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### 3. Postscript

This review has discussed the key issues that will shape the debates on education and development into the twenty first century. Recession, debt and structural adjustment programmes will continue to constrain resources for human resource development in the poorest countries. Demographic trends provide the underlying determinants of educational demand in the long term and the growth of HIV sero prevalence is likely to require radical appraisals of how existing projections may need to be modified. Technological change will continue to fuel development and require changes

in patterns of employment and livelihoods which are likely to become more rather than less dependent on basic understanding of science and technology. The educational aspects of environmental protection and sustainable development will become more important as renewable resources become scarcer and the environmental burden of economic development becomes clearer. New definitions of development increasingly include priorities attached to human rights and good government as an integral part of the meaning of development. Finally gender discrimination will remain a high priority for action through educational assistance since it is here that the greatest gains to investment in education can often be demonstrated.

The review examines recent thinking in seven areas which relate directly to the evidence available on the effects investment in education may have on development. The complexities of analysis of economic benefits of human capital development have been discussed emphasising the

need to consider these at the micro and meso level as well as at the macro level before using them as a guide to policy. The literature on school effectiveness and student achievement has been critically reviewed to indicate what can and cannot be concluded from available studies. The arguments that surround further investment in technical and vocational education have been unpacked and some common features of worthwhile interventions identified. A perspective has been offered on judgments concerning the balance of investment between educational levels. The risks and benefits of more reliance on private educational expenditure and cost recovery programmes have been separated out. Insights into organisational reforms, assessment practices and alternative delivery strategies have been used to emphasise that education and development issues are intimately bound to working practices, learning tasks and teaching methods in educational institutions. Finally, the problems which are associated with different aspects of literacy programmes

have been described and some conclusions drawn.

It has proved a daunting task to assemble a cogent review from what is now a very extensive literature. Each section of this paper identifies many of the most important recent contributions to thinking in the respective fields and stands as a basis for deeper reflection in relation to specific issues in particular country contexts. Each section also provides the basis for the development of strategic thinking on where assistance for educational investment can make the greatest impact on the achievement of development goals.



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### **Appendix extracts from synthetic reviews**

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**A. Summary: school factors and achievement in the developing world**

## B: General education and development research review

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### A. Summary: school factors and achievement in the developing world

School quality indicator	Expected direction of relationship	Total number of analyses	Number of analyses confirming effect
<b>School Expenditures</b>			
1. Expenditure per pupil	+	11	6
2. Total school expenditures	+	5	2
<b>Specific Material Inputs</b>			
3. Class size		21	5

4. School size	+	9	4
5. Instructional materials			
Texts and reading materials	+	24	16
Desks	+	3	3
6. Instructional media [radio]	+	3	3
7. School building quality	+	3	2
8. Library size and activity	+	18	15
9. Science laboratories	+	11	4
10. Nutrition & feeding programs	+	6	5

<b>Teacher Quality</b>			
11. Teacher's length of schooling			
Total years of teacher's schooling	+	26	12
Years of tertiary & teacher training	+	31	22
12. In-service teacher training	-	6	5
13. Teacher's length of experience	+	23	10
14. Teacher's verbal proficiency	+	2	2
15. Teacher's	+	14	5

salary level			
16. Teacher's social class background +		10	7
17. School's percentage of full-time teachers	+	2	1
18. Teacher's punctuality & (low) absenteeism	+	2	0
<b>Teaching Practices/Classroom Organisation</b>			
19. Length of instructional program +		14	12
20. Homework frequency	+	8	6
21. Active learning by students	+	3	1
22. Teacher's	+	3	3



expectations of pupil performance			
23. Teacher's time spent on class preparation	+	5	4
<b>School Management</b>			
24. Quality of principal	+	7	4
25. Multiple shifts of classes each day	-	3	1
26. Student boarding	+	4	3
27. Student repetition of grade	+	5	1

**Source:** Fuller B, What School Factors Raise Achievement in the Third World, Review of Educational Research, Vol 57 (3), 255-292, 1987

## B: General education and development research review

Year	Reference	Data	Findings
<b>School Effects</b>			
1987	Fuller	review	variety of school inputs do contribute to achievement
1987	Lockheed & Hanushek	<i>review</i>	radio and text-books more cost-effective than teacher training; academic more cost-effective than vocational education
1983	Hevneman &	IEA	larger effect of school

	Loxley	database	factors in low income countries
1986	Armitage et al	student Survey Brazil	teacher quality and materials have significant effect on achievement in rural areas
1984	Loxley	Botswana students	school effects on reading and maths greater than family effects; teacher training and library resources important
<b>Sector Management</b>			
1983	Heyneman & Loxley	Egypt- primary	students perform better with principals who had attended more training

			<b>courses</b>
1986	Figueroa	Mexico- primary	differences in management style, curriculum and classroom organisation between public and private schools
1987	Fuller	several school quality studies including management variables	headmaster education and experience have positive effect on achievement
<b>Educational Technology</b>			
1982	Clearing House	Niger	high cost of TV but

	on Development	Teacher Training	reduced dropout
1985	Kulkarni et al Communication	Review	computer-assisted instruction has positive effect in primary
1986	Carnoy et al	Review	many developing countries are investing in computer literacy programmes but no research basis for doing so
1986	Oxford et al	Radio-Kenya	helped elementary students perform better in listening and reading
1986	Walker	Radio- Dominican Republic	low-cost and cost- effective relative to traditional inputs

1987	Anzalone	Review	[preliminary findings] radio when properly used is cost effective; TV expensive and contributes little to achievement
1987	Freeman	Grenada	use of computers significantly disturbed by poor electrical supply
1987	Williams	Trinidad & Tobago	within schools females had greater access; outside school males had
<b>Vocational and Academic Secondary Education</b>			
1982	Schiefelbein & Fartel	8th grade Chilean students	tracking into vocational curricula where academic achievement

			is not emphasised will lower student achievement
1983	Hinchliffe	Tanzania	higher annual unit recurrent costs for al education compared to academic
1985	Cummings et al	Kenya	staffing and capital costs higher for industrial subjects
1985	Lee	South Korea secondary graduates	in-plant vocational training is more effective than training in vocational schools
1985	Metcalf	Review of studies	Rate of return to vocational training high enough to justify

1985	Psacharopoulos & Loxley	follow-up survey of secondary graduates in Columbia & Tanzania	investment no labour advantage to graduates of vocational courses
198(3	Tibi	Thailand	recurrent costs in agriculture and technical colleges higher than in professional colleges
1987	Chung	Hong Kong census	returns to vocational and technical education higher than to general education but significant only for rapidly growing



			electrical and commercial sectors
1987	Komenan	Ivory Coast labour survey	Technical education has higher payoff than general education but costs are higher at secondary level
1987	Min & Tsang	Worker Survey in Beijing	productivity of vocational and technical education higher than for those with general secondary [auto industry]
1988	Chin-Aleong	Labour force in Trinidad & Tobago	specialised craft students found jobs more quickly than did academic students
1988	Grootaert	Ivory Coast	social rates of return

		Living Standards	are low to vocational and technical education but higher at post secondary levels compared to post-primary
1988	Moock & Bellew	Peru Living Standards Survey	returns similar to vocational and technical education and academic graduates except for self-employed
1988	Noah & Middleton	secondary data from China	need to shift away from apprenticeship vocational and technical education to in school vocational and technical education
1988	Pascharonoulos	Six firms in	higher rate of return for

1988	Sacharopoulos	Peru	higher rate of return for short vocational and technical education courses
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### Education and the Environment

1983	United Nations	Data from world fertility survey of 22 developing countries	Differential fertility highest in countries with highest levels of development; confirms negative influence of education on fertility
1984	Zachariah & Patel	Fertility decline in India	socioeconomic factors influence family planning practices

### Financing Education

1983	Woodhall	secondary data on student	student loans available in 30 countries; programs appear
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		loans	successful
1984	Tan et al	Malawi	user fees will have small effect on enrolment; large for low income families
1985	Schiefelbein	private and public schools in Chile	private schools achieve more even when social factors controlled
1986	Jiminez	private and public schools in Bolivia and Paraguay	private schools achieve more even through unit costs are lower
1986	Mingat & Tan	university student	simulation of student loan repayment suggest some

			recuperation of public costs particularly in Asia and LA
1986	World Bank	Review	cost-recovery and fee-based private education have small negative impact on attendance; possible positive impact on equity in school spending
1987	Jiminez	household survey data	average enrolment might remain stable if fees increase: effects depend on income group
1987	Psacharopoulos	Colombian	cost of private

		and Tanzania students	schooling lower; mixed results for achievement
1988	Gustafsson	Botswana and Zambia	school production units not an important cost factor
1988	Jiminez et al	students and teachers in Thailand	private school students perform better and are more cost-effective

**Source:** Haddad, W, Carnoy, M, Rinaldi, R, and Regel, O, Education and Development: evidence for new priorities, World Bank Discussion Papers, No 95, The World Bank, Washington, 1991

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- Education Research Paper No. 06, 1993, 61 p.**

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**Department for International Development - Education  
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**Preamble**

**1. Education and development - Defining the issues**

**1.1 Context**

- 1.2 Recession, debt and structural adjustment
- 1.3 Population growth and demographic change.

- 1.3.1 Population growth
- 1.3.2 Fertility and health
- 1.3.3 Increasing HIV infection
- 1.3.4 Urbanisation
- 1.3.5 Displaced populations and refugees

- 1.4 Scientific and technological change
- 1.5 Environmental degradation
- 1.6 Good government and human rights.
- 1.7 The education of girls and women

## **2. An analysis of research evidence on education and development**

- 2.1 Education and economic development



2.1.2 Education and productivity

2.1.3 Educational investment and externalities

2.1.4 Education, equity and income distribution

2.1.5 Concluding remark

2.2 School achievement, the IEA data and effective schools studies

2.2.1 School achievement studies

2.2.2 Recent methodological developments

2.2.3 Some results from the IEA science studies

2.2.4 A note on the effective schools literature

2.3 Technical and vocational education

2.3.1 Rationales

2.3.2 Approaches

2.3.3 Purposes

2.3.4 Cost effectiveness

## 2.3.5 Some conclusions

## 2.4 The balance of investment between educational levels

## 2.5 Private expenditures and cost recovery

### 2.5.1 Private financing

### 2.5.2 Cost recovery and user fees

### 2.5.3 Loans

### 2.5.4 Some conclusions

## 2.6 Organisational reforms, assessment and alternative delivery systems

### 2.6.1 Organisational issues

### 2.6.2 Achievement and automatic promotion

### 2.6.3 Assessment and examinations

### 2.6.4 Alternative delivery strategies

## 2.7 Literacy

- 2.7.1 Definitional issues
- 2.7.2 Literacy and development
- 2.7.3 Literacy and language
- 2.7.4 Strategies to promote literacy
- 2.7.5 Concluding remarks.

### **3. Postscript**

### **4. Bibliography**

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