

# Environmental Education for Relevance in Developing Countries

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## SUMMARY

*The phrase, 'education for relevance', has been batted about the Third World for decades, and indeed some startling individual, but usually short lived, successes have been achieved. Yet relevant education has successively lost the battle for curricular prominence to academic education imported from the West. Schooling, which takes and will continue to take the lion's share of education monies in developing countries, remains bookish, oriented toward entrance requirements for higher education and biased toward a model urban environment. A brief review of attempts to achieve curricular relevance in schools in Third World countries and the reasons for their limited success forms the first part of this paper.*

*The second part of the paper explores the role of environmental education in placing the school in its own local community and the real socioeconomic environment that surrounds it. Particular reference is made to issue-based environmental studies in schools as an attempt to bridge the gap between purely academic education and the stated desire of educator-politicians for relevance in education.*

## INTRODUCTION

A political reality in developing countries is that formal schooling, the main component of education systems, is here to stay and will continue to get the lion's share of education monies. Employers feel they need the school to identify potential employees; parents and children see the school as the way out of rural poverty. And politicians respond by democratising the mad scramble for school places. Certification, the major role of the school (Dore, 1976), works directly against rural development, for successful clients and semi-successful ones as well tend to migrate to the cities where they try their luck in a relatively decreasing job market. Few succeed. Yet, the rural communities they leave are crying out for help in tackling

their development problems—food, water, fuel, health, housing. It seems only common sense, to an outside observer, that the school should concern itself not only with certification, but with local community issues. After all the school is the one institution in the community with literate people. But it is also the one institution in poor communities, with its academic, abstract and urban mystique, that represents the outside world—the world that parents long for their children to escape to. And given the state of the environment in most communities in poor countries who can blame them?

Given this dilemma the question arises, can anything be done to link schooling with community development/environment concerns? One group of educational reformers says no, at least not until basic political and economic institutions are changed (Simmons, 1980). It holds that socioeconomic transformation is the horse and educational reform the cart. Until developing countries change the current system of economic incentives that overvalue private returns to education in relation to social returns and, until peasant incomes rise while holding down professional wage increases, mass education will continue to contribute to unemployment and not to development. Only a few countries in the developing world have aggressively attacked poverty and have realigned their education systems accordingly.

## THE NON-FORMAL SECTOR

Most Third World educators necessarily take an incrementalist view. One incremental reform is the development of alternatives that will favorably compete for students with formal schooling and accommodate the educational wastage which is very high (Goldstone, 1972). In this regard non-formal education, basic education, life-long education and rural education have all been trotted out in the 1970s in an attempt to achieve education relevant to the realities of people's lives. While

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some of these programs have enjoyed success (UNESCO, 1978), others, initially successful, have dissolved altogether and many in response to community pressure have merged with the formal education sector. The Village Polytechnics in Kenya, for instance, designed initially to reflect particular community needs at the post-primary level, and in large part financed and built by rural communities themselves, have tended to become formalized into secondary school education (King, 1977). Still, many promising non-formal education programs are in the experimental stage and results are not yet in. In countries where a highly competitive education structure exists, however, the non-formal sector will likely continue to service only a small minority of school age youth and get only a small fraction of available education resources.

## THE FORMAL SCHOOL SECTOR

To make any appreciable effect on the problems facing education relative to rural development, we must turn to the possibilities for change in the formal school sector as it exists. And what we see is not very encouraging. Rural schools in developing countries attempt to be as bookish, oriented toward entrance requirements for higher education and biased towards a middle class environment as their urban counterparts. Most developing country education systems are centralized with all schools, rural and urban, following the same syllabus and all children sitting the same examination. Teacher training as well is centralized. All student teachers follow the same basic syllabus, take the same examination and may be posted to either urban or rural schools. The alternative, decentralization with local curricula and local teacher training, raises the specter among parents and educator-politicians of a dual education system, one for the rural poor and another for the comparatively urban rich.

There are exceptions where localization efforts are being attempted. The Primary Teachers for Rural Areas at Bunumbu in Sierra Leone trains its students in community development as well as for teaching in schools. They do practical work in surrounding villages, helping communities to identify needs, providing assistance in water development schemes and nutrition education programs, training local sanitation officers and so on. Yet, in discussions with the principal of Bunumbu College, he said that first and foremost his teachers must be able to give rural children an equal competitive chance to pass the national school leaving examination.

There are some attempts to ruralise the school curriculum as well. An idea that has gained enthusiastic support in some African countries is the school as a production unit. School children are encouraged to grow vegetables, chickens and rabbits and sell them. They may also embroider tablecloths and solder water cans and sell them. Such school production activities may laudibly help to offset individual school costs but there is little evidence to suggest that school gardens and school craft-work help to create rural employment or build model villages. Also, school production activities are considered by children and teachers as extra-curricular. Like music and physical education, production activities are rarely integrated into the academic syllabus and rarely appear on school leaving examinations.

Similarly, wildlife clubs have sprung up in several countries, particularly in East and Southern Africa. Their conservation goals and contribution to the tourist industry are laudible as well, at least in the eyes of world conservationist and national tourist boards. In many instances, however, the work of wildlife clubs is either unrelated to the felt needs of communities or in direct conflict with local farmers. In any case wildlife clubs, like school production units, are extra-curricular and do not fit into the examination-selection package of formal schooling.

In terms of the core academic subjects, syllabuses and textbooks now include local examples and some even encourage an enquiry approach. In the main, however, teaching and learning is descriptive. Although many topics in the syllabus, particularly in the sciences and social studies, lend themselves to an environmental approach, they are rarely oriented toward local community development issues.

On the whole, it is unrealistic to expect that curriculum reform and improved teacher training will hold youth in the countryside immediately after they leave school. Large numbers of school leavers will continue, at least initially, to gamble on modern sector urban employment. What is worrying about this situation is that when youth fail to get an urban job and get hungry in the cities and return to the countryside, they are ill-equipped to reintegrate themselves into their 'old' culture. Their schooling has not prepared them for productive reabsorption.

Given that the popular demand for academic education leading to certification is unlikely to wane, the search is on for school-based programs that will help children analyse the structure and activities of their own lives in their own local environments, that will improve their decision-making and community participation skills and at the

same time will fit into the academic, examination framework of present day schools. The search is on for curricula that link children's out-of-school experience and local development issues with school learning. In this regard we might profitably explore the possibilities of environmental education in developing country schools.

## ENVIRONMENTAL EDUCATION FOR DEVELOPMENT

Akrokerri, Ghana: John Obeng-Asamoah, a tutor at the Akrokerri Teacher Training College, and I were working together on a children's environmental perception study in rural Ghana (Kna-miiler and Obeng-Asamoah, 1979). On our way the first morning to the local primary school in Akrokerri village, only a mile from this beautiful training college with its own water and electricity supplies, which incidently were not shared by the village, we noticed that no one was collecting water from the stand pipes dotted about. We asked the upper primary school children about this and met with a most interesting dialogue.

"The pipe is spoilt", said a girl. "We haven't used them for at least three months." The rest of the children nodded agreement. They explained that the pump for drawing water from the bore hole up to the water tank had a broken part. They knew generally how the water system worked—the wheel had to spin until suction was established, the water from the high tank ran down to the stand pipes, but they did not know precisely what was broken in the pump. They knew exactly how many stand pipes there were and their locations. They also knew by name the man who was responsible for maintaining the pump and that he lived some eight miles away. They were not sure, however, who he worked for or who paid for the maintenance of the system. They did not know why it was taking so long to repair the pump but thought that the money was not available to buy a replacement part, which they said had to come from abroad.

The children said that they liked using tap water because, as one boy put it, "They put medicines in it to kill the germs". Surprisingly, it was only by our prompting that they agreed that they also liked the pipe system because it was easier to get water. It was as if they had virtually forgotten about the system as a water source. None of the children knew of anyone who had recently inquired about getting the system working again. If they had a feeling that it might be within their power or their parent's power to see that the water system was restored, it was not apparent to us.

John and I could not resist the teaching/learning opportunity presented here. With the consent of the teacher and headmaster we suggested to the class that they explore this problem and see if they could do something about it. The children enthusiastically agreed and we set about designing a study to find out what we could do about the broken system. A list was made of all the things we wanted to find out—the mechanics of the pump and how the system worked, the quality of water at different sources used by people, the incidence of water-borne and water-related disease, how the system was paid for and the government agency responsible for maintaining it. We also suggested that the class should find out if the people in the community felt that indeed it was a problem, and if they in fact wanted the system working again. The thinking was that if we gathered information related to the water system and the community's feelings about it, perhaps the school could suggest a scheme to get the system working again.

This effort helps to illustrate what might be called Environmental Education for Development. Most of the facts, concepts and skills required to do local studies such as this already exist in the specified school syllabus and must be taught. But here school work is not confined solely to books and blackboards or the structure of the academic disciplines. Starting points for acquiring knowledge and learning skills arise from the children's own out-of-school experience and knowledge. In school the children's knowledge is extended, and they learn how to relate it back to their experience in the community. They learn how to ask good questions, how to set about gathering and recording information on local issues, how to consider this information in meaningful ways and how to identify alternatives for intelligent social action.

Thus, the objectives of environmental education for development are to help children to:

- (1) Become critically aware of issues and problems in their own community: to question why things are as they are.
- (2) Become effective environmental investigators: to learn how to gather information, record it and analyse it.
- (3) Develop an ability to consciously make decisions: to take a stand on local issues and problems.
- (4) Explore alternatives for social action: to consider possible ways of solving local community problems.

## OUT-OF-SCHOOL EXPERIENCE AND SCHOOL LEARNING

The potential for evolving environmental education curricula abounds in rural schools in developing countries. The main reason is simply that children have a great wealth of environmental experience and knowledge upon which to base school learning. For example:

1. Rural children have a great deal of knowledge about water resources, where the best quality drinking water can be found at any time of the day and in what ever season of the year. It is from a very early age that these children draw water and carry it home (Fig. 1). This out-of-school experience provides an excellent basis for extending environmental awareness and knowledge through such studies as water quality, water-borne and water-related diseases, water table and ground water levels, time-energy costs for collecting water, water consumption rates and so on.

2. Rural children know a tremendous amount about firewood (Fig. 2): local varieties, burning qualities, who gathers it, where to get it, how much you can sell it for, use in local industries, charcoal making. The children in Ghana, for instance, not only named some 14 different woods but listed them in a hierarchy according to their burning qualities (Knamiller, 1979). What a reserve of experience there is here for further learning: species identification, plant anatomy, time-energy costs of gathering and transporting, fuel consumption, local industrial use, marketing and trade, tree and bush depletion, fallow/cropping period, reforestation.

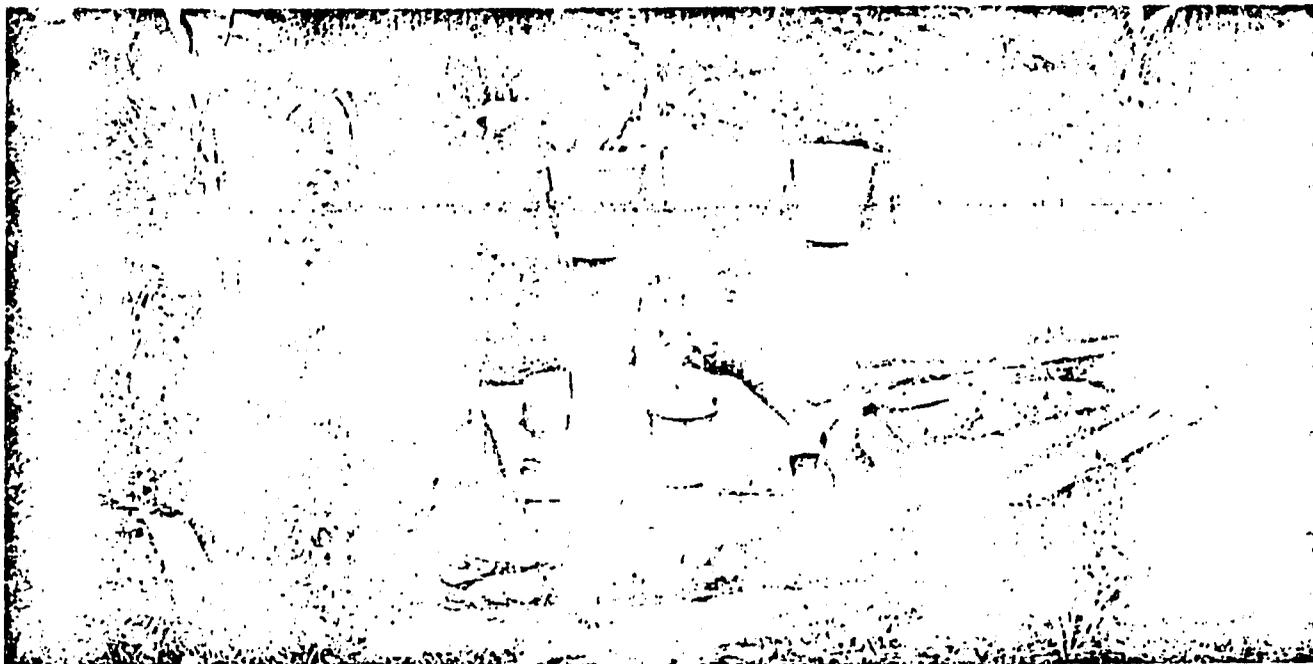


Fig. 1. From an early age children draw and carry water.

3. Rural children have a great deal of inside knowledge about local small-scale industries (Fig. 3). Many of their families engage in these. The children's experience can be extended by doing relatively simple studies of local industries by gathering information related to input-output, seasonal variation in production, local demand for locally produced materials and services, employment data, incidence and style of record keeping, the kinds of tools used—their costs, age and where they are produced.

4. Rural children have a lot of experience with infants, particularly 1–5 year olds (Fig. 4). They carry them, play with them, toilet them, cook for them, feed them. Surely their knowledge and



Fig. 2. From an early age children gather and carry firewood.

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Fig. 3. The local blacksmith. This upper primary school boy assists his father after school.



Fig. 4. Older children take care of their little brothers and sisters.



Fig. 5. Primary school children irrigating by hand their vegetable plots in the dry season.

interest in infants can be the basis for studies in infant nutrition, weaning practices, toilet practices as related to water and food consumption, infant diseases, immunization rates, simple child development investigations.

5. Most rural children grow food crops. Many of them have their own gardens and work closely with their parents on the family farm and vegetable plot (Fig. 5). Their local knowledge can be extended in school by tracing particular crop production on their own farms. They could consider

factors influencing acreage, amount grown, consumed and marketed. They might consider the incidence of fruit bearing trees in the community, and local food processing and cooking practices. Also, the children are aware of common food crop pests, both animals and weeds. They participate in local attempts to control them, including the sometimes indiscriminate use of chemical deterrents. Their experience can be used as starting points for studying the variety and incidence of particular food crop pests and methods of control.

## ISSUE-BASED STUDIES VERSUS KNOWLEDGE-BASED STUDIES

The environmental experience of children in rural areas is fertile ground for the development of locally based environmental education programs, where the processes of gathering and reporting information, analysing data and making decisions on local development issues are integrated into the on-going academic syllabus. This, however, is not commonly done in schools. At present school learning programs are knowledge-based and not issue-based. The differences between the two are summarized in Table 1.

TABLE 1

Basic differences between issue-based and knowledge-based studies in school

Issue-based studies	Knowledge-based studies
<ul style="list-style-type: none"> <li>• Study a local problem in the community</li> </ul>	<ul style="list-style-type: none"> <li>• Study particular academic subjects (maths, science, geography...)</li> </ul>
<ul style="list-style-type: none"> <li>• Focus on learning the skills of gathering, recording and analysing information for the purpose of decision-making and social action</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on learning the facts, concepts and skills associated with a particular academic subject. No focus on decision-making and social action</li> </ul>
<ul style="list-style-type: none"> <li>• Integrated approach to curriculum and learning</li> </ul>	<ul style="list-style-type: none"> <li>• Subject-based curriculum and learning</li> </ul>
<ul style="list-style-type: none"> <li>• Assumption: that children will be better equipped to make decisions and participate in community action on issues relevant to their lives when they leave school</li> </ul>	<ul style="list-style-type: none"> <li>• Assumption: that children will continue to the next stage of schooling (i.e. will progress from primary to junior secondary to secondary to university to paid employment)</li> </ul>

One version of an issue-based curriculum model is shown in Fig. 6. This is a decision-social action model. Gaining knowledge and learning the processes of gathering and analysing information are for the purposes of making decisions on local development issues. It is a model for linking school work with the personal work that children already do at home and in the community.

Theoretically the model rests in the belief that issue-based studies will help school leavers not only be better at identifying and solving development problems but will also be motivated to do so. The hope of the alternative, subject knowledge studies, is best expressed by Sutton and Tomley (1980): "...consider knowledge as a sort of soil, capable of 'gelling' to produce a structure of thought relevant to a particular life-problem", after children leave school. They go on to say that there is little evidence to support the notion that linked knowledge is more effective than subject knowledge in terms of public participation in community development.

Yet the logic of linked knowledge is compelling. It is a part of education that attempts to keep school children in touch with the common man, with their parents and their communities. Now, children are taught a knowledge that alienates them from the ethno-knowledge of the community. Surely the case can be made for linking the two (Chambers, 1979). Also, issue-based studies attempt to sensitize youth to local development problems as in the case of the Akrokerrri water system problem mentioned above.

There are inherent difficulties in doing issue-based environmental studies at school. Children are forced to leave the secure world of memorization and regurgitation for the real world of uncertainty and tentative answers. Teachers are not educated and trained to work in this way. Parents' expectations of schooling do not include their children doing local studies. Governments and politicians may feel that such learning is too political. It encourages children to think for themselves which inevitably leads to making value judgements. Such work in schools could be viewed as part of what Freire (1972) calls a 'pedagogy of the oppressed'.

However, one of the attributes of an issue-based curriculum model in Fig. 6, is that all of the activities, from identifying a particular local problem to deciding on social action, can take place within the school, except, of course, the gathering of information. Analysing and evaluating information, decision-making and considering alternatives for social action need not physically progress

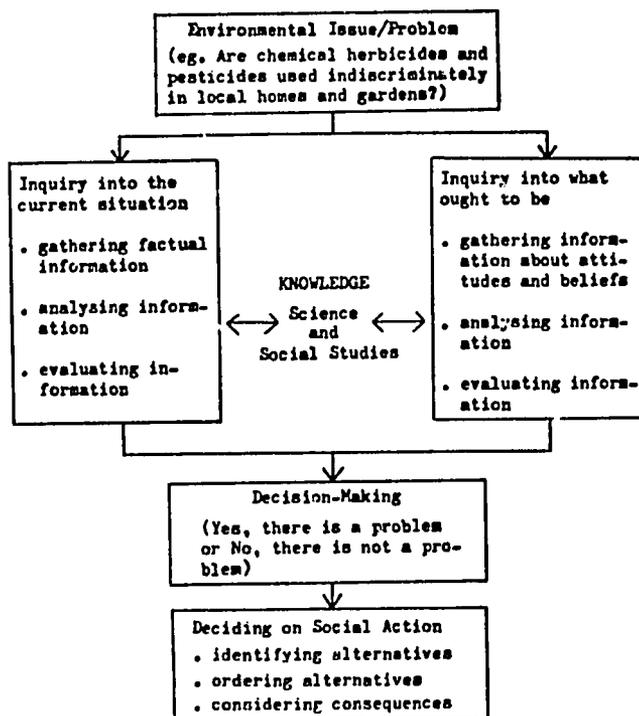


Fig. 6. A curriculum development model for issue-based environmental education studies in school.

beyond the classroom. Only the implementation of social action decisions takes the school curriculum politically into homes and communities. Although this is the natural extension of issue-based studies, a decision to do so must rest with the inhabitants of local schools and their communities. Indeed, issue-based studies could stop at the inquiry, gathering information stage. The IPAR scheme in Cameroon has had considerable success at the information gathering level of involvement (IPAR, 1977). Even this attempt to relate subject knowledge to children's life outside of school would be an advance, which Bergmann (1980) points out, "...does not exceed the normal task of schools".

It must be emphasized, however, that regardless of the level of involvement reached in a community related approach to schooling, the work must be integrated within the academic, examination framework of present day schools. Most importantly examination questions in relevant subjects must reflect an issue-based approach. Otherwise, in the eyes of youth, parents and teachers, local development studies will have no place in school learning.

It is true that issue-based environmental education in schools as a way of helping to contribute to rural development is merely one more 'band-aid' attempt to drag the schools screaming back into their own communities and the real world that surrounds them. Although incremental reform is inadequate, it is nevertheless necessary. Perhaps this incremental reform will encourage youth and teachers to make the basic link between school work and community work. Not that environ-

mental education on its own will create rural jobs or offer self-employment or build model villages. This is too much to expect of schools. The hope is that through such studies youth will become more sensitive to their own situation and to the potential of the environment they are already so intimately involved in. They may even grow in the belief that they, as individuals, can affect the development of their own communities.

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