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EDUCATION THROUGH RADIO IN NEPAL: CHANGES WITHIN AND BEYOND THE CLASSROOM

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This paper is a prospectus, not an evaluation. This may seem odd or disappointing to those who are aware that radio has been utilized for educational purposes in Nepal since the early 1970s, and that the author was involved with the USAID-funded Radio Education Teacher Training Project from 1984 to 1989. However, in this paper, I have been asked to consider the potential impact of the proposed introduction of a particular technology, known as *interactive radio instruction* (IRI), into the Nepalese classroom; and to consider its impact not only on the internal workings of the school and the classroom, but in terms of the broader social context as well. I will attempt, therefore, in this brief paper, to describe exactly what this interactive radio instruction is, what its relevance is to the present context of Nepal, and what questions and issues are raised by the proposal to gradually implement its use in the primary schools.

Interactive Radio Instruction

The interactive radio model was developed in Nicaragua during the mid-1970s, under the auspices of the Radio Mathematics Project, which was to develop a radio-based instructional program for math, to see whether high-quality instruction could be delivered at the primary school level, and at low cost (Friend et al., 1980; 1988). It was also an experiment in devising a systematic method for producing effective, radio-based instruction that could be replicated in any developing country.

An instructional package was developed for grades one through four, utilizing the radio as teacher, and requiring no textbook. Many of the lessons use objects such as stones or beans as counters, and the first grade course package includes worksheets for the students.

The method was termed "interactive" because of the dialogue it creates between the radio characters and the students in the classroom. Students are kept actively involved in the lessons, and every response is reinforced by the radio. Lesson segments are kept to two or three minutes each, and there are physical exercises and children's songs interspersed to maintain the children's interest throughout the half-hour lessons.

The model developed in Nicaragua proved quite successful in raising student achievement scores in mathematics vis à vis control group students in traditional classrooms, and was later applied to developing English-language instruction in Kenya, and Spanish and mathematics lessons in the Dominican Republic, with similar gains in test scores. At present, interactive radio instruction is being used or developed in Thailand, Papua New Guinea, Lesotho, Bolivia, Honduras, Ecuador and the Dominican Republic (Radio Learning Project, 1990).

Radio Education in Nepal: Experience to Date

Given Nepal's terrain, and the lack of transportation and communications facilities, it was perhaps natural to explore ways in which radio might be useful in developing the educational system there. In fact, in-classroom broadcasting was begun with UNICEF assistance in the early 1970s; these School Broadcasting programs are still on the air, but have been almost universally ignored by the schools for all but the first few years of their existence. In general, they suffered from what is termed within the trade as "talking heads" syndrome, where the best teacher available is brought into the studio, placed

in front of the microphone, and asked to lecture for the duration of the program. Despite the efforts made to modify this model (both in Nepal and elsewhere) this is still, today, the image many people have of educational radio.

The USAID-assisted Radio Education Teacher Training Project began in 1978, as a result of a feasibility study carried out in 1974 by USAID, UNICEF and the British Council, which determined that the most appropriate use of educational radio at that time would be in teacher training (Mayo et al., 1975; Karmacharya, 1989). The original target audience consisted of those primary school teachers who had not completed high school. The history of this project would provide a classic case study in project development and institution building. Suffice it to say that it continued along, despite the fact that its early efforts were met with widespread skepticism from many quarters, within AID, within the Ministry of Education & Culture, and from others who were familiar with the project. The project received renewed support from within the ministry when it was decided, in 1987, to utilize it in the pursuit of newly-defined Basic Needs goals: In this case, to assist in the training of 80,000 primary teachers (who are 'S.L.C. pass' high school graduates) between 1988 and the year 2000. Throughout the history of the project, however, staff development, as well as the slow process of institution-building continued, and it seems fair to say that much of this has borne fruit in the last two years. Radio education appears now to have a constituency within the ministry, and the government has demonstrated its commitment to the project in important ways.²

In the spring of 1989, the RETT Project carried out a small-scale pilot project in IRI adaptation, by adapting the first twelve lessons of the Nicaraguan grade two radio math curriculum and conducting a two-week trial of these lessons in five schools. This was obviously too short of an experiment in which to attempt to quantitatively measure any gains in learning; but it was quite long enough to ascertain whether or not the RETT Project scriptwriters and production staff were capable of effectively adapting the lessons for use in Nepal, and how well these lessons would be received by the students and teachers. The results were quite encouraging. The production was of good quality; the programs were pleasant to listen to. The students accepted the radio as their teacher, responding and speaking to the radio teacher as naturally as they do with their own classroom teacher, and were able to follow the instructions and the pace of the lessons. Not that there were no problems or difficulties; yet it was clear to those of us observing the lessons that the students were able to learn from the lessons, and seemed to enjoy doing so.

The Proposal: Radio Mathematics/Nepal

Given the success of this so-called "mini-pilot" of the Radio Math lessons, the Government of Nepal has requested USAID to assist with the implementation of three years of Radio Math lessons on a large scale. Let us consider this proposal: Its goals, and the arguments pro and con.

Nepal began its development quest in 1951; the quantitative strides it has made in providing access to education for its citizens is noteworthy. The emphasis has been, perhaps necessarily, on system expansion and increased access to schooling. Yet the government *is* concerned with the poor quality of instruction in mathematics, as well as in other subjects like science and English. (English and math have been the most difficult subjects for students taking the school leaving examination.) The first goal of the proposed IRI project is to improve the *quality* of primary school education in a cost-effective manner. The second goal is to provide *equal* access to quality education: Evaluation results in Nicaragua and Thailand showed that the achievement gap between rural and urban students can be narrowed markedly in classrooms using IRI instruction. The third issue of concern is the rapidly increasing number of schools with multigrade classrooms; it is anticipated that IRI can assist teachers who are having to manage two or more classes at once.

² This paper, having been written prior to the events of the 'People's Movement' of Spring, 1990, necessarily reflects the governmental situation prior to the installation of the interim government. However, recent, unofficial reports indicate that the interim government, too, is interested in continuing both teacher training and in-classroom broadcast activities of the RETT Project.

Can IRI work in Nepal?

I would now like to proceed through questions and issues which are raised when considering this proposal from various perspectives. It would appear that these questions and issues fall into three general categories: The technical questions--that is, does interactive radio really work?; the institutional questions--can it be implemented in Nepal, given its present institutional capacity; and, finally, the broader issues posed by those who work from a more historical, structuralist perspective.

We have all gained a certain "immunity" from research findings, the reason for which may best have been summed up by the critic who wrote, "In educational circles, it is well known that every educational experiment is doomed to succeed." (Shanker (1981) in Papagiannis, et al. (1982), p. 272) The insinuation being that in every project, regardless of its real success or impact, forces are brought to bear on the evaluation process which cast the shape of the reports such that they are favorable to those who developed and promoted the innovations. (Papagiannis, et al. 1982)

That wizened caveat aside, it may be stated that the quantity and quality of research which has been carried out on the various IRI projects merits, at least, serious consideration that this is one innovation which does "work," at least under certain circumstances. In any case, a true assessment of this question is not the purpose of this paper. Let us, therefore, assume the efficacy of this technology for the purposes of this paper, and proceed to consider the institutional and broader, social issues.

Within the educational development field, the initial period of rather naïve optimism about the 'inevitability' of adoption of innovations, was supplanted later with widespread disillusionment, particularly so far as educational media projects are concerned. (Though still today the tendency persists to assume, for example, that putting computers in the classroom will automatically result in their being used, and being used efficiently.) Educationists within the mainstream of modernization development theory began to search for models which could explain why innovations were or were not being adopted in different cultural contexts (Jamison, et al. 1978). Educational media projects tend to be immensely complex, and require high degrees of cross-institutional support and coordination in order to be able to accomplish tasks on time. Making a list of potential bottlenecks in an IRI project in Nepal is not difficult: Can Radio Nepal provide transmissions at the needed time, with a sufficiently clear signal to be heard in every village? Batteries are expensive and notoriously unreliable; and electricity still rare... Is the solar technology sufficiently developed to power a radio in every school? Presently schools are free to set their own calendars of operation, holidays, and daily schedules... How could it be assumed that every student in every first grade classroom in the country is in their seats at the right time, on the right day for the lesson broadcasts? And how will those worksheets get to the first graders, and will they be on time? For the sake of brevity, I will stop there, though the list could go on.

Despite the notable successes of the interactive radio projects during the pilot project stages, it is pointed out that there is as yet no country which has adopted IRI on a truly national scale.³ Institutional factors are alluded to as one explanation for this. On this point, Nepal stands in a uniquely strong position at this time. The Radio Education Teacher Training Project has twelve years of experience behind it and, as a result, knowledge and awareness of the potential pitfalls: It has ample experience dealing with Radio Nepal; and it has built reasonably strong bridges with its own ministry. The project at least would have the ability to anticipate problems and bottlenecks. It can at least be argued, I believe, that the institutional capacity exists in Nepal to undertake the Radio Math project.

³ This observation has become almost a cliché since the mid-1980's, when Kenya decided not to continue to use the English language programs developed by the Radio Language Arts Project and the lack of nationwide expansion, despite popularity and success in limited areas, of the Radio Math program in Thailand. However, it should be noted that quite a few new countries have shown interest in utilizing the IRI methodology by adapting existing or developing new programs in the last two or three years (Bolivia, Lesotho, Honduras, Costa Rica) and adoption in other countries is presently under discussion (among them, Ecuador and Guatemala). Whether or not any of these countries implement IRI as part of the regular, national curriculum remains, of course, to be seen.

Broader questions: Inside the 'Black box,' and out

The so-called dominant theory of development has its grounding in both the economics and sociology disciplines. In so far as education is concerned, the relevant theory in economics is human capital theory, developed by Schultz in 1960 (Sobel, 1978). In brief, this holds that the outputs of schooling--including mathematical knowledge and logical reasoning skills--result in people being better workers, farmers, and consumers, which in turn results in a more productive society, greater social efficiency and maximization of welfare. On the sociology side, Inkeles and Smith (1974) identified key indicators of modern attitudes and behaviors which are requisite to the modernization process; this technicist perspective sees schooling, as one of the major agents of change, along with the factory, as having a vital role in the development process. It is from this functionalist-modernity perspective that the great plethora of innovation proposals has emanated: Technical prescriptions for effecting change in learning outcomes, and, therefore, increasing human capital and economic growth.

Critics have termed this the "black box" perspective: The modernizationists, they say, see schooling only in terms of its technical inputs and outputs, and ignore the more important, larger issues. By framing all research questions as if the issues were neutral, objective, and free of bias, the larger questions of legitimation, "cultural capital," and social/political power are ignored, claim the radicals (See, e.g., Nespor, 1988). As Michael Apple writes,

...the knowledge that...gets into schools is already a choice from a much larger universe of possible social knowledge and principles. It is a form of cultural capital that...often reflects the perspectives and beliefs of powerful segments of our social collectivity. (1979, p.8)

The posture of neutrality disguises and legitimizes the system of social relations which are extant. The research process itself, then, cannot be objective, contrary to its claim to be scientific, since it makes no attempt to distance itself from the dominant forces in society. (Basile, 1990) (This reflects back to the wry comment (above) about all innovations being "doomed to success.") From this view, therefore, the question of what is to be taught in the schools is inherently political: Apple concludes that the schools and other institutions create forms of consciousness which allow social control to be practiced by the dominant classes without having to resort to any blatant means of enforcement. (1979)

When the researchers focus on input/output equations of what goes on in the classroom, they too often remain oblivious to various factors which affect people's position in society and in the marketplace, such as class, race, ethnicity, gender, and economic status, which are ascriptive characteristics rather than meritocratic criteria.

Issues to be raised, then, include: What would become of the teacher's role? Is it being reduced to that of a teacher's aide, subject to the commands of the radio? IRI could at best be seen as a stopgap measure that makes no provision for teacher training. It might also be used as a basis for exploiting teachers by permanently structuring multi-grade classrooms into the schools (thereby further burdening teachers who already have heavy work loads). The other side of this argument is that a large-scale implementation of IRI may have spillover "teacher training effects:" In the short run, it would provide daily on-the-job counterpart training to the classroom teachers; in the long run it can, by providing the present generation of students with modeling of good teaching techniques such as the previous generations never had, produce a next generation of better teachers. It may also enhance the teachers' ability to create an appropriate learning environment in the increasing numbers of multi-grade classrooms.

What of the whole question of empowerment, however? What happens to the community's stature when the curriculum and instruction are not only dictated but *transmitted* from the capital city? This implied centralization of power and authority leads us to consider the question raised by the dependency theorists: Is not what's happening in Nepal (and elsewhere) in fact the *development* of underdevelopment, as the periphery in Nepal becomes increasingly dependent on the "center," meaning both the oasis of development in Kathmandu, as well as the wealthy, developed countries? (Chilcote, 1980, for an overview of dependency theory; Blaikie et al., 1980, on the Nepalese context) In this light, we must consider whether the role of foreign technical assistance and capital—the cultural capital as well as the foreign aid and the technical hardware—along with the resultant greater concentration of control at the central ministry may be contributing to the further underdevelopment of the country.

At this point, I would like to consider the implications of this type of radical analysis while keeping in mind the question: What are the implications of *not* implementing IRI Radio Math in Nepal? True enough, focusing on the student achievement test scores when evaluating Radio Math does not enable us to consider the more intangible effects of the innovation. However, I would point out that few are heard arguing that the affective attributes in today's typical Nepalese classroom are any more positive than the present state of student achievement. So are we to be paralyzed by this demystification of the real nature of schooling? Are we to conclude that there is no *meaning* to the concept of 'quality of instruction' considered *within* the present school structure? To affirm this would keep us on the sidelines, able only to analyze and critique, without recourse to any prescription for bringing about any improvements.

Of course, in the last decade or so, many within the radical school have come to confront this paradox. Apple himself alluded to it when he asked "Is 1 + 1 ideological?," (1979, p. 157) the understanding being that, of course, it isn't. Carnoy, Levin, Bock, Bowles and Gintis had all, by the early 1980s, shared in the observation that innovations may often, despite their limitations, serve to exacerbate the contradictions in society, thereby creating the necessary conditions for social/cultural revolution. (Papagiannis, et al., 1982)

I would argue that, in the case of Nepal, innovation is the *default mode*. Nepal's last 39 years have been the story of one innovation after another. The recent adoption of 'universal access to primary education' as a national goal is but one more innovation which is very much reflective of the political and economic contradictions existing in the country. Given then, that it is not a question of "to innovate or not to innovate," and, given the proven effectiveness of the interactive radio instruction model, particularly in teaching mathematics, its adoption in Nepal is certainly worthy of consideration--albeit, extremely cautious consideration. Furthermore, it must be emphasized that the proposed subject is basic mathematics, not social studies or history; certainly it can be argued that this is knowledge which leads directly to empowerment, at least as much so as does literacy.

Beyond ideology: The case for equity

Calls for equity and equality, once the prerogative of the structuralists, have become legitimate even within the World Bank itself. This, it would seem, is also the most compelling argument for introducing Radio Math, as well. If the narrowing of the gap between rural and urban students which was found in Thailand can be replicated in Nepal, the benefits and impact of that would be remarkable, whatever perspective you hold. Given that the further expansion of schools to every ward of every panchayat in the country within the next ten years virtually insures that the poor quality of instruction will remain the norm in the typical teacher-led classroom, isn't it at least plausible that the IRI Radio Math package can improve the quality of education in meaningful ways, by leapfrogging the classroom teacher, who is typically an upper-caste male with poor education and training, and bringing the best available pedagogy directly to the students, female and male, who represent the full gamut of ethnic and socio-economic backgrounds? Isn't it possible that there can be positive distributional benefits by using the government's resources—both foreign and domestic—to bring about meaningful improvements in math achievement by the poor and rural students?

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