioeconomic representation in the standardization sample. The ethnic composition was similar to that of the total U.S. population.

The split-half reliability coefficients of PPVT-R for

children ranged from .67 to .86. Immediate retest reliability coefficients ranged from .79 to .89 and delayed (9 to 31 days) retest reliability coefficients ranged from .54 to .90 with a median of .78. The reliability of PPVT-R appears to be satisfactory.

The PPVT-R demonstrates high construct validity with a variety of intelligence tests. Its median correlation with other vocabulary tests was .71 (based on 55 criterion validity coefficients, ranging from .20 to .89); with other individual intelligence tests it ranged from .38 to .72. Its correlation was higher with the Binet and Wechsler tests than with less well established tests. Although PPVT-R is not standardized for Pakistani children, it might yield valuable information for this study. Comparisons are made among Pakistani children only and not between Pakistani and American children.

Home Observation for Measurement of the Environment (HOME)

Home Observation for Measurement of the Environment (HOME) scale, developed by Bradley and Caldwell (1984), is an observation/interview instrument that assesses the quality of the cognitive, social, and emotional stimulation available to a child in the home. The independent variable, home environment, was measured by the preschool version of the HOME. It contains 55 items scored in binary (yes - no) fashion and is composed of eight subscales and a total

scale. For the purpose of this study only the total score will be used in most analyses.

The eight subscales of the HOME are as follows: (a) Learning Stimulation, (b) Language Stimulation, (c) Physical Environment, (d) Warmth and Acceptance, (e) Academic Stimulation, (f) Modeling, (g) Variety in Experience, and (h) Acceptance (see Appendix B).

Means and standard deviations for each of the eight HOME subscales and the total HOME score were established in a study with 238 families with children ages 3 to 6 in Little Rock, Arkansas (Bradley & Caldwell, 1978). For the total scale the mean score for families with children 36 to 42 months was 37.5 (S.D. 10.4), and for families with children 48-57 months the mean score was 41.9 (S.D. 10.0). Bradley & Caldwell (1978) reported interrater reliabilities from six studies in the high .80s to low .90s, and 6 month test-retest subscale correlations ranging from .45 to .87. Internal consistency estimates based on the Kuder-Richardson 20 formula showed coefficients ranging from .53 to .83 for the HOME subscales while the internal consistency estimate for the total scale was .93. The validity of the HOME was established by correlating the HOME with measures of cognitive development. The correlation between HOME score for children ages 3 to 6 years and Stanford-Binet intelligence test scores ranged from .55 to .58.

The HOME is administered in a child's home at a time

when the child is awake and can be observed in his or her normal routine for that time of day. In this study, all of the interviews were conducted with the mother as the primary caregiver.

Pakistani Home Observation for Measurement of Environment (P-HOME)

Because the HOME was developed for families in the United States, it seemed appropriate to administer an additional measure that might be more suitable for Pakistani culture. The investigator developed this measure by including items more suitable to Pakistani culture. Some items were taken directly and some were modified from Baker's (1970) dissertation to be used in addition to the HOME (see Appendix C). The HOME scale was used as is, and the additional items were administered as a separate instrument called the Pakistani HOME (P-HOME). The instrument was based on initial ideas that were not tested in any way. The reliability coefficient for the P-HOME was found to be .89. Its correlation with the HOME scale was .88. This correlation suggested that the two instruments were assessing the same construct. It was therefore decided that instead of conducting separate analyses with two HOME instruments only the original HOME would be used for this analysis.

Family Background Interview Schedule

The child's family background information was obtained by the Family Background Interview Schedule designed by the investigator (see Appendix D). This interview schedule included questions about socioeconomic status of the family including parents' education, yearly income of the family and parents' occupations. A modified form of the Hollingshead categories of occupation and education was used to determine the SES of the family. The scales used in the Hollingshead's Index of Social Position rank professions into different groups and businesses according to their size and value. The eight positions on the scale are: executives and proprietors of large concerns and major professionals, managers and proprietors of medium concerns and minor professionals, administrative personnel of large concerns and owners of small independent businesses, and semi-professionals, owners of small businesses, clerical and salesworkers, and technicians, skilled workers, semiskilled workers, unskilled workers, and unemployed. This scale is premised upon the assumption that different occupations are valued differently by the members of our society. The original Hollingshead categories included 'unemployed' under the heading of 'unskilled workers'. However in Pakistan, a large majority of unskilled workers are able to earn their living and support their families. Although the standard of living is very low, it is still better than the standard

of living experienced by unemployed individuals. It was therefore decided to use 'unemployed' as a separate category.

The educational scale is divided into eight positions: graduate professional training (persons who completed a recognized course which led to the receipt of a graduate degree), standard college or university graduation (individuals who have completed a four-year college or university course leading to a recognized college degree), partial college training (individuals who have completed at least one year but not a full college course), high school graduation (individuals who have completed 10th grade; in Pakistan high school is completed after 10th grade), secondary school graduation (individuals who have completed 8th grade), primary school graduation (individuals who have completed 5th grade), less than five years of school (individuals who know the basic skills of reading and writing), illiterate (individuals who do not know the basic skills of reading and writing). Years of total education were also measured.

The education categories are also slightly different from the original Hollingshead categories. The original categories do not include the uneducated or illiterate people. However in Pakistan more than 60% of the population is illiterate; therefore it seemed appropriate to add the 'illiterate' category. The Family Background Interview

Schedule also included questions about family size and marital status.

Job Satisfaction Scale

The Job Satisfaction Scale was comprised of questions concerning how satisfied the mother was with her job. This small Job Satisfaction Scale was based on nine items selected from the Teacher Job Satisfaction Questionnaire (TJSQ) developed by Lester (1983). Only items that could be applicable to any job were included.

The original Teacher Job Satisfaction Scale has been found to be a valid and reliable instrument. The alpha coefficient for the original scale was .93. The alpha coefficient for the modified Job Satisfaction Scale is .63 which means that it is moderately reliable (see Appendix E).

Traditional Religious Beliefs Scale

Traditional religious beliefs were measured by administering the Traditional Religious Beliefs Scale. For this measure, subjects are given a statement and asked to indicate the extent to which they agree with the statement on a four point Likert Scale. Some items of the scale were devised by the investigator after having several discussions with the religious scholars of the Islamic Center of Greater Lansing. Their suggestions were valuable in developing items that would determine the traditional religious beliefs

of a lay person in a lay person's language. This scale was also translated into Urdu because literate subjects were asked to self-administer the scale (see Appendix F). The reliability coefficient for the Traditional Religious Beliefs Scale was .74. This instrument was also based on initial ideas and was not tested on any population.

Schaefer and Edgerton Rank-Order of Parental Values

Schaefer and Edgerton's Revision of M.L. Kohn's (1977) Rank-Order of Parental Values (Edgerton & Schaefer, 1978) was used to determine child outcomes mothers considered important for their children. The fifteen values in this measure included six self-direction values (e.g. to be curious about many things), six conformity values (e.g. to obey parents and teachers), and three that represent social skills values (e.g. ability to get along with other people). The values are divided into three groups of five items. Each item is typed on a 3 by 5 inch card and the mothers are asked to rank order each of the three sets of five cards. The measure was also translated into Urdu for the mothers who were more comfortable in comprehending Urdu. For the mothers who could not read, the investigator administered the instrument. Each set of values was read to them at least three times and they rank ordered the values while the investigator was reading to them.

The degree to which the mother valued self-direction

was determined by adding the rankings of the six self-direction items. The item a mother chose first in each set was given a score of five, the value selected next was given a four and so on. A high score indicated that the mother valued self-direction. Conformity and social skills were computed the same way. Edgerton and Schaefer reported an internal consistency estimates of .74 (Cronbach's alpha) for both the conformity and the self-direction scales (Luster, 1985).

Teacher's Perception Scale

In order to check the validity of PPVT, teachers of the sampled children were given a brief Likert type Teacher's Perception Scale. This scale was developed by the investigator. The items of the scale were chosen so that they measure the same cognitive abilities as PPVT (see Appendix H). Higher scores on the scale reflected more positive perceptions of the children's cognitive ability relative to other children. The reliability coefficient for this scale was .88.

Personal Evaluation of Home Environment

The Personal Evaluation of Home Environment scale was also developed by the investigator. This scale assesses the investigator's perception of the quality of the child's home environment. The scale consisted of two items measuring the

degree of stimulation and warmth in the child's home environment. This measure was used as a check on the validity for the HOME scale. The reliability coefficient for this Likert type scale was .82. Its correlation with the HOME scale was .88. The higher the score on the Personal Evaluation of Home Environment scale, the more positive the environment was perceived to be. Because of its high correlation with the HOME inventory, Personal Evaluation of Home Environment scale was not used in the statistical analyses.

Data Collection Procedures

Data collection began on November 10, 1991 and ended on January 30, 1992. The investigator contacted mothers of children according to their area of residence. A minimum of one and a maximum of four families were interviewed and observed by the investigator in one day. Because the investigator was the only person collecting the data, the procedure took longer than expected. At least 2 to 3 hours were spent with each family. After the initial contact, each mother was contacted once again at least 24 hours before the visit to remind her of the visit and to make certain that she knew whom the researcher represents and what kind of information was needed, and how much time she should allow for the visit. She was also reminded about

how important it was for the child to be present and awake. The mothers were assured that they would be giving something of value to the investigator and to all people who are concerned about how young children grow and develop.

Before the interviews began the investigator asked each respondent about the language they and their child were more comfortable to use. The interviews were conducted in Urdu which is the national language of Pakistan, in Pushto which is the native language of Peshawar, and in some cases English was used in administering the instrument to assess the cognitive competence of the child.

After the warm-up period, demographic information was collected. In many cases, during the collection of demographic information some questions on the HOME were answered. Those questions were not repeated later. Observations were done simultaneously. The HOME scale and Pakistani - HOME scale were administered next. In the case of literate mothers, the Traditional Religious Beliefs Scale was explained briefly and they would respond to the statements by checking their responses. For the mothers who could not read or write, the investigator explained the scale and asked their opinion for each statement. The same process was repeated for administering the values instrument.

During the process of administering the instruments to the mother, the investigator frequently paid attention to

the child and tried to be friendly with him/her. Children were told that after talking with their moms, the investigator would play a "game" with them. The PPVT was the last thing to be administered at the child's home. Every effort was made by the investigator to have minimum distractions at that time. Each child was given a pencil after they participated in the research.

Entertaining of guests is a very important part of Pakistani culture. When the mother was busy in making arrangements for refreshments, the investigator checked all the instruments to make sure everything was covered. The Personal Evaluation of Home Environment scale was the first thing to be completed by the investigator after thanking and leaving the family.

The Teacher's Perception Scale was the last item of the data collection procedure. This scale was given to the sampled children's teachers through the principals after 60 mother-child pairs were interviewed and observed. The investigator explained the instrument to the teachers in person and one teacher in each school was made in charge of collecting the forms from different classes, if there was more than one class of the 4 to 6 year-olds in the school.

The investigator personally thanked all the principals and teachers for participating in the study. Each family's participation was very much appreciated and they were assured that the investigator would send copies of the

results as soon as they were compiled and analyzed.

Data Analyses

Data were coded by the investigator and were entered into a data file by the Data Entry Service of the Michigan State University Computer Center Laboratory. The data were analyzed using the Statistical Package for the Social Sciences (SPSS-X). Descriptive statistics were used to determine the basic distributional characteristics of each of the variables. T-test analyses were computed to test for differences in characteristics between male and female children, and also for mothers who were working outside the home and those who were not employed. For hypothesis testing, the alpha level was set at .05. To examine the relations between the variables of interest, Pearson Product Moment Correlation Coefficients were computed. Multiple regression analyses, using the enter selection method, were performed to examine the combined effects of several predictor variables on the quality of the home environment, and to identify which of the variables were related to the quality of the home environment when other variables were statistically controlled. Additional multiple regression analyses were computed to determine which of the predictor variables have a direct or an indirect effect on the children's cognitive competence.

Ethical Considerations

The required documentation was submitted for review by the University Committee on Research Involving Human Subjects (UCRIHS) at Michigan State University. Approval was granted by UCRIHS prior to the selection of people for the study.

Several ethical concerns were taken into consideration during the implementation of this study. One of the most important was that the adults in each family understood their options and their children's option, not to participate in the study. A consent form (Appendix A) was provided to each mother to ensure that she understood the study, that there are no inherent risks to either her or her child, and that her participation was entirely voluntary. It was also made clear that the mother had the option of discontinuing her participation, and that of her child, at any time.

The principals of the schools, teachers, and all the sampled families were informed that all the information they provided and observations made by the investigator would be treated as confidential. Each family was assured that their names would not appear on any of the forms on which the researcher recorded information and that names would not be connected to any data used for analyses, the dissertation, or any publication of the information. The families were

also told that the results of the study would be made available to them upon request.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the results of the data analyses. The presentation of results in Chapter IV is divided in to several sections and is organized in the following way. In the first section demographic characteristics of the sample are presented. The next two sections examine the correlations among demographic characteristics, and correlations among demographic characteristics and other predictor variables of the study (job satisfaction, number of children, traditional religious beliefs of mothers, and values held by the mother). In sections four and five, the relation between family factors and home environment, and family factors and cognitive competence of children are presented .

In sections six and seven, the results of the multiple regression analyses are presented. First, the home environment is treated as the outcome measure and family factors are entered as independent variables. The purpose of this step is to explore the extent to which family factors are related to the quality of the home environment.

In the second step, PPVT scores, are used as the outcome variable. Family factors, including home environment, were entered as predictor variables.

The purpose of these analyses is to determine if the data from the study are consistent with the model presented in Figure 2. The fit of the data was judged by examining the path coefficients (standardized betas) for variables in the model.

Demographic Characteristics of the Sample

Demographic characteristics of the sample were obtained by the Family Background Interview Schedule which was administered to mothers whose children were in the sample. A summary of sample characteristics is presented in Table 1. The data collected through this instrument provided information about child's age and sex, age of mother, education and occupations of parents, income of the family, and size of the family.

The total number of mother-child pairs who were interviewed and observed was 50. Fifty-six percent of the children studied were males and 44% were females. The age of children ranged from 48 months (4 years) to 72 months (6 years) with a mean age of 63 months.

The average number of surviving children per family was 3.6 which was slightly lower than the figure of 3.8

Table 1

Characteristics of Sample Families

N=50

Child's Age	mean = 63 months range = 48-72 months Std.Dev. = 7.8		
Child's Sex	56% males 48% females		
Number of Children	mean	range	Std.Dev
0 to 6 years	1.8	1-4	.83
6 to 12 years	1.7	1-5	.93
12 to 20 years	2.3	1-4	1.2
20 and above	1.8	1-2	.44
Total Number of Children	3.6	1-8	1.8
Mothers' Age	mean = 33.9 years range = 20-50 years Std.Dev. = 7.1		
Mothers' Education	mean = 9.3 years range = 0-23 years Std.Dev. = 6.4		
Fathers' Education	mean = 14.6 years range = 0-25 years Std.Dev. = 5.8		
Mothers' Employment Status			
Not Employed	60%		
Employed	40%		
Part-time	8%		
Full-time	32%		
Annual Family Income (in rupees)	mean = 105,362.5 range = 18,000-240,000 Std.Dev. = 93,362.5		

children per family as shown in the 1984 Contraceptive Prevalence Survey of Pakistan and 4.8 as found by the National Research Institute of Fertility Control in 1982 (Zaki, 1991). In the present study 26% of the families had more than five children, 24% had two and 4% had one child. Most of the mothers in the sample were still in their child bearing years. The age range of children in the families was from 6 months to 20 years.

Analysis of the sample characteristics revealed that the average age of the mothers was 33.9 years. Eighty-two percent of the mothers were between the ages of 25 and 45, while 6% were younger than 25 years and 12% were older than 45 years of age.

Data on marital status revealed that, except for one mother who adopted the child and was never married, all the mothers were married and had intact families. In Pakistan, marriage is one of the societal institutions that is still highly valued.

As far as education of the mothers was concerned, 36% of the mothers did not complete high school while 20% completed high school. Twenty-two percent of the mothers graduated from universities and professional colleges. Twenty-six percent of mothers and 4% of the fathers were illiterate and were not able to read and write at all. Seventy-two percent of the fathers had a 4 year college degree. Although the correlation between mothers' education

and fathers' education was .60, the difference of 5.3 points in the mean education years between mothers and fathers clearly reveals that in Pakistan much more emphasis is placed on educating males.

There was a wide range in the yearly income of the sampled families ranging from Rs.18000 to Rs.240,000 per year, with an average of Rs. 105,362.5. " Rs" refers to Rupees which is the currency of Pakistan. One U.S dollar is equal to twenty seven rupees.

Forty percent of the mothers were employed; 30% were employed outside the home, while 10% were supplementing the family income by making products at home to be sold in the market. Thirty-two percent of the employed mothers worked full-time, while 8% were part-time employees. Seventy-five percent of the working mothers were employed in the field of education and teaching. The remaining cases were self-employed mothers. Only one mother worked as a nurse and the other two were employed in research laboratories. Klein (1986) reported figures that are not very different from the findings of this study. According to him, "The majority of economically active women work in education and teaching (approx. 69%) and as medical or related workers (about 9%). None of the other trades and professions or sectors of economic activity are of any significance" (p. 59).

Independent t-tests were conducted to find if there

are any differences in the characteristics of working and nonworking mothers. Except for mothers' education, and the quality of home environment they provided for their children, no significant differences were found. Working mothers had more education (mean= 13 years of school) than mothers who were not employed outside the home (mean = 6.8 years). The mean for the HOME for the mothers who were working outside the home was 41.7, and for nonworking mothers it was 34.8.

A series of independent t-tests were run to examine the difference between the families of male and female children on the demographic and background characteristics. Except for the size of the family, and traditional religious beliefs of the mothers, no significant differences were found between the two groups on other characteristics. The average number of children in the families of the female children were significantly higher (4.3 children per family) than the average for their male counterparts (3.1 children per family). A possible explanation for this difference could be the high traditional value placed on having more sons in the family. Sons are regarded as a necessity for the continuation of the family name, for the strength and security of a family, for old-age security of the parents, and for protecting the honor of the family and particularly its female component. If there are more girls in the family, the parents are likely to try for a boy. In

contrast, if the family has more sons, there is comparatively less desire to have a female child. The differences in the traditional religious beliefs are discussed in the later part of this chapter.

Relations among the Demographic Characteristics of the Sample

In this section, the relations among the demographic characteristics are presented. The zero-order correlations among the demographic variables are presented in Table 2.

As expected, all the SES variables were positively related to each other. For example, as found in many other studies (Longsreth et al., 1981; Luster, 1985; Yeates, Macphee, Campbell & Ramey, 1983), mothers and fathers had similar levels of education (r=.60). In Pakistan, traditionally marriages are arranged by the parents, and both men and women are expected to comply to the parents' decision.

Surprisingly, educated women were married to educated men, which seems to indicate that some consideration is given to educational background in this decision making process. In the last few years there has been a change in this pattern of partner selection, particularly in educated families. Eligible bachelors are given the freedom of finding marriage partners for themselves, and can be married with the consent of parents. This could also be the reason

Table 2

Zero-order Correlations: Relations among Demographic Characteristics for the Overall Sample

	Mothers' Age	Mothers' Education	Fathers' Education	Mothers' Occup Status	Fathers' Occup Status	Family Income
Mothers' Age	1.00					
Mothers' Education	.008	1.00				
Fathers' Education	.08	.60*	1.00			
Mothers' Occup-status	.14	.86*	.77**	1.00		
Fathers' Occup-Status	.10	.64***	.83***	.82***	1.00	
Family Income	-.06	.49***	.46***	.52***	.63***	1.00
Number of Children	.44*	-.41*	-.43**	-.39**	-.41**	-.35**

Note * p < .05 ** p < .01 *** p < .001

for the high correlation between the mothers' and fathers' education. Well educated bachelors selected educated partners.

Because only mothers were interviewed and observed, and mothers' and fathers' education were highly correlated, a decision was made to use only mothers' education in the subsequent analyses. There was also a high correlation between mothers' and fathers' occupational status (r=.82), and because only 40% of the mothers were employed, it was decided to use only fathers' occupational status in the subsequent analyses.

One finding of the study is that mothers' education is strongly associated with family income (r=.49). One possible explanation for the findings is that mothers in this sample with training beyond high school are more likely to be employed outside the home and therefore contribute to level of family income.

With the exception of mothers' age, number of children in the family was significantly negatively correlated with other background variables. More educated mothers had fewer children. This is consistent with expectations because mothers who spent more time pursuing higher education often delayed childbearing, and thus had fewer children. Another possible reason is that better educated mothers have more knowledge of appropriate birth control methods to limit family size. Also educated mothers are often under less

pressure from the inlaws and other adults in the family to have a large family.

Relations among Demographic Characteristics and other Predictor Variables for the Overall Sample

In this section, the relations among the demographic characteristics and other predictor variables are examined for the 50 mother-child dyad in this study. The zero-order correlations among the demographic characteristics and other predictor variables are presented in Table 3.

As can be seen from Table 3, age of the mothers did not show any significant relationship with any of the predictor variables. As expected, measures of socioeconomic status are negatively related to traditional religious beliefs of the mother. The results show that mothers with more education held less traditional beliefs about having and rearing children. Mothers who scored higher on the traditional religious belief scale had more children than the mothers who had lower scores ($r=.55$, $p<.001$). The mothers who had fewer children completed more years of schooling, had higher incomes, and thus were less likely to be living in poverty (see Table 2).

Mothers' education and family income were significantly positively related to mothers' satisfaction with her job. The finding suggested that higher education

Table 3

Zero-Order Correlations Among Demographic Characteristics and Other Predictor Variables for the Overall Sample

	Religious Beliefs	Mother's Job Satisfaction	Self-Direction Values	Social Skills Values	Conformity Values
Mother's Age	.15	-.10	.08	-.13	-.00
Mother's Education	-.49***	.42*	-.38**	-.26*	-.32*
Father's Education	-.57***	.33	-.01	.13	.07
Mother's Occup-Status	-.60**	.42	-.10	-.05	.16
Father's Occup-Status	-.63**	.34	.06	.13	.17
Family Income	.48***	.44*	-.11	.06	.08
Number of Children	.55***	-.56*	-.05	-.00	.07

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

led to highly paid and satisfying jobs.

Number of children was negatively related to job satisfaction of the mother. It is important to remember that only 40% of the mothers (N=20) were employed. This significant negative relationship (r=-.54) suggested that it may be difficult for the mother to carry the responsibilities of home and work, when she has to take care of many young children.

Contrary to expectations, for the overall sample, all measures of SES were negatively related to self-direction values. Except for the mothers' education, all relationships were non-significant. Mothers' education was positively related (r=.32) to conformity values. However, this is understandable when examined from the cultural point of view. In Pakistan, conforming to the rules of adults, obedience, respect for adults and good manners, are highly valued. Different findings were obtained when the correlational analyses were conducted separately for male and female children.

As can be seen in Table 4, mothers' education was not significantly related to self-direction values for males, but was significantly negatively related (r=-.44) to self direction values for females. Fathers' occupational status was negatively related to social skills and conformity values in the case of boys, and positively related for girls but the relationships were not significant. Mothers'

education was not significantly related to social skills

Table 4

Zero-order Correlations: Relations between Mothers' Education and Maternal Values

		Mothers' Education	
Maternal Values	Overall Sample (N=50)	Male Children (N=28)	Female Children (N=22)
Self-Direction	-.38**	-.31	-.44*
Social Skills	.28*	.18	.42*
Conformity	.32*	.29	.31

Note: * p < .05 ** p < .01 *** p < .001

values in males, but was positively and significantly related to social skills values for females. T-tests did not show any significant differences in the values mothers held for their male and female children.

Relations Between Predictor Variables and the Home Environment

In this section, the relations between the predictor variables and the quality of caregiving environment, as assessed with the HOME Inventory, are examined. The zero-order correlations between the predictor variables and the HOME are presented in Table 5 for the overall sample and

for female and male children.

As shown in Table 5, mothers with more education provide their children with better quality care, as assessed with the HOME. The occupational status of the father was also significantly positively related to the quality of the rearing environment. These results hold for the overall sample and for male and female children.

As expected, number of children was significantly negatively related to the rearing environment in the case of the overall sample and for female children. In large families, it may be difficult for the mother to give individual attention to each child, and to provide stimulating care. As reported in Table 2, number of children was also significantly negatively related to mothers' education and fathers' occupational status; limited resources, may also have made it more difficult for the mother to interact positively with the child.

Mothers with relatively traditional religious beliefs tended to have lower HOME scores. However, as mentioned before, the traditional religious belief measure was confounded with SES.

Mothers with high scores on Traditional Religious Beliefs Scale wanted their children to learn about Islam at the earliest possible age, and had them memorize prayers and the Quran. Physical punishment to attain this goal was very common. Higher Traditional Religious Belief scores

were significantly negatively related to the 'acceptance' subscale scores of HOME ($r=-.26$, $p<.05$). Too much emphasis on strict training might have affected the quality of the rearing environment.

Table 5

Zero-order Correlations: Relations between the Predictor Variables and the Quality of the Home Environment

	HOME Inventory		
Predictor Variables	Overall Sample (N=50)	Male Children (N=28)	Female Children (N=22)
Mothers' Education	.73***	.69***	.75**
Fathers' Occupational Status	.76***	.60***	.90***
Number of Children	-.35*	-.06	-.45*
Traditional Religious Beliefs	-.46***	-.28	-.58**
Self-Direction	-.39**	-.21	-.36*
Social Skills	.36**	.26	.30
Conformity	.26*	.20	.29
Teachers' Perception	.16	.29	.06

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

One finding was that traditional religious beliefs of the mothers were strongly negatively related to the home environment in the case of females, but were not

significantly related to HOME scores in case of males. This finding could be interpreted from a religious and cultural point of view. Mothers are much more concerned about the training of their daughters than their sons. Outdoor activities for the girls are much more limited than for boys, and playing with her own sex group is emphasized, thus limiting the learning activities of females.

In contrast with the findings from other studies, self-direction values were significantly negatively related to HOME scores in this study. Social skills and conformity values were significantly positively related to the quality of the rearing environment. For males, the relationships were not significant. T-tests however, did not show any significant differences in the values for males and females.

As can be seen from the Table 5, conformity is positively and significantly related to the home environment of the overall sample. In Pakistan, children who conform are considered "well raised". Mothers whose children keep themselves clean, obey adults, and show good manners are highly appreciated. Highly educated mothers are expected to have "well raised" children.

The results of t-tests mentioned in the beginning of the chapter showed significant difference in the quality of home environment working and nonworking mothers provided for their children. Therefore separate correlational analyses were conducted for the two groups.

Table 6 presents the results of these analyses. In both groups, mothers' education was positively related to the rearing environment of the child. Fathers' occupational status was also significantly related to the HOME scores of both the groups.

Table 6

Zero-order Correlations: Relations between Predictor Variables and Home Environment for Working and Nonworking Mothers

Predictor Variables	Working Mothers (n=20)	Nonworking Mothers (n=30)
Mothers' Education	.75***	.70***
Fathers' Occupational Status	.76***	.79***
Mothers' Job Satisfaction	.37*	---
Number of Children	-.72***	-.19
Traditional Religious Beliefs	-.58**	-.40*

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

In the case of working mothers, job satisfaction was positively related to home environment, indicating, that mothers who were enjoying their work life provided more supportive environments for the children. Job satisfaction was however, negatively related to number of children in the family. Number of children in the family was also highly

negatively correlated to quality of the home environment in the case of working mothers, but the correlation was small and nonsignificant for mothers who were not working outside the house. Traditional religious beliefs of mothers, whether working or not, were negatively correlated with the rearing environment of the children.

Relations Between Predictor Variables and Cognitive Competence of Children

This section presents the relations between the predictor variables and the cognitive competence of children as measured by the Peabody Picture Vocabulary Test. The standard score was used as the child's score on this measure of receptive vocabulary. Table 7 presents the zero-order correlations between the predictor variables, including the quality of the rearing environment, and the children's cognitive competence for the overall sample and for the gender groups.

An independent t-test was conducted to see if there was a difference between the mean PPVT scores of the two genders. The mean PPVT score for males was 91.8; for females it was 97.6. The means were not significantly different.

Consistent with expectations, children who scored higher on the test of cognitive competence had mothers who were more educated, and if working had good jobs. In

Table 7

Zero-order Correlations: Relations between Predictor Variables and the Cognitive Competence of Children

	PPVT Scores		
Predictor Variables	Overall Sample (N=50)	Male Children (N=28)	Female Children (N=22)
Mothers' Education	.28*	.49**	.18
Fathers' Occupational Status	.43**	.47**	.46*
Mothers' Job Satisfaction	.48*	.65*	.18
Number of Children	-.12*	-.08	-.05
Traditional Religious Beliefs	-.17	-.29	-.18
Self-Direction	-.46***	-.50**	-.44*
Social Skills	.54***	.55***	-.54**
Conformity	.25	.24	.25
Teachers' Perception	.38**	.47**	.24
HOME	.53***	.62***	.51***

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

addition, children who did well on the test tended to come from families where fathers had prestigious jobs.

Children who did better on the test had mothers who were satisfied with their jobs. Mothers who were happy with work might be more personally available to their children,

and engage in conversation with children more often. This kind of involvement may provide the children with opportunities to ask and answer questions, learn new information, and receive frequent feedback from their mothers that can enhance their learning. Mothers' satisfaction with their job was significantly positively related (r=.65) to scores on the PPVT test for boys; no significant relationship was found for girls. This finding is consistent with the results of the study conducted by Alvarez (1985), who found that in families where maternal employment was purely a matter of personal preference and where economic security was not an issue, sons continue to benefit from their traditionally favored position. In families where there was financial stress and the maintenance of more traditional roles was no longer viable, the disruption threatened the position of sons more than daughters. Daughters are generally less susceptible to environmental disruption (Elder, 1974; Hetherington, 1979) than sons and benefit from the ideological stance of more highly educated, career-oriented mothers. In the present study most of the mothers who were satisfied with their jobs were the ones who were working because of their preference to work and could be providing more enriched environment to their sons than to their daughters. This issue needs to be further studied to get a clearer picture of the relationship between mothers' job satisfaction and the cognitive

competence of their sons.

A small significant relation was found between the size of the family and the children's scores on the PPVT. The relation was in expected direction. Several studies have found the same results (Baharudin, 1992; Blake, 1989).

As expected, the traditional religious beliefs of mothers were negatively related to the PPVT scores of the children. The relationship, however, was not significant.

It was hypothesized, that mothers who value self-direction in children would have children who do better on the PPVT. In this study, self-direction was significantly negatively related to the children's score on the test.

One plausible explanation might be the belief that curiosity, imagination and other values related to self-direction are natural, bothersome, and need not be learned. This seemed to be the case given some of the comments of mothers. For example "we are tired of his questions"; "she forgets about everything when she is playing in the doll house"; "she wants to touch everything everywhere, that's sometimes embarrassing"; "we are tired of his experiments"; "when she grows up she can think for herself, at present it's my job". Independence in thinking and doing things, other than for chores that minimize the mothers' work, is usually not encouraged in Pakistan for the childhood period. On the other hand, social skills, which

are significantly positively related to standard scores on the PPVT, are highly valued. Positive interaction with people is considered very important. Parents who value social skills might have had children who had advanced social skills. Other people may interact more positively with socially competent, kind and considerate children. This positive interaction might create a better atmosphere for learning and thus affect scores on the test positively.

It was hypothesized that children who scored higher on the PPVT would also get a higher rating on the Teacher's Perception Scale. For this scale, teachers rated the cognitive competence of the child relative to other children in the class. As expected children who had a higher score on the PPVT also tended to have a higher score on Teacher's Perception Scale. This means that children who performed better on PPVT also were good students at school. In the case of boys, the relationship between scores of PPVT and teachers' perception was positive and significant; for girls it was positive but not significant. T-tests did not show any significant differences between the teacher's perception score for boys and girls.

As expected, the quality of home environment was positively and significantly related to scores on the PPVT. Children who scored higher on the PPVT tended to come from more supportive and more stimulating environments. When the children's PPVT scores of the employed and not

employed mothers were compared, it was found that mothers' education was not significantly related to PPVT scores for both the groups (see Table 8). Fathers' occupational status was highly correlated with PPVT scores in the case of nonworking mothers, but the relationship was not significant for the working mothers. Although the reason for this difference was not clear, one possible explanation for this difference could be found in the Alvarez (1985) study. According to him, in homes where mothers work for personal choice, without the economic necessity, and where better financial conditions exist, mothers tend to provide richer environments for their children. This rich environment could be through spending more time with their children, as good financial conditions enable them to buy services and labor-saving devices that reduce demands on time and energy at home. It could also be through the provision of nourishing meals, less strain in the home that led to higher correlation of children's PPVT scores with fathers' occupational status in the nonemployed mothers' group .

Number of children in the family was significantly negatively related to PPVT scores of children in the subsample of working mothers. One plausible explanation could be that, since size of the family already dilutes the intellectual environment of the family, working mothers might have more problems dealing with the large family

Table 8

Zero-order Correlations: Relations between Predictor Variables and Cognitive Competence of Children for Working and Nonworking Mothers

	PPVT Scores	
Predictor Variables	Working Mothers (n=20)	Nonworking Mothers (n=30)
Mothers' Education	.08	.34
Fathers' Occupational Status	.10	.54**
Mothers' Job Satisfaction	.48*	--
Number of Children	-.27*	-.21
Traditional Religious Beliefs	-.02	-.36
Teachers' Perception	.60**	.17
HOME	.25*	.59*

Note: * p < .05 ** p < .01 *** p < .001

than nonworking mother, because they are outside the home more than the mothers who are not working.

As can be seen from Table 8, home environment has a significant positive effect on children's PPVT scores for both the working and nonworking groups. This relation indicates the importance of home environment in both kinds of family settings.

The way teachers perceive the children's cognitive competence relative to other children was significantly

positively related to PPVT scores of children whose mothers were working. The correlation was not significant for the children of non-working mothers. This phenomenon needs to be studied further as the reason for this difference is not clear.

Multiple Predictors of the Quality of the Home Environment

In this section, the combined effect of the various factors presented in the conceptual model on the quality of the rearing environment is assessed. The factors in the model are the mothers' education, fathers' occupational status, number of children in the family, and traditional religious beliefs of the mother. Because the sample size was small, it was decided that multiple regression analysis be conducted for the overall sample only.

Measures of socioeconomic status, such as income, and occupations, are typically confounded. As can be seen from Table 2, there is a high correlation between family income and fathers' occupational status. In this study, multiple regression analyses was used to assesses the relation between various SES variables and the outcome measure, HOME, while controlling for other SES variables. In the first multiple regression analysis, HOME was used as the outcome variable, and mothers' education and fathers' occupational status were used as predictor variables. Both mothers'

education and fathers' occupational status were significant predictors of HOME scores and together accounted for 68% of the variance in HOME scores. When family income was added to the model, the R square for the model dropped to .66. Family income did not add to the predictive power of the model, and the standardized beta for family income (.13) was considerably smaller than the standardized betas for mothers' education (.39) and fathers' occupational status (.39). Furthermore, the regression coefficient for family income was not significant. Based on the assumption that family income will not be a significant factor when other variables are added to the model, only mothers' education and fathers'occupational status were used as measures of SES in all subsequent analyses.

As can be seen from Table 9, mothers with more education provided more supportive environments for their children. Father's occupational status was also significantly positively related to the home environment of children when other factors were controlled.

Number of children in the family was found to be significantly negatively related to the quality of the home environment, thus supporting the hypothesis that there is an inverse relationship between home environment and size of the family.

The traditional religious beliefs of mothers were negatively related to HOME scores when other variables were

controlled, but the coefficient was not significant.

Table 9

Multiple Regression Analysis: Predictors of the Quality of the Home Environment

	HOME Scores
Predictor Variables	Overall Sample (N = 50)
Mothers' Education	.41***
Fathers' Occupational Status	.55***
Number of Children	-.16*
Traditional Religious Beliefs	-.08
R sq	.67
F	22.63***

Note: Betas presented are standardized betas
* p < .05 ** p < .01 *** p < .001

Although the zero-order correlations in Table 3 showed a significant negative relation between traditional religious beliefs and the rearing environment of children, it is possible that the effect of religious beliefs could be indirect via the number of children.

The predictor variables explained 67% of the variance in the HOME scores. The F value (22.63) for the model was found to be highly significant ($p < .001$).

It was also hypothesized that the more traditional the mother is in her religious beliefs, the larger will be the family size. To test this hypothesis, another multiple regression analysis was run using the number of children in

the family as a dependent variable and other family factors as predictors. The purpose of this analysis was to determine whether traditional religious beliefs of the mothers affect the size of the family or not when SES variables were controlled. Although mothers' education, fathers' occupational status, and religious beliefs were all eligible to enter the equation, only the traditional religious beliefs variable was significantly positively related to the number of children (beta=.48, $p < .01$) when other family factors were controlled, thus supporting the hypothesis that the size of the family mediates the relationship between traditional religious beliefs and the home environment of children. The predictor variables accounted for 35% of the variance in family size. The F value for the model was 3.06 and was significant at .01 level.

Two separate multiple regression analyses using HOME as a dependent variable and values held by the mothers, SES variables and number of children as independent variables were conducted. As indicated earlier, values of self-direction and conformity were highly negatively related ($r=-.85$, $p < .001$) with each other; therefore it was decided not to use them in the same equation. In the first analysis, values of self-direction, social skills and other predictor variables were entered as independent variables. As in the earlier analysis, the social skills values measure

was positively related and self-direction negatively related to home environment when other variables were controlled, but the relationships were not significant. Mothers' education and fathers' occupational status in the model were significantly positively related to HOME scores when the value measures were controlled. The predictor variables accounted for 69% of the variance in HOME scores. The F value (19.4) for the model was significant at .001 level. Identical figures were obtained when conformity was used instead of self-direction. The hypothesis that more emphasis on self-direction will be positively related to the rearing environment was not supported.

Multiple Predictors of Children's Cognitive Competence

This section presents the findings of several regression analyses that were done to determine which of the predictor variables are related to children's cognitive competence when the quality of home environment is controlled. In the analyses, all the independent variables, including HOME, were entered simultaneously. The results of the regression analysis for the overall sample are presented in Table 10.

Table 10

Multiple Regression Analysis: Predictors of Children's Cognitive Competence

	PPVT Scores
Predictor Variables	Overall Sample (N = 50) Betas
Mothers' Education	.15
Fathers' Occupational Status	.14
Number of Children	-.37**
Traditional Religious Beliefs	-.10
HOME	.61***
R sq	.40
F	5.69***

Note: Betas presented are standardized betas
* p < .05 ** p < .01 *** p < .001

As can be seen from Table 10, mothers' education and fathers' occupational status are reduced to the level of nonsignificance when the home environment is controlled suggesting that the effect of mothers' education on children's cognitive competence is indirect via the home environment. Thus, the hypothesis that maternal education is related to children's cognitive competence when quality of home environment is controlled is not supported. Likewise, the study did not support the hypothesis that fathers' occupational status is directly related to cognitive competence of children, suggesting that the effect of SES variables on children's cognitive competence is

indirect via the home environment.

The number of children in the family was found to be significantly negatively related to the PPVT scores of children when other predictor variables were controlled. There is a substantial body of evidence from studies in various countries that family size is inversely related to children's intellectual performance scores (Belmont & Moralla, 1973; Henderson, 1981; Kallaghan & Macnamara, 1972).

In Pakistan, traditional religious beliefs dominate the lives of people, and as mentioned before, traditional religious beliefs play a very important role in determining the size of the family. Large families are therefore highly valued by a large part of the population. In this sample, with the influence of socioeconomic status statistically controlled, the association between family size and cognitive competence was statistically significant. The hypothesis that number of children in the family is inversely related to the cognitive competence of children when home environment is controlled is supported.

Traditional religious beliefs did not show a direct association with the PPVT scores. Their effects were possibly through the size of the family, since beliefs were not significantly related to HOME scores either. In order to get some more information about the traditional religious beliefs of the mothers, a separate multiple regression

analysis, using traditional religious beliefs of mothers as a dependent variable and SES variables as predictors was conducted. The results are presented in Table 11.

Table 11

Multiple Regression Analysis: Relation Between Traditional Religious Beliefs of Mothers and SES Variables

	Traditional Religious Beliefs' Scores
Predictor Variables	Overall Sample (N = 50) Betas
Mothers' Education	-.14
Fathers' Occupational Status	-.54***
R sq	.41
F	16.7***

Note: Betas presented are standardized betas.
* p < .05 ** p < .01 *** p < .001

The results showed that fathers' occupational status was significantly negatively related to the beliefs' score. Its association with mothers' education was also negative, but the relationship was not significant. The findings suggested that people in lower SES groups are more traditional in beliefs than people in higher SES groups. The model explained 41% of the variance in belief scores. The F value for the model was significant at .001 level

Traditional religious beliefs are also highly associated with number of children, suggesting that one of the reasons for large families in lower SES families in

Pakistan is the traditional religious beliefs of the parents. Because size of the family has a negative association with the cognitive competence of children, it seems that size of the family mediates the relationship between traditional religious beliefs of the mother and the cognitive competence of children.

Home environment showed a significant positive relationship with children's scores on PPVT. The results indicated that children who scored higher on PPVT experienced more supportive home environments than children who had lower scores.

To find the relation of maternal values with children's PPVT scores, separate multiple regression analyses were conducted. As mentioned before, because self-direction and conformity values were highly negatively correlated, it was decided to use them in separate equations. In the first analysis PPVT scores were used as the dependent variable and SES variables, number of children, HOME scores, self-direction and social-skills measures as predictor variables. In the second multiple regression analysis, the conformity measure was used instead of self-direction as a predictor variable. The results of both the analyses are presented in Table 12.

The relationships between the value measures and PPVT scores were not significant in the regression analyses suggesting that any effect of values on PPVT is indirect via

some other variable. The hypothesis that children whose parents value self-direction will score higher on PPVT was not supported. The models explained 47% of the variance in PPVT scores. The F values were significant at .001 level.

Table 12

Multiple Regression Analysis: Relations between Maternal Values and Children's Cognitive Competence

	PPVT Scores	
Predictor Variables	Self-Direction	Conformity
Self-Direction	-.18	---
Social Skills	.12	.22
Conformity	---	.15
Mothers' Education	.12	.12
Fathers' Occupational Status	.23	.23
Number of Children	.31**	.31**
HOME	.48*	.48*
R sq	.47	.47
F	6.06***	6.06***

Note: Betas presented are standardized betas.
* p < .05 ** p < .01 *** p < .001

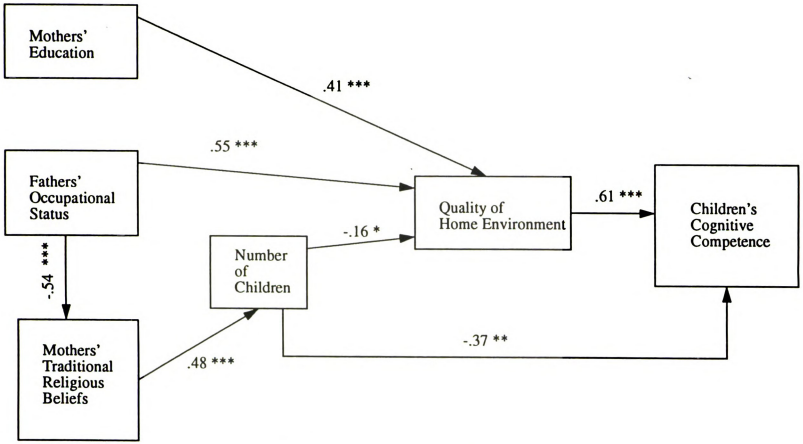
The zero-order correlations presented in Table 3 suggested a positive relationship between teachers' perception about the child's cognitive competence relative to other children and children's score on PPVT. To get a better picture of teacher's perception, it was decided to run a separate multiple regression analysis, using

teachers' perception as a dependent variable and other predictor variables as independent variables. The analysis suggested that none of the independent variables were significantly related to teachers' perception of the child's cognitive competence. The F value for the model was not significant.

Path Analysis

Multiple regression was used to determine which of the independent variables were directly related to each of the outcomes, when other factors were controlled. As indicated in the hypotheses, it was also believed that several of the independent variables would have an indirect effect on the outcomes of interest, via one or more mediating variables. Path analysis was used to test the hypotheses regarding direct and indirect effects on the two outcome variables. The results of these analyses are presented in Figure 3.

Figure 3 presents the significant positive and negative relationships of the variables with the quality of the home environment and cognitive competence of children when effect of other variables was controlled. Mothers' education and fathers' occupational status were significant predictors of home environment when other variables were controlled. These factors did not significantly predict the cognitive competence of children when the quality of home



Path coefficients are standardized betas.
* P < .05 ** P < .01 *** P < .001

Figure 3. Path model with mediating variables

environment was controlled.

As expected fathers' occupational status was significantly negatively related to the traditional religious beliefs of mothers when other variables were controlled. Traditional religious beliefs were significantly positively related to the number of children in the family thus affecting the quality of the home environment via number of children which was significantly negatively related to the mothers' score on the HOME. Number of children was also significantly negatively related to the cognitive competence of children when affects of other variables including the quality of the home environment were controlled.

Summary of Results

In this section, a summary of the results of the study is presented in terms of the research hypotheses.

Hypothesis 1: There is a positive relation between mothers' level of education and the quality of home environment.
Hypothesis 2: There is a positive relation between fathers' occupational status and the quality of home environment.

The results presented in the earlier analyses are consistent with these hypotheses. Mothers who had higher levels of education provided better quality home

environments for their children than other mothers. This finding is consistent with findings from other studies (Baharudin, 1992; Luster, 1985; Luster & Dubow, 1990). Mothers' level of education was significantly related to HOME scores of the mothers when other factors were controlled. It is difficult to explain why mothers' education has this impact on the rearing environment. There could be several possible explanations. First, as level of education gets higher, there is greater emphasis on dealing with complex matters. Generally, information is not presented in simple terms, and there are opportunities to think of the simultaneous effects of several variables on outcomes (Luster, 1985). Sameroff and Feil (1985) also found a link between cognitive complexity in parents and positive child outcomes.

The factor of mothers' intelligence cannot be ignored either. Intelligence is typically positively related to level of educational attainment, and intelligence may also influence mothers' child rearing practices. Education also introduces prospective parents to new information and new ways of acquiring knowledge. Thus education broadens the parents' data base and helps the parents develop skills that will serve them well when they need to acquire new information.

Fathers' occupational status was also positively related to the home environment of children when other

factors were controlled. Higher status could be associated with fewer financial strains, more help to the mother in her house work, good area of residence, and provision of stimulating materials. Higher occupational status in this study was also associated with higher levels of education. Fathers with more education seemed to be interested in the learning activities of children. During the interviews with the mothers and children, there were instances where fathers seemed to be interested in attending the sessions. These were the highly educated fathers who had many questions about good parenting when the interviews and observations were completed. Thus the hypotheses that SES variables are positively related to the quality of home environment are supported in this study.

Hypothesis 3: There is an inverse relation between number of children in the family and the quality of their home environment.

The data were consistent with the hypothesis. Mothers who had fewer children provided more supportive environments for the children than mothers who had many children. Number of children in the family was also negatively related to SES variables, making it more difficult for the mother to engage in positive interaction with the children and to provide individual attention. They had more financial

strains, more burden of house work as they could not afford any time and energy saving appliances or servants, and limited resources to provide stimulating environments. Other studies have also found a negative effect of number of children on the quality of home environment (Baharudin, 1992; Luster, 1985; Menaghan & Parcel, 1991).

Hypothesis 4: There is a negative relation between traditional religious beliefs of the mother and the quality of home environment.

Hypothesis 5: Number of children in the family mediate the relationship between traditional religious beliefs of the mother and the quality of home environment.

Hypothesis 6: There is an inverse relation between traditional religious beliefs of the mother and SES of the family.

Zero-order correlations indicated a negative relation between traditional religious beliefs of the mothers and quality of the home environment, but the relation was not significant when other variables were controlled. The negative correlation between mothers' score on the 'Acceptance subscale' and scores on Traditional Religious Belief Scale indicated that use of physical punishment was slightly more frequent in the case of mothers who had high scores on the Belief Scale. This hypothesis was not supported when other variables were controlled.

The data supported the hypothesis that traditional religious beliefs of the mothers influenced the number of children in the family, which in turn had a negative impact on the quality of home environment. More traditional mothers had more children. Although all mothers agreed that birth control methods should be used to limit the number of children, due to certain reasons, many apparently did not. Due to their own traditional beliefs and the beliefs of significant family members they were not able to use appropriate birth control methods resulting in larger family size. This finding was supported by the Pakistan Family Planning Survey as reported by Shah (1986). Her attitudinal data on future intentions about contraceptive use showed that 47% of urban and 41% of rural women said they would not use any method in the future. When these women were asked to provide a reason why they would not use a method, almost half of the urban and rural women cited religious beliefs. A large number of children in the family makes it more difficult for the mother to provide a supportive environment for the children.

The data also supported the hypothesis that traditional religious beliefs were negatively related to fathers' occupational status when other variables were controlled. Its relationship with mothers' education, although negative, was not significant in the regression analysis. Large number of children, lower occupational

status and lower educational levels together negatively affected the quality of home environment.

Hypothesis 7: Working mothers who were satisfied with their jobs provided better quality home environments for their children than mothers who had a lower score on the Job Satisfaction Scale.

The data supported the hypothesis that mothers who were satisfied with their jobs provided better rearing environments for their children. This finding is consistent with the literature which suggests that a mother's positive or negative attitude toward her work will influence her relationship with her children (Gold & Andrus, 1978; Harrell & Ridley, 1975; Yarrow, Scott, Deleeuw & Heinig, 1981). Satisfied mothers were working mostly because they were interested in work, and because of better financial conditions, they had more help available in taking care of the house. They engaged in more positive interactions with their children, and had more resources to provide stimulating materials to their children.

Hypothesis 8: There is a positive relation between self-direction values held by the mother and quality of home environment.

Hypothesis 9: There is a positive relation between SES of the family and the self-direction values held by the mother.

Contrary to expectations, self-direction values showed a negative relation to the quality of the home environment. The results were entirely different from the findings of other studies presented in the review of literature. All studies showed a positive relation between self-direction values and the quality of home environment (Luster, 1985; Schaefer and Hunter, 1983; Schaefer and Edgerton, 1985). In a longitudinal study of mothers and their young children, Schaefer and Hunter (1983) reported that those mothers who valued conformity over self-direction provided their children with less stimulating environments and interacted less with them. These mothers were also more irritable and punitive. The findings of the present study seemed to be influenced by the culture in which the study was conducted. In Pakistan respect and obedience on the part of children are highly valued. Curiosity and imagination are considered as values that need not be learned and independence in making decisions is somewhat discouraged. The analysis indicated important cultural differences in values that are specific for females and males. Self-direction values were negatively related to the quality of home environment for females, but were not related to HOME scores for males.

According to Kohn (1977), parental values mediate the relation between social class and child-rearing practices. He argues that because of occupational conditions, low SES families tend to value conformity and middle-class families

tend to value self-direction. These values, in turn, influence the child-rearing practices of the parents. The results of this study did not support Kohn's hypothesis. Fathers' occupational status and mothers' education showed a negative relation with self-direction values and a positive relation with conformity and social skills values. These relationships were significant for females but not significant for males. T-tests comparing means for the values for male and females did not show any significant differences.

Hypothesis 10: There is a positive relation between years of mothers' education and cognitive competence of children when the quality of home environment is controlled.
Hypothesis 11: There is a positive relation between fathers' occupational status and cognitive competence of children when the quality of home environment is controlled.

The data did not support the hypotheses that positive relations exist between the SES variables and child's cognitive competence when other variables are controlled. Any effects were indirect, possibly via the home environment. This finding was also supported by McGowan & Johnson (1984). According to them, more years of maternal education can help develop maternal attitudes that encourage independent child behavior and reciprocity in parent-child relations which promotes mother's intellectual stimulation

of her child. Mothers who are well educated are more likely than other mothers to value educational activities and thus are likely to structure the home environment in ways that encourage cognitive advances in their children.

Similarly fathers' occupational status was related to the availability of resources, and less financial strain. Also fathers' occupational status was related to the quality of housing, neighborhood, and provision of stimulating activities and materials for children, thus affecting the cognitive development of children via the home environment.

Hypothesis 12: There is a positive relation between mothers' satisfaction with their job and the cognitive competence of children.

The zero-order correlations presented in Table 7 supported the hypothesis that mothers who were satisfied with their jobs had children who scored higher on the PPVT. Because only 20 mothers in the study sample were employed outside the home, multiple regression analyses were not conducted for this variable. The positive effect of job satisfaction could be possibly through the home environment. One possible explanation for this relationship could be that mothers who were satisfied with their jobs might have more energy, time and resources to provide stimulating materials to their children. They might also be under less stress and therefore have more positive interactions with their

children. Another possible explanation could be that since mothers satisfied with their jobs were the ones who were highly educated, and were married to well educated husbands, it could be assumed that both parents might be very intelligent and children might have inherited the intelligence of their parents.

Hypothesis 13: There is an inverse relation between number of children in the family and children's score on the PPVT when the quality of home environment is controlled.

Number of children in the family was found to be significantly negatively related to the PPVT scores of children when other predictor variables were controlled, indicating a direct relationship. A large majority of families in Pakistan live in extremely overcrowded conditions. During the visits to the families, the investigator came across many instances where large families with seven or eight children were residing in a small, two-room house. Those were the only covered areas in the house. Three or four children would share the same small bed and one quilt. But because of traditional religious beliefs, large families are highly valued by a large part of population. According to Zajonc and Marcus (1975) the intellectual environment of the home gets diluted by the addition of each child in the family. Also it could be that verbal abilities are more strongly negatively affected by

the number of siblings than the nonverbal abilities (Blake, 1989), and PPVT is a test for verbal ability. In this study the hypothesis that number of children in the family is inversely related to the cognitive competence of children when home environment is controlled is supported.

Hypothesis 14: There is an inverse relation between traditional religious beliefs of the mothers and children's scores on the PPVT when the quality of home environment is controlled.

Traditional religious beliefs did not show a direct negative relationship with the children's PPVT scores. Any effect of beliefs was mediated by the size of the family, because beliefs were not significantly related to HOME scores in the regression analysis.

Hypothesis 15: Mothers who value self-direction in children will have children who have higher scores on the PPVT.

Contrary to expectations this hypothesis was not supported by the data. All previous studies conducted on this issue consistently found significant negative correlations between mothers' conforming values and measures of their children's cognitive abilities (e.g. WPPSI scores, Test of Basic Experience scores, and teachers' ratings of creativity/curiosity) (Luster, 1985). In contrast, the correlations between the self-directing values and these

measures were all positive and significant (Edgerton and Schaefer, 1978). In the present study social skills values and conformity values showed a positive relation with children's cognitive competence. As mentioned before cultural values place higher emphasis on obedience, respect, consideration, honesty and other such values, while self-direction values are not considered important. There is a possibility that because mothers were more familiar with the social skills and conformity values, they were more comfortable in giving priority to the values they understood, and left the less understood values for the end.

Hypothesis 16: There is a positive relation between children's score on PPVT and quality of the home environment.

The data provide support for this hypothesis. Children who achieved higher scores on the PPVT experienced more supportive home environments. Past studies have found that mothers who provided stimulating home environments had children who achieve high IQ scores (Bradley & Caldwell, 1984; Gottfried & Gottfried, 1984). In the present study, it seemed that mothers who had higher HOME scores were the ones who were very interested in knowing about child development and had many questions about their child.

CHAPTER V

SUMMARY, OBSERVATIONS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

In this concluding chapter, the purpose of the study and findings are summarized; conclusions are drawn from the results; and interpretations of the findings are discussed. At the end of the chapter, the implications and recommendations for future research are presented.

Summary of the Study

Much of human development is a consequence of the manner in which parents rear their children. The major purposes of this study were to identify family factors that predict the quality of the rearing environment of children and to examine their effects on the cognitive competence of 4 to 6 year-old children in Pakistan. Fifty mother-child dyad of randomly selected 4 to 6 year-old school children in urban areas of Peshawar, Pakistan were studied in 1991-92. The following research instruments were used to collect the data: The Peabody Picture Vocabulary Test- Revised, Home Observation for Measurement of the Environment, Pakistani

HOME, Family Background Interview Schedule, Job Satisfaction Scale, Traditional Religious Belief Scale, Schaefer and Edgerton Rank Order of Parental Values, Teachers' Perception Scale, and Personal Evaluation of Home Environment. In this section, specific objectives related to those purposes, and findings pertaining to the objectives of the study are summarized.

Objective 1

The first objective of the study was to determine the relationship between demographic variables and the quality of the home environment mothers' provide.

The demographic variables included age and marital status of mothers, education of mothers, fathers' occupational status, and number of children in the family. The data showed that all the mothers in the sample were married and living with their spouses. As there was no variability in the responses, marital status was not used as a predictor in the subsequent analyses. Initial analysis of the data also demonstrated that, with the exception of number of children, age of the mother was not significantly related to any other predictor and outcome variables.

Results of the study show that mothers' education, fathers' occupational status and number of children in the family were predictors of the quality of home environment when other factors were controlled. Homes where mothers had

more years of education and the occupational status of fathers was higher were rated as being more supportive environments. Quality of home environment was inversely related to the number of children. Children who had fewer siblings experienced more supportive home environments. The results of a t-test showed that female respondents had more siblings than their male counterparts.

Objective 2

The second objective of the study was to determine the relationship between mothers' satisfaction with their jobs and the quality of home environment mothers provided.

Because of the small sample size, only correlational analysis was done for this variable. The zero-order correlations indicated that mothers who were satisfied with their jobs provided more supportive home environments than mothers who were not satisfied.

Objective 3

The third objective was to determine the relationship between traditional religious beliefs of the mothers and quality of the home environments mothers' provide.

When other factors were controlled, the traditional religious belief measure did not have a significant effect on the quality of home environment. However, traditional religious beliefs did have a positive effect on the number

of children, which in turn was negatively related to the quality of home environment. More traditional mothers had more children. Thus any effect of traditional religious beliefs on home environment was indirect via the size of the family.

Objective 4

The fourth objective of the study was to determine the relationship between values held by the mothers and the quality of home environment mothers' provided.

Contrary to expectations, self-direction values held by the mothers were not positively related to their HOME scores. The findings seemed to be influenced by the culture in which the study was conducted. Social skills values and conformity values showed a positive relationship to the quality of home environment when other variables were controlled. The analysis indicated important cultural differences in values that are specific for female and male children.

Because of small sample size, regression analysis was not performed for the gender groups. Zero-order correlations indicated that self-direction values were significantly negatively related to the quality of home environment for females, but were not related to HOME scores for males.

Objective 5

The fifth objective was to determine if the quality of home environment is related to the cognitive competence of children.

The study showed that children who had higher scores on the PPVT, the measure of their cognitive competence, experienced more supportive home environments than children who had lower scores. The relationship between children's PPVT scores and mothers' HOME scores was highly significant.

Objective 6

The sixth objective of the study was to determine the relationship between demographic variables and children's cognitive competence, when the quality of the home environment was statistically controlled.

The results of the data analysis show that mothers' education and fathers' occupational status did not have a significant effect on the children's cognitive competence when the quality of home environment was controlled. Number of children in the family was the only variable that was significantly negatively related to children's PPVT scores when the quality of home environment was statistically controlled.

Objective 7

The seventh objective of the study was to determine the relationship between mothers' satisfaction with her job and the cognitive competence of children.

Because of small sample size, multiple regression analyses were not conducted with this variable. Zero-order correlations indicated a positive relation between mothers' satisfaction with their jobs and the cognitive competence of children.

Objective 8

The eighth objective of the study was to determine if traditional religious beliefs had any effect on the children's scores on the PPVT, when the quality of home environment was controlled.

The results of the analysis showed no significant relationship between mothers' traditional religious beliefs and children's cognitive competence, when the quality of home environment was statistically controlled. As traditional religious beliefs were not significantly related to HOME scores in the regression analysis, any effect of traditional religious beliefs on children's PPVT scores was via the number of children in the family.

Objective 9

The ninth objective was to determine the relationship between values held by the mothers and the cognitive competence of children, when the quality of home environment was statistically controlled.

The data showed that none of the values showed a significant relationship with children's PPVT scores when the quality of home environment was controlled.

Objective 10

The final objective of the study was to determine the relationship between teachers' perception of the children's cognitive competence and children's score on a measure of verbal intelligence.

The main purpose of this objective was to check the validity of the PPVT which was standardized in the United States. In order to see if PPVT measures the cognitive competence of Pakistani children, teachers' perceptions about the child's cognitive competence relative to other children were obtained. The zero-order correlation indicated a moderate relationship between children's score on the PPVT and teachers' perception of children's cognitive competence. Children who had higher PPVT scores were also rated by their teachers as more intelligent compared to other children. This finding suggested that PPVT was measuring the same construct it was designed to measure, and

it was appropriate to use it for 4 to 6 year-old children in Pakistan.

Observations

One of the things that was very striking for the researcher was the willingness and eagerness of the parents to participate in this project. Even parents who were not in the sample, but heard about the project from other parents, contacted the researcher to take part in the study.

Another thing that was very evident was the amount of love and concern the parents in this study have for their children. Because of this love and concern, parents were doing a great deal of thinking and questioning about what they could do to help their children achieve a satisfying life. Although according to the researcher's standards some parents seemed "more skillful" than others, all of the mothers wanted to be "good mothers" and wanted to do what was "best" for their children.

Many parents show eagerness to start parenting education programs, because they have no other means to get guidance in child rearing. Many were uncertain about whether they were "right" in their child-rearing techniques. Many mothers, after answering the interview questions, would ask the researcher "Is this the right

thing to do?" The researcher had to spend a great deal of time after the interviews and observations were completed to answer the parents' questions and concerns.

A very unfortunate observation was the great discrepancy in the socioeconomic status of the study families. Several families were living in extremely poor conditions. It was very difficult for them to think about the cognitive competence of children when they were under the pressure to fulfill basic survival needs.

Another observation that was not very pleasant was the unfair treatment female children receive from their parents and society in general. In Pakistan, cultural norms demand females to be more submissive; they are expected to sacrifice their needs for the family and for brothers. Even in this small sample, there were cases where sons were enrolled in expensive, private English medium schools, while girls were studying in less expensive public schools. Bronfenbrenner (1979) advocated what he calls "transforming experiments" (p. 40) which by the very fact of their execution change the environment in which they are conducted. That is, simply carrying out an experiment creates change. One comment received from a mother seemed to suggest that this research may in fact have served, at least in one instance, as a transforming experiment. She called the investigator and said:

> After you left I started thinking about how I interact with Amir (given name), and I realized that I hardly ever do, and when I do, it is all negative interaction. I felt guilty, but I decided to change this attitude. The next day I asked him about his day at school, and tried to use more positive statements. At times Amir gave me a glance reflecting "what's going on here". This is the 10th day I am trying to change myself, but I saw several changes in Amir. He seemed more relaxed, and I never knew that he has an excellent sense of humor, he talks about school, teachers and friends and when I am with him I don't have to tell him again and again to finish his homework. And you know he is not dumb at all as I always thought. Thanks a lot.

Simply participating in this research changed her thinking and interaction with her child.

Conclusions

The findings of this study have demonstrated that the development of children is related to factors in the ecosystem of children. The four levels of environments that Bronfenbrenner identified interact and influence the developing person, the child. Most of the findings from this study are consistent with the conceptual model which is based on Bronfenbrenner's theoretical framework.

Measures of socioeconomic status were related to the quality of home environment when other factors were controlled. Mothers who had more years of education provided more supportive environments for their children. Mothers who spent more time pursuing education also delayed child bearing and had fewer children. They also had

educated spouses, who had better occupational statuses, and thus were less likely to be living in poverty. Higher occupational status of the father was also associated with the provision of better quality home environments. For the mothers who were working outside the home, higher education led them to have more satisfying careers than the less educated mothers. Mothers who were satisfied with their jobs provided more supportive home environments for their children.

Another family factor that affected the home environment of children was the number of children in the family, when other factors were controlled. As expected, number of children had a negative effect on the quality of home environment.

Traditional religious beliefs of mothers were another factor that affected the home environment indirectly when other factors were controlled. A positive relationship between traditional religious beliefs and the number of children when other factors were controlled suggested that family size mediates the relationship between traditional religious beliefs and quality of the home environment.

Possibly because of cultural reasons, values held by the mothers did not show any significant relationship with the quality of the home environment mothers provided for their children when other factors were controlled. Zero-order correlations suggested a negative effect of

self-direction values on the home environment and positive effects of social skills and conformity values. Another cultural difference was that these relationships were significant for females, but not for males.

Bronfenbrenner (1989) assumed that environments surrounding the children influence their developmental outcomes, and each environment is influenced by the other. Results from this study were also consistent with this assumption. Children who achieved higher scores on the test of cognitive competence had mothers who provided more cognitively stimulating home environments. When quality of home environment was controlled, number of children was related to the cognitive competence of children. The results of the present study support Bronfenbrenner's assertion that the home environment mothers provide for their children is influenced by other factors and environments, and the quality of the home environment in which children are raised affects their cognitive competence.

Implications

The findings from this study indicated the importance of family factors that affect the home environment and children's development. Improving, and in some situations, introducing positive interaction between parent and child in

a family could have many advantageous consequences, such as enhancement of child's learning and socialization, improvement of parenting processes, improved interaction among family members, and most important the awareness of the part home environment plays in affecting their children's development.

If the growth of cognitive functions is affected by environmental experiences and if the mother is a child's principal teacher for the early years of life, then the interaction strategies that a mother uses will have consequences for the ability of the child to learn in later learning situations.

The study emphasized the importance of parent-child interaction, and the importance of family factors that might affect the home environment and developmental outcomes of children. Parents in this study who provided richer and more stimulating home environments had children who tended to score high on the test of cognitive competence. The results of the study emphasized the importance of the parents' role in the development of their children. Many parents in Pakistan are not aware of this importance. This needs to be understood when working with families and when trying to modify the family patterns to make them maximally beneficial for the children.

The study emphasized the importance of stimulating learning materials in the child's home. A large percentage

of the population of Pakistan live under extremely poor conditions, and it is very hard for them to even think about providing learning activities for their children. There are several welfare organizations in Pakistan which could be made aware of the importance of a cognitively stimulating home environment for the child. They could convey ideas for inexpensive learning activities to the low-income families. The same organizations can be made aware of the importance of positive interaction with the child, warmth and acceptance in the home, and provision of a variety of experiences in the child's life. These could be conveyed to parents through informal play groups in the neighborhood or in the child's school. Parenting education, emphasizing knowledge of child development, improved parenting skills, and use of existing resources to enrich the environment should be offered to parents.

In Pakistan, especially in the lower-socioeconomic groups, teachers of children are considered to be the authority figures in knowing everything about children. Teachers could be made aware of the effects of family factors and the home environment on children's development. During parent-teacher meetings, teachers can play a role as parent educators. In addition play groups and discussions with parents can help identify the parents who are at risk for suboptimal parenting and they can be helped as early as possible.

The findings indicated that the educational level of mothers was related to the degree to which they provided supportive home environments for their children. The importance of education for females is therefore greatly emphasized in the study. The negative impact of number of children on the quality of home environment and children's cognitive competence suggested a serious need for family planning and appropriate use of birth control methods by families, and this can have long term consequences for families and children in Pakistan. Parent education programs, mentioned before, can emphasize the positive effects of smaller family size on the well-being of all family members especially young children.

Suggestions for Future Research

This cross-sectional study involved a sample of 4 to 6 year-old children in the city of Peshawar, Pakistan during the year 1991/92. Follow-up studies are needed to see the effects of early environmental experiences in different age groups. Researchers can monitor the environmental changes that occur over time and their influences on cognitive development. The study may be replicated using samples of children from rural areas, other regions of Pakistan, children who are not attending schools, employed children and also children with disabilities.

The inclusion of fathers in a similar study would extend the knowledge base beyond maternal and child behaviors into a dual-parent family measure of interaction among Pakistani parents and children. A study which would focus on direct observation of Pakistani men interacting with their children would be an important and unique contribution to the increasing number of research studies on fathering behaviors in recent years. Judging from the enthusiasm of fathers who were present during this study, it would not be difficult to secure a sample of Pakistani men. It is suggested that the gender of the interviewer be matched with the gender of the informants in such a study so that they might feel as comfortable as possible (Martinez, 1984). In addition, the influence of siblings, grandparents and other adults on children's developmental outcomes may also be of interest to future researchers.

Other predictor variables, for example, parents' intelligence, levels of self-esteem, knowledge and attitudes toward child development, expectations and aspirations for the child, and parents' developmental history may be included in future research. In addition, research is needed to fully understand how characteristics of child, parent and context combine to influence the parent-child relationship (Baharudin, 1992).

The results of the study suggest some indirect effects of religion in the lives of Pakistani families. But the

effects were not as significant as were assumed by the investigator. Studying other aspects of religion with a larger sample size could yield some valuable results. The variable of religion needs to be studied further, and its relation with family, parenting and child development variables needs to be explored. For example, the relation of religion to knowledge about parenting and child development, expectations and aspirations for the child, and parents' concerns and goals for the child could be studied. Other aspects include the relation of religion to the levels of tension and cohesion in the family and self-esteem of family members.

A great deal of effort is needed to develop research instruments standardized on Pakistani population. There is definitely a great shortage of standardized instruments in the areas of family, child-development, and parenting in Pakistan. In this regard the starting point could be to develop instruments that measure nonverbal abilities. A complicated language system in Pakistan makes it very hard to administer verbal instruments. Research institutes need to be made aware of the importance of instruments standardized on the population on which they are to be administered.

Finally, the present study used only quantitative measures to study the interactions among parents and children, and children's developmental outcomes.

Qualitative research may increase the ability to explain individual differences in parenting behavior and child development. It could give a more comprehensive and deeper insight as well as fuller understanding of the family processes affecting the home environment and children's developmental outcomes.

APPENDICES

APPENDIX A

Child's Name-----

THE EFFECTS OF FAMILY FACTORS ON THE COGNITIVE COMPETENCE OF FOUR TO SIX YEAR-OLD CHILDREN IN PAKISTAN

CONSENT FORM

There has been abundance of studies in the United States examining the relationship between family factors and children's cognitive competence. However, such study has not been done in Pakistan. This study is designed to describe family factors that seem to relate to children's cognitive competence. Knowledge from this study will help parents to create home environment conducive to the cognitive development of the children.

I am a doctoral student in the Department of Family and Child Ecology, Michigan State University and this study is a very important part of my program. I am inviting you and your kindergarten child to participate in the study and asking your permission to interview and observe you and your child. Your child will also be doing the Peabody Picture Vocabulary Test. This study will be conducted at your home for about 1-2 hours. All information obtained from this study will be kept confidential. Results from the study will be reported as group summaries with no one individual identifiable in the record. Your participation is voluntary and you are free to withdraw your consent and participation at any time. You may have a copy of the results of this study on request.

I have read the preceding statement and here by agree to participate in this study. I understand that my participation is voluntary, and I can withdraw at any time.

Date ---------- Signature----------
Phone No.---------- Address----------

Please indicate dates and timings for the interview that are convenient for you:

Dates------- ------- ------- ---------
Timings------- ------- ------- ---------

I would like to receive a copy of the research results:
Yes------ No-------

Thank you very much for your participation.

---------- ----------
Research Investigator Researcher's Tel. No.

APPENDIX B

Home Observation for the Measurement of the Environment
(Preschool)

There are 55 items on the HOME Inventory. Each is scored yes or no. A total score is computed by adding together the number of items scored "yes".

Learning Stimulation

1. Child has toys which teach color, size, shape.
2. Child has three or more puzzles.
3. Child has record player and at least five children's records.
4. Child has toys permitting free expression.
5. Child has toys or games requiring refined movement.
6. Child has toys or games which help teach numbers.
7. Child has at least 10 children's books.
8. At least 10 books are visible in the apartment.
9. Family buys and reads a daily newspaper.
10. Family subscribes to at least one magazine.
11. Child is encouraged to learn shapes.

Language Stimulation

12. Child has toys that help teach the names of animals.
13. Child is encouraged to learn the alphabet.
14. Parent teaches child simple verbal manners (please, thank you)

15. Mother uses correct grammar and pronunciation.
16. Parent encourages child to talk and takes time to listen.
17. Parent's voice conveys positive feelings to child.
18. Child is permitted choice in breakfast or lunch menu.

Physical Environment

19. Building appears safe.
20. Outside play environment appears safe.
21. Interior of apartment not dark or perceptually monotonous.
22. Neighborhood is aesthetically pleasing.
23. House has 100 square feet of living space per person.
24. Rooms are not overcrowded with furniture.
25. House is reasonably clean and minimally cluttered.

Warmth and Acceptance

26. Parent holds child close 10-15 minutes per day.
27. Parent converses with child at least twice during visit.
28. Parent answers child's questions or requests verbally.
29. Parent usually responds verbally to child's speech.
30. Parent praises child's qualities twice during visit.
31. Parent caresses, kisses, or cuddles child during visit.
32. Parent helps child demonstrate some achievement during visit.

Academic Stimulation

33. Child is encouraged to learn colors.
34. Child is encouraged to learn patterned speech (songs, etc).
35. Child is encouraged to learn spatial relationships.
36. Child is encouraged to learn numbers.
37. Child is encouraged to learn to read a few words.

Modeling

38. Some delay of food gratification is expected.
39. TV is used judiciously.
40. Parent introduced visitor to child. 41. Child can express negative feelings without reprisal.
42. Child can hit parent without harsh reprisal.

Variety in Experience

43. Child has real or toy musical instrument.
44. Child is taken on outing by family members at least every other week.
45. Child has been on trip more than fifty miles during last year.
46. Child has been taken to a museum during past year.
47. Parent encourages child to put away toys without help.
48. Parent uses complex sentence structure and vocabulary.
49. Child's art work is displayed some place in house.
50. Child eats at least one meal per day with mother and

father.

51. Parent lets child choose some foods or brands at grocery store.

Acceptance

52. Parent does not scold or derogate child more than once.
53. Parent does not use physical restraint during visit.
54. Parent neither slaps nor spanks child during visit.
55. No more than one instance of physical punishment during past week.

Comments----------

APPENDIX C

Pakistani Home Observation for the Measurement of the Environment (P - HOME)

Learning Stimulation

1. Child has play materials that encourage thinking, for example puzzles, problem solving books (connecting dots, mazes, difference between the pictures books), memory games.
2. Child is permitted to play with clay, mud, and materials for self expression.
3. Child can listen to favorite songs on the family radio/cassette recorder/record player.
4. Child has play materials that help teach numbers, for example toys, charts, blocks, beads.
5. Child is allowed to use papers, pencils, books, numbers, letters, and other learning materials.
6. There are books, magazines, written materials that child looks at and pretends to read.
7. Child can use substitutes for toys, for example mud, water, kitchen pots and dishes, sticks.

Language Stimulation

8. Family has pet animal(s)
9. Child has play materials that help teach the names of animals.

Physical Environment

10. Child lives in an individual home.
11. Child has a play space in the home.
12. There are plants and decorations in the house.
13. There is covered storage space for clothes.
14. There is covered storage space for utensils.
15. No garbage/insects visible in the house.
16. Walls are safely finished (no exposed nails, no chipped paint, no insect holes).
17. There are fence/gate around the outside play area.
18. Child is allowed to go in the immediate neighborhood alone.
19. Outside play material, for example sand box, tree house, bicycle is available.
20. Child can use outside play material.

Academic Stimulation

21. Family member(s) likes to read.
22. Family member(s) participate in academic activities e.g. quiz competitions, discussions, debates, essay writings.
23. Family member(s) read to the child at least once a week.

Modeling

24. Child eats with the family at specific meal times.
25. Child eats whatever is cooked.
26. Child is encouraged to wash hands and face.
27. Child is encouraged to dress himself/herself.
28. Child is encouraged to eat himself/herself.
29. Child is encouraged to do some tasks in the house.
30. Child is given a choice in buying clothes.
31. Child is given choice in buying groceries.

Variety in Experience

32. Family member(s) likes to play a musical instrument.
33. Child is allowed to play with the instrument.
34. Child has play materials that can be used as a musical instrument.
35. Child has been taken to the museum, zoo, amusement park, library during the past year.
36. Child participates in family celebrations.
37. Relatives gather at least once a year.
38. Child visits relatives/family friends at least once a month.
39. Child takes care of younger siblings/children (e.g. play gently, feed them).

APPENDIX D

Family Background Interview Schedule

1. Family name---------- Date----------
2. Child's name---------- Birth date----------
3. Age of the child---------- 4. Sex of the child----
5. Caregiver for the visit----------
6. Relationship to the child----------
7. Ethnicity----------
8. Address----------

   ----------Phone----------

9. Current child care arrangements----------
10. Other persons present----------
11. Can you please tell me your age----------years
12. What is your marital status?----------
    1. Married
    2. Widowed
    3. Divorced
    4. Separated
    5. Other
13. Are you currently employed?
    1. Yes---- 2. No-----
14. If yes, are you working full-time or part-time?
    1. Full-time-------- 2. Part-time--------
15. What is your job?----------
    1. Unemployed
    2. Unskilled worker
    3. Semiskilled worker
    4. Skilled worker
    5. Owner of small business, clerical, sales, technicians--------
    6. Administrative personnel, small independent business, minor professionals
    7. Business managers, proprietors of medium sized business.
    8. Executives and proprietors of large concern, major professionals.

16. What is your husband's job?----------
    1. Unemployed
    2. Unskilled worker
    3. Semiskilled worker
    4. Skilled worker
    5. Owners of small business, clerical, sales, technician.
    6. Administrative personnel, small independent business, minor professionals
    7. Business managers, proprietors of medium sized business
    8. Executive and proprietors of large concern, major professional

17. What is the highest level of formal school that you have completed?----------

    1. Illiterate
    2. Basic reading and writing skills
    3. Primary school graduation
    4. Secondary school graduation
    5. High school graduation
    6. Partial college training
    7. Standard college or University graduation
    8. Graduate professional training

18. Total years of education----------

19. What is the highest level of formal school your husband has completed?----------

    1. Illiterate
    2. Basic skills of reading and writing
    3. Primary school graduation
    4. Secondary school graduation
    5. High school graduation
    6. Partial college training
    7. Standard college or university graduation
    8. Graduate professional training

20. Total years of education ----------

21. Total income of the family per year:
    How much is your income per month?----------
    How much is your husband's income/month----------
    Does your family receive any income from other sources?

    If yes, how much per month?

    TOTAL/month----------
    TOTAL/year----------

22. How many children do you have between age

0 - 6 years----------
6 - 12 years---------
12 - 20 years---------
20 and above ---------

TOTAL ----------

APPENDIX E

Job Satisfaction Scale

The following questions were asked on an instrument entitled "Job Satisfaction Scale."

1. Are working hours convenient for you?

   1. No-------
   2. To some extent----------
   3. Yes--------

2. Are you appreciated by your boss or coworkers?

   1. No--------
   2. To some extent----------
   3. Yes-------

3. Are you really interested in your work?

   1. No--------
   2. To some extent--------
   3. Yes-------

4. Do you think your work provides an opportunity to advance professionally?

   1. No-------
   2. To some extent---------
   3. Yes--------

5. Do you think you are fairly paid for the work you do?

   1. No-------
   2. To some extent-------
   3. Yes-------

6. Do you think you have the freedom to make your own decisions?

   1. No------
   2. To some extent--------
   3. Yes-------

7. Do you like the general atmosphere of your work place?

   1. No--------
   2. To some extent---------
   3. Yes-------

8. Does your work interfere with your family life?

   1. Yes-------
   2. To some extent--------
   3. No--------

9. Are you appreciated by your husband for the work you do?

   1. No-------
   2. To some extent-------
   3. Yes--------

APPENDIX F

Traditional Religious Beliefs Scale

The following statements refer to the beliefs about child rearing that parents have for their children. When answering the following statements circle the numeral which represents the degree to which you agree or disagree with the statement.

1. Most important thing parents can do is to train their children in Islamic teaching when they are 4-6 years old.
   4. Strongly agree 3. Agree
   2. Disagree 1. Strongly disagree

2. By four to six years a Muslim child should start memorizing the Quran.
   4. Strongly agree 3. Agree
   2. Disagree 1. Strongly disagree

3. I believe children should be raised in strict traditional Islamic style.
   4. Strongly agree 3. Agree
   3. Disagree 1. Strongly disagree

4. I believe four to six year-old children should play with their own sexmate.
   4. Strongly agree 3. Agree
   2. Disagree 1. Strongly disagree

5. Children should watch at least one television program on religious teaching every day.
   4. Strongly agree 3. Agree
   2. Disagree 1. Strongly disagree

6. I think it is O.K to limit the number of children by using birth control methods.
   4. Strongly agree 3. Agree
   2. Disagree 1. Strongly disagree

APPENDIX G

Schaefer and Edgerton Rank-Order of Parental Values

I have three groups of cards and on each card is something most parents feel is important for their child to learn. I'm going to hand you one group at a time and ask you to think about what is most important to you for your child. Okay? In this group (Hand cards), please arrange the cards with what you most want your child to learn first. What's second-most important next, and so on, with what's least important to you last.

First Set
1a) to think for him/herself

1b) to keep him/herself and his/her clothes clean

1c) to be curious about many things

1d) to be polite to adults

1e) to be kind to other children

Second Set
2a) to obey parents and teachers

2b) to be responsible for his/her own work

2c) to be kind and considerate

2d) to keep things neat and in order

2e) to use imagination

Third Set
3a) interest in how and why things happen

3b) ability to get along with people

3c) being a good student

3d) ability to look after him/herself

3e) good manners

self-direction score = 1a+1c+2b+2e+3a+3d
Conformity score = 1b+1d+2a+2d+3c+3e
Social score = 1e+2c+3b

APPENDIX H

Teacher's Perception Scale

Please circle the response that in your opinion best describes the child.

1. Based on your experiences with the child how will you rate---------- regarding cognitive development relative to other children.
   4. Superior
   3. Above average
   2. Average
   1. Below average
2. How will you rate the child regarding the use of every day vocabulary relative to other children?
   4. Superior
   3. Above average
   2. Average
   1. Below average
3. Any other comments

APPENDIX I

Personal Evaluation of Home Environment

Physical Environment

5. Very stimulating
4. Stimulating
3. Slightly stimulating
2. Needs many changes
1. Damaging for the cognitive competence of the child.

Warmth in the Environment

5. Very warm
4. Warm
3. Slightly warm
2. Warmth is not expressed
1. Emotional environment harmful for the cognitive competence of the child.

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