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LITERACY LINKS: ISSUES IN THE RELATIONSHIP BETWEEN EARLY CHILDHOOD DEVELOPMENT, HEALTH, WOMEN, FAMILIES, AND LITERACY

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Abstract — The goal of this paper is to review some of what is known about relationships between literacy, early childhood development, families, and women's issues, and to explore how best to capitalize on this knowledge to create more effective development programs. The paper provides a conceptual model of the relationships between the factors, then individually discusses the topics of early childhood development and literacy, women and literacy, family issues in literacy, and literacy and health. The paper stresses the need to take into account the transactional nature of the relationship between literacy and various social variables, whereby social and cognitive variables affect each other and literacy over time, and literacy itself affects each of the social and cognitive variables over time. Another major theme of the paper is the importance of recognizing and utilizing traditional structures when introducing educational interventions.

INTRODUCTION

Literacy has traditionally been considered an autonomous skill which, once imparted on individuals, would enable them to carry out a variety of important functions in society. Schooling has been the major explicit provider of literacy throughout the industrialized and developing worlds, and school-based models predominate in both formal and nonformal education. Literacy is thus typically viewed as a skill that individuals are taught in an institutional setting and that will lead to a variety of important benefits. One problem with this view of literacy and literacy learning is the unidirectional implication that learning literacy will lead people to have better health practices, raise their children better, and have higher income, for example, without taking into account that each of the assumed positive outcomes of literacy may also may lead to improved literacy. It has been found, for example, that infant nutritional supplementation may increase the likelihood of school enrollment of a child (Myers, 1992; Klein, 1979). Also, it is clear that income is highly related to school success. The interaction between literacy and social benefits is quite complex, and these complexities need to be taken into account when planning literacy programs.

The second problem with the school-based model is that although schools often acknowledge the importance of family or household influences in education, the model does not exploit these influences for purposes of better learning. These influences are not limited to those extending from parent to child, but include as well child to parents, extended family members to parents or child, child to child, and parent to parent. Some of the limited research evidence which supports a family model of literacy (but which falls far short of demonstrating the entire picture) includes the finding that parental literacy is a major predictor of children's school achievement and children's health (Wagner and Spratt, 1988; Cochrane, 1980), and that preschool programs with parental involvement appear to be more successful generally than those without (Myers, 1992).

The goal of this paper is to review some of what is known about relationships between literacy, early childhood development, families, and women's issues, and to explore how best to capitalize on this knowledge to create more effective development programs. The paper is not meant to provide a comprehensive overview of all the relevant research in these areas, but rather to highlight ways in which the various areas intersect and how these intersections may

be used to the best advantage in literacy development.

LEARNING CAPACITY AND LITERACY MODEL

Figure 1 provides a conceptual model of the interrelationships between early childhood experience, family, health, and literacy, as well as the various ways in which interventions may interact with these variables (see Fig. 1). Two sets of features, characteristics of the child and points of influence, interact to form the learning capacity and literacy of a child. The characteristics of the child include such factors as the health/nutritional status of the child, the family features, including parental or adult attitudes and education, the aptitude of the child, and the cultural support the child receives. Each of these characteristics interacts with the others. Parental attitudes, for example, influence the child's health through parental responses to health problems of the child. The health of the child may in turn affect parental attitudes toward the child by influencing parental perceptions of the child's ability to perform social and cognitive functions.

The points of influence comprise various forms of intervention which interact with the characteristics of the child to influence the learning capacity and literacy outcome. Examples of such points of influence include early childhood education programs, health and nutrition programs, and the quality of the classroom context, each of which may directly affect the child. Others, such as parental education or education of extended family members, child-to-child programs, family literacy programs and women's literacy programs, act more indirectly.

Figure 2 shows how easily one can apply the same model to adults, who are also an important target of literacy and development programs. Like the child, the adult's learning capacity and literacy achievement will be determined both by personal characteristics and by certain points of influence. Among the characteristics of the adult are the educational experience of other family members, including the children. As with children, the health and nutritional status of the adult are closely related to their ability to learn, and to the likelihood that they will benefit from other forms of intervention.

It is important to recognize that none of the individual or environmental characteristics listed in this model are necessarily constant over time. The interactions that occur between variables are not one-time events, but rather continually mutually influence each other across time in a transactional manner (Sameroff, 1975). For example, the poor health of an adult in the household might lead him or her to have less social interaction with a child.

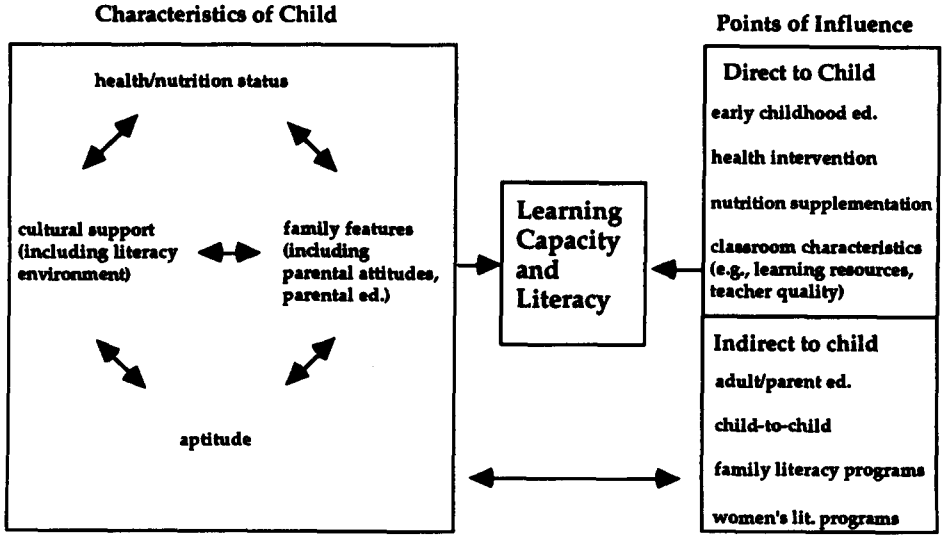

Fig. 1. Factors affecting learning capacity and literacy of children (adapted from Levinger, 1992, p. 28).

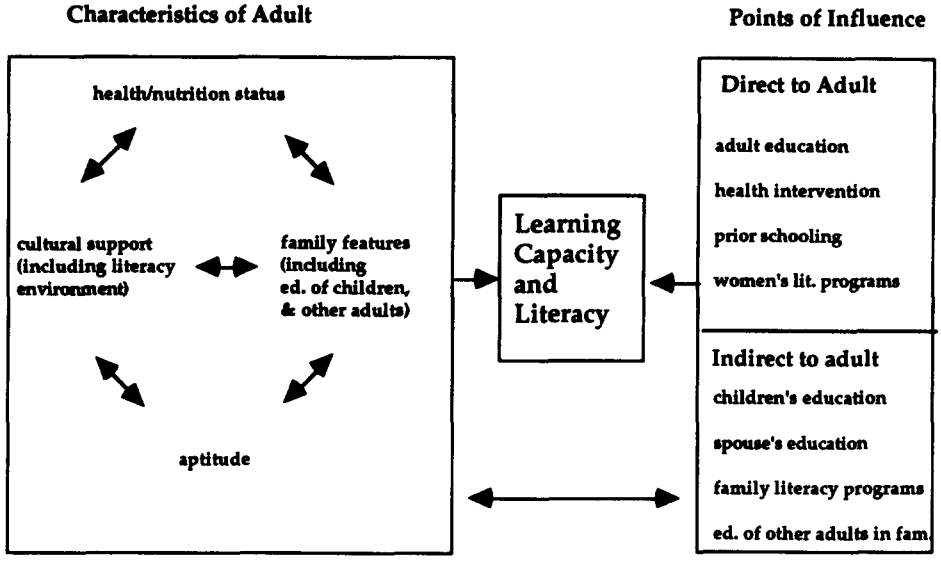

Fig. 2. Factors affecting learning capacity and literacy of adults (adapted from Levinger, 1992, p. 28).

The child may be less socially active as a result, leading the adult to interact even less with the child whom he or she perceives to be dull. Or, a parent education class might lead parents to increase the amount of time they play with their infants and children. Increased play might lead to better cognitive development on the part of the children, which could lead parents to perceive their children as more intelligent. This raised perception of the child's cognitive ability, in turn, may lead parents both to interact more with their child, further stimulating cognitive development, and to invest more in health and education for that child.

EARLY CHILDHOOD DEVELOPMENT AND LITERACY

The learning capacity and literacy model discussed in the previous section shows that a variety of factors may influence the child's literacy ability, including the extended family, early childhood education, and others. While much research on literacy acquisition in young children has occurred in industrialized countries, such that we know a fair amount concerning the relationship between early childhood development and literacy in Western contexts, relatively little research has occurred in the Third World. Despite this lack of research, as this section will demonstrate, we do have important information concerning the relationship between early experience and later cognitive skills that may be helpful in planning programs in developing countries.

Much of the American and European research has focused on emergent literacy, as researchers work to identify experiences with print which facilitate the development of literacy skills later on, considering such areas as book handling skills, recognition of words in their environmental context, grapho-phonetic skills (such as where words begin and end), phonological skills, and other metalinguistic skills (such as context-dependency, and the processes of reading) (Clay, 1972; Downing, 1970; Goodman, 1983; Harste *et al.*, 1982; Smith, 1976; Hiebert, 1986; Mathias and Quisenberry, 1986; DeLoache and DeMendoza, 1987; Renshaw, 1992; Bryant, 1992). Emergent literacy features are not restricted to skills directly tied to literacy, but include early language and other socio-cognitive skills which may influence literacy learning later. Based on the assumption that literacy development begins long before formal instruction, development of emergent literacy skills is seen to depend highly on pre-school home experience.

In developing countries, children's first exposure to print often comes in school. Some studies of emergent literacy in industrialized countries thus are of limited relevance in most Third World situations, except insofar as they underline the importance of the creation of

a 'literate' environment in Third World communities through increased access to primary school, adult education, and meaningful printed materials. They also point to the urgent need for research on emergent literacy in Third World contexts as the identification of vital early language and other skills which are precursors to literacy but not directly print-related may be particularly important in communities characterized by a lack of early print exposure. Such knowledge could be useful for early childhood and family literacy programs, as well as primary schools.

Despite the lack of research on early literacy in the Third World, much can be said about early childhood factors and later literacy achievement. In any society, the link between child development and literacy is not limited to specific cognitive dimensions which have been found to correlate with literacy. Even in the absence of pre-reading skills directly related to print, the available evidence suggests that literacy learning in school is linked to many social, cognitive, and physical dimensions of children's development (Levinger, 1992; Myers, 1992). Health, nutritional state, parental knowledge and individual expectations have been shown to influence school-based learning (Wagner and Spratt, 1988; Myers, 1992). The environment plays an especially crucial role in the early years as brain cells are formed, and sensory environmental stimulation affects the structure and organization of neural pathways (Cole and Cole, 1989; Myers, 1992).

In many developing countries, given the fact that the large majority of children do not grow up with the rich print environment characteristic of industrialized nations, it is particularly useful to consider the concept of school readiness — a term which includes activity level, social competencies, psychological preparedness, emergent literacy skills, pre-numeracy and other cognitive abilities. Those children who have been well-nourished, kept in good health, cognitively stimulated, and have had good relationships with others, will be better prepared to learn literacy in school (Myers, 1992).

One way to enhance the early childhood environment of children is through early childhood programs, and evidence from studies of such programs in industrialized and developing countries supports the belief that early childhood intervention can succeed in increasing children's school achievement. In the U.S., evidence has come from the evaluation of several programs showing that quality early childhood programs can lead to improved intellectual performance, improved scholastic achievement, lower delinquency rate during adolescence, higher high school graduation rates, and higher employment rates at age 19 (Schweinhart and Weikart, 1985). Probably the most comprehensive of the American studies is the Perry Preschool Project which began in 1962 in Ypsilanti, Michigan. In this project, disadvantaged black children who were assigned to receive high quality preschool education were compared with children receiving no preschool education. Results of the long-term study have shown that experimental children have better achievement throughout school than control children, as well as reduced delinquency and arrest rates, reduced teenage pregnancy rates, and decreased dependency on welfare (Weikart, 1989).

One cannot generalize from results taken from industrialized countries to developing countries, but there is evidence as well from the Third World that participation in early childhood development programs has positive academic and social outcomes. Evaluations carried out in developing countries have shown that programs involving one or more of such components as supplemental nutrition intake, home visits, preschool, and/or health care, can lead to higher likelihood of school enrollment (perhaps from parents' perceptions of intellectual ability of children), improved cognitive ability, better school achievement, better school readiness, better language ability, better physical growth, and improved home stimulation (Myers, 1992).

Early childhood programs can take many forms, and in his discussion of early childhood programs in developing countries, Myers (1992) emphasizes the importance of looking beyond centers and pre-schools to such non-institutional approaches as providing support and education to caregivers, promoting community development, and strengthening institutional resources and capacities (p. 87). There is also much evidence to support uses of integrated approaches to child development, so that programs include attention to health, nutrition, cognitive development, and psychosocial development. Social factors heavily influence food intake for example, and stress

may reduce food intake. In one study carried out in a nutrition center, malnourished children who were played with for one hour per day in addition to receiving food supplements gained weight better and faster than controls receiving only food supplements (Grantham-McGregor, 1984, as cited in Myers, 1992). Researchers have also studied children who managed to grow up well-nourished in malnourished environments, finding that quality caregiver–child interactions and an effective network of social support for the caregiver can lead to a significant difference in the amount of food a child receives (Myers, 1992, p. 177). The important influence of family attitudes on children's development also points to adult and family literacy programs as routes to improving educational chances of a child.

In addition to school readiness, quality of the primary school context is also crucial to literacy. Even if children are ready to learn, there may be a certain minimum level of school quality necessary for certain school readiness variables to have any positive effect. For example, in some Third World classrooms, high activity level and curiosity, for instance, may be less adaptive than the ability to sit still for long periods of time. Quality of school literacy instruction is also particularly important in many developing country settings where children's principal exposure to literacy is in school. For these children, motivation for literacy may come uniquely from the desire to get through school, as it is not facilitated by experiences in reading and writing outside of school (Mathias and Quisenberry, 1986).

One researcher argues that in Latin American cities, children of literate parents come to school with a knowledge of the usefulness of print in everyday life, while poorer children from families of non-literate parents do not (Ferreiro, 1992). Because school literacy is applied uniquely for the purpose of teaching or learning to read, the disadvantaged children never see uses of literacy outside of school, and after one year have learned that the purpose of literacy is to get to the next grade. Ferreiro has suggested the need to make the social functions of literacy more explicit at school, by providing reading materials more relevant to everyday contexts (Ferreiro, 1992).

The transactional nature of the relationship between early childhood development and literacy is clear, as early literacy experiences do not simply lead to higher literacy attainment in a unilinear manner. Rather, reciprocal interactions between environmental and individual variables continually occur and transform each other in an ongoing and dynamic fashion. For example, health may influence cognitive capacity, which then may influence health; and the apparent cognitive capacity and health of a child may help to determine the attitude of other family members toward the value of education of that child, which may in turn influence the perceived importance of educating oneself. Programs which take into account the complex interactions between these variables may be more successful than those that do not.

WOMEN AND LITERACY

Women have been identified as an important target group for literacy both because they are seen as traditionally neglected by development efforts and because their education is seen as important for the well-being of the family, especially the children. Many claims have been made concerning effects of literacy on women, linking literacy acquisition with various social, economic, and personal benefits, including greater likelihood of using health care aids properly, greater disposition to space children, greater readiness to participate in new forms of economic organization, and release from fears of humiliation and powerlessness (Bown, 1990; Stromquist, 1991). Several major volumes have recently appeared on the topic (e.g. Ballara, 1992; Malmquist, 1992), and large efforts to promote the education of girls and women have been launched by USAID and other organizations.

The relationship between women's literacy and development variables has been repeatedly documented, but much of the evidence is anecdotal, and many of the correlational (statistical) effects may come from schooling or other associated variables, (e.g. SES), rather than from literacy, *per se*. As some specialists have said (e.g. Street, 1992), raising literacy levels of women may help lead to greater functioning skills, but quality of life is unlikely to be enhanced if the skills are not accompanied by the meeting of certain other basic needs. There is remarkably little empirical evidence that literacy attainment among women (in particular), in the absence of certain other variables, has a positive socio-economic effect

on their lives. In fact, studies which attempt to determine how education influences variables such as health and fertility indicate that literacy itself may have little to do with the improved outcomes (LeVine *et al.*, 1987; Lindenbaum, 1983). Rather, psycho-social variables, such as exposure to new sources of influence and the greater expectations of 'schooled' individuals held by other members of the community may be most significant.

On the other hand, as is evident in the learning capacity model, psycho-social variables as influenced by any form of literacy education may be crucial factors in determining the human development outcomes of an individual family. Also, while literacy *per se* has yet to be conclusively linked to major developmental outcomes, that does not mean it may not be an important enabler of certain important functions for women in certain contexts. Thus, literacy programs for women may be an important factor for development, and efforts to create more effective programs probably should be carried out in conjunction with rigorous quantitative and qualitative research on the short- and long-term effects of literacy program participation on women.

A major debate in the field of women's literacy concerns the extent to which programs should contain 'emancipatory' content. Some researchers have pointed out that most content of literacy programs aimed at women reinforces prevailing ideologies about gender, such that male power is reinforced and perpetuated (Stromquist, 1992). Others have pointed out, on the other hand, that many projects which do put women in traditional roles still help women. One educator gives the example of a Unicef project whereby men did carpentry and women made dresses and stuffed toys. The fact that the project provided additional income to the village, and led to a sense of self-worth on the part of the women, felt the researcher, is proof that using traditional roles can work (Gillette, 1992). Pushing for broad feminist goals when women themselves are struggling to survive, some argue, may lead to failure (Moser, 1989).

One approach, derived from Moser (1989), distinguishes between 'practical' gender needs (women's immediate concrete needs which pertain to subordination) and 'strategic' gender needs (broader interests arising from the overall organization of men's and women's roles in society). Literacy programs which address a combination of practical and strategic needs may better ensure that women's immediate context-specific needs will be met, such as the need to read a housing contract, or a bus schedule, and that changes will occur within the socio-political domain as well, such as adoption of measures against male violence.

It is clear that women's literacy may be important for her children and for the community as a whole. Another challenge for women's literacy, however, should be to ensure that women are also seen as the center of the intervention, and as individuals who would merit, for example, a position in the center of the Learning Capacity and Literacy Model (see Fig. 2). In other words, reasons for women's literacy programs are too often stated in terms of how their literacy may benefit others. It can be moving to hear female learners explain that they are participating in class so that they can better help their children to succeed in school. However, while it is important to capitalize on motivating forces such as this, women need to be recognized as having a right or desire to want literacy for their own sakes, and attention must be paid to how other human and social influences may be used to affect their literacy, rather than exclusively on the way their literacy might affect others.

The interconnectedness of women's literacy with family and society also highlights the important fact that attempting to improve women's literacy levels will not work if women's literacy efforts remain focused on women alone. Focusing on women without changing other features of the environment does little good as the societal forces which have prevented women from being literate remain in place. The problem for women does not lie with women, but with unequal gender relations in general, which must be changed overall in order to improve the status of women (Maguire, 1984; Moser, 1993).

FAMILY ISSUES IN LITERACY

There has been increasing interest among American educators in the connection between families and literacy. Likewise, interest in family approaches to development has recently increased on the part of international development agencies and individuals. The Learning Capacity and Literacy Model dem-

onstrates how family influences may have an important impact on the literacy level of an individual, and how an individual may act as an important influence on literacy skills within the family. This section will evaluate the potential usefulness of a family literacy approach for the developing world, by considering the following: the American family literacy movement, reasons why family approaches might be useful in developing countries, and ways in which they might be employed in developing contexts.

In the 1980s the growing concern in the U.S.A. about adult illiteracy, global competitiveness, school success for children and teenagers, and the social disintegration of the family gave rise to the 'family literacy' movement. Low literate parents, it is surmised, are not able to provide the literacy experience to their children that literate parents do. Targeting educationally disadvantaged parents and children, family literacy programs consider parents and their children as a learning unit, assuming that they may profit from literacy as a shared experience (Nickse, 1989).

Most American programs began at the grassroots level but many have been formalized in the last 10 years through a variety of legislative initiatives of the federal government. In addition to publicly funded programs, there are programs run by corporations, private organizations, and foundations (Nickse, 1990a). The major goals of programs include breaking the cycle of intergenerational illiteracy, improving parenting skills, educational levels, and employment on the part of adults, and, on the part of children, providing for better school achievement, lower school drop-out rates, and a more literate future workforce (Nickse, 1990a). Curricula vary from those containing complex academic objectives to others which simply focus on developing enjoyment for reading, and methods vary from large and small group discussions, parent meetings, tutoring, traditional classroom instruction, home visits, computer-aided instruction, and video. Some programs require intensive participation (such as 3 days per week, 6 hours per day for one program), while others require much smaller time commitments.

Programs also vary in terms of model of delivery, organization, and general philosophy. While some programs are self-contained units, providing comprehensive family literacy services in one location, including adult literacy instruction, early childhood development, joint parent–child activities and other services, others try to form a coherent package for families out of existing services (Nickse, 1990a). Also, although some programs are self-contained units which were designed specifically as 'family literacy' programs, most programs have arisen as part of traditional services. Some adult basic education programs, for example, are developing family literacy orientations by providing adults with instruction in parenting as well as basic skills. The number of library programs with a family or intergenerational orientation has also risen in the past 10 years, with activities such as parenting discussions, literacy tutoring, story times (for children) and parent–child reading activities. Other federal programs derive from preschool and elementary school programs, such as Head Start, which are targeting parents of participating children for literacy and parenting activities. Finally, a few corporate workplaces have begun providing family literacy services to their employees, although most are limited to providing simple child care services at the moment (Nickse, 1990a).

Despite its popularity among funders and educators, there are some important controversies surrounding family literacy in the U.S.A. One issue concerns the extent to which most programs tend to teach target parents and children skills which are characteristic of 'mainstream' families, such as book reading, and 'appropriate' verbal reaction to children (Nickse and Paratore, 1988; Nickse, 1990b; Delgado-Gaitan, 1990; Handel and Goldsmith, 1989). According to Auerbach (1989), when the goal of a program is to get parents to perform school-like activities in the home, it assumes that normal home activities must be changed to incorporate the new ones. Auerbach points out that such techniques may not work since the desired activities often do not reflect the cultural roots of client populations, and the approach is based on a deficit theory whose embedded assumptions are incorrect. These assumptions include beliefs that minority homes do not value literacy or participate in home literacy activities; family literacy is a one-way transfer from parents to children; and school practices are adequate and it is home factors which determine who succeeds. Family literacy programs which examine home practices of target families and then attempt to integrate

literacy activities into existing practices in the home may have a greater chance of success (Auerbach, 1989).

Another problem faced by family literacy advocates in the U.S.A. is the lack of empirical evidence supporting the programs. Most programs are in their initial stages, and are service- and not research-oriented (Nickse, 1990a). Therefore, although it is possible to find some theoretical support for family literacy from related fields such as adult literacy, emergent literacy, cognitive science, early childhood education, and family systems theory, there is little other evidence that family literacy programs actually fulfill the various goals for which they are designed. Family literacy evaluation findings compiled by Nickse (1990a) include such program impacts as increased school attendance of children, more home use of books, increased use of library services, increased reading and writing levels of parents, and better kindergarten readiness of children. However, although these results appear impressive at first glance, most of the evaluations on which these findings are based were informal, and aimed at improving service delivery or reporting to funders; few of them used rigorous qualitative or quantitative experimental methods.

A major exception to the poorly funded evaluation efforts of most family literacy programs is the National Evaluation of the Even Start Family Literacy Program. Even Start is a federally funded program which encourages partnerships among providers and parental involvement in planning and design of programs aimed at promoting the literacy of parents and their children. The four key program components are: activities with parents and children together, adult literacy education, early childhood education, and parenting education. The program is unique in involving a built-in evaluation component focusing on demographic characteristics of participants, implementation, and effects on parents and children in terms of literacy skills, parenting, GED (high school equivalency diploma) attainment, and school readiness (U.S. Department of Education, 1993).

In terms of effects on parents and children, the evaluation collected two types of data for assessing short-term impact: an In-Depth Study in which children were randomly assigned to either participate in Even Start or to a non-participating control group; and a less rigorous collection of national level data on participating families, known as the National Evaluation Information System (NEIS). Data were collected on parents, children, and families as a whole, including information on: school readiness, verbal skills, and emergent literacy skills of children; literacy and parenting skills of parents; home learning environment; a parent/child reading task; parental expectations of children; and family resources. Both evaluations showed positive effects for school readiness of children, GED attainment of adults, reading materials in the home, and expectations for school success (U.S. Department of Education, 1993). The NEIS showed positive effects on several measures for which the In-Depth Study found no effect, including verbal skills of children, functional literacy skills of adults, and parents' expectations of high school graduation for their children (U.S. Department of Education, 1993).

Examination of the strengths and weaknesses of the American family literacy experience carries important lessons for family literacy in the developing world. First, it is clear that the American form of family literacy has developed in a particular manner which may not take advantage of the full range of family dynamics which occur in a family or extended family system. As mentioned above, for example, family literacy in the U.S.A. is based on a unilinear influence of parental experience on the child. A broader definition of family literacy considers not only parent to child influences, but also influences going from child to parent, adult to adult, and child to child within a family or an extended family network. Second, while the American approaches generally recognize the importance of providing services such as health, nutrition, and transportation along with literacy, they do not appear fully to take into account the transactional nature between literacy skills and variables such as health, income, and nutrition, considering both how literacy skills may improve health and other variables, and how other socio-economic variables may be used to improve literacy.

Another issue brought out in the discussion of family literacy in the U.S.A. is the need to examine what goes on in families in order to integrate literacy activities into existing practices rather than adding on new, unfamiliar activities. When attempting to use family literacy approaches in the Third World,

one needs to consider the potential danger not only of imposing school-like activities on to home contexts, but of promoting Western values in Third World households. Relatedly, when transferring notions of family literacy from industrialized to developing nations, educators must be careful not to carry over the Western model of the household as a nuclear family, nor even assume that the household functions as a socio-economic unit with defined boundaries. In many Third World settings, constantly shifting inter-household resource and labor exchanges exist such that family limits are difficult to define (Moser, 1993).

Although family literacy in its American form has not traveled to the developing world, programs which involve both families and literacy activities are very common. Organizations focusing on children, such as the Bernard van Leer Foundation and Save the Children, have believed since their beginnings that the lives of children cannot be significantly changed in isolation from their families; hence the interventions of these organizations generally involve family and community members. In addition, a UNESCO (1991) survey of early childhood education programs showed that many included parent involvement. Although the most common forms of participation included serving on parent committees, raising funds, and building centers, other forms ranged from programs in Mexican preschools aimed at helping parents provide a stimulating environment in the home, to a Fiji program in which parents observe their children at various preschool activities.

In addition to the activities with older roots, there appears to be a recent resurgence in interest in family involvement in the development of young children, as evidenced by several initiatives launched by major organizations. A first example comes from the Consultative Group on Early Childhood Care and Development (CGECCD) which focuses on early childhood education, with an emphasis on parent and community support. Also, in 1989 UNESCO launched the Young Child and the Family Environment Project. The chief function of the project is to co-ordinate UNESCO activities in favor of the family and preschool child, with the objective of promoting the development of preschool children, especially as it relates to 'learning abilities and integration into the education process' (Myers, 1991). The four areas of emphasis in this initiative are nutrition and early childhood stimulation, child-rearing practices, childhood disabilities, and preschool education. Activities associated with the project have included the development of training activities for parents with children vulnerable to developmental handicaps, and the formation of a database directory of institutions whose activities promote an improvement in the situation of children. Activities planned for the future include: family education initiatives; research initiatives to identify traditional child-rearing practices which are culturally valued and scientifically beneficial; and activities integrating parental education into preschool programs (Myers, 1991).

Myers (1992) cites several examples of programs in developing countries which may be considered family approaches to literacy in that they involve the use of family members to influence each other around literacy or education issues. Such programs typically focus on educating parents and other caregivers in the community. Although most of these programs are not aimed directly at raising literacy levels of children (as in the American programs), this type of program has an indirect effect on children, as it fosters ability of parents to meet needs of children for healthy development. Such education can be done through home visits, the media, child-to-child or youth programs, or in adult literacy classes (Myers, 1992). In the parents and children project in Chile, for example, weekly meetings are held in communities to discuss child rearing. Discussions are stimulated by radio transmissions, questions asked by coordinators, and pictures. Content of discussions includes helping children learn basic cognitive skills such as counting, talking and reading, and health. Evaluation of this program showed that children participating in it scored better on readiness tests and did better in school than others. Changes were also seen in adult attitudes and community organization (Richards, 1985, as cited in Myers, 1992).

In addition to the positive results seen in family approaches such as those described above, there are other reasons to believe that family literacy approaches may be an effective way to enhance literacy development in some Third World contexts. First, as in industrialized countries, individuals' lives in developing countries are heavily influenced by family forces. In

many contexts, for example, attempts to get women to participate in a literacy program may be more successfully achieved by raising awareness of male members of the family concerning the potential benefits of literacy education than by soliciting women. Also, research carried out in Morocco has shown that, as in the U.S., parental education is related to children's school performance, with literacy skills passed on by attitudes and beliefs of parents as well as by direct instruction (Wagner and Spratt, 1988). Second, family literacy approaches may allow programs to share and save resources, as space may be used jointly for preschool and adult education, or as childcare problems are alleviated through joint parent–child literacy learning activities. Joint parent–child learning also may capitalize on the motivation of some parents to learn literacy in order to help their children do better in school.

While the potential for utilizing family literacy approaches in developing countries is relatively easy to identify, it is more difficult to determine what form such programs should take in developing country contexts. Because print media and books are not as ubiquitious or pervasive in most Third World communities as in industrialized countries, family-based interventions which focus entirely on literacy may not be appropriate, and investigation is needed to determine ways of working with families which would lead to literacy development. Examples of programs involving parent education have already been given. Another possible approach might involve bringing parents and children together for literacy learning in the same building at the same time. Child and adult literacy could take place separately, but also include joint sessions from time to time, including parent–child reading activities, if appropriate, or practicing of activities parents can do to help children with their homework. In one innovative intergenerational program in Ecuador women and young children meet in a nursery school cooperative for activities involving development of adult literacy skills and a nursery school curriculum. Mothers read to the children to improve their reading skills, and for one project they collect traditional songs and stories which they write down, illustrate, and sing or tell the children (International Reading Association, 1994).

In addition to intergenerational approaches, other programs may involve attempts to influence family members of the same generation. Older school children can be taught emergent literacy games to play with their preschool siblings, and adult education programs can encourage men or women to take information home to their spouses. In one Latin American women's literacy program, for example, the homework activities were so attractive that at least one husband joined in the activities with his wife (Ballara, 1992). Finally, examination of regular family practices may reveal naturally occurring emergent literacy activities which could be encouraged, such as the telling of traditional stories to children, or the involvement of children in various religious activities that involve literacy.

Developing countries vary widely in terms of literacy skills of the population, nature of literacy activities engaged in, and amount of print availability and use. Importantly, the approaches mentioned here are a very few ideas out of many possibilities, each of which would need to be developed individually for a given situation. There is no prescribed model for development of family literacy programs in developing countries at this time, nor is there research on the effectiveness of family literacy approaches. However, there are basic concepts and definitions from which educators can begin to design innovative approaches to literacy development which may be effective.

LITERACY AND HEALTH

Education has been shown to have a positive effect on family health as measured by child mortality, life expectancy, and fertility (Cochrane, 1980, 1982, 1989). In a comprehensive review of the relevant literature, Cochrane (1980) used cross-national regression and correlation analyses to examine the relationship between education (as measured by years of schooling) and health as measured by either child mortality and life expectancy. She also used intracountry evidence, including individual data at the household level and multivariate studies to relate years of schooling or literacy to child nutritional status and child mortality. She concluded overall that maternal education is closely related to child mortality and child nutritional status; her findings are supported by others (Caldwell, 1986; Hobcraft *et al.*, 1984). While it is unclear by what exact mechanism education acts to bring about the observed

effects, it appears clear that it does not act uniquely through income.

An interesting question which arises from findings concerning effects of education on health is: What is it about education which brings about the positive outcomes cited? Although some researchers have used evidence from studies of effects of education on child mortality, fertility, and life expectancy to support adult literacy programs, there is no evidence that the ability to read and write is what brings about the positive effects observed. In an attempt to determine pathways through which schooling leads to lower fertility in women, LeVine *et al.* (1987) studied women with 0–9 years of schooling in one city and one small town in Mexico. The researchers found that schooling appears to lead to certain psycho-social changes in women that lead them to make decisions to have fewer children and to provide better health care. Importantly, the fact that schooled mothers have fewer children cannot be attributed to delayed age of childbearing or to improved access to institutions that provide health care and family planning services. The study which took place in the city found that schooling influenced individual attitudes in the direction of Western-style modernity and individualism. The small town study used survey instruments to replicate the results of the larger study, finding that more educated women feel that child-care is a more labor-intensive task than do less educated women, attribute more cognitive and communicative capacity to young infants, and pay more attention to the media. Both studies support LeVine's hypothesis that schools influence girls toward increasing the intensity of their child care through some very general psycho-social effects (LeVine, 1987).

The importance of psycho-social influences of education is supported by Lindenbaum (1983) who examined two villages in rural Bangladesh to determine reasons why schooled women practiced better health. Through interviews with women and men in the community she found that educated women did not differ from others in beliefs or knowledge about disease or its causes. However, they were perceived by others in the community to be better able than unschooled women to take care of the husband and family, keep the house cleaner, and entertain guests. Lindenbaum concluded that reasons for better health practices of schooled women come from expectations and prestige associated with being educated, which carry with them a certain set of behaviors, including better hygiene. She feels that school encourages upwardly mobile behavior, as well as provides girls with certain psycho-social influences similar to those cited in the LeVine study, such as new sources of authority, more exposure to media, and better verbal skills.

While the effects of education on health are important to recognize, so are the effects of health on literacy. The importance of adequate health care and nutrition for the proper development of children is well documented, and it is clear as well that healthy adults are more likely to participate in literacy programs and to benefit from them. Less well recognized is the transactional relationship between health, psycho-social aspects of child and adult development, and literacy. Physical and cognitive stimulation of young children, for example, has been shown in controlled experiments to lead to better physical growth than nutrition and health care alone (Myers, 1992). Third World studies have also found that parents of children who have participated in nutrition supplementation programs played with their children more, and were more likely to enroll such children in school. Researchers surmise that these results were due to the better physical growth and higher activity level of the children, which led parents to not only interact more with them but to perceive them as having more intellectual capacity. The effect was greater with girls than with boys, showing one of the ways in which early childhood programs can help to promote equity. One could imagine other transactional scenarios, whereby, for example, an adult literacy program led to more positive attitudes about children's schooling, which led parents to be more careful about children's health; or where better health on the part of parents allowed them to pay more attention to the welfare of their children, which led children to be healthier and do better in school.

CONCLUSION

This paper has reviewed relationships between literacy, early childhood development, and health, and examined how women and families should be taken into account when using these relationships to develop programs. One theme which cuts across the discussion

is the importance of building on practices and structures which already exist. Although modernization of Third World communities has led to many changes in family and community structure, traditional methods of dealing with topics such as education, health, childcare, and work exist in every society. Programs which build on existing mechanisms are generally more sustainable and more effective than those that do not, partly because existing structures tend to be already integrated with the social life of a community.

Another important theme is the transactional nature of the relationships. It is clear that important connections exist between literacy, early childhood development, and health. It is also clear that no single direction solutions to the problem of literacy in the Third World exist. Rather, one must take into account the complex multi-directional relationship in which social and cognitive variables affect each other and literacy over time, and literacy itself affects each of the social and cognitive variables over time. Taking the transactional nature of these variables into account does make program planning and evaluation more complicated, as it may be necessary to investigate and evaluate areas which would traditionally be perceived as falling outside the range of analysis. On the other hand, it should also make implementation more rewarding, as the scope of influence of a given intervention will be larger, as will its impact in general.

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