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A CASE FOR EDUCATION

S&T/IT, Matt Seymour
Room 210
SA-16

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Education makes a difference in development, AID has made a difference in education, yet AID has reduced its support to education, Why? What can AID do in Education?

For more than twenty years, researchers have been gathering evidence that education (as investment in human capital) is necessary for economic growth. This research began by concentrating on the rapid growth of the United States in the first half of the 20th century, but it soon switched to the developing world, particularly the rural sector. The main case for investment in education, especially in primary education in developing countries, is that it makes people more productive at work and at home. In addition, education contributes significantly to fertility control, health improvements, nutrition, literacy, communications and the acquisition of modern attitudes -- all of which in turn contribute to greater production.

- In the formal work sector, if wages are taken as a measure of worker productivity, then evidence substantiates a positive correlation between increase in schooling and increase in wages (World Development Report, 1980)
- In the agricultural sector, farmers with at least four years of schooling produce 10% more per year than farmers with no schooling. This assumes, of course, farmers come from a modernizing area where they are able to use new crop varieties or have access to more sophisticated equipment (Lockheed, Jamison and Lau, 1980).
- The evidence on education and fertility indicates three types of relationships:
 - schooling correlates with reduced incidences of pregnancy by raising women's age of marriage and by reducing the proportion of women who are married;
 - since schooling tends to enhance the earnings prospects for women, it reduces the perceived benefits of having more children and raises the perceived costs;
 - the knowledge of how to regulate fertility control increases with schooling, thus better enabling parents to have the number of children they want. However, in poorer countries, increases in schooling are typically associated, first with an increase in fertility and then a decline in it. (Cochrane, 1979)
- There is a strong correlation between life-expectancy and literacy because:

- schooling increases the ability to improve the nutritional content of diets, and to initiate an earlier and more effective diagnosis of illness;
 - increased household income brought about by the productivity effect of schooling generally leads to increased expenditures on food, housing, and medical care -- all bringing about improved family health. (Cochrane, 1980).
- Most important, education inculcates a syndrome of modern attitudes that enables the educated to respond to and participate in the development process more so than the uneducated. In a six-country study, Inkeles and Smith found: "those who had been in school longer were not only better informed and verbally more fluent, they had a different sense of time, and a stronger sense of personal and social efficacy; participated more actively in communal affairs, were more open to new ideas, new experiences and new people; interacted differently with others, and showed more concern for subordinates and minorities. They valued science more, accepted change more readily and were more prepared to limit the number of children they would have (Becoming Modern, 1974)."

AID and Education

For more than twenty years, AID has invested substantially in education for development. This investment has ranged from large university and sector support programs to small innovative, and research activities in primary and nonformal education. AID assistance has included school construction, the donation of materials, texts and facilities; training; and the service of technical advisors. It focuses on all levels -- primary, secondary, post-secondary (teacher training and vocational), and university. In some cases, the scope has been wide to include educational planning where significant reforms have been instituted; in others it has been narrow such as distance teaching or classroom teaching activities for demonstration purposes. A number of projects have been successful whereby the achievements have reached or even exceeded the original objectives. Based upon the evidence noted above, these projects no doubt contributed to economic and social development, though it is difficult to argue this on a case by case basis.

Evaluations provide evidence that AID's education projects have had a substantial, enduring and positive impact. In Korea, for example, a pilot effort resulted in a major educational reform in planning, policy analysis and instructional innovation. In Nepal, Brazil, Paraguay, and Columbia comprehensive efforts in primary and secondary education have enabled those countries to meet manpower needs in the seventies and eighties. In India, selective but sustained assistance to agricultural universities have provided the research, teaching and extension capability to

contribute toward its launching the "green revolution." In Thailand and Columbia, imaginative technical and vocational training has rapidly prepared large numbers of out of school youths for the job market. And, perhaps most important, AID has trained thousands of persons - at least 230,000 directly from those projects evaluated - for technical and administrative positions at mid and upper levels.

However AID's support to education has dropped in the past decade. The current level of assistance - narrowly defined as development assistance projects for the expansion or improvement of formal and nonformal education - is about half that of the middle and late 1960's and perhaps one fourth the amount of the dollar purchasing power. For example, the education budget dropped from \$170 million in 1965 to \$103 million in 1982. By comparison the education budget for the World Bank has jumped dramatically from \$30 million in 1965 to \$526 million in 1982. Also the AID education program is now significantly smaller than those of France and West Germany; and other bilateral programs are of comparable policy influence in the education sector, particularly that of the United Kingdom, The Netherlands, Canada and Sweden. In fact the U.S. assistance program now provides the lowest priority to education of any of the major bilateral or multilateral programs (about 3% as opposed to a DAC average of 12%), and remains significant only because of the size of the total U.S. assistance program.

No doubt the growing awareness of other development problems amidst the steadily declining resources for development assistance has contributed to reducing the importance of education in AID. But AID has had little encouragement for a renewed emphasis on education from Congress, from IDCA, and from its own policy makers and specialists in fields other than education. In fact, several policy directives over the past few years, particularly CDSS guidelines to the field, have had a chilling effect on field submission's of education projects. With the exception of centrally funded initiatives and manpower training projects, the continual de-emphasis on education appears to represent the effects of policy decisions rather than a decline in the need for assistance to education or in opportunities for its use.

What is behind these policy decisions to limit educational investment, especially when the World Bank and other donors endorse investment in formal education? Without a systematic survey of senior staff attitudes toward education, one can only speculate about the beliefs in AID which lay behind the reluctance to support formal education. Since, however, these speculations are based on lengthy CDSS and project reviews, they probably reflect these beliefs:

- Unlike agriculture and some interventions in health and population, educational interventions yield delayed effects which are difficult if not impossible to measure. Hence why pour money into the "bottomless pit" of education when palpable benefits can be gotten more quickly from agriculture or health projects?

- In the '60's, education was seen almost as a panacea for development; schools would rapidly change societies. This view changed during the '70's when education was seen more as a helpful concomitant than a necessary cause of development. Schools should come only after basic human needs in food production health, nutrition and population control were met. Despite the growing evidence mentioned above about education's contribution to development, this shift in priorities from the '60's persists.

- Considering the declining achievement exam scores in the United States, the past turmoil in city schools, and the current debate about the "sorry state" of American education, who are we to export methods to improve educational standards in developing countries? Perhaps the United States does not have a comparative advantage in this area particularly for countries where English is not the medium of instruction, such as Francophone Africa.

- Given the limited resources for development assistance, the enormous problems in food production and health, and certain pre-eminant qualifications of the U.S. to address these problems, perhaps the limited resources should focus exclusively on these and related areas. Why not let the Bank with its much greater resources lend sufficient technical assistance to tackle educational problems?

While the above arguments have some merit, they overlook a few points and they appear immune to the accumulating evidence of the positive relationship between education and development.

- Generally AID's experience in education has been positive, particularly regarding relatively small but well placed and timely interventions. Shortcomings in U.S. education today are beside the point. In some areas of education development the U.S. clearly has a comparative advantage, and these will be discussed below.

- Education is both a cause and an effect of development. It should be thought of as a pervasive element that is integrated into all development efforts, and that has a sustaining and accelerating effect on development. Indeed, under favorable conditions there is likely to be a synergistic effect between educational interventions and those in other sectors. For example, data from 24 Asian and Pacific countries show that as fertility control inputs are successively increased among literate populations, the impact on fertility control is greater than what would be expected from the sum of the inputs (Ness et al., 1983).

-- Other donors, particularly the World Bank, do not devote sufficient resources to technical assistance in education, and look toward AID to exercise its comparative advantage in this area. In a review of projects for FY 78-83, the Bank reports that 44% of the resources went to equipment and furniture, 37% to construction and professional subsidies, and only 15% went to technical assistance. In addition when technical assistance was used, "its most frequent use...was in matters of more direct concern to the Bank/IDA lending program - project preparation, management and evaluation (World Bank, 1983:17)" Indeed discussions with Bank education specialists suggest that they would be most ready and willing to collaborate with AID so that the latter could provide substantial technical assistance in large Bank education projects.

Education as a "Strategic Complement"

Evidence from AID's experience in education shows that the U.S. has a comparative advantage in at least the following area: educational planning and management; basic education and literacy training; university education, especially for science and technology; technical/vocational education to promote employment and enterprise development; and participant training, especially for managers in the public and private sectors. Experience has also shown that, when these interventions are carefully targeted and sustained over five years or more, and that the host country has a commitment to implement the interventions, these interventions will produce enduring benefits. Moreover the interventions need not be massive, for relatively modest resources (as compared to infrastructural projects) targeted at key components in the sub sector can make a difference. In effect a combination of factors - wanted innovations secured to a key institutional base and linked with the appropriate mix of technical assistance and training - can have a strategic impact over a long term and can serve as a relatively low cost complement to the much larger interventions from the World Bank or other donors.

An obvious strategic area is educational planning and policy analysis. One of AID's most successful educational planning projects is the Korea Elementary-Middle School Pilot Project (\$7.4 million). AID assisted KEDI, the national educational R & D center, to develop a modern curriculum for national use for grades 1-8. After lengthy (3 years) and extensive testing (students = 232,000) the new curriculum, based upon mastery learning principles, increased learning efficiency dramatically:

	Experimental Schools (N=1,275)	Control Schools (N=2,206)	Difference in score	% Improved
Korean Language	80.7	69.2	11.5	10.6
Math	81.0	64.0	17.0	26.6
Social Studies	74.3	62.0	12.3	19.5
Natural Sciences	83.2	68.7	14.5	21.1
Total	77.0	63.1	13.9	22.0

From another perspective, the Experimental students were able to master their learning of subject matter significantly better than Control students:

	Experimental Students	Control Students
Full mastery (80-100 pts.)	43.8 %	8.9 %
Partial mastery (60-79 pts.)	41.8	44.3
No mastery (0-59 pts.)	14.4	46.8
	<u>100.0 %</u>	<u>100.0 %</u>

As a result, KEDI is implementing the curriculum and all Korean elementary school children (5.5 million) will be studying it by the end of 1983. AID's assistance strengthened also KEDI's planning and research functions, particularly in policy analysis and technological innovations. KEDI today is considered one of the premier national educational R&D centers in the world. Given the increasing size and complexity of Third World education systems today, there is a greater need than ever before to plan, manage, and evaluate resources efficiently.

AID assistance to primary education has been another successful area. The most dramatic case is AID's ten projects in primary education in Nepal (\$18.8 million) over a twenty year period (1954-75). The following statistics attest to AID's record of having virtually built the Nepali primary education system:

	1951	1975
Number of Schools	321	8,708
Number of students	8,505	401,035
% of female students	1.0%	17.3%
Students as % of relevant age group	0.9%	39.0%
Number of teachers	640	17,728
Number of trained teachers	20	7,287
Literacy Rate	2.0%	17.0%

Today Nepal has the highest primary school enrollment rate in South Asia (88%). Moreover a cadre of educators, over 300 of whom were trained in the U.S., formulate educational policy, diagnose problems, and design remedies. Also, studies have indicated that primary education has contributed to social and economic development:

- literate Nepali women married for less than five years had a 20% lower fertility rate than illiterate women;
- surveys of villages indicate the practice of improved sanitation behavior
- opinion surveys indicate that educated Nepalis share modern attitudes, like those identified by Inkeles and Smith above, more so than uneducated Nepalis.

On a smaller scale AID has successfully pioneered innovations in primary education. In the Philippines (\$770,000) and Indonesia (\$3 million) AID has introduced low cost instructional methods which use programmed learning materials and group learning. In the Philippines, studies done on the comparative costs of the experimental and conventional schools indicate that these methods can cost 50% less than conventional schooling without loss in academic quality. AID has also used radio to improve the quality of instruction in the classroom through radio lessons. The most rigorously designed, implemented and evaluated project has been the Radio Mathproject in Nicaragua (\$2.4 million) where radio lessons assist the teacher daily. Extensive testing, done in 1979 when the project terminated, consistently indicated that classes with radio lessons are more effective than those without radio:

Comparison of Post-test Scores
on Mathematics Achievement Tests

Grade	Control Group			Radio Group		
	Year Tested	Mean % Correct	SD	Year Tested	Mean % Correct	SD
1	1976	40.6	18.9	1976	65.6	10.9***
1	1978	44.8	20.3	1978	62.6	20.3***
2	1977	59.3	23.3	1977	65.9	21.5*
2	1978	56.1	18.9	1978	66.9	18.7***
3	1976	44.3	25.9	1977	53.6	28.3**
3	1976	44.3	25.9	1978	56.5	25.4***
4	1977	34.1	26.3	1978	34.5	27.1

*p less than .05
 **p less than .01
 ***p less than .001

In addition a Radio Correspondence project (\$667,000) upgraded dramatically teacher quality in Kenya enabling 8,000 unqualified teachers to earn primary school certificates from 1968 to 1974. 4,000 of them enrolled in secondary school to study for the Kenya Junior Secondary Exam.

Primary education for girls, particularly in South Asia and Sub-Saharan Africa, requires urgent attention. AID's experience would be helpful both at the policy level to increase access for girls, and in the classroom to improve their learning.

University assistance in science and technology is a third strategic area where well placed funds would have a major and sustained impact. This has been most evident in agricultural education, particularly in India where assistance has not necessarily been large. The contribution to food production in Punjab from the agricultural university is well known. As another example, over a 16 year period the University of Tennessee assisted the University of Agricultural Science in Karnataka (Mysore) State to develop an integrated research, extension and educational system, centered at the University and coordinated with the State Government departments (\$3.5 million). After helping farmers increase the yield of local millet, the University launched efforts to increase yields in corn, wheat and rice. Over a 13 year period Karnataka increased production in these four crops to such an extent that it led nine other surveyed Indian states in calorie and protein intake per capita:

	<u>1965</u> (Kg/Hectare)	<u>1978</u> (Kg/Hectare)	<u>% Increase</u>
Local Millet	455	1,330	192%
Corn	65	2,943	353%
Wheat	200	649	225%
Rice	1,136	2,010	77%

In the words of Vice Chancellor Dr. K.S. Naik of the University, "...were it not for the USAID-Tennessee assistance program, the progress of agriculture in Mysore State (and in India) would have been trivial (Naik 1972)."

A fourth area of success has been in technical/vocational education. A notable case is the Mobile Trade Training Schools project (\$7.3 million) in Thailand from 1966-72. At the end of the project 45 out of the targeted 54 schools were in operation teaching domestic skills, such as tailoring and building; and modern skills, such as radio and TV repair to over 80,000 students, many of whom found jobs before graduating. Since 1972 the Schools have evolved into a more comprehensive training system with 50,000 Thais annually receiving skills and literacy training. This unique project not only enrolled men and women, but it flexibly adapted to family life so that it met the perceived needs of rural Thais.

Perhaps the most successful technical-vocation project in AID's history is SENA (National Apprenticeship Service) in Columbia. Begun in 1957 with the help of AID and other donors, SENA now has its headquarters in Bagota, with 18 regional units that control 72 training centers and that supervise 86 training programs throughout the country. 7,000 engineers, administrators and technicians provide business, commerce industry and government with training ranging widely from engine maintenance and repair to petroleum engineering. Its unique quality is the financing arrangement whereby a Government 2% tax on salaries paid to personnel by business enterprises provides SENA with an operating budget of \$130 million. Evaluation findings on SENA are unavailable in AID/W, but it has a world-wide reputation as a successful form of training. Many other Latin American countries have established flexible training programs which exchange services through networks along the SENA model. Singapore has recently established a similar model. Most important SENA's budget has grown 10-fold since 1957 and it provides services throughout Latin America and the Caribbean.

A final successful area is participant training, both as a project itself or as a component of an education project.* Perhaps in no other area has AID contributed so much to development, and since 1951 it (and its predecessor Agency, ICA) have trained approximately 231,000 participants. "One of the most successful human resources development projects in the history of AID" (noted by its evaluation report) is the General Participant Training Project of Indonesia (\$13.6 million) from 1976-79. It trained mid and high level manpower in technical, managerial and professional areas. 1,357 out of a total of 1,469 candidates or 92% completed their training and returned to Indonesia. Approximately 95% are using their training, and many are leaders in Indonesian universities and government agencies.

The participant training component of the Northern Nigerian Teacher Education project (\$2.7) is worth noting. Today all 15 of the original participants work for the Ministry of Education: four are permanent secretaries, five are heads of Inspectorates; three are deans; and three are principals of secondary or post-secondary schools. More important these 15 form a nucleus of the "Wisconsin network" which has sprung up in the Education Departments of the Northern Nigerian States linking together the 100 Nigerians counterparts of the original Wisconsin School of Education after the project terminated in 1972. The dynamism and influence of the Institute of Education at Ahmadou Bello University throughout the Northern States is largely due to the effectiveness of this project and to the energy and expenses of ex-participants who form the "Wisconsin Network."

*) Unlike the other areas in the Education Sector, AID has not diminished its support to participant training.

Conclusion

It would be a loss to both developing countries and to the Development Assistance Community for AID to continue withdrawing its support to education. AID's experience in education is extensive, and its success is impressive. The U.S. continues to be in the forefront, generating innovations in instructional design and technology as well as formulating programs in educational planning, policy-making and evaluation. In addition the U.S. expertise in educational administration management and supervision is needed more than ever in Third World countries today as their burgeoning bureaucracies are expanding to almost unmanageable limits. U.S. universities, notably Harvard, Stanford, Chicago, Columbia, and Pittsburg, are acknowledged leaders in international education, and exist as formidable sources of technical assistance for overseas work. Unlike the large sector support programs of the sixties, and the experimental out-of-school activities of the seventies, the eighties call for carefully targeted, sustained, and where appropriate, policy level interventions that draw upon U.S. advances in educational development and address the needs of developing countries to improve teaching effectiveness, student achievement, and system efficiency.

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