

Multi-grade Schools and Technology

Laurence Wolff and Norma Garcia

Multi-grade schools are very common in isolated, rural areas throughout the developing world and are not likely to disappear. Yet, national curriculum contents, teaching and learning materials and teacher training are for the most part geared towards the functioning of a monograde education system. Thus, children attending multi-grade schools often spend their most of their time either re-learning material or sitting idle in classrooms. Technology can serve as a powerful tool to enhance multi-grade learning, yet it is surprisingly underutilized. Some cost-effective uses include one-way, two-way, low power and digital radio. The Internet can increasingly become a powerful medium as well.

The Current Status of Multi-Grade Schools in the Developing World

Multi-grade schools, defined as schools where one teacher teaches two or more grades simultaneously, are common in rural areas throughout the world. In Peru, for example, there are approximately 21,500 primary multi-grade schools, 95 percent of which are located in rural areas. Eighty-nine percent of the rural schools are multi-grade schools, and 41,000 teachers, or 69 percent of the total rural teaching force, teach in rural primary schools with multi-grade classrooms. In Sri Lanka, around 1,250 schools out of the 10,120 schools in the country have less than three teachers. Vietnam has 2,162 multi-grade schools that combine 2, 3, 4, or 5 different levels in a single classroom.¹

The unfortunate reality is that these schools form the most neglected part of the education system. For the most part, they are located in isolated, low-income rural areas, and generally have untrained teachers. The few trained teachers usually understand and use only ‘monograde’ pedagogy. National curriculum contents, teaching and learning materials and activities taught at schools are frequently geared for monograde classes. The result of untrained and inappropriately trained teachers, as well as lack of appropriate teaching learning materials, is that children in multi-grade classrooms spend much of their time relearning material they already know or sit idle and boxed.

While the world is becoming increasingly urbanized, multi-grade schools will remain a reality for many years to come. Adequately meeting the needs of children in multi-grade classrooms will be essential for the achievement of quality education for all.

Proven Models for Multi-Grade Teaching

There are now proven models for multi-grade teaching in both the developed and the developing world. The Escuela Nueva in Colombia is a well-documented, highly successful example of an integrated approach to learning in a rural multi-grade setting. Escuela Nueva began operating in 1976 and its methodology is fully followed in over 10,000 schools and partially used in many more schools, and is also being replicated in countries as diverse as Guatemala, Dominican Republic and Egypt. Research has shown that children learn more and drop out less in Escuela Nueva schools than in traditional rural schools.

The approach in all successful multi-grade programs, including Escuela Nueva, emphasizes the changed role of the teacher. Since the teacher has to impart knowledge to a diverse group of students, he/she has to develop a wide variety of teaching learning strategies. The teacher has to find ways of encouraging self-learning and of older children helping younger ones. The teacher increasingly becomes someone who guides and supports students’ learning processes rather than simply imparting knowledge. To make the

¹ <http://www.ioe.ac.uk/multigrade>

system work requires strong and focussed training programs and regular follow-up and feedback from supervisors and trainers. Detailed, practical, and proven guidebooks are essential. In the Escuela Nueva, particular attention is paid to the role that the teacher plays in the community. Escuela Nueva also promotes democratic processes within the classroom through active and participatory methodologies and community participation.

Teachers in multi-grade schools need to get together regularly to discuss, share and evaluate results, problems, success stories, and to plan ways to solve any problems that are commonly present in multi-grade classes.

In developed countries, strong training and outreach programs, often very costly, have evolved to support the relatively small number of rural and isolated schools. Interestingly, some progressive schools in the United States and Europe have combined grades one and two and sometimes three and four as a means of recognizing children's different rates of maturity.

The Potential for Technology and Multi-Grade Teaching

Technology can be a powerful tool to provide access to adequate education to students attending multi-grade schools because it is able to provide training to teachers in multi-grade methodologies and allow students to engage in innovative, participatory multi-grade learning activities. Surprisingly, with one or two exceptions, multi-grade programs usually do not use technologies other than workbooks and face-to-face training. Below are the potential uses of technology for multi-grade teaching, some of which are surely cost effective now, others of which could have low enough costs to be feasible within the next five to ten years.

One-Way Radio

Radio can, and should be, utilized now to support multi-grade teaching. Building on the experience of interactive mathematics,² “multi-grade” radio can strongly reinforce the print and face-to-face training approaches used to date. Examples include the following: (a) multi-grade radio teaches one group of children while the in-school teacher guides or assists another group; (b) multi-grade radio teaches hard-to-teach subjects such as a second language (e.g., French or English in Africa); (c) multi-grade radio provides a set of learning experiences which are appropriate to several or all grades, such as music and art as well as democratic processes and community awareness; and (d) multi-grade radio directed at teachers can provide guidelines and methods which bring to life the recommendations of print materials. Multi-grade radio can also be directed at parents. In particular, the radio can help to explain to parents that multi-grades are not something to be ashamed of as second rate but rather are an opportunity for modern learning to take place.

As costs go down, there are more possibilities for the use of other technologies to reinforce multi-grade teaching. The two most important ones, described below are “enhanced” radio and the Internet.

Two-Way Radio, Low Power, and Digital Radio

In the above examples, radio programs are national or regional in scope. Technologies are now becoming available to have low power radio stations covering 10 to 40 kilometers as well as to have two-way radio. The Australian Radio School of the Air already uses two-way radio to reach scattered indigenous groups of children living in the Australian desert. In this case, the children meet in small groups at, say, the home of a parent and then communicate with their teacher located in a town many kilometers away. A parent acts as the “classroom” monitor. A “school” could consist of 15 to 20 small dispersed groups of 5 to 10 children making for a total of 120 to 200 students. This approach is not strictly “multi-grade” since there

² See the note *Interactive Mathematics for Basic Education: The Venezuelan Experience with IRI*.

is one teacher for each grade. Nonetheless it could be appropriate in other highly scattered populations. Similar to this approach is the possible use of low power radio stations. In these cases, teaching can be more closely tailored to local conditions. Finally, digital radio can add an on-line print element to the multi-grade process.³

Internet via Phone or Satellite

While the infrastructure is either not yet available, or the costs are still too high, sometime in the future Internet, especially via satellite, will be at a low enough cost to become a powerful teaching medium. Satellite-based Internet will be especially important for isolated rural schools without access to telephone lines. The beauty of the Internet for multi-grade teaching is that children could work at their own pace. Through on-line testing, the teacher would have a powerful tool for identifying strengths and weaknesses and deciding when children can proceed to the next grade or graduate. Furthermore, the Internet approach would provide all the advantages of radio based instruction described above but with far more flexibility.

In short,

- ? Multi-grade schools will not disappear.
- ? There are proven methodologies for making the multi-grade school a modern progressive and effective approach to learning.
- ? Existing technologies ought to be exploited **now** to implement these approaches.
- ? Emerging technologies offer even more powerful tools for effective education in multi-grade schools.

³ For a discussion on the use of radio for education, see “Basic Education for All: The Mass Media Formula” in the May/June 2000 Issue of *TechKnowLogia* found at www.techknowlogia.org.