

# Learning and Teaching in Multigrade Settings

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## Significance

Why is a consideration of learning and teaching in multigrade settings important in the context of the Global EFA Monitoring Report on Quality?

- Most systems of education worldwide are predicated on the notion that learners enter, progress through and exit from 'grades' alongside a group of peers. Learners who fail to be promoted from grade to grade become grade repeaters and join a group of learners in the previous grade. Grades correspond closely with the age of the student and usually comprise students who share birthdays within one calendar year. In systems where, for various reasons, the age of entry of learners varies by more than one year, learners move through the system with peers who entered the first grade within the same calendar year. Each grade group comprises one or more classes of learners, depending on the number of learners. Each class is usually taught by a single teacher at any one time. These classes may be referred to as *monograde* classes.
- In some primary school systems the same teacher teaches all subjects to his/her class throughout the school year; in others different teachers teach different subjects. In some systems the same teacher will move with his/her class group from one grade to the next. In others the teacher is identified with a particular grade.

- Most systems of education prescribe national curricula for teachers and learners that are 'graded'. Text books and other learning materials correspond with grades; so too do assessments (including examinations) of learning.
- Most pre-service and in-service teacher training systems prepare teachers to teach in monograded schools.
- The quality of learning and teaching is a function of many factors, including the above - the organization of learners, the distribution of teachers, the structure and quality of curricula, the quality and quantity of learning and teaching materials, the content and quality of teacher preparation systems, the structure, content and quality of assessment systems
- While systems are predicated on 'gradedness' and the majority of schools and classes in most countries are monograded, *very large numbers of learners and teachers work together in settings where two or more 'official' grades are combined.* Multigraded settings are neither acknowledged nor acknowledged within most national policies on education. Teachers are expected to cover curricula and fulfil assessment expectations *as if* the class was monograded. General issues of quality that arise in teacher preparation, curricula, materials and assessment are exacerbated in settings where the basic systemic premise of one teacher per class of single grade learners is not met.

## **Extent**

The extent of the multigrade reality, in terms of schools, classes, teachers and/or students, is difficult to assess, since many countries do not collect

even partial information routinely. A few randomly selected examples, listed alphabetically, illustrate the numerical significance of the reality in various countries.

- In Australia in 1988 40% of schools in the Northern Territories had multigrade classes
- In England in 2000 25.4% of all classes in primary education were classified as 'mixed year', which means that two or more curriculum grades were being taught by one teacher; 25% of all learners were studying in mixed year classes
- In India in 1996 84% of primary schools had 3 teachers or fewer. Since primary schools have 5 curriculum grades this means that if learners are to be 'on task' for most of the prescribed school day, then some teachers must be responsible for two or more grades for some part of each day
- In Nepal in 1998 the teacher-primary school ratio was 3.8. Primary schools comprised 5 grades. If learners are 'on task' for most of the prescribed school day, it follows that most teachers must be responsible for two or more grades for some part of each day.
- In Northern Ireland in 2002/3 21.6% of all classes (Years 1-7) were 'composite' classes (i.e. two or more grades taught together)
- In Peru in 1998 78% of all public primary schools were multigrade. 41% of multigrade schools had only one teacher; 59% more than one. 89.2% of all public primary schools in rural areas were multigrade, of which 42% had only one teacher and 58% more than one.

- In Sri Lanka in 1999 63% of all public schools had 4 or fewer teachers. Some are primary schools with 5 grades and some are primary and post-primary with up to 11 grades. *If* learners are 'on task' for most of the prescribed school day, it follows that some teachers must be responsible for classes spanning two or more grades for some part of each day.

(Sources: Little, 2004, 2001, 1995; Suzuki, 2004; UNESCO/IBE 1961; UNESCO/APEID 1989; Hargreaves, Montero, Chau, Sibli and Thanh, 2001)

### **Conditions under which multigrade teaching arises**

Multigrade teaching arises in one or more of:

- (i) Schools in areas of low population density where schools are widely scattered and inaccessible and enrolments low. Schools may have only one or two teachers responsible for all grades.
- (ii) Schools that comprise a cluster of classrooms spread across in different locations, in which some classes are multigrade for the same reasons as (i), and some are monograde. Some teachers within the same 'school' will spend most of their time with multigrade classes; some with monograde classes.
- (iii) Schools in areas of where the student and teacher numbers are declining, and where previously there was monograded teaching
- (iv) Schools in areas of population growth and school expansion, where enrolments in the expanding upper grades remain small and teacher numbers few.

- (v) Schools in areas where parents send their children to more popular schools within reasonable travel distance, leading to a decline in the potential population of students and teachers in the less popular school.
- (vi) Schools in which the number of learners admitted to a class exceed official norms on class size, necessitating the combination of some learners from one class grade with learners from another grade.
- (vii) Mobile schools in which one or more teacher moves with nomadic and pastoralist learners spanning a wide range of ages and grades.
- (viii) Schools in which teacher absenteeism is high and supplementary teacher arrangements are non-effectual or non-existent.
- (ix) Schools in which the official number of teachers deployed is sufficient to support monograde teaching but where the actual number deployed is less (for a variety of reasons).
- (x) Schools in which learners are organised in multigrade rather than monograde groups, for pedagogic reasons, often as part of a more general curriculum and pedagogic reform of the education system

Condition (x) underlines a distinction between multigrade teaching that arises through *necessity* and *choice*. Conditions (i – ix) above arise through necessity. The necessity arises from the characteristics of learners (i – vii) or teachers (viii – ix). Condition (x) is of a different nature altogether and reflects a choice made by policymakers and/or teachers about how to change and improve the quality of pedagogy.

Descriptions of multigrade teaching settings often fail to indicate whether they have arisen through necessity or choice. This is unfortunate since the conditions that give rise to learning and teaching in multigrade settings will themselves have an impact on the quality of the teaching-learning

transactions. For example, if the numbers of learners per class group is very large, and teacher numbers few then parents' and teacher demands will, understandably be for more teachers. In such conditions it is unlikely that a multigrade pedagogy, however transacted, will be effective since it is not the pedagogy of choice. If, however, a multigrade pedagogy has been chosen by the teachers of a school, in consultation with parents, and if the class size is perceived to be 'reasonable' then the quality of the transactions within the classroom are likely to be more effective.

Many terms are found in the literature to describe multigrade settings. The terms 'combination classes', 'forced mixed age classes' and 'forced mixed grade' usually refer to settings arising through necessity and the characteristics of enrolment. The terms 'vertical grouping', 'ungraded,' 'non graded' and 'family grouping' usually refer to settings arising through pedagogic choice.

A description of the conditions in which multigrade learning and teaching settings arise is not the same as a judgement about the conditions under which multigrade is *desirable*. For example, consider a primary school in which 100 learners are spread across 6 grades. The local education authority deploys only one teacher. This teacher has, of necessity, to engage in multigrade teaching. Though necessary, multigrade teaching is not, in this case, desirable. In a second example the local authority deploys 3 teachers, spread across six grades of 100 learners. The school divides these into 3 class groups, of around 33 per class, each spanning two grades of curriculum. Here, multigrade teaching may be both necessary and desirable.

Policy-makers sometimes perceive multigrade teaching as a way of increasing class or schools size without the provision of extra teachers. And while there is no golden, universal rule about the ideal size of a multigrade or monograde class in many situations the need for extra teachers is very real indeed. For documented examples of one or two teachers managing extremely large groups of students see Little, 1995:19 and Aikman and el Haj, forthcoming. In both examples the most pressing need in the school is for an

extra teacher, not for more efficient training in multigrade teaching. Multigrade teaching must not be presented as a panacea for the problems of large class sizes and teacher shortage.

### **The positive impact of multigrade teaching**

The positive impacts of multigrade teaching include:

- Expansion of Access
- Cognitive achievement effects on learners
- Social and personal effects on learners

#### *Expansion of Access*

Multigrade teaching is extremely important in relation to the EFA goal of access and the Millennium Development Goals designed to combat poverty. For millions of children worldwide the *only* type of school to which they will gain access, *if they gain access at all*, will be multigraded. Economically and socially disadvantaged areas comprise disproportionate numbers of multigraded schools. In many disadvantaged and marginalised contexts the fundamental educational issue is *not* whether a school is multigraded or monograded. Rather, it is whether there is a school at all. For example, it is estimated that 15-25 million nomadic and pastoralist children are 'out of school' worldwide. To the extent that these children have a chance of any schooling at all it is likely to be mobile and multigraded (OxfamGB et al 2003, quoted in Aikman and el Haj, forthcoming.)

#### *Cognitive achievement effects*

Pratt (1986) reviewed 30 studies from the USA and Canada between 1948 and 1983. Multigrade classes spanned 2-3 years of age. There was no general pattern in the achievement results (usually, but not always, achievement in maths and reading). Learners in multigrade classes showed

higher achievement in maths and reading in ten studies, worse in five and no difference in thirteen. Miller's review of 21 studies in the USA confirmed the general picture. Learners in multigrade classes performed no better and no worse than students in monograde classes. Veenman's (1995) review of studies mainly from OECD countries distinguished achievement results in different types of mono and multigrade class – (i) multigrade, formed of necessity, from imbalanced or inadequate enrolments; (ii) single-grade and (iii) multi-age, non graded, formed for pedagogical or philosophical reasons. He found no evidence to suggest that learning in multigrade or multi-age classes was inferior to that in monograde classes. Mason and Burns (1997) confirmed the general picture of no consistent cognitive achievement differences.

Studies of cognitive achievement in multigrade and monograde classes in developing countries are few in number

- In Burkina Faso and Togo, Jarousse and Mingat (1991) found that learners in multigrade classes performed better than those in monograde classes.
- In Colombia, within the Escuela Nueva programme, grade 3 learners in the multigrade schools performed better in Spanish and Maths and grade 5 learners better in Spanish (Rojas and Castillo, 1988; Psacharopoulos, Rojas and Velez 1993, McEwan 1998).
- In Pakistan, Rowley (1992) showed cognitive differences in favour of monograde schools.
- In the Turks and Caicos Islands, Miller, Forde and Smith (1994) found that learners in multigrade schools consistently outperformed those in monograde schools in the terminal grade of primary school. In a subsequent study, Berry (2001) found that learners in multigrade schools performed better on a test of reading than those in monograde schools but that the advantage was greatest for the lowest achieving learners.



- In Indonesia, Bray reports that learners in a project designed to support to multigrade teachers, 'performed better in most subjects than did other students' (1987:43).

Note that evidence in these studies is drawn from research designs that compare multigrade and monograde classes. They do not compare learners in multi and monograde settings with those who do not attend school and who draw their learning experiences only from families and communities.

### *Social and personal learning effects*

Pratt (1986) identified 15 studies that addressed, variously, children's friendships, self concepts, altruism and attitude to school. Overall, he claimed that the socio-emotional development of learners in multigrade groups is either accelerated or showed no difference, when compared with learners in monograde groups, a conclusion confirmed in Miller's (1991) review of 21 studies. And in her review of studies from the US and UK, Ford (1977) reports positive and negative findings on the reduction of anxiety levels, the maturity of friendship patterns and on personal and social adjustment and positive findings on self concept, self esteem, and attitudes to school.

Studies of the social effects of learning in multigrade settings in developing countries are very few indeed.

- In the Escuela Nueva programme in Colombia an early evaluation credited the programme with positive effects on self esteem and civic behaviour (Colbert, Chiappe and Arboleda, 1993). A subsequent study confirmed the positive effect for civic behaviour but not for self-esteem (Psacharopoulos, Rojas and Velez, 1993)

### **Teachers' perceptions of the benefits and challenges of learning and teaching in multigrade settings**

Several studies focus on teachers' *perceptions* of the benefits for students of learning in multigrade settings. A UNESCO/APEID study (1989:5) collated perceptions about the benefits of multigrade teaching from educators in twelve countries in the Asia and Pacific Region. These included:

- Learners develop self study skills
- Learners cooperate across age groups, resulting in collective ethics, concern and responsibility
- Learners help each other
- Teachers can organise both remediation and enrichment activities for low and high achievers respectively more discreetly than in monograde classes

A recent study of 47 multigrade teachers and headteachers in an inner city area of London, England, reported a number of positive 'opportunities' presented by the multigrade classroom (Berry and Little, forthcoming). The most commonly mentioned (24/47) was the opportunity for 'cognitive stretching' of the younger, less able and lower achieving learners, expressed variously by teachers as 'stretching', 'modelling', 'moving on and developing', 'extending', 'looking up and emulating'. The second most commonly mentioned (13/47) was the opportunity for the use of peer tutoring learning strategies. While such strategies are not unique to multigrade classes, the strategy appears to work particularly well in the multigrade class. Unlike cognitive stretching, which was considered a benefit mainly for the less able, the lower achieving and the younger learner, peer tutoring was perceived to benefit *all* pupils, cognitively, socially and personally. More able, higher achieving and older learners 'cement' their learning through teaching and helping others. The less able, lower achieving and younger learners look up to and learn from others. A third commonly mentioned opportunity (12/47) was 'behaviour stretching', or the opportunity for younger learners to learn appropriate social behaviours from the role models offered by older learners.

Alongside the perceived benefits *for learners* must be noted the *perceived challenges* posed by the multigrade classroom *for teachers*. In the study of multigrade teachers in London these included:

the age-graded structure of the National Curriculum and the associated expectations of curriculum coverage and assessment/achievement targets (24/47).

the range of ability of pupils in those multigrade classes where learners have been assigned on criteria other than ability homogeneity (14/47)

the pressure to prepare one group of learners within the multigrade class for critical public assessments (11/47) (in this case, Key Stage Tests for Years 2 and 6)

Recent studies of teachers in developing countries highlight their generally negative perceptions of multigrade classes and multigrade teaching. In a study of teachers in the Nuwakot and Kavre districts of Nepal, 50/56 teachers with experience of multigrade teaching think that multigrade teaching presents them with more difficulties than monograde teaching (Suzuki 2004).

In the Peruvian Amazon multigrade teachers perceive the monograde class as the desirable norm; the multigrade as the 'second class' necessity. Teachers feel unprepared to work in multigrade classrooms, judge that children don't 'get the same' as in monograde classrooms and report that they have insufficient educational materials to support learning in the multigrade classroom. The isolated and isolating conditions of work and the poverty of the communities served by multigrade schools reinforce teachers' negative attitude to the school (Ames, 2004).

In Sri Lanka attitudes of multigrade teachers to multigrade teaching are also generally negative. A recent piece of action research suggests that teachers' attitudes to multigrade teaching become more positive once they realise that there are strategies that can be used to improve student achievement

outcomes and lessen the teacher's burden of intensive lesson planning for several grades (Vithanapathirana, forthcoming).

In the Turks and Caicos Islands, teachers reserved their most negative comments for the burden of lesson planning imposed by the multigrade classroom (Berry, forthcoming).

Earlier studies (e.g. UNESCO/APEID 1989, Birch and Lally, 1995) referred to several other challenges faced by teachers, most of which are related to the remoteness of the contexts in which multigrade schools are located.

- The non filling of vacancies in multigrade schools in rural areas
- The absence of teacher accountability in remote multigrade schools
- The 'inattentiveness' of education officers to the needs of multigrade teachers and schools (UNESCO/APEID 1989: 9-11)
- Lack of financial incentives for teachers to teach in remote multigrade schools
- Inadequate provision for housing, employment for spouses and childrens' education
- Absence of promotion incentives
- Restricted opportunities for in-service training

### **Minimum conditions for ensuring that a multigrade modality is beneficial for learners**

Given the negative attitudes held by many teachers towards teaching in multigrade classrooms and the extent of multigrade teachers, schools and classes several conditions need to be met in order to make learning and teaching in multigrade settings beneficial for learners (Little, forthcoming).

- *Increased Awareness*

Many educational policymakers, planners, professional support staff and the public at large, are unaware of the extent and the nature of the needs of multigrade classes. Since curriculum, educational materials, teacher preparation and assessment systems are predicated on monograded schools and classes, it is hardly surprising that many teachers hold negative attitudes towards their role in the multigrade class. Policymakers need to be aware of the multigrade reality and then develop resource, planning, curriculum, materials, teacher preparation and assessment strategies, in collaboration with teachers. Multigrade teachers should not be expected to adapt the general system to their specific multigrade circumstance, *alone*. In most education systems monograde teachers are not expected to exercise such levels of adaptive professional autonomy (and indeed are often discouraged from doing so). Why should so much more be expected from the multigrade teacher?

- *Curriculum Adaptation*

Curricula premised on a single graded structure need to be adapted to meet the needs of the multigrade classroom. This adaptation should be undertaken jointly between teachers, guided/supported by curriculum experts working at National level. The adapted curriculum must be sanctioned and validated by the highest authority. Four curriculum adaptation strategies have been shown to be effective in multigrade classrooms:

*Multi-year curriculum spans.* In this strategy units of curriculum content are spread across 2-3 grades rather than one. All learners work through common topics and activities (Daniel (1988), Berry and Little, forthcoming))

*Differentiated curricula.* In this strategy the same general topic/theme is covered with all learners. Learners in each grade

group engage in learning tasks appropriate to his/her level of learning (Vithanapathirana, forthcoming; Son, V., Pridmore P., Nga, B., My D., and Kick P., 2002, Son and Pridmore, forthcoming)

*Quasi monograde.* In this strategy, the teacher teaches grade groups, in turn, as if they were monograded. Learners follow the same or a different subject at the same time. Teachers may divide their time equally between grade groups. Or they may deliberately divide their time unequally, choosing subjects or tasks within subjects that require different levels of teacher contact.

*Learner and materials-centred.* The fourth strategy depends more on the learner and learning materials than on teacher input. The curriculum is translated into self-study graded learning guides. Learners work through these at their own speed with support from the teacher and structured assessment tasks. Learning is constructed as involving a relationship between learner, learning materials and teacher (Colbert, Chiappe and Arboleda, 1993).

- *Transformation of the philosophy of learning*

A more radical approach to curriculum is premised on a shift in philosophies of learning and teaching, from one that emphasises learner homogeneity and standardisation of teacher inputs to one that acknowledges the diversity of learners and the need for a differentiation of inputs. This approach recognises that multigrade teaching is, in principle, if not always in practice, a desirable teaching strategy in *all* classes, *all* schools and *all* countries. Like multigrade classes, monograde classes comprise a diversity of learner abilities, interests, backgrounds, ages and school attendance (Little, 2001, Croft, forthcoming). Differentiation refers to how the same teacher

organises learning for different individuals and/or groups of learners. It can refer variously to difference of subject taught, difference of input/stimulus, difference of activities undertaken by students, difference of outcomes expected. While each type of differentiation can be observed in multigrade and many monograde classes they are not generally built into the fabric of national curricula. This approach to curriculum does not undermine the value of whole class teaching. Rather it teaches to develop a repertoire of teaching approaches, from the standardised to the differentiated and a range of support for learners, from materials, to peer learning, group learning and self study.

The notions of diversity and differentiation challenge deep-seated cultures of teaching and learning in which the teacher is the main arbiter of knowledge, classroom activity is teacher-led, whole class teaching is dominant and in which all students (notwithstanding high rates of student absenteeism in many systems) are expected to progress through the curriculum at the same pace. Deep-seated cultures of teaching and learning pose the greatest obstacle to enduring reforms designed to meet the needs of the multigrade classroom, though, as Croft (forthcoming) points out, differentiation based on groups may be more acceptable in collectivist cultures than differentiation based on individuals.

Nonetheless there may be ways in which curriculum reform might be undertaken to satisfy the needs of learners in multigrade settings, even within teacher-led pedagogies. Experimental work on the reorganisation of national curriculum subjects built around the grading of activities in relation to core concepts/skills and differentiated activities and outcomes across the entire primary school curriculum is currently being undertaken in Nepal and Sri Lanka (LATIMS, 2003). The general idea is the creation of curricula which meet the needs of learners and teachers in multigraded settings and reduce the daily curriculum planning burden on the teacher.

- *Learning materials*

Most researchers and practitioners agree that successful strategies for multigrade teaching depend on adequate supplies of learning materials to support individual and group-based learning. This enables teachers to spend time with some groups of learners while other learners work alone, in pairs or in small groups. The *Escuela Nueva* programme, in which study guides for individual learners were developed for each of the core curriculum subjects, is the best known example of this principle. But the mere existence of materials does not guarantee quality of learning. Self-study materials must be of the highest quality and relevance, and must be used by teachers as part of an *integrated* teaching strategy, in which teachers continue to play a vital part. The availability of self-study materials must not be viewed by the teacher as a substitute for his/her teaching.

Conventional school textbooks are another learning resource deserving of attention. Textbooks are usually written on the assumption that lessons are teacher-led. Is there scope for development-work on the production of school texts, written with the self-studying learner as a main audience? Are there any lessons to be learned from the authors of examination crammers? How do they reach their audience – the learner – so effectively?

- *The social organisation of learners.* We have referred above to the use of self study and other modes of learning in the context of learning materials. Effective multigrade teaching involves the use of a range of organisational strategies in the classroom. These will include the use of whole class teaching, small group, paired and self learning. They also include the involvement of learners in the general management of the classroom, the school and its learning resources (e.g. the use of



monitors, the distribution of responsibilities for a range of class and school tasks, the use of class and school decision-making bodies)

- *Teacher preparation*

Pre-service and inservice training for teachers on the needs of the multigrade class is vital. In some countries (e.g. Finland) multigrade teaching is already embedded in teacher education curricula. In England multigrade teachers express the desire for in-service training and curricula support for the multigrade class but generally have to rely on their training in the principles of diversity and differentiation in coping with the demands of the multigrade class (Berry and Little, forthcoming).

There are many examples worldwide of *ad hoc* teaching training programmes to meet the needs of the multigrade teacher, many of them supported by multilateral organizations (e.g. see [www.ioe.ac.uk/multigrade](http://www.ioe.ac.uk/multigrade)). Many inservice training programmes in multigrade teaching adopt a cascade model of dissemination and, hence, are subject to many of the effectiveness issues that face cascade training programmes more generally.

A recent study of a 'cascade' multigrade teacher training programme in Nepal, traced its effectiveness from content design at the national level to the training process at local level and implementation of strategies in the classroom (Suzuki, 2004 and forthcoming). Although teachers made gains in their knowledge of useful strategies for multigrade teaching (especially in the provision and use of self-learning activities and classroom monitors), evidence for the incorporation of the training 'messages' at the classroom level was modest. Suzuki (2004) identifies a number of areas where improvements could be made in the future, but also identifies 'hearts and minds' obstacles that would endure even if training were to improve. These include the lack of awareness on the part of policymakers of the existence and needs of multigrade classes,

the absence of teacher trainers expert in the practices of multigrade teaching, and the overwhelmingly negative attitudes towards it held by teachers, their trainers and supervisors.

- *Assessment systems*

Educational assessment has many purposes. The most dominant purpose in most systems of education (and especially so in developing countries) is selection for further education or occupations. The second is the monitoring and/or accountability of the performance of systems and schools. The third, and arguably the most important from an EFA perspective, is the promotion of learning through formative assessment (Little and Wolf (eds) 1996). Hargreaves (2001) argues that multigrade settings lend themselves to assessment systems to promote learning, because they encourage teachers to recognise individual differences in learning, rather than treating all learners as if they were at the same level. Regular and frequent formative assessment is a vital tool for both teacher and learner in the multigrade setting. Although they lend themselves to the recognition of diversity, multigrade settings do not, in themselves, guarantee it and strenuous efforts need to be made to build assessment into learning materials. From its inception the *Escuela Nueva* programme built assessment tasks into the self-study guides, mastery of which is necessary before learners can progress to the next unit or stage. Such assessment schemes retain the notion of gradedness but rest on the graded assessment on individual learners who work through learning materials at their own pace.

It should be clear from the above that curriculum, learning materials, teacher education and assessment are necessary components of an *integrated strategy* for learning and teaching in multigrade settings. Implementation of a single strategy is unlikely to lead to significant improvements in the effectiveness of learning and teaching in multigrade settings. Surrounding these strategies is the need for national policies (for curriculum, materials, teacher education and

assessment) that recognise, legitimate and support learners and teachers in multigrade settings.

## **Costs**

Very little research has been undertaken on cost efficiency and effectiveness connected with multigrade schools. At a policy-level the perceived and actual high costs of small (multigrade) schools in rural areas in developed countries has, periodically, been the main rationale used by policymakers for the closure and consolidation of multigrade schools. In part these have arisen because of the fixed costs that deployment norms of ancillary staff for schools (e.g. caretakers and cooks) imply and the high costs per student attributed to maintenance of land and buildings. Communities have argued that to close the village school is to close the community. But such externalities are rarely valued in cost analyses. Savings through the amalgamation and closure of small schools maybe offset by the added costs of transportation of learners and, in some, cases, the costs of boarding facilities. Communities and teachers have also argued that there are learning gains associated with smallness and localness, especially for young learners.

The policy and costs issues in many developing countries are often very different from those faced in developed countries. In many settings, as noted above, there is no realistic possibility of learners attending other schools in the vicinity to which they can be transported or of amalgamating small schools. If the cost of maintaining small inefficient monograde schools is inefficient, the policy choice is between a multigrade school *or no school at all*. This is the most fundamental issue for EFA.

The very few studies of the costs of multigrade teaching in developing countries yield conclusions rather different from those advanced in the policy documentation in developed countries. In these, multigrade is not presented a high cost strategy, especially when compared with schools in similar (especially rural) settings (e.g. Cummings 1986:91-2, Psacharopoulos, Rojas

and Velez, 1993; Colclough with Lewin, 1993, 130-2, 138). Rather, their cost saving possibilities are seen as a virtue and a comparative advantage.

The main cost element in all primary schools is teacher salary. In some systems (e.g Bangladesh) there are few multigrade schools. Often teachers undertake a double shift of monograde teaching, teaching one grade in the first shift, another in the second. While this obviates the need for multigrade teaching, a key question for EFA is how many hours of effective instructional time such systems deliver and at what costs. In many schools that operate on a double shift, learners attend schools for as little as 2 hours per day. Combine this with teacher absenteeism and inefficient use of the timetabled school day and opportunities for learning diminishes further. Teachers may teach more, but learners may experience less. Costs per learner may appear acceptable but learning costs per hour may look different.

Cost-effectiveness is the ratio of learning gains to the costs of inputs. Some costs are borne by the system as a whole; some at school level. While the main school-level cost is the teacher salary, system costs include the development and delivery costs of reorganised curricula, assessment systems, learning and teaching materials and teacher training. The opportunity costs of learners depend on the time they spend in school (as distinct from time spent learning in school). The costs of learners 'teaching' others while teachers work intensively with other groups of learners are low and may in fact be negative as learners learn themselves by teaching. The comparative costs of multi and monograde classes depend partly on whether national policymakers view multigrade teaching as a separate subsystem of education or as a strategy that needs to be understood and practiced by teachers throughout the system.

If the latter approach were adopted and if all teachers were exposed to multigrade teaching as part of mainstream teacher preparation, if curricula were revised to meet the needs of the multigrade class, if assessment formats and instructional materials were geared towards the learner these costs would

be similar to those in monograde classes, especially where overall pupil teacher ratios and student learning hours were the same.

Because of the association with school size with multigrade teaching strategies may, on average, yield higher costs than monograde schools. But the issue here is size, not multigrade per se. Every system has small schools located in low density populated areas and unpopular schools in areas of high population density. And every system that has achieved EFA maintains schools in these areas, albeit, sometimes, at higher unit cost per learner. While this does not mean that all small schools have to be kept open at all costs it does mean that the location and characteristics of learners are paramount. It also means that where multigrade does result in cost savings it is attractive.

The potential learning gains within multigrade settings have been alluded to earlier in this paper. There is some evidence that learners in multigrade settings may be at an advantage, in terms of social and personal learning, over those in monograde settings; and at no disadvantage cognitively. Precisely why this should be so is unclear but it would appear to a function, variously, of self-study, of learning and teaching to learn, of collaborative learning with peers, of mastery oriented assessment formats and of contact with teachers in small, rather than large, group settings. Since, with a few exceptions, several of these elements are almost cost-free once established, then if the multigrade pedagogy is effective, the overall impact on cost effectiveness is likely to be great.

Further work on the costs of multigrade teaching will be available in due course in Lewin (forthcoming).

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