The Eleven Who Survive: Toward a Re-Examination of Early Childhood Development Program Options and Costs

Robert G. Myers
Rachelle Hertenberg

March 1987

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Robert G. Meyers
Rachelle Hertenberg
(consultants)

Education Policy Division
Education and Training Department

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ABSTRACT

This paper presents a case for increased World Bank investment in early childhood development, drawing upon new research results, changing circumstances and views, and increased demand for early childhood care and development.

There is evidence that early, not necessarily expensive, interventions can have salutary effects on school readiness and, sometimes, on school progress and performance, on caregiver knowledge, status and mobility, on community participation and action, and on the functioning of education and health systems.

Such investments could help to integrate and strengthen present Bank lending efforts directed toward increasing child survival, improving women's productivity, providing urban services, increasing primary school quality and efficiency, and reducing fertility. The paper outlines a wide range of current programmes of ministries of education, health, other governmental or private voluntary organizations which the Bank can take as starting points for their own programming.
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Eleven out of every twelve children born in the developing world in 1985 survived to age one. Greater attention by the Bank to these eleven who survive is recommended—through increased support for programmes of early childhood care and development. The present position of incidental support to such programmes builds upon outdated information and reasoning.

When new research results, changing circumstances and views, and increased demand are added to well-established moral, scientific, social equity, and productivity arguments, the case for investing in early childhood development is compelling. In addition, these investments could help to integrate and to strengthen present Bank lending efforts directed toward increasing child survival, improving women's productivity, providing urban services, increasing primary school quality and efficiency, and reducing fertility. Section I of the paper elaborates this rationale.

A wide range of viable programme possibilities exist which a Ministry of Education or of Health, other governmental or private voluntary organizations, and the Bank can take as starting points for their own programming. In Section II, three complementary general strategies are described: attending directly to children, educating parents and other caregivers, and fostering community development. These are discussed in relation to two underlying considerations—integration and community participation. Within these general strategies, specific programme models that have been tried out include: home day care, integrated child development centres, add-on programmes of child development to health, nutrition, or other existing centre-based programmes, child care in the workplace, pre-school programmes (formal and non-formal), home visiting, parental education, and education of siblings in child-to-child programmes.
A review of early childhood programme experiences (Section III, augmented by case studies in Appendix C) presents impressive evidence of the long-term effects of high quality early interventions carried out in the United States. In the Third World the lack of long-term studies and the relatively small number of solid programme evaluations make evidence weaker. However, there is evidence that early interventions can have salutary effects on school readiness and, sometimes, on school progress and performance, on caregiver knowledge, status and mobility, on community participation and action, and on the functioning of education and health systems. Furthermore, these interventions need not be expensive. More needs to be done to sort out the conditions under which these effects occur.

In Section IV, several actions the Bank might take are suggested for consideration:

- Hold a series of in-house discussions, crossing sectoral and departmental lines, about programming for early childhood development.

- Include a child development perspective in up-coming sectoral reviews (e.g. health, nutrition, and education), and in selected project identification exercises.

- Support evaluations of on-going projects that include a child care and development component and/or effect, perhaps in conjunction with UNICEF.

- Support experimental efforts on a medium scale, such as: up-grading child care in women-in-development or urban services programmes, providing caregiver education through use of mass media or in adult education programmes, training child care workers or other health workers in child development, integrating pre-school efforts with primary school programmes, supporting CHILD-to-child programmes, or adding early stimulation and nutrition components to projects where both are missing.

- Respond to a national request for loan assistance for a large scale programme in a country where the infant mortality rate is low and primary school enrollment is high, where demand and political will are strong, and the request is conceived as part of a broader, integrated child survival and development effort.
Child Survival and Child Development

The World Bank has responded to the needs of very young children in recent years by joining with other international organizations in a child survival crusade. That crusade, which gathered momentum in the early 1980s, took shape as continuing evidence of high infant mortality rates, a world recession, and mass media images of dying children combined with humanitarian, organizational interests, and the availability of simple technologies to mobilize international funding. Funding has increased for health, nutrition, sanitation, and other projects intended to reduce infant and child mortality rates. A global immunization effort seeking maximum coverage by 1990 is the most publicized part of the crusade. That intensive effort and related survival programmes are expected to accelerate the decline in infant mortality, cutting it almost in half by the turn of the century (UNICEF, 1986).

The child survival crusade reinforces a long-term trend of declining infant mortality rates (IMR). Even before the crusade gained momentum, the IMR for developing countries had dropped dramatically, from about 150 in 1960 to 92 in 1980 to 84 in 1985. Put another way, whereas one in six children in developing countries died before age 1 in 1960, one in twelve dies today (Goldstone, April, 1986).

Turning around statements about decreasing infant mortality leads to the obvious observation that the percentage of children who survive is increasingly continuously. Because most survivors to age 1 live in the same debilitating circumstances that put them "at risk" of death, they are now at risk of arrested or delayed psycho-social development. These delays affect
all of later life. They thwart attempts to escape from the persistent cycle of poverty, and reinforce the high probability that those who have been helped to survive will lead a miserable existence.

Our purpose in this paper is not to argue against trying to save lives. That would be foolish as well as inhumane. At the same time, however, it must be recognized that programmes narrowly addressed to survival undercut an integrated programme view looking at child survival and development. Focussing on survival alone leads to projects emphasizing physical growth and leaves aside psycho-social development. Furthermore, funds for, let us say, an immunization campaign trade-off against a wide range of developmental programme options. And, in some cases, funds and personnel are diverted from existing developmental efforts, weakening them considerably.

Focussing narrowly on survival diverts attention from the fundamental question, "Survival for what?". We hope the information presented in this paper will help draw attention to that question and will lead the Bank to consider adjusting its survival programming to include an early childhood care and development component.

The World Bank has not, in the past, made funds available to support projects of early childhood care and development, \(^1\) or has done so only incidently. The specific purpose of this paper is to provide the Bank with a

\(^1\) By "early childhood development," we mean an orderly, sequential process of change in which a child learns to handle higher and more complex levels of activity. Development includes a physical dimension (the ability to move; coordination); a mental or cognitive dimension (the ability to think and speak); a social dimension (the ability to relate to others); and an emotional dimension (the ability to feel). "Early childhood care" refers to provision of the basic conditions under which health development can occur: food, shelter, clothing, security, and affection.
basis for re-examining that position. We think a strong case can be made for paying greater attention than in the recent past to programmes enhancing the development of children, ages 0 to 6, from poor families in the Third World.

In this section of the paper, we will present an argument for a re-examination by the Bank of its present position. Roughly, the argument is as follows:

1. The reasoning that supported the Bank's neglect of child care and early education projects in the past is no longer convincing.

2. As the infant mortality rate (IMR) continues to drop, many more children live who are "at risk" of delayed development.

3. It is well established, scientifically, that the early years are critical in the formation of intelligence, personality, and social behavior, and that the effects of early neglect are cumulative.

4. Children who are "at risk" of delayed development deserve assistance for moral, economic, and equity reasons.

5. Changing demographic and social conditions have led to an increasing need and demand for child care and development programmes.

6. New research evidence supports the position that early interventions can make a difference.

7. There are a range of complementary programme options providing experience upon which the Bank can draw in reconsidering and adjusting its position. The cost involved need not be high.

Section II sets out complementary programming options: direct programme attention to young children, educating caregivers, and promoting community development. Cross-cutting these options and the supporting strategies of institution-building and advocacy, are questions of programme integration and of community participation. The options are examined in terms of the different programme effects and costs implied for each.

In Section III, evidence of project effects and costs is presented using examples of projects in both the developed and developing worlds. Impressive results are reported for the United States that offer hope, a challenge, and
some hypotheses but should not be generalized to the Third World. From a review of 18 evaluations of 15 early childhood care and development projects in Latin America and the Caribbean, we conclude that early interventions can produce effects, at a cost that is relatively low. However, evidence is thin and more needs to be done to sort out which options seem to work best under what circumstances.

Section IV summarizes conclusions and suggests actions that the Bank might take in re-examining its position. Emphasis is placed on ways in which the Bank could incorporate missing components of early childhood care and development into its present health, nutrition, education, women-in-development, and other programming. The need for solid evaluation is also stressed.

Some Recent History

In 1978, as part of a general attempt to set priorities, the Bank commissioned two working papers dealing with pre-school interventions. These were published in 1979 as:

No. 322. Roger Grawe, "Ability in Pre-Schoolers, Earnings, and Home-Environment."

No. 323. Moshe Smilansky, "Priorities in Education: Pre-School; Evidence and Conclusions."

Grawe's paper concluded that the "jury was still out" with respect to effects of early pre-school interventions on subsequent productivity. He noted, however, a relationship between family variables and children's abilities and pointed to the unfortunate absence, in most parts of the Third World, of policies designed to assist poor children by working directly with their families. To help bring the jury "in," Grawe recommended that the Bank provide research inputs to existing pre-school projects or programmes in the
Third World, perhaps in collaboration with UNICEF. In addition, he indicated that a better understanding of pre-school arrangements could make a difference in the efficiency and effectiveness of primary school programmes. Finally, he proposed that evaluations of women's programmes should also look at the effects of the programmes on pre-school children, and he suggested that existing child care programmes could be up-graded with Bank funds, if child development were to be recognized as an important element in women's programmes. To my knowledge, the Bank did not act on these recommendations.

Smilansky's working paper assessed the broad results of pre-school intervention programmes aimed at fostering the intellectual and social development of "disadvantaged" groups. He concluded that "traditional" kindergartens do not protect disadvantaged children from lagging behind or failing in school and that although pre-school programmes might have an effect on IQ, most studies showed a "wash-out" effect in the early years of primary school. Programmes which might produce longer-term results were dismissed as infeasible because Smilansky felt they would have to be too expensive or sophisticated. On the basis of the available evidence, Smilansky concluded that giving priority to pre-school interventions could not be justified. Rather, the Bank should stress educational support to the family unit. In line with Smilansky's recommendation, the Bank has not provided loan funds for pre-school education (or has done so only very indirectly, as in their nutrition loan to Brazil).

At about the same time, Marcelo Selowsky brought together previous work he had done relating nutritional and other investments in early development to increased ability, education, and adult productivity. (This work complements that of Smilansky who did not consider nutrition or health in his discussion of pre-school education; nor were they important elements in Grawe's paper).
In a 1979 paper titled "Nutrition, Health, and Education: The Economic Significance of Complementarities at Early Ages," Selowsky argued that the productivity and effectiveness of future investments in schooling could be highly sensitive to present public policies to reach pre-school age children in poverty. Indeed, from his empirical efforts to estimate these benefits Selowsky concluded that,

"Yearly investments per child in programmes that can induce a change in ability equal to one standard deviation can be 'justified' if they cost between 0.37 and 0.51 the yearly wage of an illiterate worker. If they can induce two standard deviations, values between 0.84 and 1.14 can be justified."

Although Selowsky's research concluded that one road to "inducing a change in ability is through pre-school programmes," that conclusion did not effect policy within the Bank's education sector.

**The Bank's Present Involvement in Early Childhood Development**

Even in the absence of a policy advocating support for projects enhancing child development, the Bank has provided some funds serving that purpose. In order to identify current activities related to child development the Education and Training Division carried out, in August of 1985, a review of projects supported by the Bank. A copy of that review is attached (Appendix A). For review purposes, child development activities were interpreted broadly to include loans that affect the physical and psycho-social development of children between the ages of 0-6, both directly and indirectly (through education of caretakers or by providing infrastructure). Activities expressly focussed on reducing infant and young child mortality (e.g., breast-feeding promotion, oral rehydration therapy (ORT), and immunization) were not included. Four types of programmes aimed at children were
identified: food supplementation, health and nutrition screening or services, education for pre-schoolers, and creches or day-care services.

The bulk of the 35 activities identified were found within HPN (22) and urban development (10). Only one was an education sector project, carried out in Jordan. In the education project child development was approached very indirectly by including a day-care centre within the design for construction of rural development training centres. The day care facility was provided in order to facilitate women's participation in training.

Child development activity components encountered in the 35 projects were:

<table>
<thead>
<tr>
<th>A. Programmes aimed at children</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Food supplementation</td>
<td>15</td>
</tr>
<tr>
<td>2. Health/nutrition screening or services</td>
<td>20</td>
</tr>
<tr>
<td>3. Education for pre-schoolers</td>
<td>5</td>
</tr>
<tr>
<td>4. Creche/day-care</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Programmes aimed at caretakers</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Training of caretakers</td>
<td>4</td>
</tr>
<tr>
<td>2. Adult education on children</td>
<td>9</td>
</tr>
<tr>
<td>3. Home visiting</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Physical infrastructure</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Child care/welfare centres</td>
<td>14</td>
</tr>
<tr>
<td>2. Community centres</td>
<td>8</td>
</tr>
</tbody>
</table>

The review leads to the conclusion that, in relative terms, very little is being done directly within the Bank to attend to child development and virtually nothing has been done within the education sector.

Why a Re-examination?

   - Demographic and social changes. As indicated above, one notable demographic change is that more children are surviving, creating a need for greater attention to survivors. In some areas of the Third World, the death
profile of the population looks very much like that of the developed world. For instance, most countries of the Caribbean are much closer to the United States with respect to survival rates than they are to, say Guatemala or India (Sinha, 1986). The same is true for Chile, Costa Rica, and Singapore.

Increased child survival is occurring at the same time that increased labour force participation of women, migration and urbanization, and the disintegration of traditional family patterns are producing new demands for programmes of early childhood care and development. These changes have accelerated in the last decade, and particularly in the last five years.

• The growth of new programmes: increasing demand and experience. In the seven years since the World Bank's previous examination of its pre-school policy, many new programmes of early intervention have appeared throughout the Third World. Positive experiences have begun to accumulate from a wide range of early intervention programmes differing in their coverage, the ages of the children involved, the degree of family and community participation, and their relationship to programmes of health and nutrition.

In most countries child care and pre-school education are expanding much more rapidly than primary, secondary, or university education. In part that is because coverage is still low almost everywhere. In part it is due to increased demand fostered by changing conditions. It is difficult to pinpoint the recent growth statistically. In the absence of good statistics, several examples will help make the point that attention to early childhood is increasing dramatically. In Brazil, it is estimated that coverage for child

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2 Most statistics describing programmes of early development are limited to information about children ages 3 to 6 enrolled in formal "pre-school" programmes. These figures can be misleading because they exclude non-formal programmes and because enrollment figures often bear little relation to actual participation. They also exclude statistics describing health and nutrition programmes with a developmental component.
care programmes increased from one to three million children from 1980-84 (UNICEF/Brazil, Annual Report, 1984). In India, the Integrated Child Development Service, which began in 1975 in 33 districts (blocks), had expanded to more than 1,000 districts by 1985, serving 20.4 million pre-school children (Tandon, 1986). From 1968 to 1984, enrollment in Kenyan self-help pre-school institutes for children ages 3 to 6 rose from 180,000 to 500,000 (Bernard van Leer, October, 1984). In Perú coverage in formal and non-formal programmes of initial education increased from approximately 140,000 in 1974 to over 500,000 in 1984 (Fujimoto and Villanueva, 1984).

Taken together, these recent experiences indicate an awakened interest and demand, within both national and international organizations, in early childhood development. That interest goes well beyond the stereotyped formal, middle-class, high-cost approach to "pre-school" education that was characteristic of earlier years. The new efforts suggest that programmes need not be expensive nor highly sophisticated to have an effect. An important characteristic of many of these programmes is community participation. A typology of these programmes will be presented in Section II.

• New research information. The most recent reference quoted in Smilansky's paper prepared in 1978 for the Bank was dated 1977. Since 1977, longitudinal data from studies in the developed world have become available which clearly demonstrate major long-term effects associated with a variety of early intervention programmes. These effects include: improved school attendance and performance, increased employment and reduced delinquency during the teenager years, and reduced teenage pregnancy. These results, some of which will be reported in more detail below, are encouraging, but they need to be verified, or contradicted, for programmes in the Third World. The jury is not "in," but the evidence has changed.
As new information has accumulated, a rethinking and recasting of "pre-school" programmes has occurred. The early emphasis placed on increasing intellectual development as measured by IQ had been replaced by a broader conception of development including attention to social effects. A clear separation is no longer made between "pre-school" and "family" programmes, as was done in Smilansky's paper. Frequently, projects are set within more general programmes of community development. Attention is being given to "integrated" interventions that include health, nutrition, and early care and education. Increasingly, a range of options is being considered and an attempt is being made to relate choice to particular contexts and conditions.

2. Long-standing arguments.

Changing conditions, new evidence, and corresponding shifts in viewpoint come together with a set of long-standing arguments to strengthen the case for re-considering support to programmes of early childhood development.

- The moral argument. Allowing arrested development to continue at a high rate when much of it could be prevented violates a basic right of children to develop to their full potential. Children are dependent on others for that basic right and there is, therefore, a moral obligation to help them.

- The scientific argument. Long before the recent longitudinal studies showing results from early interventions, a strong scientific base was in place indicating that the early years are critical in the formation of intelligence, personality, and social behavior (Mc V. Hunt, 1961; Bloom, 1964) and that effects of early neglect can accumulate.

- The social equity argument. Exceptionally stressful conditions inhibiting healthy comprehensive development in the early years affect the poor more than the rich, reinforcing social inequities. Therefore, poor
children often fall quickly and progressively behind their more advantaged peers and stay there (McKay, 1978). Also, boys have traditionally outpaced girls in education, in part because the girls are not equally prepared upon entering school. That discrimination begins with patterns and practices of early development that need to be corrected.

- **The economic argument.** Investments in health, nutrition, and stimulation early in life can bring a high return by increasing productivity in later years (see below and Appendix B). Moreover, preventive programmes produce savings by, for instance, reducing the need later for expensive health care or by improving the efficiency of educational systems through reductions in dropout, repetition, and remedial programmes. Child care programmes offer also the possibility of increased labour force participation by women and they can free older siblings to learn and earn as well.

- **The population argument.** The link between fertility rates and educational levels suggest that efforts to improve the educational level of women, including better preparation for school, will have an inter-generational effect on fertility. In developing countries, generations are relatively short so the inter-generational impact arrives early. To the extent that early childhood development programmes increase girls progress in school they can also have an intergenerational effect on fertility.

3. **Programmatic reasons.**

Attention to child development strengthens and complements the drive to increase child survival through its synergistic relationship with nutrition and health. Recent research from the nutrition field, for instance, demonstrates that children whose mothers interact with them in consistent, caring ways will be better nourished and less apt to be sick than other
children not so attended (Zeitlin, 1985). Moreover, child care and development programmes are potentially useful as vehicles for extending nutrition and primary health care (Evans, 1985), for instance, delivering Vitamin A, immunizing, monitoring growth, and educating parents. And, child care arises as an issue in conjunction with most women's income-generating programmes (Swaminathan, 1985). This complementarity calls for integrative programme strategies that include a developmental component. A broader focus on the young child than has been taken to date would facilitate that integration, helping to bring together service delivery strategies now pursued in parallel.
SECTION II: PROGRAMME OPTIONS*

For many people, a child development project or programme immediately conjures up the image of 25 or 30 small children, ages 3 to 5, playing with blocks or fitting triangles and squares into brightly colored puzzle boards, supervised by a professional nursery school teacher in a "pre-school" classroom. The image is limiting and does not often provide the most appropriate guide to programming in most Third World locations. The "pre-school" model not only focuses narrowly on a child's mental development, but is relatively expensive, and begins late in a child's life. It also involves a direct, "institutional" approach, relying on creation of centres that "compensate" for missing elements in the family and community environment while leaving parents and community members out of the programme. Fortunately, other programme options are available.

Complementary Approaches

For purposes of discussion, we have divided programme options into those that provide direct attention to the child, those that are one step removed, approaching development through the education of caregivers or by fostering community development, and those that are two steps removed, concentrating on raising resource levels, improving organization, and building up the will necessary to successfully implement activities. Cross-cutting those are two considerations that appear in all discussions of early childhood development.

programming - the degree of programme integration and of community participation. The resulting typology of programme options is presented in Figure 1.

**FIGURE 1**

A Typology of Early Childhood Development Programme Approaches

<table>
<thead>
<tr>
<th>Integration</th>
<th>Community Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono</td>
<td>Complete</td>
</tr>
<tr>
<td>Focal</td>
<td>No</td>
</tr>
<tr>
<td>Holistic</td>
<td>Participation and Control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct Attention</th>
<th>Care and Development Centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Attention</td>
<td>Education for Caregivers</td>
</tr>
<tr>
<td></td>
<td>Promoting Community Development</td>
</tr>
<tr>
<td>Supporting Strategies</td>
<td>Strengthen Resources/Capacities</td>
</tr>
<tr>
<td></td>
<td>Strengthen Demand and Awareness</td>
</tr>
</tbody>
</table>

The five complementary programming options set out in Figure 1 are:

**Option 1: Attend children: supporting child care and development centres.** The immediate goal of this direct approach is to enhance child development by attending to the needs of children in centres outside the home.
Option 2: Educate caregivers. This approach, once removed from direct attention to the child, is intended to educate and "empower" parents and alternative caregivers in ways that improve their care and interaction with the child and enrich the immediate environment in which child development is occurring rather than provide a substitute for it. Such programs should begin with support for local practices that enhance development.

Option 3: Promote community development. Here, emphasis is on working to change community conditions that may adversely affect child development. This strategy stresses community initiative, organization, and participation in a range of inter-related activities, including early education or stimulation activities, that will also benefit the community at large.

Option 4: Strengthen national resources and capacities. Resources may be financial, material, or human. The capacities in question may be policy-making, planning, organization and management, implementation, or evaluation capacities. The approach may involve institution-building, training, provision of materials, or experimentation with innovative techniques and models. The particular people and institutions involved will be influenced by decisions made about approaches 1, 2, and 3.

Option 5: Strengthen demand and awareness. This programme approach concentrates on the production and distribution of knowledge in order to create awareness and demand.

Any overall plan for enhancing child development should pay attention to all five of the approaches distinguished here. Although all five are intended to enhance early childhood development, each has different immediate objectives and each is directed, initially, toward a different audience.
Figure 2 summarizes the main objectives and audiences (participants/beneficiaries) for each approach and lists different models used to reach the objectives.

**FIGURE 2**

*Programming for Early Childhood Development: Complementary Approaches and Models*

<table>
<thead>
<tr>
<th>Programme Approach</th>
<th>Participants/Beneficiaries</th>
<th>Objectives</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attend children</td>
<td>o The child</td>
<td>o Survival</td>
<td>o Home day care</td>
</tr>
<tr>
<td></td>
<td>o 0-2</td>
<td>o Comprehensive development</td>
<td>o Integrated child development centres</td>
</tr>
<tr>
<td></td>
<td>o 3-6</td>
<td>o Socialization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o 0-6</td>
<td>o Rehabilitation</td>
<td>o &quot;Add on&quot; centres</td>
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<td></td>
<td></td>
<td>- to clinics</td>
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<td>- to nutr. serv</td>
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<td>o Child care</td>
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<td>o Workplace</td>
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<td></td>
<td>o Pre-schools:</td>
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<td></td>
<td></td>
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<td>- formal</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- non-formal</td>
</tr>
<tr>
<td>2. Educate caregivers</td>
<td>o Parent/family</td>
<td>o Create awareness</td>
<td>o Home visiting</td>
</tr>
<tr>
<td></td>
<td>o Sibling(s)</td>
<td>o Change attitudes</td>
<td>o Parent education</td>
</tr>
<tr>
<td></td>
<td>o Public</td>
<td>o Improve/change practices</td>
<td>o CHILD-to-child programmes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>o Mass media</td>
</tr>
<tr>
<td>3. Promote community development</td>
<td>o Community</td>
<td>o Create awareness</td>
<td>o Technical mobilization</td>
</tr>
<tr>
<td></td>
<td>o leaders</td>
<td>o Mobilize for action</td>
<td>o Social mobilization</td>
</tr>
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<td></td>
<td>o promoters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o members</td>
<td>o Change conditions</td>
<td></td>
</tr>
<tr>
<td>4. Strengthen national resources, capabilities</td>
<td>o Programme actors</td>
<td>o Create awareness</td>
<td>o Training</td>
</tr>
<tr>
<td></td>
<td>o Professionals</td>
<td>o Up-grade skills</td>
<td>o Experiment/</td>
</tr>
<tr>
<td></td>
<td>o Para-professionals</td>
<td>o Increase material resources</td>
<td>demonstrate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>o Strengthen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>infrastructure</td>
</tr>
<tr>
<td>5. Strengthen demand awareness</td>
<td>o Policy-makers</td>
<td>o Create awareness</td>
<td>o Social marketing</td>
</tr>
<tr>
<td></td>
<td>o Public</td>
<td>o Build political will</td>
<td>o Ethos creation</td>
</tr>
<tr>
<td></td>
<td>o Professionals</td>
<td>o Increase demand</td>
<td>o Knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Change attitudes</td>
<td>dissemination</td>
</tr>
</tbody>
</table>
Cross-cutting Considerations

Integration. Each of the strategies described briefly above can be approached narrowly, focusing only on one component of early development, or in an "integrated" way. A child development centre may or may not include medical and feeding facilities and may or may not teach good health and nutrition habits to young children. A child care centre, even with medical attention and feeding, may function with or without attention to early stimulation, organized play, and/or educational activities. Similarly, parental (or caregiver) education can be focused on one component of development, say health, or it can include several — for example, health, nutrition and education. A community development approach, almost by definition, should be an integrated one. In some cases, however, community projects are narrowly focussed on one area. And, it is easy for a community development programme, even though justified in terms of its potential impact on children, to neglect direct attention to a child's psycho-social development needs in order to concentrate on general changes in the environment.

The several dimensions of child development can be incorporated into one "integrated" service or delivered in pieces through separate bureaucracies that "converge" on one community or location (which might be a home or community child care centre, pre-school, workplace, health post, community centre, community kitchen, supplementary feeding centre, or other). Many so-called "integrated" programmes consist of services that converge geographically, but without integrated administration or implementation.

The degree to which a programme tries to respond to the multi-dimensional nature of early childhood development, the extent to which various components are delivered together or separately, and whether or not funds are provided by
one organization or several will affect the way in which both costs and effects are defined and calculated. We will have more to say about this in the following sections.

Community Participation. Community participation is sometimes encouraged for its own sake as a basis for developing solidarity and greater control over one's own life. More often, however, participation is viewed as an instrument — as a means of making programmes more effective by engaging potential recipients actively so that usage will increase and so that the programme will respond appropriately to local needs. Encouraging participation is also a key strategy for reducing costs. Community-based participation programmes are widely thought to be less expensive than, for instance, services delivered through the established health or educational systems. However, that "low-cost" viewpoint is often based on a budgetary view from above and focuses on hoped-for reductions in government (or other funding agency) expenditures. It does not incorporate the cost of resources (time, materials) provided by the community. Nor is participation recognized as a means of building self-reliance, helping secure continuation of a programme.

All of the strategies described can be carried out with a minimum of community participation or by relying heavily on the community. A service can be delivered by outsiders or, as in many "non-formal" programmes, incorporate community members as decision-makers, volunteer caregivers, and community health workers. Parental education can be imparted by outsiders or by neighbours. Community-development can involve technical mobilization of local people, instigated from outside, and giving the appearance of participation, or may involve community members in decisions as well as actions, leading to more active social mobilization.
Programme Options and Programme Effects

We will focus our discussion of programme effects on the first three options described above: direct attention in centres, education of caregivers, and promoting community development. Each requires somewhat different ways of assessing effects and costs, related to differences in project goals. We will also focus, initially, on presumed effects on future productivity and on potential cost savings.

1. Service delivery: direct attention.
   a. Increases in the productivity of participating children over their lifetime. The long chain of causation that links early childhood development to later productivity begins with family and environmental variables affecting a child's early ability. Early ability affects later ability, educational attainment, and occupational placement and experience — all of which influences adult productivity. For the interested reader, four variations of this casual model are presented in Appendix B.

   Empirical evidence supporting pieces in this causal chain must come from many fields. Marcelo Selowsky, for instance, has drawn upon psychology, sociology, economics, nutrition, and education to make the following argument:

   "(1) An increasing number of studies show that pre-school age children of the lower socio-economic groups in developing countries perform substantially worse in tests of cognitive development than children from higher income groups.

   (2) These studies also show that a larger part of this difference can be attributed to factors able to be influenced by public policy. Malnutrition, lack of sanitation, low levels of psychological stimulation and other environmental deficits surrounding children in poverty are some of these factors."
(3) Earnings functions - relating earnings to levels of schooling and early ability scores, if available - show that early ability not only has an independent effect on future earnings. Most important, the functional forms that seem to fit the data best imply a complementarity between schooling and ability, the marginal product of additional schooling depending on the level of pre-school abilities of the child.

(4) Future expansion in enrollment in primary schools in developing countries will consist of additional enrollment of children from increasingly poorer segments of the population." (Selowsky, 1981, pp. 1, 2.)

Perhaps the most convincing data to support this causal chain comes from longitudinal studies, one of which will be described below.

b: Increases in the productivity of caregivers. A child care programme can free up the time of caregivers for productive purposes (and can itself be a productive activity). Psacharopoulos states that:

"When a mother's time is free because of the provision of a day-care or nursery school place for her child, she can use her free time in two ways: for increased 'home production' (i.e., shopping around for food at lower prices, better quality meals, etc.), or out-of-home production by participating in the labor force. To the extent that her market wage is higher than the implicit (shadow) home production wage, this social difference between the two 'wages' is at the same time a private and a social benefit resulting from the provision of the nursery school place for her child." (Psacharopoulos, 1982, p. 58.)

The statement by Psacharopoulos can be broadened from "mothers" to "caregivers." A childcare centre may, for instance, free up time of a sibling. In addition, free time can be used to invest in additional education leading to increases in productivity. Often, older sisters are kept out of school to care for younger children.

Unfortunately, many pre-school programmes that are focussed directly on development of the young child overlook child care and fail to consider arrangements that could also lead to increases in productivity of mothers or other caregivers.
21  

2. **Educating caregivers.** The long-term economic effects anticipated in an indirect approach to improving early childhood development through educating caregivers are only somewhat different from a direct approach.

   a. **Increases in productivity of children in participating families.** The causal chain is theoretically the same as described in the direct approach, but improvements in early ability are sought by enriching the home environment rather than providing alternative care.

   b. **Increases in productivity of caregivers.** In contrast with the strategy of direct attention, additional caregiver time is required by the mother (or sibling) so no benefits accrue as a result of increasing "free" time.

   c. **Cost savings.** To the extent that parental education affects early development, it could bring cost savings similar to those posited for a direct approach.

   d. **Multiplier effect.** In comparison with the direct approach, parental education has the potential advantage of a multiplier effect. The same knowledge used with one child can be used to help development (including the health and nutrition components) of other family members thus raising the quality of life for families and communities.
3. **Community development.** The economic effects on productivity and cost-saving of a community development approach to enhancing early childhood development are more difficult to trace than those of direct attention or of educating caregivers. In a community approach, the young child is only one beneficiary among many. Theoretically, the causal chain leading to increased productivity of the child in later years should be similar to that described earlier. However, the initial push to improve early development comes from better conditions in the environment. If debilitation or delayed development is a function of the environment, then removing these causes will not only lead to increased productivity but should avoid many of the recurrent costs that are part of a compensatory system. A community development approach, taken seriously, minimizes the chance that early gains made in specific child development programmes will "wash out" later on.

4. **Other effects.** In all three programme options, a range of other possible effects should also be kept in mind.

a. **Employment.** An employment effect can accompany child development programmes, not only because primary caregivers' time is freed, but also because jobs are created for alternative caregivers. In India, the ICDS programme has opened 200,000 positions for Anganwadi workers and helpers. Pay is miserable, but the positions are sought. A home day care arrangement also allows some women to earn while remaining at home.³

³ The merits of such employment deserve more extensive discussion. From one point of view, this employment generation is a form of exploitation to be avoided. For this view, see Fulvia Rosemberg, "Creches Domiciliares: Argumentos ou Falácias," *Cadernos de Pesquisa*, Sao Paulo (56): 73–81, February, 1986.
b. **Status and personal satisfaction.** Child development programmes may bring personal benefits to the caregivers or promotors. The simple fact of having been "trained," for instance, imparts some status. Moreover the training may be transferrable. Indeed, in both India and Peru, trained para-professionals have found their way into the lower end of the teaching profession, either as teachers in formal pre-schools or as primary school teachers. A pre-school position can also impart status in the community independent of the training. An indication of increased status, for instance, is that the "bride price" for unmarried Indian women seems to go up if they become Anganwadi workers.

c. **Organization and mobilization.** In all three options early childhood development efforts can bring with them improvements in community organization that will have longer term effects and will spill over to the development and implementation of other programmes. In addition, more opportunities for participation are opened up.

These possible effects are not inconsequential. They may even be necessary in order to realize, in the long run, the productivity and cost-saving effects emphasized at the outset.

**Programme Options and Programme Costs**

The general categories of costs for an early childhood development programme will be essentially the same as for other programmes. Costs are likely to vary more in terms of the particular input mixes (technologies, models) used within each of the three main programme options we have described than among them. For instance, the cost structure for a mass media approach will differ a great deal from a home visiting approach to educating
caregivers. The costs of a home day care arrangement employing neighbourhood mothers will be very different from those of a professionally run nursery.

The main cost component of most social and educational programmes, including early childhood development programmes is the cost, or value of, the time of people who make the programme function — the child minders/teachers, supervisors and managers, and, depending on the breadth of the programme, the health personnel, community organizers, nutritionists, cooks, etc. That seems to be the case, whether we think in terms of attending children, educating caregivers, or promoting community development. It is not surprising, then, that so much attention has been given to the role of para-professionals and of "volunteers."

There will, of course, be costs of materials, equipment, and dwellings as well, but normally these will be a minor portion of total costs and an even smaller portion of recurrent costs. Even in a parental education programme using television, there will be significant, if somewhat lower, human resource costs in terms of the time spent by those who produce the programme (and the parents who listen to it).

Cost-cutting strategies. Recognizing the central importance of human resource costs, cost-conscious planners are led to seek ways of reducing that lion's share of costs. Among the methods used are:

1. Spreading out the human resource cost by changing the number of children per person (e.g. changing the ratio of children to caregiver from 6:1 to 10:1 or 25:1).

2. Reducing the intensity of the programme by cutting back on the hours worked (e.g. from a 4-hour to 3-hour morning).

3. Substituting human resources with a lower market value (para-professionals for professionals, or untrained mothers as assistants).

4. Calling on individuals whose human resource value is high but who are being un- or under- utilized (e.g. grandparents or retired individuals).
5. Combining tasks and activities (e.g. a community health worker educates parents about early stimulation; a pre-school teacher takes on a growth-monitoring function).

6. Substituting technology (e.g. television in place of home visits).

In the above listing we have not included the cost-cutting strategy of seeking "volunteer" labour. We have not done so because the time of volunteers needs also to be valued. The strategy represents a redistribution of the cost burden, but not necessarily a reduction of social costs (unless the volunteers are either less qualified individuals whose market value is less or are un-utilized individuals, as in the case of retirees).

These several cost-cutting strategies can be examined from two points of view. The standard approach is to ask whether they will reduce costs without reducing the effectiveness of the programme for children. Does, for instance, changing the child minder ratio from 6:1 to 10:1 or for 3 hours instead of 4 result in significantly lower quality attention? Does substituting para-professionals lower effectiveness? Does pyramiding responsibilities lead to diffusion of effort so that no area is adequately attended?

A second, less frequent, way of viewing the proposed cost-cutting solutions is in terms of what they imply for community participation. Along this dimension, the alternative of substituting para-professionals for professionals may, for instance, allow community members to participate actively in the programme who could not before. Let us assume that it requires two para-professionals plus some extra supervision to replace a professional so that, to maintain effectiveness levels in outcomes for children, the cost will be the same. From a community participation perspective, the para-professional alternative would be preferable because it
increased community participation which, it is expected, will help sustain the programme and eventually change conditions leading to the need for the programme.

The prominence of "community participation" in early childhood programme planning and implementation leads to a set of difficult conceptual and measurement problems when examining costs and effects. Should participation be sought for its own sake (an outcome) or should it be treated as an input? How does one cost community inputs that are "donated" so as to properly reflect the social costs involved and to give credit to community contributors? Does participation lead to increases in production and/or to improvements in overall community conditions, affecting early childhood development or is it simply a way to cut government expenditures by transferring costs to the community with no measurable effect on programme outcomes?
SECTION III: COSTS AND EFFECTS OF EARLY INTERVENTIONS: SOME EXAMPLES

In Section I, "new evidence" was mentioned showing that early childhood programmes can have an effect on later life. This section will present some of that evidence, beginning with a longitudinal study from the United States. We then review evidence from 15 projects carried out in developing countries, among which are programmes providing direct attention, education of caregivers, and promotion of community development. We will pay special attention to evidence of: increases in productivity of children; increases in the productivity of caregivers; cost savings and/or increased efficiency; and shifts in the level and distribution of costs. We will, however, be concerned with other effects and cost questions as well.

1. The Perry Pre-school Project: An Example from the United States.

In a volume titled Changed Lives (Berruta-Clement, 1984), results are reported of a follow-up study at age 19 of children who participated in a high-quality early intervention project at age 3. The children were all urban blacks, from low-income families in Ypsilanti, Michigan and participated in the programme for two school years at ages 3 and 4, except for one group that received the programme for one school year at age 4. The pre-school year began in October and ended in May, a relatively short 7-1/2 month period. Classes were conducted for 2-1/2 hours each morning Monday through Friday; the staff-child ratio was 1 adult for every 5 or 6 children enrolled. Teachers made a home visit to each mother and child for 1-1/2 hours weekly.

The Perry pre-school study provides unusually solid empirical evidence that an early intervention raising a child's ability level can have effects on school performance, on the demand for schooling, and on employment and
earnings. When the pre-school children were compared with another group of children who did not participate in the programme the early education group was more likely to graduate from high school and obtain employment and less likely to require remedial education, be in trouble with the law, or become pregnant while a teenager. At age 19, 45 per cent of the programme group were supporting themselves as compared with 25 per cent of the control group. The mean annualized welfare payments to programme group members was $633(US), as compared to $1,509(US) for control group members. Other major findings from the Perry Pre-school study are shown in Table 1.

TABLE 1

MAJOR FINDINGS AT AGE 19
IN THE PERRY PRESCHOOL STUDY

<table>
<thead>
<tr>
<th>Category</th>
<th>Number* Responding</th>
<th>Preschool Group</th>
<th>No-Preschool Group</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>121</td>
<td>39%</td>
<td>32%</td>
<td>.032</td>
</tr>
<tr>
<td>High school graduation (or its equivalent)</td>
<td>121</td>
<td>57%</td>
<td>49%</td>
<td>.034</td>
</tr>
<tr>
<td>College or vocational training</td>
<td>121</td>
<td>38%</td>
<td>21%</td>
<td>.029</td>
</tr>
<tr>
<td>Ever detained or arrested</td>
<td>121</td>
<td>31%</td>
<td>51%</td>
<td>.022</td>
</tr>
<tr>
<td>Females only: teen pregnancies, per 100</td>
<td>49</td>
<td>64</td>
<td>117</td>
<td>.084</td>
</tr>
<tr>
<td>Functional competence (APL Survey: possible score 40)</td>
<td>109</td>
<td>24.6</td>
<td>21.8</td>
<td>.023</td>
</tr>
<tr>
<td>% of years in special education</td>
<td>112</td>
<td>16%</td>
<td>28%</td>
<td>.039</td>
</tr>
</tbody>
</table>

*Total n = 123
*Two-tailed p-values are presented if less than .100.

A cost-benefit study based on the Perry pre-school longitudinal data took into consideration the following costs:

1) Programme costs, including instruction, administration and support staff, overhead, supplies, psychological screening, and capital costs (interest and depreciation).

2) Additional educational costs to be incurred as a result of increased demand for education.

Benefits (or cost savings) for which monetary estimates were made are:


b. Reduced cost of schooling due to less remedial education, K-12.

c. A savings in welfare expenditures.

d. A cost saving through reductions in crime and delinquency.

e. Increased earnings - ages 16-19, and projected after age 19.

Table 2 summarizes these costs and benefits.

**TABLE 2**

Summary and Distribution of Costs and Benefits, the Perry Pre-School Programme, for 1-Year of Pre-School

<table>
<thead>
<tr>
<th>Benefit or Cost</th>
<th>Total (in US Dollars) For Taxpayers and Citizens</th>
<th>For Pre-school Participants</th>
<th>Pre-school Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-school programme</td>
<td>-4,818</td>
<td>0</td>
<td>-4,818</td>
</tr>
<tr>
<td>Child care</td>
<td>290</td>
<td>290</td>
<td>0</td>
</tr>
<tr>
<td>Education, K-12</td>
<td>5,113</td>
<td>482</td>
<td>5,113</td>
</tr>
<tr>
<td>Welfare at age 19</td>
<td>642</td>
<td>546</td>
<td>161c</td>
</tr>
<tr>
<td>Crime thru age 20</td>
<td>1,233</td>
<td>0</td>
<td>1,233</td>
</tr>
<tr>
<td>Predicted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>-704</td>
<td>0</td>
<td>-704</td>
</tr>
<tr>
<td>Earnings, after age 19</td>
<td>21,813</td>
<td>19,233</td>
<td>4,580</td>
</tr>
<tr>
<td>Welfare, after age 19</td>
<td>1,430</td>
<td>-14,377</td>
<td>15,815</td>
</tr>
<tr>
<td>Crime, after age 20</td>
<td>1,871</td>
<td>0</td>
<td>1,871</td>
</tr>
<tr>
<td>Net Benefit (dollars)</td>
<td>28,933</td>
<td>5,082</td>
<td>23,852</td>
</tr>
<tr>
<td>Benefit Cost Ratio</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Table entries are present values in constant 1981 dollars (US), discounted at 3 per cent annually. (The use of a 3 per cent discount rate may seem low. However, it should be remembered that time 0 in this study is 1962. Had a higher discount rate been used, the fundamental conclusion of the study would not change because the same rate would be applied to both earnings and to welfare savings.)

b. Costs are indicated as negative amounts.

c. Assumes 25 per cent of estimated earnings is paid in taxes.

d. Some college costs are undoubtedly borne by the participants and their families, but there is no estimate for that amount. The most conservative assumption toward increasing the relative benefits of participants was to assign all college costs to the taxpayers.

e. Column figures may not sum to net benefits due to rounding.

Source: Ibid., combined information from Tables 26 and 28, pp. 90 and 91.
The cost-benefit study of the Perry project suggests that:

1. Causal models (see Appendix B) linking early intervention to later productivity hold up in the analysis of quality pre-school programmes in the United States.

2. The benefit-to-cost ratio for a pre-school programme can be high.

3. The bulk of the benefits accrue to taxpayers and citizens rather than to the programme participants. Thus, the incentive for private investment is not strong and the disadvantaged economic position of poor families makes it unlikely that they could make the initial investment required for participation in a programme of as high quality as the Perry project.

4. A high-cost early intervention programme can be socially beneficial.

5. There is utility in looking at effects other than IQ gains and earnings.

The Perry pre-school study deserves more discussion than can be provided in this paper. To do so, however, would be a distraction because our main concern is not programmes in the United States. The main purpose of presenting the study is to provide a point of departure and comparison. The study is provocative and provides fuel for advocates of early education programmes. It suggests hypotheses for other evaluations. Moreover, its findings do not stand in isolation. Other longitudinal studies carried out in the United States suggest that small-scale, high quality, experimental early childhood intervention programmes for poor children provide a variety of short-term and long-term benefits to participants and to society (Halpern/Myers, 1985).

As tempting as it may be to do so, generalizing these positive results of the Perry project and other U.S. evaluations to the Third World is not appropriate. It is no more appropriate than the previous extrapolation of research results claiming that the effects of early childhood programmes "wash out." Consider, for instance, the following contrasts between the Perry
Project and what one might find in a Third World setting:

- The nutritional status and health of Perry pre-school children was not a problem. Although children were provided with a morning snack, there was no need for a supplementary feeding programme. Water and sanitation were not a problem.

- Parents of the U.S. children were literate, considerably easing the task for home visitors and providing some support at home for what happened in the pre-school.

- Television and written materials are a prominent part of the environment in which the Perry project children lived.

- The school system into which the pre-schoolers went was well developed and included programmes of remedial education.

- Social service infrastructure and income support programmes existed to help buffer the effects of poverty for the Perry pre-school families.

- There is virtually no opportunity cost for U.S. children in pre-school or primary school, whereas a rural Somalian child of 5 may already be expected to tend goats and his time has an economic value.

In brief, for the Perry project, the need for an "integrated," multi-dimensional approach to early childhood development was not pressing, as it would be in the Third World. A "safety-net" and an educational infrastructure was already in place. (Indeed, a good portion of the social benefit of the U.S. pre-school programme came from cost savings from school and welfare on services provided as a matter of course.) The need for community organization was not part of the model (although incorporating a stronger community component might have made results even more dramatic).

The reader should note also that the cost of the Perry Pre-school Project was high. If a similar level of costs were used as a basis for programming in most developing countries, either the budget would be drained or coverage would be very small.
2. **Evidence from Developing Countries: A Review of 15 Projects.**

We turn now to a review of studies of early intervention programmes in the Third World. That evidence is still sparse, but nevertheless revealing. As a basis for our review, we have selected 18 evaluations of 15 programmes intended to improve the early development of children. Cases and evaluations were selected that not only presented results from an evaluation of outcomes, but that also included cost calculations, with sufficient information to know how the calculations were made.

Basic information describing the 15 projects is presented in Table 3. Each of the projects has its peculiarities and special features, but a detailed presentation of each is not possible in this paper. We will, therefore, briefly summarize similarities and variation among the projects, then turn to an examination of effects and costs. To provide the interested reader with supporting information we have included additional detail about four of the interventions in Appendix C.
<table>
<thead>
<tr>
<th>Program Options</th>
<th>Country and Program</th>
<th>Age of Children</th>
<th>Urban/Rural</th>
<th>Scale</th>
<th>Health</th>
<th>Nutrition</th>
<th>Education</th>
<th>Use of Para-professional</th>
<th>Child Minder</th>
<th>Hours Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Delivery</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>a. Home Day Care</td>
<td>1. Venezuela</td>
<td>1-6</td>
<td>Urban</td>
<td>6,725</td>
<td>Medical</td>
<td>-</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 4/5</td>
</tr>
<tr>
<td></td>
<td>2. Brazil: Primary</td>
<td>0-7</td>
<td>Urban</td>
<td>22,290</td>
<td>Medical</td>
<td>Monitoring Nutr. Ed.</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 6</td>
</tr>
<tr>
<td></td>
<td>b. Community Child</td>
<td>3. Chile: Plaza</td>
<td>Urban</td>
<td>200</td>
<td>-</td>
<td>Vaccine-</td>
<td>With continued food</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 12</td>
</tr>
<tr>
<td></td>
<td>Development Centre</td>
<td>Pre-Escolar</td>
<td></td>
<td></td>
<td></td>
<td>tion</td>
<td>Supplement</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>c. Health/Nutrition</td>
<td>4. Brazil: PROAPE</td>
<td>Urban</td>
<td>2,345</td>
<td>Medical</td>
<td>Food</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>6 to 100</td>
</tr>
<tr>
<td></td>
<td>&quot;Míd-Ch&quot;</td>
<td>5. Chile: Health</td>
<td>Urban/Rural</td>
<td>4</td>
<td>MCH</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>b. Workplace</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Non-formal</td>
<td>6. Dominican</td>
<td>Rural</td>
<td>20,586</td>
<td>Medical</td>
<td>Food</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 30</td>
</tr>
<tr>
<td></td>
<td>Pre-school</td>
<td>Republic</td>
<td>Urban</td>
<td>60,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Peru: PROMOEI</td>
<td>3-5</td>
<td>Rural</td>
<td>9,900</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Nicaragua: CEPEM</td>
<td>3-5</td>
<td>Rural</td>
<td>725</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Peru: Vitarte</td>
<td>3-5</td>
<td>Urban</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 26</td>
</tr>
<tr>
<td>Caregiver Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Home Visitor</td>
<td>10. Peru: Portage</td>
<td>3-5</td>
<td>Urban</td>
<td>100</td>
<td>Health</td>
<td>Education</td>
<td>Child Development Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 10</td>
</tr>
<tr>
<td></td>
<td>11. Peru: Portage</td>
<td>3-5</td>
<td>Rural</td>
<td>120</td>
<td>Health</td>
<td>Education</td>
<td>Child Development Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 10</td>
</tr>
<tr>
<td></td>
<td>12. Jamaica: Health</td>
<td>0-2</td>
<td>Rural</td>
<td>100</td>
<td>MCH</td>
<td>Nutrition</td>
<td>Education</td>
<td>Yes</td>
<td>(Child Health Worker)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Parent Education</td>
<td>13. Chile: PPH</td>
<td>4-6</td>
<td>216</td>
<td>-</td>
<td>-</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Chile: PPH</td>
<td>4-6</td>
<td>Rural</td>
<td>50</td>
<td>Health</td>
<td>Education</td>
<td>Child Development Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 25</td>
</tr>
<tr>
<td></td>
<td>c. CHILD-to-Child</td>
<td>15. Jamaica:</td>
<td>Rural</td>
<td>1,000</td>
<td>Health</td>
<td>Education</td>
<td>Child Development Education</td>
<td>No (?)</td>
<td>(Primary School Technician)</td>
<td>1 to 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CHILD-to-Child</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Integrated</td>
<td>16. Peru: Cono Sur</td>
<td>0-5</td>
<td>Urban</td>
<td>50</td>
<td>Medical</td>
<td>Food</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 10</td>
</tr>
<tr>
<td></td>
<td>b. As Catalyst</td>
<td>17.510: Peru:</td>
<td>Rural</td>
<td>2,068</td>
<td>-</td>
<td>Food</td>
<td>Education</td>
<td>Yes</td>
<td>(Neighbour)</td>
<td>1 to 10</td>
</tr>
</tbody>
</table>
TABLE 3 - PROGRAMME REFERENCES


10 and 11. Llanos, Martha, y Winkler, Donald. "Los Beneficios y Costos de la Educación Pre-Escolar No-Formal, El Proyecto Portage en el Perú."

12 and 15. Myers, Robert. Unpublished data based on conversations with programme staff (Dr. Sally MacGregor and Jennifer Knight).


Project Similarities and Differences

Several features are shared by all 15 projects reviewed.

- The populations served were all low-income families (from un- or under-employed households or from poor farms).

- All projects attempted to incorporate several components — typically education, health, and nutrition. (The extent to which each of these components was developed differed as did the combinations.)

- Some form of community participation was sought. In most, a local person was chosen and trained as a para-professional, and the community was responsible for providing a locale. (Little community participation was found in diagnosing, monitoring, managing, or evaluating projects.)

- Except for two cases from Jamaica, all are taken from Latin America (Venezuela, Dominican Republic, Chile, Brazil, and Peru). All of these countries are experiencing inflationary pressures, currently devaluations, unemployment, and migration — factors that directly and indirectly affect the operation of the projects and assessment of their effects and costs.

- Almost all were "non-formal" projects.

As evident from Table 3, the three programme approaches described earlier are represented. Projects also varied in:

- The type of setting and locale.
- The amount of contact time.
- The ages of the children (generally 0–7, with a concentration of projects designed for pre-schoolers 3 years or older).
- Scale. (Most were small pilot or demonstration projects.)
- Stage of implementation. (Only the pre-school programmes in Perú, the Dominican Republic, and Nicaragua, and Brazil/PROAPE could be considered beyond the early trial stage of implementation.)

The lack of well-documented treatments of project costs limited our choice of projects for the review, but the 15 cases included are sufficiently

---

4 Nine projects provide direct attention to children; six provide education to caregivers; and two set child development within a community development framework. The classification is, however, rough.
differentiated in terms of setting, scope, type of delivery, cost analysis methodology and effects, to see crucial differences in the way evaluators have dealt with the peculiarities and problems posed by attempts to measure and analyze costs and effects of such projects. The variation also helps to suggest general magnitudes and ranges for the likely costs and effects associated with certain types of delivery approaches.

This simple description of programme options should make it immediately obvious that direct comparisons among projects of "effectiveness" and summary estimates of the "average cost" of early childhood development projects are not meaningful.

Effects

The 18 evaluations differed in their definitions of effects and in the methods used to identify them. In differing degrees, the evaluations relied on collecting statistics, testing, observation, and interviews. The four examples described in somewhat greater detail in Appendix C illustrate the range of objectives, methods, and measures we encountered.

One clear message from the review is that if one were to focus only on the young child, much of the value of interventions would be missed. For that reason, and in line with the presentation in this paper of "complementary options," the following paragraphs will deal with effects on young children, caregivers, the community, and the infrastructure for service delivery.

Effects on Young Children. Three main categories of effects on children were present in the set of evaluations:

1. Psycho-social development (general tests of development such as the McCarthy or Bayley; locally-created tests of psycho-motor, language,
and socio-emotional development, often linked to the particular content of an intervention; drawings; parental and teacher interviews).

2. Health and nutritional status (morbidity; immunization records; weight-height-age measures; brachial measures).

3. Primary school progress and performance (enrollment; attendance; grade repetition; drop out; performance as indicated by grades or teacher ratings).

In general, the evaluations of psycho-social development were positive, suggesting that most early childhood interventions have an effect on development and on preparation of children for primary school. When tests were administered and comparisons were made with children who had not participated, results usually, but not always, supported the widespread and consistent anecdotal evidence coming from parents who say that their children are "more alert," sociable and curious as a result of their participation. There is suggestive evidence that children from lower income, more marginal families benefitted more, cognitively and socially than their somewhat more privileged peers. Cases 1 and 4 in Appendix C help to substantiate these general statements while pointing also to some selectivity in the results.

Health and nutrition effects were less often measured and less often found than psycho-social effects in this set of evaluations, at least in part because those projects reviewed were for the most part "education" projects. Measurement was often poorly done. There is suggestive support for the position that supplementary nutrition programmes may be more effective in motivating children to attend pre-school programmes than they are in improving the nutritional status of the children being fed (see case 2, Appendix C).

Primary school progress and performance was evaluated in several of the evaluations. There was, however, no serious attempt to look at long term
effects, with the emphasis in all but one study being on effects in the first year of primary school. The results of these evaluations are similar to those found in a previous review focusing on the effect of early interventions on primary school progress and performance (Halpern/Myers, 1985).

"The available evidence of the effects of early childhood intervention yields a picture of modest positive effects on initial adjustment to the demands of primary school. The particular mechanisms enhancing this adjustment appear to reflect some combination of earlier age of enrollment, improved school readiness and more selectively, improved health and energy level (thus, presumably, attendance as well). Changes in parental knowledge and attitudes are hinted at in a few studies, but their contribution to children's initial adjustment is largely undocumented.

The most striking finding suggested by the present review is that structural features of the primary school systems (promotion quotas, teacher attitudes, low quality instruction, resource inadequacies, and so forth) seemed to rapidly overwhelm any early childhood intervention effects. Children's individual abilities and physical integrity still played a role in influencing early school progress in studies reviewed, but within a much narrower and absolutely lower range of variance in possible outcomes. (Halpern/Myers, 1985, p. 28)

The above summary is both moderately encouraging—with respect to school readiness—and, moderately discouraging—with respect to the ability to convert readiness into actual gains. There were exceptions to both these general findings. For instance, in the Bank-financed PROAPE programme out in Alagoas, Brazil, the failure rate in the first grade for PROAPE participants was only 9 per cent as compared with 33 per cent for children with no pre-school experience and 28 per cent for children in regular kindergartens.

Effects on caregivers. The caregivers in the projects reviewed included para-professionals, teenagers volunteering time, parents reached through home visits, and primary school students.

Most projects produced positive changes in caregiver knowledge—about development, nutrition, and health. Turning that knowledge into changes in
behaviour, however, whether in a classroom or in a home, proved to be more difficult.

In two or three evaluations, specific attention was given to changes in the caregiver's status as a result of participation in the project. That was indicated variously by examining the changing role of the caregiver in the community or the ability of caregivers to move into other, better paid positions, including primary school teaching. In Peru, animadores often took on community organization duties (Case 1). A Chilean evaluation (Case 4), reported large changes in self-confidence, and satisfaction; caregivers moved from a state of apathy to action as a result of their involvement.

Effects on communities. Four of the projects (and 6 evaluations) were specifically concerned with effects on the community. The most extensive treatment of community effects comes from the "illuminative" evaluation of the parental education/community development project in Southern Chile (Case 4) described in Appendix C. A long list of specific community activities attests to the project influence on the community. In other cases specific changes in sanitation or food production, or another community feature were associated with the project.

Whether evaluated or not, community participation was a feature of almost all programmes because local individuals were chosen as para-professionals and because the community often assisted in construction of the centre. Rarely, however, was there evidence of participation in the management and evaluation of the programme. From one evaluation (Case 1) comes evidence that the project provided an avenue for increased participation in community affairs — through the parental support organization formed. And, although the project did not change the traditional form of community organization, it did influence the topics discussed in community meetings, with a shift toward
education and health from the former, almost exclusively attention to agricultural and related matters.

**Effects on educational systems.** When projects were able to move beyond a pilot or demonstration stage to a medium scale, they inevitably affected the system of educational service delivery in terms of coverage and, sometimes in terms of concept and content. New materials were produced. The human resource base was broadened. To the extent that programmes reduced repetition and failure (see Case 2, Appendix C) they also affected the efficiency of the system.

Taken together this array of effects is more impressive than it is in the case of any one project. The overall picture seems to be of projects that have been successful in differing degrees and with respect to different outcomes. More will need to be done to sort out the particular conditions that seem to promote the success of each option.

**Costs**

As with effects, costs were calculated in several different ways. Appendix D elaborates on differences among the cases with respect to: the time dimension used, the pricing of volunteer work, how multiple funding and multiple components/activities were handled, the treatment of capital costs, hidden costs, multiple beneficiaries, per unit costs and leakage, and the basis used for comparison. The four main questions we will respond to in this section are:

1. What are the orders of magnitude for costs of childhood development programmes?
2. Are the programmes economically justifiable?
3. Who bears the cost?
4. Are the projects functioning efficiently?

What are the orders of magnitude? The figures of yearly per child costs cover a wide range, from about $8(US) to $272(US). The range from $26(US) to approximately $60(US) encompasses the majority of projects. However, the per unit figures are not calculated in the same way for all projects nor do they correspond to projects that are equivalent in content (see Appendix D). Even within one project it is possible to find a range of per unit cost figures. As an example, we present calculations in Table 4 that were reported in a Peruvian study. The cost figures vary according to 1) the project component (health, nutrition, education), 2) whether or not the community contribution is shadow priced and included, and 3) whether calculations are based on actual coverage or on a projection of estimated potential coverage by the project.

**TABLE 4**

Cost Calculations in an Evaluation of the Puno Project\(^1\)

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost Per Child Per Year (US Dollars)</th>
<th>Cost Per Community Per Year (US Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Community Contribution Included</td>
<td>Without Community Contribution</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual</td>
<td>27</td>
<td>12</td>
</tr>
<tr>
<td>Estimated Potential</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Health</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Nutrition</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

In the project, the cost to the government of a community-based education, health, and nutrition programme appears to be relatively low.

Are early childhood development projects economically justifiable? A proper answer to this question cannot be given. The closest approximation possible comes from a look at per unit cost figures and restricted comparisons with alternatives. Not surprisingly, the per unit expenditures associated with community-based, "non-formal" and integrated approaches to early childhood development are reported as much lower than for the government-run, professionally staffed formal pre-school alternatives. A Peruvian estimate, for instance, suggests costs of the formal pre-schools are three times that of the non-formal PRONOEI (see Appendix C, Table 4). The difference remains, but is considerably reduced when the "volunteer" contribution of communities is included by giving it a "shadow price" and may be further reduced if attendance rather than enrollment is taken as the basis for calculation.

Whether or not projects are considered economically justifiable may, however, turn more on the definition of benefits than on the comparison of costs. If one includes volunteer time and community "donations" as costs, it is only logical to define as part of the overall effects, benefits to the community as well as direct benefits to the child. In several cases reviewed, it was clear that the programme produced community benefits.

Who bears the cost? In almost all of the studies, costs were shared among the government, the community, and international agencies. In cases with relevant data it was found that over 20 percent of the projects' costs were borne by the community. In one study, the value of the community share reached one half of total costs. If we concentrate on recurrent costs rather than total social costs, the proportion borne by the community is even higher.
since most is in the form of volunteer work covering the recurrent cost of the projects' human resources.

It may be worth noting that the projects reviewed were not intended to be "cost recovery" schemes in the sense that participants were asked to pay directly to use the service. (In the two day care projects, however, a small fee was charged.) Although no fees were charged for most, "cost recovery" was high in terms of donated time — and occasionally materials and foods.

The level of government participation fluctuated considerably. In a Venezuelan day care programme, for instance, most of the costs were borne by the government. The programme began in a time when oil revenues were flowing. The heavy dependence on government funds meant that modification had to occur later.

Are the projects efficient? Wherever theoretical costs were estimated for an optimal size (full coverage) the figures were substantially lower than actual costs (in one case they were less than one-third). The difference is also significant when costs per registered child were contrasted with costs per attending child, the latter being in one instance 50 percent higher.

Another possible indication of efficiency in project implementation could come from differences registered for the same delivery scheme at different sites (differences not only in terms of costs, but registration levels that suggest a lesser success in terms of motivation as well as results). However, the diversity of circumstances for each setting might be as responsible for the differing results as any aspect related to the management of the project. At any rate, such comparisons were rarely found and results are hardly susceptible of generalization.

Few of the studies reviewed provide data on projections of a project's replication costs. One gave a figure for the application of the same type of
intervention at a national level for all rural communities while another projected a per unit cost, making an assumption that future recurrent cost would be borne entirely locally, and eliminating research and development costs associated with the pilot phase for the project.

In projecting costs, an assumption is made that economies of scale will come into play in these projects. However, the only available hint from the review that economies of scale might exist came from one project in which a lower cost figure was obtained for the same project in a region with a much higher number (and percentage) of participants.
SECTION IV: CONCLUSIONS AND SUGGESTED ACTIONS

Conclusions

1. When new research results, changing circumstances and views, and increased interest and demand over a wide front are added to long standing moral, scientific, social equity, and productivity arguments, and to pragmatic programme considerations, the case for investing in early childhood is compelling. Now is an appropriate time for the Bank to reconsider its own position with respect to support for programmes of early childhood development.

2. A wide range of viable programme models exist which a Ministry of Education, a Ministry of Health, other units of the government or Private Voluntary Organizations can take as starting points for their own programming in response to an existing demand.

3. Strong evidence of long-term productivity effects of early childhood development interventions in the United States is not paralleled by equally strong data from the Third World. However, Third World evidence suggests that early interventions can have an important effect on school readiness, and sometimes on school progress and performance. Longer term effects have not been traced. There is need to sort out what kinds of early childhood programmes have an effect under what circumstances.

4. In addition to their effects on children, programmes can have significant effects on caregivers (increased knowledge, social status, job mobility, satisfaction and self-confidence) and communities (increased
participation and solidarity, broadened agendas, changed environments). These effects are important to achieving sustained, long term project results.

5. Because the objectives, organization, timing, and scale of early intervention programmes are so diverse, it is imprudent to make summary estimates of costs. An examination of 15 programmes suggests that innovative "non-formal" programmes can reduce cost well below formal ones. Costs for most of the programmes reviewed ranged between $26(US) and $60(US) per child per year. More evidence is needed regarding the relative cost-effectiveness over time of contrasting approaches.

6. The review of costs points to:
   a. The importance of community contributions within existing non-formal programmes.
   b. Evidence of "inefficiency" related to inattendance and to the relatively small scale of: pilot and demonstration projects.
   c. A lack of evidence regarding the use of mass media in parental/caregiver education, and the effect of "integration" on costs.
   d. Conceptual and measurement of problems in calculating costs.

Suggested Actions

In reconsidering its position toward projects intended to enhance early childhood development, the Bank could do one or more of the following:

1. Hold a series of in-house discussions of the topic. These discussions should include staff concerned with programmes of education, health/nutrition/population, urban services, women-in-development, and integrated rural
development as well as regional programme staff directly responsible for negotiating, and monitoring projects.

2. **Include a child development component in up-coming sector reviews and project identification exercises.** As examples, a pediatrician or nutritionist concerned with early childhood development, and/or a child development specialist could be included in education reviews. An early childhood development person could be included in "child survival" reviews focusing on health and nutrition. In both, the main charge of the child development participant would be to explore ways in which inclusion of a child development component could complement and strengthen existing or new projects.

   This approach to "sector" reviews has the virtue of helping to cross sectoral lines, aiding integration of thought and action.

3. **Support evaluation of on-going projects that have a child care and development component and/or examine the specific effects of existing programmes on early development as well as on survival or income generation or another explicit project goal.** These evaluations would be aimed at discovering whether or not projects in which an improvement in development is assumed to occur (through improved nutritional status or increased women's earnings, for instance) actually occurs. As an example, one might look at the joint effects of child care programmes and increased women's earnings in women's income-generating projects.

4. **Support experimental efforts on a medium scale.** The Bank might discuss with Ministries of Education, Health, Welfare, etc. supporting the move to a somewhat larger scale of a proven pilot or demonstration model. It might also consider support for trial programmes to:
a. Up-grade child care programmes in conjunction with women-in-development or urban services.

b. Provide parental education through the use of mass media or in post-literacy or other adult education programmes.

c. Train community health workers, nurses, doctors, and social welfare workers in child development, creating materials that would add in information about early development to health and nutrition materials.

d. Support non-formal, integrated early intervention programmes for poor children in conjunction with primary school loans, evaluating the effects of early interventions on progress and performance in primary school.

e. Support CHILD-to-child initiatives in primary schools or as part of PHC programmes.

f. Add in an early stimulation component to nutrition recuperation or nutrition supplementation projects.

Such experimental initiatives should be accompanied by carefully considered evaluation, included from the outset of the project.

5. Consider responding to a national request for loan assistance for a large scale child development project under the following circumstances:

a. In a country with a relatively low infant mortality rate (e.g. below 50) and a relatively high primary school enrollment rate (above 75%).

b. When political will is present as evidenced by a willingness to commit funds.

c. When a national policy for the survival and development of young children has been formulated.
d. When the programme is conceived as part of a broad, integrated child survival and development effort.

6. Collaborate with UNICEF and others to evaluate and/or up-grade existing child care and early education programmes.
GENERAL REFERENCES


General References


General References


As part of background work for the development of a draft Bank strategy regarding child development, a review was conducted to identify activities directly or indirectly related to child development that have been supported by the Bank in project work.

Information was gathered from computer searches; review of appraisal reports, supervision mission reports, project completion reports and other project documents; and discussions with relevant Bank staff.

For this review, child development activities were interpreted broadly, along the following lines:

- Activities that, directly or indirectly, affect the physical and psycho-social development of children between the ages of 0-6. Thus, for example, physical infrastructure for child welfare and day-care centers was included, as were programs aimed at improving the quality of childrearing and child-care skills of parents and other caretakers.

- Activities that are over and above those focused expressly at reducing infant and young child mortality. Such survival strategies as breastfeeding promotion, oral rehydration therapy and immunization were not the focus of this review. Emphasis was rather on efforts related to improving the welfare and development of children not at imminent risk of death.

A deliberate attempt was made to include all activities that could be interpreted as affecting child development, with the idea that categories could be collapsed or particular references deleted in future uses of this material, if deemed appropriate, but that no activity would have been excluded a priori.

Within this focus, activities were grouped into 3 clusters: programs aimed directly at children; programs aimed at child caretakers; and physical infrastructure for programs.

Four types of programs aimed at children were identified: food supplementation, health and nutrition screening or services, education for preschoolers, and creches or day-care services with no specific reference to educational curriculum.

Programs aimed at caretakers generally intended to train workers for day-care or child welfare centers or improve the child-rearing capabilities of parents, whether through classes or home visiting. Home visiting in the projects reviewed, however, was intended for a range of purposes and cannot be construed as intended solely or even principally for child development purposes.

A frequent component of Bank projects has been physical infrastructure; some 15 projects, and all of those in urban development, called for the construction of buildings for community services. In many cases these were explicit day-care or child welfare centers. Other relevant structures were community centers intended to
serve recreational, educational or community organizational purposes.

An advantage of taking this wide view of Bank support for child development is that, while some of the examples cited in this review will certainly fall short of a strict constructionist view of activities directly affecting child development, they do show that some base exists that can be built upon to enhance Bank support in this area, often at low marginal cost. For example, such software as staff training programs and curriculum development assistance might be added to physical infrastructure in urban development projects. Home visiting might be expanded in some projects to sharpen focus on early childhood stimulation, perhaps among older siblings and grandparents as well as or instead of parents.

In describing project activities, a distinction has been made between design and implementation. Design refers to proposed activities as described in staff appraisal reports. Where time and information permitted, an attempt was made to ascertain to what extent proposed activities were actually implemented. In some cases the Bank did not disburse against the non-infrastructure components and thus no information on their implementation was contained in supervision mission reports. In other cases reporting information was incomplete or the project is still ongoing and so could not be assessed. Largely what is described here are proposed activities, rather than activities verified as having been implemented. Nonetheless, they do afford a picture of the types of activities envisioned to date as appropriate by the Bank.

**Findings.** In total 35 projects across 4 sectors were identified as containing components directly or indirectly related to child development. Of these, 22 were in population, health and nutrition; 10 in urban development; 2 in agriculture; and 1 in education. An additional 12 projects, not cited here, contained provisions for education for women and girls on child care. Of that group, 5 were in education, 4 in agriculture, 2 in PHN and 1 in urban development. In the absence of any complementary components, this type of activity was judged as too indirect to include.

Geographic distribution of the 35 projects places 13 in Asia, 10 in Latin American and the Caribbean, 6 in Africa and 6 in the Near East.

By type of component, the most typical activities were:

1. Health and nutrition screening or services: 20 projects
2. Food supplementation: 15 projects
3. Home visiting (for a range of purposes): 15 projects
4. Physical infrastructure of child care/welfare centers: 14 projects
5. Day-care services: 8 projects

The least typical components were education for preschoolers -- only 5 projects featured some type of identifiable curriculum -- and training of caretakers. Appendix 1 contains the full breakdown by project and activity component. Projects are identified by the number by which they are listed in Appendix 2, which describes projects in more detail.
### Breakdown by Project and Activity Component

#### A. Programs Aimed at Children

<table>
<thead>
<tr>
<th>Activity Component</th>
<th>Projects with each component by number listed in Appendix 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Food supplementation</td>
<td>5 12 14 15 16 17 21 22 23 24 25 26 27 34 35</td>
<td>15</td>
</tr>
<tr>
<td>* Health/nutrition screening or services</td>
<td>5 9 11 15 18 19 21 22 23 24 25 26 27 29 30 31 32 33 34 35</td>
<td>20</td>
</tr>
<tr>
<td>* Education for preschoolers</td>
<td>5 11 12 16 28</td>
<td>5</td>
</tr>
<tr>
<td>* Creche/day care</td>
<td>5 11 12 13 27 28 31 34</td>
<td>8</td>
</tr>
</tbody>
</table>

#### B. Programs Aimed at Caretakers

<table>
<thead>
<tr>
<th>Activity Component</th>
<th>Projects with each component by number listed in Appendix 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Training of caretakers</td>
<td>2 3 28 34</td>
<td>4 55</td>
</tr>
<tr>
<td>* Adult education on children</td>
<td>5 11 13 14 27 28 33 34</td>
<td>8</td>
</tr>
<tr>
<td>* Home visiting</td>
<td>5 14 15 18 19 20 21 22 24 26 28 29 30 31 32</td>
<td>15</td>
</tr>
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</table>

#### C. Physical Infrastructure

<table>
<thead>
<tr>
<th>Activity Component</th>
<th>Projects with each component by number listed in Appendix 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Child care/welfare centers</td>
<td>1 2 3 4 5 6 7 8 9 10 12 13</td>
<td>26</td>
</tr>
<tr>
<td>* Community centers</td>
<td>2 3 4 6 7 10 11</td>
<td>8</td>
</tr>
</tbody>
</table>
Components Related to Child Development in Bank Projects

Primary Sector of Urban Development

1. Brazil: Parana Market Towns Improvement Project
   Subsector: Sites and Services
   Loan/credit no. 2343
   Appraisal date: 1983

   Design. Among the physical urban infrastructure and public service facilities eligible for financing in 281 market towns were child care centers and rural schools (4 percent of the project), social centers (2 percent) and other public buildings that could be used for headquarters of various local associations (3 percent). Total project cost was $150 million.

2. Colombia: Second (Cartagena) Urban Development Project
   Loan/credit no. 1694
   Appraisal date: 1979

   Design. Five community development centers were to be constructed and equipped to provide physical facilities in an integrated complex for delivery of education, health, vocational training, family and child welfare, and employment and productivity promotion services. Local staff were to be trained to provide such services. Among the functions of each center were adult education and literacy, urban health services, and a family and child welfare center (CAIP) for preschool day care, nutrition, population and family welfare advisory and education programs. Also envisioned was a resource center for a decentralized program of day care in private homes or small subcenters, to be managed by mothers in the community. Once constructed, the centers would be transferred to the agencies responsible for the delivery of services. $4.9 million was budgeted for the 5 centers.

   Implementation. Only 3 centers were constructed. Some existing facilities were renovated in lieu of Center IV, and Center V was dropped. As of May 1985, Center I was fully operational and construction on Centers II and III was under way, as was renovation for Center IV. Arrangements were being made with municipalities for the operation and maintenance of completed works.

3. Colombia: Urban Development
   Loan/credit no. 1558
   Appraisal date: 1978

   Design. The project called for construction of community development centers and health and nutrition services, among other components. The centers were to include facilities for education, health, vocational training, employment and productivity improvement,
and child and family welfare centers (CAIPs). Forty percent of $8.2 million was budgeted for the centers.

Implementation. The Bank did not disburse against the component providing for operation and maintenance of the centers. This was to be under the Ministry of Health's Institute for Family Welfare and was financed locally. The 24 CAIPs to be built were to offer the same services described for the Cartagena Project (above).

4. Ecuador: National Low-Income Housing
Subsector: Housing
Loan/credit no. 2135
Appraisal date: 1982

Design. The project provided for the construction of 10 schools with kindergartens, 7 health centers, 9 day-care centers and 14 community centers. $8 million was budgeted. Physical facilities only were planned.

Implementation. The project has experienced both endogenous and exogenous delays in implementation.

5. India: Madras Urban Development Project
Loan/credit no. 0687
Appraisal date: 1977

Design. The project was designed to provide buildings, equipment and training to offer nutrition supplementation, health examinations, immunization, health and nutrition education and functional literacy training for about 17,000 preschool children and 20,000 women. Child welfare centers encompassing preschools would be built. The preschools would be run by a paraprofessional with 4 months training and 2 assistants. These non-formal preschools were aimed at developing desirable attitudes, values and behavior patterns. The food supplement "Balihar" would be offered to children under 6 and nursing mothers. Regular health exams would be given to these 2 same groups, as well as childhood immunization against 6 diseases and tetanus immunization for mothers. Nursery education would aim at children under 3, while preschool education would target children 3-5. Women 15-44 would receive education on health, nutrition and family planning through home visiting, classes and films. Literacy training would also be offered. These components would be implemented by the Department of Social Welfare, with advice from UNICEF. Fifty percent of the cost would be covered by the project.

Implementation. By 1981, 103 child welfare centers had been built, and 65 percent (6,035) of children of eligible age were attending preschool. Creches were in 64 centers, with an enrollment of 1,967 infants. Nutrition supplementation was being administered to 4,259 preschoolers, 2,207 creche infants and 1,751 pregnant and lactating women.

6. Kenya: Site and Service Project
Subsector: Sites and Services
Loan/credit no. 0543
Appraisal date: 1975

**Design.** The project called for the construction of 2 health centers and 2 multipurpose community centers, each with day-care facilities for 100 children of ages 2-6. Space was reserved for 40 such centers in the site layout, with the expectation that residents would organize additional facilities on a self-help basis as the community expanded.

**Implementation.** The 2 community centers were built as of 1981.

7. Lesotho: Urban Development Project  
   Loan/credit no. 1036  
   Appraisal date: 1980

   **Design.** Multipurpose community centers, including health clinics, were to be provided in each project area. The health clinics would have MCH and nutrition units and target pregnant women and children under 3. Under-5 clinics would also be held. The multipurpose centers would offer day care of preschoolers, recreation and training.

   **Implementation.** At least one clinic and multipurpose community center have been built. The Ministry of Health is due to take over operation of the facilities. At the last supervision mission, the Bank was seeking clarification on Ministry commitment to this.

8. Mauritius: Urban Rehabilitation and Development Project  
   Loan/credit no. 1926  
   Appraisal date: 1980

   **Design.** The land development component called for construction of a primary school, a kindergarten and a day-care center with facilities for 10 infants and young children. The center was intended to allow local women to take advantage of nearby employment in industry.

   **Implementation.** Physical construction has been completed. The creche is not yet operational because the question of jurisdiction and responsibility for it is still open.

9. Morocco: Rabat Urban Development Project  
   Loan/credit no. 1528  
   Appraisal date: 1978

   **Design.** The project financed the establishment of a center for education and work for 250 young women, including a day-care center for preschool children. Growth monitoring and other health and nutrition screening were to be offered through the day-care center, as well as counseling services for female heads of households and specialized pediatric services. The project would also renovate 16 M'sids, a type of religious preschool, and build another 34 M'sids. The project was to supply the materials, and the community was to supply the labor. The schools would accommodate 2 classes per day, 40 children per class.

10. Thailand: Bangkok Sites and Services and Slum Improvement Project
Subsector: Sites and Services
Loan/credit no. 1556
Appraisal date: 1978

Design. In the Tung Song project area, construction was to comprise 5 day-care centers with a total of 40 classrooms, health centers and 24 neighborhood playgrounds. In the King Petch project area, construction was to entail 2 primary schools cum multipurpose buildings. Also planned were social support programs in adult training and community self help.

Implementation. The day-care centers in Tung Song were built and are functioning under private groups. In King Petch, one multipurpose building was built, and the other provided from a reconverted building. The programs were on the whole not implemented because of constraints of planning, staff and budget.

Primary Sector of Agriculture

11. Kenya: Bura Irrigation Settlement Project
Subsector: Irrigation, Flood Control and Drainage
Loan/credit no. 1449; 0722
Appraisal date: 1977

Design. The project would construct centers for community activities and health care, with emphasis on maternal and child health services. A social service component would foster such activities as preschool child care, training for primary school leavers, adult literacy and women's clubs.

Implementation. One health center has opened, and 5 village nursery schools are operating, in collaboration with the Maryknoll Sisters. The village health posts appear underutilized. The project has been plagued by difficulties and is now reaching completion after 8 years.

12. Kenya: South Nyanza Sugar Project
Loan/credit no. 1389
Appraisal date: 1977

Design. The project called for the construction of a dispensary and a mother and child center for preschoolers. The latter would have classrooms, a kitchen for preparing snacks, and a courtyard. It would be operated by a teacher and 2 assistants.

Primary Sector of Education

13. Jordan: Education Project
Subsector: Secondary Education, Higher Education, Vocational Training
Design. The rural development center under the project would provide courses for adults in rural skills, general agriculture, cooperative development, women's crafts, health, nutrition, family care and functional literacy. Facilities would include a day-care center to facilitate women's participation in training.

Primary Sector of Population, Health and Nutrition

   Subsector: Population
   Loan/credit no. 921
   Appraisal date: 1979

   Design. The project called for women's development programs in 84 thanas and women's vocational training in 12 thanas. Home visiting included nutrition supplementation.

15. Brazil: Second Health Project
   Subsector: Health
   Loan/credit no. 2447
   Appraisal date: 1984

   Design. The project calls for monitoring of nutrition status of pregnant women and children, and food supplementation for target groups. The project has some home visiting that includes nutrition services.

16. Brazil: Nutrition Research and Development Project
   Subsector: Nutrition
   Loan/credit no. 1302
   Appraisal date: 1976

   Design. Major project components (PROAPE in the Northeast and CEAPE in São Paulo) provided supplementary feeding and preschool education to 4-6 year olds through the regular school system. Mothers participated as nutrition auxiliaries, thereby increasing awareness of child feeding and educational needs.

   Implementation. Some 4,800 children benefitted from the program in the Northeast. By project completion, the program was operative under the Ministry of Education in 27 states and territories, with a coverage of 876,000. Findings from the CEAPE component showed decreased malnutrition with supplementation of 250-300 calories, improved school performance for the following 2 years, and lower repetition rates. PROAPE also showed lower repetition rates and consistently better academic performance.
17. Colombia: Integrated Nutrition Improvement Project
Subsector: Nutrition
Loan/credit no. 1487
Appraisal date: 1978

Design. Food coupons were targeted at preschool children and pregnant and lactating women in low-income households. The coupons could be redeemed at food stores in partial payment for a selection of processed foods of high nutritional value.

Implementation. This component reached 125,000 beneficiaries. Inflation caused the real value of the subsidy to decline by one-third. The program was terminated by a new political administration before full insights on impact could be obtained.

18. Dominican Republic: First Population & Family Health Project
Subsector: Population
Loan/credit no. 1325
Appraisal date: 1977

Design. Called for home visits and monthly weighing of preschool children. Priority target groups were mothers and children 0-15. The project collaborated with child care and nutrition clinics sponsored by the Social Services of Dominican Churches.

19. Egypt: Second Population Project
Subsector: Population
Loan/credit no. 850
Appraisal date: 1979

Design. Among project objectives was a reduction of 50 percent in anemia in children 0-6. Called for a bimonthly home visiting program.

20. Egypt: First Population Project
Subsector: Population
Loan/credit no. 437
Appraisal date: 1974

Design. Called for home visiting with education to mothers on infant and child care and nutrition.

21. India: Tamil Nadu Nutrition Project
Subsector: Nutrition
Loan/credit no. 1003
Appraisal date: 1980

Design. The project exclusively targets children 6-36 months old and their mothers. Among services are nutrition surveillance, and vitamin, mineral and food supplementation.

Implementation. At project completion these services may be merged with the national preschool health and nutrition program (ICDS). The project has succeeded in reaching more than 600,000
children in the target age span, and resumption of satisfactory growth has been achieved in more than 90 percent of beneficiaries within 90 days.

22. India: First Population Project
Subsector: Population
Loan/credit no. 312
Appraisal date: 1972

**Design.** The project linked supplementary feeding to family planning, with the supplement as an incentive to mothers. The target group did not go beyond children of 24 months because of cost considerations. This was a center-based program with home visiting for follow up. Growth was monitored, in part to evaluate the effectiveness of supplementation.

23. Indonesia: Fourth Population Project
Subsector: Population
Appraisal date: 1985

**Design.** Among project components are food supplementation for under-5's and nutrition screening in the target transmigration areas.

24. Indonesia: Nutrition Development Project
Subsector: Nutrition
Loan/credit no. 1373
Appraisal date: 1977

**Design.** In the Nutrition Intervention Pilot Project, nutrition and health services were delivered to children under 3 and pregnant and lactating women in 180 villages. Among services were short-term rehabilitative feeding and household nutrition education.

**Implementation.** Project evaluation showed that women applied the knowledge gained to feeding their children more of the recommended foods, overcoming the constraint of level of maternal education.

25. Indonesia: First Population Project
Subsector: Population
Loan/credit no. 300
Appraisal date: 1972

**Design.** Dietary supplements for children were offered as a family planning incentive to mothers. Also included was child health care.

Subsector: Population
Loan/credit no. 1284
Appraisal date: 1976

**Design.** One project objective was to reduce serious malnutrition
in children 0-4 by 50 percent. Through home visiting, community health assistants were to identify malnourished children and motivate attendance at health centers that offered supplementary feeding. Health services were also to be provided.

27. Korea: First Population Project
   Subsector: Population
   Loan/credit no. 1774
   Appraisal date: 1979

   Design. The project called for basic child health services. Day-care facilities were to be provided in 68 of the 91 health and family planning centers to be established under the project. Among the anticipated day-care services were food supplementation and instruction to mothers.

28. Malaysia: Second Population & Family Health Project
   Subsector: Population
   Loan/credit no. 1608
   Appraisal date: 1979

   Design. The project aimed at promoting non-familial roles for women. Village workers trained at Family Development Training Centers were to have among their functions home visiting and conduct of play groups for preschoolers. Training courses on child care, among other topics, were to be offered.

29. Morocco: First Health Project
   Subsector: Health
   Appraisal date: 1985

   Design. The project targets infants, preschool children, and pregnant and lactating women. Nutrition is one of 6 core programs to be offered. The project will feature clinics for under-5's and active detection of malnutrition by itinerant agents, mobile teams or family health mobile units.

30. Nigeria: Sokoto Health Project
   Subsector: Health
   Appraisal date: 1985

   Design. Community health assistants will advise mothers on nutrition, and home visiting will help identify malnourished children.

31. Pakistan: First Population Project
   Subsector: Population
   Loan/credit no. 1350
   Appraisal date: 1983

   Design. Among nutrition services were to be growth monitoring of
children 1-5 and home visiting for assessing nutrition status, among other purposes. Also envisioned were such community activities as training for women and day-care centers.

32. Peru: First Health Project
   Subsector: Health
   Loan/credit no. 2211
   Appraisal date: 1983

   Design. One objective is to reduce the severity of malnutrition by 20-40 percent. Bimonthly home visiting is to include nutrition monitoring and screening of audiovisual acuity problems in school children.

33. Philippines: Second Population Project
   Subsector: Population
   Loan/credit no. 923
   Appraisal date: 1979

   Design. One project objective was to decrease the prevalence of second degree malnutrition in children under 6 from 25 to 11 percent, as well as to reduce morbidity from 4 priority communicable diseases. The project called for improved counseling of mothers, early detection and follow up of malnutrition and intensified nutrition education.

34. Thailand: First Population Project
   Subsector: Population
   Loan/credit no. 767
   Appraisal date: 1978

   Design. Some 120 child nutrition centers were to be established and 180 attendants trained to staff the centers. The centers would provide day-care services, preschool health care, and supplemental high-protein foods for children. They would also serve as centers for mothers' classes in nutrition, family planning and child care. Target groups were pregnant and lactating women, infants and preschool children to the age of 5. The centers were part of a joint program of the ministries of Public Health, Education, Interior and Agriculture. Women were also to receive additional training and employment opportunities.

35. Tunisia: Second Population and Health Project
   Subsector: Population and Health
   Loan/credit no. 2005
   Appraisal date: 1981

   Design. Priority target groups were infants, preschool children and women of reproductive age. One objective was to reduce morbidity from common diseases. Components included micronutrient distribution and supplementary feeding for preschool children and pregnant and lactating women.
APPENDIX B

Four causal models for analyzing the effects of early interventions on later life.

Model 1

HIPOTESIS SOBRE LAS HABILIDADES QUE AFECTAN LA PRODUCTIVIDAD


Model 2

TRANSACTIONAL MODEL OF PRESCHOOL'S EFFECTS

Early Childhood  | Childhood  | Adolescence  | Adulthood
---|---|---|---
**POVERTY**  | **SCHOLASTIC**  | **SCHOLASTIC**  | **EMPLOYMENT**

**PRESCHOOL**

**COMMUNITY** ➔ **DELINQUENCY**

**INTELLECTUAL PERFORMANCE**

These variables are negatively related to the other variables in the model. Thus, poverty depresses intellectual performance; strong commitment to schooling and favorable scholastic placement make delinquency less likely.


Model 4

Schematic View of the Origins of Adult Achievement in the Developing Countries

APPENDIX C
APPENDIX C

CENTRE-BASED INTERVENTIONS

1. The Case of USAID Assisted PRONOEI in Perú.

An evaluation report titled "Pre-School Education as a Catalyst for Community Development" (R. Myers, et. al., 1985) describes the type of intervention, results, effects, costs and cost-effectiveness of a joint USAID/Peruvian Ministry of Education project that sought:

- intellectual, socio-emotional and psycho-motor gains in children ages 3 to 5 in poor rural communities,
- improvements in health and nutritional levels,
- increases in retention and enrollment in primary schools,
- greater community participation,
- the organizations and up-grading of regional and zonal level pre-school staff, and
- increased coverage for initial education at reduced costs.

To these ends, a total of $1,800,000(US) was authorized, accompanied by counterpart funds of $1,251,000(US) and $440,000(US) from PL-480. Implementation began in 1980 in project sites in Puno and Cuzco and expansion to Apurimac and San Martin occurred in 1982. The main project activities were the construction of pre-school facilities and provision of furniture and educational materials, training of teachers, administrators and para-professionals both in-country and abroad, technical assistance, funding of community projects, and evaluation and research.

In the pre-school model followed by the project, children are brought together for a three-hour period during 4 or 5 mornings a week in centres
called PRONOEI (Programa No-Formal de Educación Inicial) and are provided with a snack or noontime meal. A para-professional, chosen by the community supervises activities designed to improve the children's physical, mental, and social development. The PRONOEI are administered by the Ministry of Education, but the model depends heavily on volunteer community participation. This non-formal model is one of several non-formal pre-school experiments implemented in Peru. These non-formal options constitute an alternative to the formal and more expensive pre-school model of the Centres for Initial Education (CEI), also being implemented in Peru.

The major findings of the evaluation regarding effects of the PRONOEI projects were:

a. Effects on the National System of Initial Education.

   o Coverage increased during the project period to over 60,000. That is more than three times what it was in 1979. In Puno, a remarkable 75 per cent of the rural communities are covered. In Apurimac, Cuzco, and San Martin, an established service now exists which was, previously, token in nature. More important than the increased coverage, per se, are two features of that coverage: First, girls are equally represented, and second, the programme has reached out into some of the most remote rural areas imaginable.

   The expanded coverage occurred at a fraction of the cost that would have been incurred had similar expansion of the formal system of initial education been attempted. An effect on initial education of the project and the expansion has been to reduce the per child cost of delivering initial education.

   o Within the framework of the project, an effort was made to improve the content of initial education. That was accomplished by re-examining and changing norms and by adjusting the curriculum to local realities in each of the four project sites. The concrete outcomes are four curriculum guides that, with additional adjustments, will be used long after project funding has stopped. The process of creating the curriculum guides has established the principal of decentralized attention to curriculum content. The idea of continuous re-examination of content and method has also been promoted and a method for doing so has been successfully tried out.

   o The project had an effect on the kind of facilities and materials available for use. With the help of the local communities, 173 centres have been constructed. More important in the long run than donating materials to specific PRONOEI was the creation of workshops to make materials locally.
A major effect of the project was to up-grade the level of human resources within the system of initial education. Training has been provided, ranging from the brief yearly training given to several thousand promotors and to more than 200 teacher supervisors, to completion of a master's degree in educational administration by the project's national co-ordinator which has strengthened the MOE's human resource base.

b. Effects on children.

- **Effects on physical development.** Children in PRONOEI, CEI (formal pre-school centres), and "control" groups showed consistently high attainment of "gross motor" skills. They did not do as well with fine motor skills. A significant difference favoring the PRONOEI was evident when PRONOEI and non-PRONOEI children were compared in Puno. CEI children did significantly better than PRONOEI children in San Martin.

- **Intellectual effects.** When test scores of PRONOEI and "control" children are compared, significant differences in the general intellectual attainments of the two groups are present in Puno, in both Aymara and Quechua areas. In San Martin and Cuzco, no significant differences were found. CEI children perform better than PRONOEI children in San Martin, but not in Cuzco. The lack of a significant difference in Cuzco between PRONOEI and CEI children is noteworthy, considering that CEI children are generally from wealthier communities and better-educated families.

- **Social effects.** When scores on test items designed to measure social attainments were compared for PRONOEI and non-PRONOEI children, positive results were found favoring the PRONOEI children in Puno (in both the Aymara and Quechua zones and for all children taken together). A similar result was found in San Martin. In Cuzco, the absolute scores of PRONOEI children on social development test items are lower than those of non-PRONOEI children. But when changes over a five month period are compared, the change among PRONOEI children is significantly greater than among "control" children. The results suggests that a well-run rural PRONOEI can have a significant effect on the social behavior of very poor children.

    When PRONOEI children are compared with children in the formal CEI pre-schools, the CEI children generally have high social test scores. That difference can be attributed principally to the better economic and social condition of the communities in which CEI are found. When comparable urban marginal PRONOEI and CEIs are compared, results are inconsistent. In some cases there is no effect, in others the CEI children have an advantage.

- **Nutrition effects.** Effects on nutritional status are moderate, indirect, and differ by project site. In Puno and Cuzco, PRONOEI children were better nourished than non-PRONOEI children, but the reverse was true in Apurimac and San Martin. If height-for-age is used as the indicator of malnutrition and norms of the World Health Organization are applied, the level of "stunting" is relatively high. The highest rate, of 64 per cent, appears among PRONOEI children in San Martin. If weight-for-age provides the standard, the general level of malnutrition (mostly mild or moderate) is even higher among PRONOEI children, ranging from 47 per cent in Puno to
83 per cent in Apurimac. When weight-for-height is used, the malnutrition level is lower, but still significant in most locations. Still, improvements in nutritional status occurred between 1983 and 1984 in the communities studied. Moreover, girls in PRONOEI communities are closer to boys in their nutritional status than in control or CEI communities. In Puno, food supplementation programmes seem to have had a measurable effect. These effects are more closely related to exogenous factors than to the project per se. The project has not given adequate attention to nutrition.

The net effect of the findings about nutrition and health is to dramatize the importance of complementary projects and activities affecting the environment in which PRONOEI children are growing up. The findings point to the importance of an inter-sectorial approach to community development and reinforce recent initiatives within the Pre-School Project to stimulate family and community gardens, and to work cooperatively with health and agriculture. They point to a need for nutrition education, particularly in San Martin.

In the context of an extremely high repetition rate of over 50% in the 4 departments for the villages surveyed and a drop-out rate (for reasons other than moving) that runs at a level of 5 to 10% in the 1st and 2nd grades, it is unlikely that simply attending a PRONOEI will have a major effect on the rate until changes occur in the primary school system.

Nevertheless, in order to analyze the relationship between participation in a PRONOEI and repetition, the evaluation concentrated on information from a sample of 10 communities in Puno for two reasons. Puno was the only project site that showed consistently significant effects of the programme on test scores, and, the data from Puno communities was more complete and reliable than from other departments. An analysis of the relationship between participation in a PRONOEI and repetition in 10 communities in Puno showed that:

i. Attending a PRONOEI made no difference in the rate of repetition in either first or second grade.

ii. However, attending a PRONOEI was related to age of entry into primary school. Fifty-nine per cent of the PRONOEI children entered at age 6 or earlier versus only 33 per cent for non-PRONOEI children. This could turn out to be significant because previous work has shown that delayed entry into primary school is correlated with drop-out before grade 6.

iii. The level of mother's education appears to affect repetition, but the difference appears only when mothers have completed primary school or above gone on to secondary school.

As to the findings regarding costs and cost-effectiveness, the evaluation concludes:
a. On costs and financing.

i. USAID funds were spent primarily for training, and for the construction and equipping of centres. The funds have been spent very much in line with the operational plans presented. The spending pattern of the public sector, on the other hand, differed from what was budgeted; almost no funds were put into training. The amount spent to pay the para-professional's gratuity (the propina) absorbed more public funds than estimated. Supervision was also short-changed in the distribution of public expenditures.

ii. The analysis of budgets and expenditures revealed a basic difference in programming strategy between USAID and UNICEF. The latter provides most of its funds for productive projects in PRONOEI communities rather than supporting educational programmes per se. The two strategies have complemented each other in Puno, but similar complementarity is missing in other areas.

iii. Per unit costs for the PRONOEI model are less than 50 per cent of the costs of a formal pre-school centre, meeting the Project Paper goal. Taking enrollment as the denominator and excluding from the calculation of per unit costs and contributions in labour and materials made by local communities, the per student cost of the PRONOEI programme was about S/.99 or $28(US) in 1984 (see Table 3). This per unit cost varies significantly from pilot site to pilot site and from PRONOEI to PRONOEI depending mainly on enrollment levels. If attendance rather than enrollment is used as the denominator, the cost approximately doubles — an indicator of massive "wastage" in the system.

iv. "Economies of scale" are suggested by the Puno case where coverage is much higher and costs are much lower than in other departments.

v. In 1985, local communities carried about one-quarter of the project costs, the public sector about one-half, and foreign assistance agencies about one-quarter. The USAID share of the costs was 14 per cent.

b. On cost-effectiveness.

i. Judging the project on its own terms, it is cost-effective with respect to some expected outcomes (effects on the initial education system, test scores, and community participation), and not others (nutritional and health status, primary school progress, and productive projects).

ii. The project is more effective in Puno where it has been in operation for a longer period of time and where an "integrated" approach has been followed, than in other pilot sites. The Puno results suggest that effectiveness and low costs can be achieved over time in a large-scale non-formal pre-school programme. However, an extra effort will be needed to achieve the same result in other pilot sites that do not yet show the same level of effectiveness.
TABLE 3
Comparison of Estimated Costs for PRONOEI and CEI, 1984

<table>
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<tr>
<th>Activities</th>
<th>Percentage of PRONOEI cost</th>
<th>Amount in US$ (PRONOEI)</th>
<th>Adjustment figure for CEI</th>
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a Figures are based on Table III.1, Cereceda, "Estudio de Costos," USAID, Lima, October, 1984, p. 135, as augmented by the addendum for Apurímac in Miguel Cereceda, "Los Costos de Operación en el Proyecto en Apurímac, 1984.

b The calculation for animadores pay does not include the imputed costs of the community contribution.

c The adjustment of 13 is based on the comparison between a kindergarten teacher's monthly salary of S/.500,000 received over 12 months and the gratuity of S/.50,000 received by the non-formal school para-professionals (animadores) over 9 months.

d These figures take depreciation into account.
iii. Resources would be used more effectively if attendance and use of time could be improved.

iv. The evaluation examined three non-formal options (the centre-based PRONOEI, the home-based adaption of the Portage model, and the peri-urban resource centre and satellite approach, all of which were to some degree effective when evaluated in terms of goals set. All were significantly less costly than the formal equivalent, the CEI.

v. Differences in per unit costs among non-formal models were not dramatic. Therefore, choices among programme options could be made on educational grounds rather than on a cost basis. Rather than view the several non-formal programmes as alternatives, then, they could be viewed as complementary options, each with the potential for being cost-effective in particular situations and with particular groups.

vi. Additional attention was needed to the quality of programming and to the way in which initial education is integrated with other community development components such as health, nutrition, agricultural extension, and primary school education.
2. The Case of PROAPE/ALAGOAS Project in Brazil.

An evaluation of the PROAPE/ALAGOAS project by INAN, Brasilia (1983) provides information on the project's components, participants, effects, and costs.

This project, funded under a World Bank loan, followed (with some modifications) a model of an earlier pilot project implemented in Macero-Pernambuco during 1977-1980 which was replicated in 1981 within the State of Pernambuco and in another 10 states of the north and northeast. The general goal of the project is to improve the nutritional status, and psycho-motor, cognitive and social development of pre-schoolers.

The model as implemented in Alagoas consisted of an integrated intervention with education, health, and nutrition components. Children 4-6 years of age are brought to centres, which operate in spaces donated by the community. "Estagiarias" (trained para-professionals) assisted by mothers or other family members organize and supervise psycho-motor activities. For every 100 children there are 3 "estagiarias" who are paid 70% of a minimum salary for a 3-hour workday. Supplementary feeding is provided to the children in the form of a glass of milk, and bread with jelly or margarine.

The main project activities have been: training (for "estagiarias"), community involvement, provision of education material and pedagogical supervision, adaptation of centre facilities, supplementary funding, dental treatment and hygiene, vaccinations, vitamin supplementation, and visual exams.

The major findings regarding effects of the PROAPE/ALAGOAS project are:

**Effects**

a. On the State's Educational System.

The project served 2,345 children in 1981. In 1982, there were 21,247 new openings/registrations, thus extending the benefits of pre-school education to 82 municipalities in Alagoas. This result probably couldn't have been attained by channeling the same financial resources (from SEPS/MEC) through the conventional pre-school education system.
b. Regarding effects on pre-schoolers and 1st graders.

- For pre-schoolers attending PROAPE, in the opinion of mothers and teachers, the experience has had a great positive influence in their socio-emotional development, less of an impact on their psycho-motor skills, and no significant influence in the cognitive aspects of their development.

- As shown in Table 4, 73 per cent of the children from the PROAPE programme and 76 per cent of the children participating in an alternative programme called the Casulo passed the first grade in 1982, as compared with only 63 percent of the formal kindergarten children, and 53 per cent of the children without a pre-school experience. Only 9 per cent of the PROAPE children actually failed (vs. 16 per cent for the Casulo, 28 percent for kindergarten, and 33 per cent for non-pre-school children). This is so despite the fact that the PROAPE children attended for only 78 days (as compared with a 180-day period for Casulo children and a 2 year programme for kindergarten children).

These data suggest that non-formal early childhood programmes can have an impact on progress in primary school, and particularly on failure rates.

An important factor in the efficiency of PROAPE seems to have been the specific training provided, especially directed to the particular characteristics of the targeted children and families.

TABLE 4

Academic Performance of Children in the First Year of 1st Grade – 1982a

<table>
<thead>
<tr>
<th>Pre-school Education</th>
<th>Registered children</th>
<th>Children remaining until the year's end</th>
<th>Drop-outs</th>
<th>Passed</th>
<th>Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROAPEb No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>184</td>
<td>100</td>
<td>557</td>
<td>100</td>
<td>320</td>
<td>100</td>
</tr>
<tr>
<td>150</td>
<td>82</td>
<td>517</td>
<td>92</td>
<td>291</td>
<td>91</td>
</tr>
<tr>
<td>Casulob No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td>16</td>
<td>9</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>134</td>
<td>73</td>
<td>426</td>
<td>76</td>
<td>201</td>
<td>63</td>
</tr>
<tr>
<td>Jardim Infantil No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>34</td>
<td>18</td>
<td>40</td>
<td>8</td>
<td>29</td>
<td>9</td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td>91</td>
<td>16</td>
<td>90</td>
<td>28</td>
</tr>
<tr>
<td>2.334</td>
<td>100</td>
<td>1.245</td>
<td>53</td>
<td>.755</td>
<td>33</td>
</tr>
</tbody>
</table>

a Data from the supervisors of schools with children from pre-school projects in 1982.

b Prior to their primary school, early intervention programmes attended children for different lengths of time: PROAPE, 78 days; Casulo, 180 days; Jardim Infantil, 540 days.
Costs

The evidence regarding costs of the programme provided in its first year is as follows:

i. The per-child cost of the project was 2,643 Cr., or $27.9(US), using the 1981 average cruziero per US $ rate of 94.7.  

ii. If we take only 73% of the total number of children, that is, only the number of children that approved 1st grade then the per-unit cost is $38.2(US).

iii. The cost per pupil/year at 1st grade for the SEC is Cr. $19,364.19 (at 1981 prices) or $204.48(US) and for Jardim Infantils the figures are Cr. $18,991.80 or $200.5(US).

iv. If the per unit cost figures are corrected for drop-outs and repetition then we have yearly costs per pupil/year of:

<table>
<thead>
<tr>
<th>Program</th>
<th>Cost</th>
<th>Rate (US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROAPE</td>
<td>Cr. $26,589</td>
<td>$280.77(US)</td>
</tr>
<tr>
<td>for CASULO</td>
<td>Cr. $25,319</td>
<td>$267.36(US)</td>
</tr>
<tr>
<td>for Jardim Infantil</td>
<td>Cr. $30,828</td>
<td>$325.53(US)</td>
</tr>
<tr>
<td>for Children with no pre-school education</td>
<td>Cr. $36,302</td>
<td>$383.33(US)</td>
</tr>
</tbody>
</table>

PROAPE, Casulo and Jardim Infantils are 27%, 30%, and 15% respectively, lower than the cost per successful child without pre-school experience.

---

1 In December of 1980 the highest regional minimum wage was Cr. 5,788.8. For Rio de Janiero real monthly minimum wage was in December, 1980 114 (1970 = 100).

2 The main reasons for dropping out seem to be: need for the child's labour and another income earning family member, extremely large families may require the child's work for domestic chores, a fluctuation in periferic population, and child's health problems.
3. Jamaica's Child-to-Child Programme

UNICEF provided funds to the TMRU (Tropical Metabolism Research Unit) to develop and test a comprehensive curriculum in the primary school including health, nutrition, social/psychological development, and dental care. The curriculum is directed at 9-12 year olds who are expected to work with their families, and particularly younger siblings to bring about improvements at home. A two-year training programme for teachers, created and tested in a predominantly rural parish, provides one year of basic health, nutrition, dental, and developmental information followed by a second year of more specific considerations - "When things go wrong, what do you do?". Included in the curriculum is information about how to make toys from throw-away materials and about how to use the toys at home with younger brothers and sisters. Toys made by primary school students are taken home and used with younger siblings. To enliven the curriculum, songs and dramatizations have also been created.

The following effects have occurred as a result of the programme.

a. On the educational system. Because this was a pilot project, it has not yet had an effect on the educational system. However, based on the pilot, the primary school curriculum is being revised and the project has been extended to another parish. Materials have been produced and are being adapted for broader use. Moreover, the project evaluation showed that teachers improved their knowledge of health, nutrition, and development.

b. On the younger children. No observable change occurred on the health/nutrition/developmental status of younger, pre-school siblings. This is not surprising, given the short time and the many other factors at work.

c. On the primary school children. The evaluation showed that the older children improved their knowledge of health, nutrition, and early development, as measured by tests geared to the curriculum. More important, a survey of parents indicated that children had actually changed some of their health behaviours.
On parents. Parents had improved their knowledge but had not changed practices.

In sum, the main effect of the project, apart from general increases in knowledge by primary school children, parents, and teachers was a change in health practices by the primary school children. If these changes are maintained, there should be inter-generational effects, as the present children become parents in a few years. In addition, cost savings can be hypothesized resulting from less need for medical care.

Costs. Cost estimates have been made using figures from the pilot project as a starting point. The project involves 14 schools, 28 teachers, and 1,000 children. The estimates are as follows:

a. **Teacher's time.** Two hours each week are devoted to the CHILD-to-child programme. Taking an average primary teacher's earnings of 11,000 Jamaican dollars per year and allocating, and an average teacher's week is 35 hours. Therefore, the estimated yearly cost is $629(J) per teacher or $17,612(J) for all 28 teachers.

b. **Teacher training.** Teachers attended 5 day-long workshops per term or 15 per year on a 150-day teaching year. The value of teacher's time was, therefore, $11,00(J) x 15/150 x 28 = $30,800(J). To this must be added a travel stipend of $840 ($2 per workshop x 15 workshops x 28 teachers), a luncheon cost of $2,940(J) ($7 x 15 x 28), and the cost of the trainers time of $1,500(J) (50 x 15 x 2). The total training cost, over a two-year period = $36,830(J) x 2, or $72,160(J). Assuming that training can be expected to last for at least 5 years, the estimated yearly cost would be $14,431(J).

c. **Supervision.** Assuming a minimum of one school visit per week during each term for each of the 14 schools the total number of visits per year is 42. Each visit involves the cost of the supervisor's time, and meals. Using a figure of $21,600(J) per year as the supervisor's salary level, and assuming a working period of 150 days, the cost is estimated as:

  - Time: $21,600(J) x 42/150 = $6,048(J)
  - Per diem: 42 x $10(J) = $420(J)

To these must be added a transportation cost, including the costs of gasoline and maintaining a vehicle. Project personnel estimated these to be $14,000(J) bringing the overall supervision cost to $20,468(J).

d. **Materials.** Consumable supplies for all 28 teachers were estimated at $6,500(J). The cost per workbook for printing is $5(J) per book, making a yearly cost of $5,000(J) and a total materials cost of $11,500(J).
e. Curriculum development. From the project it was estimated that 2/3rds of the time of two people at a salary level of $26,000(J) over two years would be needed. That cost, of $34,670(J), amortized conservatively over 5 years (allowing for the need for continuous adjustment), leads to a yearly cost of $6,934(J).

f. Production of the curriculum package. A rough estimate of the production costs for lesson plans and teacher guides is $5,264(J). Amortizing over 2 years brings the yearly cost to $2,632(J).

g. Evaluation. The evaluation cost was estimated by assuming one person with a $26,000 salary would spend one-third time on evaluation, making a cost of $8,667 and that computer time and other evaluation expenses would total about $5,000(J), or $13,667(J) in all.

Adding together the above yearly costs, we have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Teachers' salaries</td>
<td>$17,612</td>
</tr>
<tr>
<td>b. Teacher training</td>
<td>14,432</td>
</tr>
<tr>
<td>c. Supervision</td>
<td>20,468</td>
</tr>
<tr>
<td>d. Materials</td>
<td>11,500</td>
</tr>
<tr>
<td>e. Curriculum development</td>
<td>6,934</td>
</tr>
<tr>
<td>f. Production</td>
<td>2,632</td>
</tr>
<tr>
<td>g. Evaluation</td>
<td>13,667</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$87,245(J)</strong></td>
</tr>
</tbody>
</table>

For the 1,000 children in the project, the total cost per child per year, under these assumptions would be approximately $87(J) or about $15(US) per child per year (about one-third of a minimum wage).

Because the programme has effects on teachers and parents as well as primary school children, the "coverage" figure used might be higher reducing the cost per beneficiary. No potential cost savings has been figured in.
4. **The Case of "Padres e Hijos" Programme (PPH) in Chile.**

The general and inter-related objectives of PPH are 1) enhanced child development, 2) personal growth of adults, and 3) community organization. To achieve these goals, weekly meetings are organized in each of the 50 participating rural communities in Osorno (located in Southern Chile). Discussion at the meetings have to do with living and bringing up children. They are stimulated by pictures and questions asked by locally-selected coordinators and by radio transmissions heard by the group. Coordinators (2 per village) are aided by prepared manuals and by 10 general coordinators who train, visit the various villages, and help prepare and present radio dramas. Topics concern how to help children learn to talk, to read, and to count; sex education; human relations in the family; alcohol abuse; nutrition; how to make the best use of food supplies; and food preservation. Discussion of these topics lead to suggestions and plans for community action in the various areas. The child development goal is also promoted through pre-school exercises for children in the form of worksheets.\(^1\) Parents go over the

---

\(^1\) The kinds of exercises found in the worksheet are:

i. **Perception:** visual discrimination, discriminating sounds, coordinating eye and hand, find motor skills (e.g. holding a pencil), gross motor coordination.

ii. **Thinking:** language, social knowledge, physical knowledge (e.g. names of things), classifying, putting things in a series, numbers, spatial relationships, time.

iii. **Levels of representation:** this material is adapted from the work of the High/Scope Foundation of Ypsilanti, Michigan, which helps children to develop what Piaget calls 'the symbolic function' first by relating objects to objects, then by using a part of an object as an index to the whole object, then by using abstract symbols (such as words).

iv. **Emotional growth:** the exercises seeks to encourage curiosity, creativity, motivation to learn, and good parent-child relationship.
material in their meeting, then take it home for the children. The children (sometimes with help from the parents) complete the worksheets which are handed in at the next weekly meeting. Assisting the development and implementation of the PPH in Osorno are staff members from CIDE (the Centro de Investigacion y Desarrollo de la Educacion), a non-profit educational research and action organization. The methodology applied is a mix of Piagetian early childhood development and Paolo Freire's approach to community development.

Effects

a. On children. The programmes effects on children were measures through:

o Teachers' opinions: the results of which were tabulated as follows:

<table>
<thead>
<tr>
<th>Teachers' opinions of school readiness of children</th>
<th>With PPH</th>
<th>Without PPH</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Good</td>
<td>15</td>
<td>17</td>
<td>32</td>
</tr>
<tr>
<td>Acceptable</td>
<td>9</td>
<td>24</td>
<td>33</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Totals</td>
<td>29</td>
<td>49</td>
<td>78</td>
</tr>
</tbody>
</table>

(Note: This table suggest that in any given village or locality, a little over a third, 29/78, of the children are in PPH. We have no reason to suppose that such an estimate is far off as a measure of the percentage that PPH reaches of the population of the villages served.)

o Result of an IQ test: "A rural kindergarten class and a comparable group of children using PPH worksheets were given the WISP intelligence test (a Chilean version of the Wechsler scale) before the two treatments and again 4 months later. The PPH children improved an average of 6.2 points from pre-test to post-test, while the rural kindergarten children improved 3.4 points from pre-test to post-test."

o On the effective use of the education material, "worksheets": "Interviews with sector-coordinators confirmed the teacher's view of the use of worksheets. When they were three months into the first year of the program, the sector-coordinators reviewed all the completed worksheets, and made the following estimates concerning how well they were done. Approximately 50 per cent worksheets well done. Approximately 35% poorly done. The work was considered poorly done either when it was clear that the child had undue help from the parent, or when it was begun but not finished. The two criteria
accounted for roughly equal portions of the poorly done category. Approximately 15% very bad. These were cases when the work was not done at all, or where the child played with the material, doing whatever he wanted to do."

o Draw-a-man test. In spite of circumstances that made systematic testing of children difficult, a modified draw-a-man test was carried out.

b. On adults and the community. The project evaluation identified change in adult attitudes and perceptions evident from their descriptions of the project itself, the way in which they spoke about changes, reached agreements, and acted on conclusions. The basic change identified was from empathy to participation in constructive activities as a sense of self-worth was strengthened. A long list of constructive activities was compiled running from fund-raising to making a community first-aid kit, but these are considered secondary in the qualitative evaluation to the process that brought them about.

Rather than compare the children with foreign norms, they were compared with children from the same villages who had not been in PPH; and, instead of comparing drawings by children of the same age, a university professor of child development compared drawings by children of different ages — making a global judgment that one drawing is better or worse than another, making allowances for the fact that one may be older or younger than the other. The results suggested were as follows:

<table>
<thead>
<tr>
<th></th>
<th>PPH</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent or good pictures</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Acceptable pictures</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Inferior or poor pictures</td>
<td>6</td>
<td>16</td>
</tr>
</tbody>
</table>

Costs

i. Costs were calculated as follows:

- Annual cost per participating person is total annual budget/12 by the number of beneficiaries during any one month.

- Cost per pre-schooler registered (without making sure they are 4–6 years old, and without considering attendance).

- All members in the family are considered beneficiaries. Average family size assumed to be = 6.

- Administration costs and CIDE's overhead are 3/4 of total budget.

- Costs of motivating peasants, organizing, training, etc. are counted.

- CIDE's research and development on training method was not counted. Treated as a "sunk cost".
Cost of adapting 30% of education material to Osorno was counted.

Volunteer time and community resources are considered a benefit (a sign of participation and involvement) and were not counted as costs.

Powdered milk donated by Caritas (Padres e Hijos programme used only for distribution) not included.

Cost of air time of radio station not counted (station compensated by growing audience).

ii. The total cost of Padres e Hijos Programme in Osorno in 1979 was $69,548(US).

iii. The programme's per unit and comparative costs were:

- PPH cost per pre-school child, Osorno 1979 $6.83 per month
- Cost per child of a high-quality kindergarten in Osorno, 1980 $37.50 per month
- Cost per child of kindergartens run by the national kindergarten system (Junta Nacional de Jardines Infantils), 1979 $28.15 per month
- Cost per child of the 'Plaza Escolar' programme (an experimental approach to intellectual stimulation of infants), 1979 $25.60 per month
- Cost per child of a low-quality day-care centre in Osorno, 1980 $12.50 per month
- Cost per child of German Foundation for Aid to Children (minimal programme), 1979 $10.00 per month

iv. The cost per person per month for PPH-Osorno in 1979 was $1.62.

---

2 In 1979 the real value of the PEM (Minimum Employment Programme) monthly subsidy was 2,244 Chilean pesos of 1983 or $31.416(US).
The results of a sensitivity test³ PPH costs to changes in key cost items are:

1) The same as above but substituting Peruvian prices for Chilean prices, i.e. what it would have cost on the basis of the purchasing power of foreign hard currency in Peru in 1979 $1.08

2) The same as 1 using Bolivian prices in 1980 $0.97

3) The same as 1 assuming PPH had purchased portable slide projectors and used slides instead of plain pictures and charts $1.65

4) The same as 1 but adding slides (as in 3) and assuming that the excitement of slides augments participation by 20 per cent $1.38

5) The same as 1 increasing the salaries of paid sector-coordinators by 50 per cent $1.85

6) The same as 1 counting as beneficiaries 3 people per instead of 6 $3.24

7) The same as 1 assuming 8 people per family, as would be appropriate in areas where families are known to be of that size $1.22

³ The formula used for making the preceding calculations was:

\[
\text{cost per person per month} = \frac{(69,548 + X)P}{12 I (3576)}
\]

where

69,548 = actual cost of PPH-Osorno in 1979 in US dollars,

X = additional cost incurred with the objective of improving the programme. (In cases 3 and 4, X represents the cost of slides and projectors, and was estimated at $1457. (The price is low because the slides needed already exist, and only copies of existing slides plus projectors and batteries would be needed.) In case 8 and 9, X represents the estimated cost of revising additional material to add local colour, and is set at $2115. In the other cases, X is zero.)

12 = the number of months in a year.

3576 = the mean number of beneficiaries of PPH in a month of 1979, i.e. the number of peasants who participate in the programme.

I = a coefficient designed to express increased participation. When we suppose a 20 per cent increase, we set I at 1.2. Otherwise, I is 1.

P = the general price level. It is ordinarily 1, but to represent the lower price levels of Peru and Bolivia, we set P at 2/3 and 3/5 for cases 3 and 4 respectively.
8) The same as 1 but assuming that instead of revising 30 per cent of the material to conform to local conditions, 50 per cent is revised $1.67

9) The same as 1 but revising 50 per cent of the material (as in 8) and thereby increasing peasant participation by 20 per cent $1.39
APPENDIX D
APPENDIX D

OBSERVATIONS AND METHODS USED TO CALCULATE COSTS

The review of costs of early childhood intervention programmes included a look at methods, assumptions, and the various ways in which costs were defined. Differences were found with respect to the time dimension, the way in which volunteer work was priced, the treatment of multiple funding, multiple beneficiaries, and capital costs, inclusion of "hidden" costs, handling of per unit costs and "leakage," and whether or not calculations were compared or not. Each of these will be treated briefly below.

1. Time dimension.

Most of the cost analyses reviewed were done for a 1-year period and the effects registered through interviews or tests that took place almost immediately afterwards. With five exceptions, the analyses do not examine shifts in costs over time. They do not, therefore, provide a basis for reasonable conjecture about how costs change as projects go to scale, how the cost burden shifts over time among the public sector, international funding sources, and the private sector or community, or how costs change as different phases of implementation occur. One exception is the Peruvian evaluation (No. 7) that examined expenditures and costs over a four-year period, showing a steady decrease in the proportion of costs borne by the international donor, and an increase in the public sector share.

In the majority of cases, the time span covered by the analysis cannot capture all, or even most, of the impacts of the projects considering the lags that normally operate between the time the interventions were implemented and the time the full results show.
Costs may be expected to shift over time as trial and error experimentation occurs to adjust organization and technology to local circumstances. They may change also as the level of political commitment changes and/or in response to the need for adjustment to changes in economic circumstances.

The longer the time period taken, the greater the need may be to take into account explicitly adjustments in foreign exchange rates, and in inflation.

2. Pricing volunteer work.

Practically one-half of the studies included estimates for the value of volunteers time while the other half excluded it with no explicit mention as to why, or, explaining that the opportunity cost of such labour is zero given unemployment rates and the lack of qualification. In one case (No. 14) volunteer service is regarded as a benefit (increased participation) instead of a cost. The rationale was that "counting volunteer time as a cost constitutes a systematic bias against grassroots mobilization of local resources."

In several studies, unpaid volunteer time was included when making estimates of total costs and for purposes of analyzing who bears costs, but was excluded in the calculation of "per unit" costs focussing attention on actual expenditures and making comparisons with other programmes for which per unit costs had been calculated in a similar way. In one study, excluding volunteer time reduced the estimate of total social costs by 30 percent, in another by 50 percent.

Furthermore, when volunteer (mostly unskilled) labour was accounted for, there were differing practices regarding how to assess their opportunity costs (which wage scales?, should benefits applicable to wages be included?).
3. **Multiple funding.**

Most of the studies tried to include costs borne by the several parties involved. A difference in the treatment of community participation in covering costs was related to the valuing of volunteer time, as has been mentioned above.

4. **Multiple components and activities.**

Approximately half of the studies attempted to discriminate costs for separate components of a project (e.g., health, education, community development). In only three evaluations were costs analyzed in relation to activities (such as training, research and development, evaluation, curriculum development, etc.). For the most part, records do not allow such analyses because salaries, materials, transportation, and other items are not accounted for in relation to particular activities.

Moreover, there are numerous practical limits to the breaking down of programmes into components and activities because these are so intertwined (i.e. the work of the same personnel and the purchase of the same materials) that arbitrary decisions are often taken regarding the allocation of expenditures among components or activities.

The significance of the failure to disaggregate costs by component and activity means that costs cannot be related to particular outcomes (e.g. health, nutrition, education).

5. **Treatment of capital costs.**

There seems to be widespread recognition of the need to distinguish capital costs from recurrent ones; 75 percent of the studies provide such differentiation. What was considered a "capital cost" and the bases used for amortizing capital costs varied widely. For instance, training costs for
para-professionals were considered in one study to be recurrent costs because the turnover was so high while in another they were amortized over 5 years.

6. **Hidden costs.**

Costs related to the utilization or refurbishing/conditioning of existing infrastructure required for the delivery of the service, (i.e. community locales that could have an alternative use and in the absence of which the project would have had to incur in construction or rental costs, or for home-based projects costs attached to necessary improvements of homes, regardless of who bears these costs) are often left out.

In addition, another type of cost occasionally left out is that related to project management time. Although a project adds an additional management burden to the government (local or Ministry branch) or a sponsoring agency, the management cost is often excluded from personnel costs because it does not require hiring of staff but, rather, an adjustment of time and responsibilities for existing staff. When included, the allocation of these shared costs among a number of projects and responsibilities is done usually on the basis of the relative operational costs of the projects being served. It is easier to allocate the additional workload incurred because of a new project than it is to decide which projects are responsible for what portion of administrative costs once there are several of them in operation for awhile.

7. **Multiple beneficiaries.**

Even though the projects reviewed were designed with the needs of children of pre-school age in mind, the participants and beneficiaries usually included a broader age range of children and adults who benefitted from the project as well. The relevance to cost analysis of how broad a concept of beneficiary is used influenced not only the per unit cost calculation estimation but also the
definition of direct benefits as well as spillover effects and alternatives.

In the evaluations reviewed, few considered participants other than the child and mother/caregiver as beneficiaries.

8. Per unit costs and "leakage."

Although almost all the studies reviewed computed unit costs per registered child, only 2 of them made the distinction with the cost per attending child. Failure to adjust for lack of attendance seems to be a major oversight because doing so approximately doubled per unit costs in the cases where that was done. One evaluation discriminated the per child figure according to several subsets of registered child ages.

Two UNICEF project evaluations carried out in Peru give cost figures per inhabitant and per community. A third provides per unit cost data for each site evaluated. In addition per unit cost is defined according to specific project characteristics, such as, per check-up in one case, or per "evaluadora" in another.


The most widely utilized comparison is with costs per child of formal public pre-school education. Only 3 of the studies compare actual costs to theoretical ones (under full coverage) and a couple used referential data (the cost of creating a job and government savings per teacher) for contrasting it with their results. The second most frequently selected as point of reference for comparison purposes (one-third of the studies) was data on other similar projects.

As indicated in the text, the wide variation in the way in which costs were defined and calculated makes generalizations inappropriate.