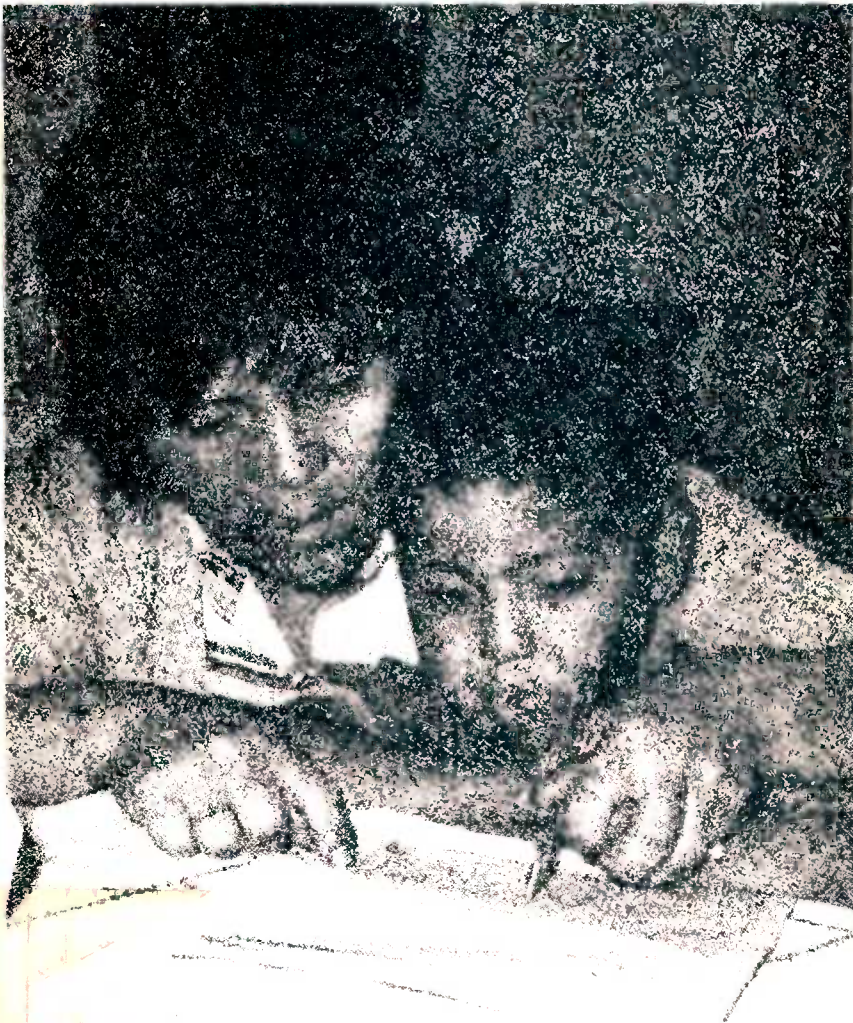


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# Preventing School Failure:

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*The Relationship Between  
Preschool and Primary Education*



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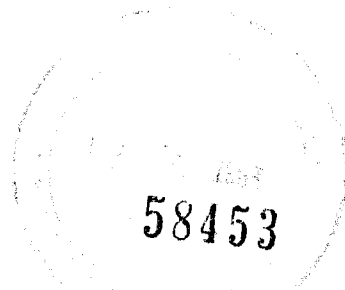
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# **Preventing School Failure: The Relationship Between Preschool and Primary Education**

**Proceedings of a workshop on preschool research  
held in Bogota, Colombia, 26-29 May 1981**



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## **Résumé**

Cette publication contient les exposés présentés au cours d'un séminaire sur la relation entre l'éducation préscolaire et primaire qui a été tenu à Bogota, Colombie, en mai 1981, sous les auspices du CRDI et de la Fondation Ford. Le séminaire a réuni des chercheurs en éducation préscolaire venus de diverses régions du monde et spécialisés dans différentes disciplines. L'éveil précoce des enfants fut examiné à la lumière des études de cas et des programmes nationaux présentés, et analysé en fonction des effets à court et à long terme qu'il peut avoir sur le développement de l'enfant et son succès lors de son entrée dans le système scolaire. Les travaux sont groupés sous trois grands thèmes : recherche et action en éducation préscolaire et primaire; considérations sur le problème de l'éducation préscolaire et primaire; et discussions et recommandations générales.

## **Resumen**

Esta publicación contiene las ponencias presentadas en un seminario sobre la relación entre educación preescolar y primaria, celebrado en Bogotá, Colombia, en mayo de 1981 bajo los auspicios del CIID y la Fundación Ford. El seminario reunió a investigadores de la educación preescolar procedentes de diversas regiones del mundo y con diferentes formaciones disciplinarias. La estimulación infantil temprana fue vista a la luz de los estudios de caso y los programas nacionales presentados, y analizada en función de los efectos que a corto o largo plazo puede tener sobre el desarrollo del niño y su éxito al ingresar al sistema educativo formal. Tres amplias secciones agrupan los trabajos de acuerdo con los temas tratados: investigación y acción en educación preescolar y primaria; consideraciones sobre la problemática preescolar y primaria; y discusiones y recomendaciones generales.

## Contents

**Preface 5**

**Participants 7**

**Introduction 9**

**Acknowledgments 10**

### **Part I: Research and Action in Preschool and Primary Education**

#### **Introduction 12**

Development of intervention strategies for young children in Jamaica  
**Sally M. Grantham-McGregor 13**

Pilot program of early stimulation: follow-up of children at six years of age  
**Sonia Bralic E. 20**

Psychosocial stimulation and complementary nourishment during the first three years: its repercussions on scholastic achievement  
**Nelson Ortiz P. 29**

Primary school progress after preschool experience: troublesome issues in the conduct of follow-up research and findings from the Cali, Colombia study  
**Arlene McKay and Harrison McKay 36**

Lasting effects of preschool education on children from low-income families in the United States  
**John R. Berrueta-Clement, Lawrence J. Schweinhart, and David P. Weikart 42**

Early childhood education in Brazil: trends and issues  
**María Carmen Capelo Feijó 52**

Relationship between preprimary and grade one primary education in state schools in Chile  
**Johanna Filp, Sebastián Donoso, Cecilia Cardemil, Eleonor Dieguez, Jaime Torres, and Ernesto Schiefelbein 58**

Relationship between preschool education and first grade in Argentina  
**Pilar Pozner 73**

Education and social class formation: the case of preschool education in Kenya  
**O.N. Gakuru 85**

Fostering readiness for primary grades: innovative action programs with municipal schools in India  
**Veena R. Mistry 93**

Preschool services in Thailand  
**Nittaya Passornsiri 103**

Early childhood education and preschool intervention: experiences in the world and in Turkey  
**Cigdem Kagitcibasi 108**

Sociocultural correlations involved in the cognitive and physical development of children from urban Guatemala  
**Yetilú de Baessa 117**

**Summary and Conclusions 123**

**Part II: Some Considerations on the Preschool and Primary Problem**

**Introduction 126**

Early childhood programs in Latin America **Robert G. Myers 127**

Conceptual issues in preschool and early primary education **Kenneth King 136**

From child to pupil: winning the game but losing the match? **Norberto Bottani 141**

Compensatory measures in poor areas: some possibilities for preschool education **Carmen Luz Latorre 153**

Summary of some years of preschool research **Hernando Gómez Duque 163**

**Summary and Conclusions 170**

**Part III: Discussion and General Recommendations**

**Program Objectives, Research Prospects, and Policy Formulation 172**

# **Psychosocial Stimulation and Complementary Nourishment During the First Three Years: Its Repercussions on Scholastic Achievement**

**Nelson Ortiz P.<sup>1</sup>**

## **Introduction**

Any analysis of the education problem cannot overlook the social context in which it develops. Theoretic work done in both the field of sociology and the field of economics, concerning the relationship between education and the structural determinants of a specific society, abounds. Some argue that education is the instrument that permits mobility within the different strata of a society. Others argue that it is class structure that determines the differences in accessibility to education and the dynamics of the education system in general (Cataño 1978; Mojica 1978).

It would, therefore, be naive to try and analyze the relationship between preschool education and primary education in Colombia without outlining at least some of the determinants and social conditions into which the majority of Colombian children are born and develop.

There are already numerous detailed studies in Colombia about the social disadvantages of the population. The high dropout rates that, between the first and fifth grades, reach as high as 65% are a known fact. The staggering proportion of undernourished preschool children has been determined (Mora 1979), as have the high rates of child morbidity and the unstable income of the

vast majority of the population, who also lack adequate essential services and face undernourishment. The possibility of becoming part of the society's productive apparatus is also limited, as reflected in high unemployment or underemployment rates and low levels of education (Cerdá 1980).

Although it is true that in Colombia child problems have been the object of major efforts on the part of the state, it is also true that the problems remain and that new intervention alternatives must be found.

## **Primary Education and Preschool Education in Colombia**

Some observations are given that serve as a framework for research and are fully documented in the works of other researchers (Alzate and Parra 1976; Bossio 1977; Cerdá 1980; High/Scope Educational Research Foundation 1978; Martínez 1977; Medellín 1977).

## **Primary Education**

In recent years, the Colombian government has made great efforts to generalize primary education. More than 70% of the school-age population currently attend school (High/Scope Educational Research Foundation 1978). However, this figure, which for some could be significant, is less impressive given the alarmingly high dropout and failure rates. Although more recent data are unavailable, in 1977, the dropout rate between the first and fifth grades reached 65%, rising to 87% in rural areas (Ministry of National Education 1978). About 50% of these dropout cases occur during or toward the end of the first grade and one-third more during the second grade.

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Thus, the first 2 years of elementary school, especially the first, are critical for keeping the child within the school system and, thus, determine the future of coming generations. This is particularly true for marginal groups where the problems of dropping out and failure are most pronounced.

In Colombia, there has been much speculation as to the reasons for academic failure and dropouts, but the methods of combating these problems have been varied and erratic. Changes have been made in the teaching programs and strategies. It is assumed that the teachers lack proper training. Reference is made to the social problems that force the family to send the young ones out to work to supplement their unsteady income. Yet, despite this variety of factors, which supposedly interact with each other, the search for solutions has been concentrated almost solely on the quality of education itself, rather than on the characteristics and background of the school population, the raw material of education.

The country's education policies have concentrated on improving the student-teacher ratio, offering more courses, increasing the number of classrooms, and raising the level of teacher qualifications (Chiappe 1980). Although it would be easy to show quantitatively that these areas have improved over the last few years in Colombia, it would be worthwhile, when objectively evaluating these claims, to keep the following observation of Piaget in mind: "... these positive aspects of the development of education must not make us forget the problems which remain with respect to the efficiency of the means employed. If we consider the problem only from the quantitative standpoint, we run the risk of distorting the picture. For we have yet to prove that its indefinite extension corresponds to a success or a victory for education." (Piaget 1970:83).

In this respect, it is surprising that despite the acknowledgment of Colombia's high dropout and failure rates, and but for a few isolated initiatives (Alzate 1976; Alzate and Parra 1976), there has been little or no research into the characteristics and background of the child, factors that could explain his or her academic performance. Studies need to be done that would enable us to determine the characteristics and needs of our preschool children in their various habitats, and, what is more pressing, to develop a philosophy of education and preschool care, with clear goals and objectives (Bossio 1977).

### **Preschool Education**

Although the first centres oriented toward care for preschool children appeared in Colombia

some time ago, it was not really until 1960 that preschool became part of the national education system (Bossio 1977; Martínez 1977).

Perhaps the major problem of preschool care in Colombia continues to be its limited implementation. Although the preschool enrollment rate has increased considerably (160%) over the past 20 years, it is still quite low considering the demographic growth of the preschool-age population. It would also be unrealistic to think that such care meets the needs and demands of the child population, because it affects only 4% of an age bracket (Cerdá 1980) that constitutes at least 20% of the country's total population.

This problem appears even more serious when one considers that the vast majority of existing preschool centres are run by the private sector. In 1975, only 32.7% of centres were government operated. It has been justifiably said that in Colombia "preschool education is becoming a privilege of those social classes which can pay for it in private establishments" (Medellín 1977).

Although over the past 5 years preschool care for the less-advantaged classes has become more widespread through the efforts of the Colombian Institute of Family Welfare, the numbers reached through these centres is insignificant compared to the magnitude of the problem.

Also, preschool education in Colombia faces numerous as yet unresolved problems. Theoretically, and only in separate legislation and a few guidelines, formal education now begins at the preschool level (Medellín 1977). However, there is a shortage of human resources, the equipment of the few government-run centres there are leaves much to be desired, and there are no clear-cut objectives that could be considered national standards. Proper technical supervision is also inadequate and functions are redundant and conflict with the various institutions responsible for orienting the programs. In short, the development of preschool education has been chaotic and impulsive, and has often ignored existing legislation (Bossio 1977; Cerdá 1980; High/Scope Educational Research Foundation 1978).

### **Preschool Care and Primary Education: Two Points on a Continuum**

The inclusion of the concept of *care* in the heading is a deliberate change intended to reflect a different or at least a broader concept of the possible relation between what happens to children before they enter school and their performance in school. We want to go beyond the simple attribute "formal" applied to the preparation



or maturing process for academic learning, because the preparedness for learning is the outcome of the constant and lasting interaction of children with all those biological and social elements that condition their growth and their social and cognitive development.

It has been correctly stated that preparedness for academic learning develops gradually, that there is no specific age or state of overall maturity that guarantees success in handling the academic situation, but only levels of development of the basic psychological functions involved in school learning experiences (Condemarín et al. 1978).

The child's performance in school is one factor that depends on his or her overall level of development, and this development is a process that in turn depends on the environment in which the child develops and on the learning opportunities provided or prevented by that environment.

It has been suggested that the traditional school is not equipped to make up for the immaturity and late development that many children of depressed socioeconomic levels show in cognitive and psycholinguistic functions essential to further academic learning because the curricula are based on models of "normal" development that do not correspond to the psychological and cultural reality of the children or with their deep individual differences (Bravo 1979). This suggestion is supported by theories that base the development of intelligence on natural and spontaneous processes, which can be used and accelerated by, but do not depend on, education within the family and at school but are, rather, the necessary prerequisite to all learning (Piaget 1970).

It has already been possible to identify variables of a biological (nutrition, health) or psychosocial nature pertaining to the children themselves or to their family or social environment, which affect their academic achievement. The research done in recent decades, has revealed a persistent statistical relationship between child malnutrition, which is widespread in Colombia, and deficient cognitive functioning (Mora et al. 1976). It has been found that the intellectual performance of undernourished children is usually accompanied by learning difficulties and poor scholastic achievement (Cravioto et al. 1967). It is felt that the development of the thought processes is a prerequisite to the learning of reading, because reading is not only the ability to distinguish visually letters and symbols but is also a cognitive process involving comprehension of the verbal meanings. It is known that the development of reasoning powers is necessary to grasp the concept of numbers and do calculations (Piaget and Inhelder 1967). In short, there is suf-

ficient information about the background and characteristics of the child as determining factors of his or her scholastic achievement.

Within this evolving context, it is logical to think that the development of the skills and abilities needed for scholastic success cannot be limited to a formalized institution that itself has been the object of much criticism and controversy (Bossio 1977). Why not look at the environment outside the school? The stimulation a child receives in his or her home environment is also preschool experience (Condemarín et al. 1978).

A number of research projects in Colombia involving children under 7 years of age, have concentrated their efforts on the design and testing of strategies aimed at preventing and/or overcoming physical underdevelopment and generally slow development associated with malnutrition and multiple environmental deprivation. The last decade produced much of this type of research — the Instituto Colombiano de Bienestar Familiar (ICBF) Malnutrition and Mental Development Project, the Project of the Cali Human Ecology Foundation, the Centro para el Desarrollo de la Educación Formal (FEPEC/CEDEN) Gifted Children Project, the La Playa Preschool Care Project, among others — and it would perhaps not be rash to state that it all produced enough evidence of the benefits of intervention at an early age in the promotion of better levels of growth and development.

Many doubts and new questions have, nevertheless, been raised. Questions regarding the relevance and duration of the long-term effects remain unresolved. Researchers are now faced with the challenge of determining the feasibility of applying strategies tested in experimental projects of limited scope to the reality of the many who need attention.

There has been much and valid criticism of the measurement methods used to assess the effects. Most projects used general intelligence tests as instruments for measuring the mental abilities of the child and as parameters for assessing the impact of the intervention. However, there has been doubt as to whether there is really evidence of slow development in children from certain environments, as the intelligence tests show, or whether their development patterns are qualitatively different because they have lived in environments that require the development of totally different skills and abilities (Montenegro 1979).

Now, evaluation models that emphasize the use of parameters of social competence have been proposed, as these may be more useful in assessing the development of children in community

studies and in detecting the impact of the intervention programs (McClelland 1973; Zigler and Trickett 1978).

Under these conditions, it would be more important to determine the impact of early intervention on the development of basic processes that may have an identifiable relation with the child's later development given the specific needs of his or her environment. These and other considerations have brought about significant changes in the design and application of research projects involving preschool children in Colombia, of which the Malnutrition and Mental Development Project is one.

## **Research on Malnutrition and Mental Development**

What follows is a brief account of the research on malnutrition and mental development, whose longitudinal sample forms the basis of the results described here.

### **Research Summary**

The research has been going on in Bogota since 1969. The first 2 years constituted the pilot phase during which personnel were trained; measurement instruments in the areas of nutrition, sociology, and psychology were designed and tested; detailed studies were made of the problem of malnutrition and intellectual development among city children; and various methods of intervention in complementary nutrition and psychosocial stimulation at an early age within the family were also tested.

The studies conducted during the pilot phase showed that the incidence of slow development in the study sample was twice as high as that recorded for industrialized countries, that this incidence was higher the lower we went on the socioeconomic ladder, and that there was a lasting statistical relation between malnutrition and slow development in infants and preschoolers (Mora et al. 1976). It was possible to show statistically that malnutrition is a contributing factor to slow cognitive development, but it was also shown that there are other socioeconomic and cultural factors that contribute significantly. These factors are related to child-rearing practices and reflected in the abundant or limited opportunities for environmental stimulation that interaction between the family and the child provides. It was felt that the prevention of slow development would have important practical implications, because it would affect a large pro-

portion of the children in poor communities. It was, therefore, decided to conduct a longitudinal intervention study with the following overall objectives: (a) to assess the effects of intervention programs of food supplementation and early stimulation on the prevention of slow development in the child and (b) to study the relationship between child nutrition, environmental stimulation, morbidity, growth, and development (recently, a proposal was submitted for the continued study of these factors and their relation with academic achievement).

The longitudinal study was begun in 1973 with a sample of 456 families presenting a risk of malnutrition and selected according to two criteria: pregnancy of the mother before the third trimester and malnutrition of children in the family under the age of 5 years.

All the selected families, who voluntarily entered the program, had been receiving the benefits of a health assistance program and had been the object of a number of random observations and measurements regarding nutrition, health, social variables, and intellectual development.

The experiment's design consisted of a study of intervention that combined a complementary nutrition program (of varying duration initiated at different stages) with a program of early psychological stimulation. The families were randomly assigned to the following treatment groups: (a) control group, (b) complementary nutrition from 6 months old to age 3, (c) complementary nutrition from the 6th month of pregnancy to age 6 months, (d) complementary nutrition from the 6th month of pregnancy to age 3, (a1) early stimulation from birth to age 3, and (d1) complementary nutrition from the 6th month of pregnancy to age 3, plus early stimulation from birth to age 3.

*The health program* offered prenatal and delivery care as well as free pediatric medical attention, including medication. This care was offered continuously.

*The complementary nutrition program* consisted of the weekly supply of food to cover the nutrition deficiency of the whole family. The nutritional contribution of these supplements varied between 600 and 800 calories and between 23 and 30 g of protein a day.

*The early stimulation program* was carried out directly in the homes in the form of two 1-hour weekly visits to each family by trained inspectors to motivate the mother or caretaker to follow the child's development and to demonstrate a number of activities aimed at prompting changes in child-rearing practices, especially in mother-

child interaction. The activities were designed to provide children with more opportunities for positive interaction with their physical and human environment. The basic objective was, then, to stimulate the child's development within his or her own environment and change the patterns of interaction between the child and caretaker so that stimulation could continue in the inspector's absence. Exercises and games were used for direct stimulation of the child, using readily available objects and materials made by the inspectors or the mothers themselves (Ortiz et al. 1979).

All of the families that participated in the longitudinal study were the object of assessments in different areas; periodic sociological surveys, longitudinal records of the health and morbidity of the mother and child, nutritional assessments, and growth and development measurements of the children.

### Research Results

The research findings were that the effects of intervention on different areas of development and ability in the child are favourable. Favourable effects of early stimulation were noted not only in the interaction patterns between mother and child in terms of the better quality and quantity of these interactions (Ortiz et al. 1979), but also in specific development areas such as language, social, perceptual, and motor skills. Also, the complementary nutrition had benefits not only for physical growth (Super et al., in press) but for behavioural areas related to perceptual development as well (Condemarín et al. 1978).

These results and others documented before this research prompted the exploration of the possibility that intervention has a favourable effect on the readiness for school and academic performance of the children studied. The activities of the stimulation program stressed certain areas that have been recognized by some authors as essential to later learning. The sensorimotor period (covered within the program) has been recognized as a determinant of subsequent development. Hence, it is logical to assume that intervention during this period not only has immediate effects but also prepares the child for future learning.

Throughout the stimulation program there was a notable increase in the child's opportunities to develop basic skills (perception, language, object classification, spatial development, gross and fine motor skills, and so on) and abilities recognized as prerequisites to good academic performance (Cohen and Gross 1979). The stimu-

lation program promoted positive changes in the attitudes and behaviour of the mother and other family members toward the child. This leads to the assumption that the general family environment provided better conditions for the child's overall learning and that the mother became an element of reinforcement of this progress. Literature on child development emphasizes the importance of all these aspects to the child's preparedness for school and it is, therefore, expected that the children involved in the program were better prepared on entering primary school.

The foregoing statements and the conviction that the study sample, because of its longitudinal nature, represented a unique and ideal opportunity to study the various data that may be related to academic performance, as well as to determine the possible effects of early-age intervention on the level of readiness and scholastic performance, prompted a follow-up of school-age children with the following objectives: (a) to assess the academic performance in the first years of primary school of children of low socioeconomic levels in the southern part of Bogotá; (b) to study the aspects of the children, their family, and school environment associated with their performance; (c) to measure the impact of complementary nutrition during pregnancy and the first 3 years of life on the children's health and nutritional status and on their academic performance; (d) to assess the impact of early psychosocial stimulation provided by the family on the children's competence in primary school; and (e) to study the effects of the programs on other variables that may affect the children's performance, such as study habits, environmental conditions for learning, and family participation in the learning process.

Because the same basic design of the experimental phase of the project was used to conduct the study, it was possible to compare the characteristics of the different groups on entering school, with regard to the family and individual variables of the children, i.e., their physical growth, health, intellectual development, to behaviour regarded as essential to academic learning. By means of these comparisons, it will be possible to assess the long-term impact of intervention programs on the variables associated with scholastic achievement. For the purposes of follow-up while the child is in school (the first 2 years), such areas as health, socioeconomic variables, physical growth, eating habits, and direct assessment of academic achievement will be measured.

Thus far, only a few incomplete data about the behaviour of children entering first grade have

been collected. Although these results show some effects of early stimulation on the children's level of preparedness, given the incompleteness of the data, it would not be wise to draw conclusions. The following conclusions are based on consideration of preliminary results of the study and others that regard the areas that benefit by intervention as important prerequisites to scholastic learning.

## Conclusions

- Stimulation at an early age promotes the acquisition of skills (language, social development, attention, discrimination, and others), elements that may benefit the child's competence and performance in school.

- Psychosocial stimulation through the mother or caretaker promotes positive changes in the interaction between the child and his or her caretaker, in terms of the quantity and quality of the interaction. It is hoped that this might help ease the learning process and improve the child's performance in school.

- Although early stimulation programs have proven to have favourable effects on cognitive development and other aspects that may be related to a child's future learning in school, the fact that his or her performance is also conditioned by what goes on inside the school itself cannot be ignored. Therefore, the need for further research in this area, which has been rather neglected by Latin American researchers, is a priority.

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