ED 340 537   RC 018 432

AUTHOR   Bray, Mark
TITLE   Are Small Schools the Answer? Cost Effective
                 Strategies for Rural School Provision.
INSTITUTION   Commonwealth Secretariat, London (England).
REPORT NO   ISBN 0-85092-302-6
PUB DATE   87
NOTE   90p.
AVAILABLE FROM   Commonwealth Secretariat Publications, Marlborough
                 House, Pall Mall, London SW1Y 5HX, England, United
                 Kingdom (4.00 British pounds).
PUB TYPE   Information Analyses (070)

EDRS PRICE   MF01/PC04 Plus Postage.
DESCRIPTORS   Boarding Schools; Community Involvement; Consolidated
                 Schools; *Cost Effectiveness; Curriculum Development;
                 *Economic Factors; Educational Finance; Elementary
                 Secondary Education; *Foreign Countries;
                 International Education; Multigraded Classes; Parent
                 Participation; *Rural Schools; School Community
                 Relationship; *Small Schools; *Social Influences;
                 Teacher Characteristics

ABSTRACT
                 This book compares small schools in various countries
with large ones and offers cost effective strategies for small
schools. Part I focuses on social, economic, and educational issues
related to small schools. Small schools are beneficial to their
communities as centers of social development. In addition, small
schools have a more cooperative environment than large schools, and
student achievement is usually as good or better. On the negative
side, small schools may have a limited curriculum and less qualified
teachers. Part II offers suggestions for operating small schools
effectively. Economically viable teaching groups can be formed
through multigrade classes and biennial and triennial intakes.
Staffing small schools involves consideration of minimum staff
numbers, the types of teachers needed, and provision of teacher
training. Central administration support can be provided through
systems for sharing resources among small schools, school broadcasts,
and correspondence courses. Part III discusses the decision to make
schools larger. Catchment areas can be expanded through boarding and
bussing. Schools can also be made larger by raising enrollment rates,
constructing "straight-through" (K-12) schools, or dividing the
population more rationally between schools in a catchment. Part IV
concludes that circumstances vary widely, and that education
authorities must weigh the advantages and disadvantages of small
schools for themselves. This document contains an annotated
bibliography of further readings. (KS)

Are Small Schools the Answer?

Cost-Effective Strategies for Rural School Provision

1 large school

Mark Bray

018432

Commonwealth Secretariat

ERIC

2

Are Small Schools the Answer?

Cost-Effective Strategies for Rural School Provision

Mark Bray

University of Hong Kong

Commonwealth Secretariat

Any expressions of opinion in this publication are those of the author and not necessarily those of the Commonwealth Secretariat.

Governments of developing Commonwealth countries wishing to reproduce the material in this publication in whole or in part, in any language, should inform the Commonwealth Secretariat, which may be able to offer them some assistance in doing so.

4

Contents

Contents (Contd.)

6

Foreword

This book owes its origin to a resolution at the Ninth Conference of Commonwealth Ministers of Education, held in Cyprus in 1984. The Ministers paid special attention to the topic 'Resources for Education and their Cost-Effective Use'. They requested the Commonwealth Secretariat to analyse ways in which (a) extra resources could be raised for education, and (b) existing resources could be used more effectively.

'Jnder the second heading, the Secretariat organised a workshop in New Zealand in November 1986 to discuss the cost-effectiveness of small schools. The meeting received some financial support from the Economic Development Institute of the World Bank, and was attended by delegates from Commonwealth countries throughout the Pacific region.

This book is one of the workshop's products. It is chiefly designed for edcucational administrators at national and regional levels.

The Focus of the Book
Almost all countries contain regions which are thinly populated, and in developing nations the potential number of pupils is further reduced by low enrolment rates. Such contexts are the chief focus of this book. It compares small schools with large ones, and notes their contrasting social, economic and educational features.

Urban centres may have small schools too. Some cater for children of minority languages, races or religions; others cater for children with particular talents, for example in music or the arts; and others cater for children with physical and mental handicaps. Although such schools have their own special needs and are outside the main focus of the book, some points are relevant to them too. On the positive side, for example, they are likely to have highly personalised atmospheres which cater to the needs of individual

children, and they can have strong links with their communities. And on the negative side the urban schools are just as likely as rural ones to have low pupil: teacher ratios and high unit costs; they may find it hard to teach a broad curriculum with a limited staff; and they may have to combine classes and thus engage in multigrade teaching.

The International Perspective

As readers go through the book, it will also become clear that many features of small schools are truly international. Differences of course arise from the social and economic circumstances of individual communities, but much analysis 's applicable to all cultures and nations. This fact greatly helps understanding of the issues. Although some countries have weak research traditions and are short of detailed information, studies from other countries may have general applicability.

At the same time, the book also draws out a number of contrasts. For example, most rich countries have already achieved universal primary and secondary education; and have long-established small schools which are now threatened by falling birth rates and movements of population. In these countries, arguments about small schools frequently focus on whether to close ones that already exist. By contrast, the majority of poor countries are yet to achieve universal primary education, and are even further away from universal secondary education. Governments in these countries need ways to reach marginal groups, and in many cases are still trying to *open* small schools.

Likewise, many Third World societies are more self-reliant and can organise self-help boarding facilities in a way that is not possible in First World societies. On the other hand, poor countries lack the necessary infrastructure to operate effective distance teaching mechanisms of the type found in some rich countries. Sometimes, therefore, it is important to note different national contexts. Strategies that are possible and desirable in Chile or France may not be at all appropriate in Vanuatu or Mali, and vice versa.

Finally, it will be noted that the book takes examples from both Commonwealth and other countries. Although of course the Com-

monwealth Secretariat operates chiefly to serve the Common-wealth, we consider it important both to disseminate our own experiences and to learn from others.

Peter R.C. Williams,
Director, Education Programme,
Human Resource Development Group,
The Commonwealth Secretariat.

****

Extra Copies of this Book

Do you want a copy either of this book or of the others in the series that are listed on the back cover? The Commonwealth Secretariat can provide limited numbers free of charge to people and organisations in developing countries. Write to:

The Director,
Education Programme,
The Commonwealth Secretariat,
Marlborough House,
Pall Mall,
LONDON SW1Y 5HX,
United Kingdom.

****

9

Introduction

Small schools exist all over the world — in rich countries such as Canada and Japan, and in poor countries such as Mauritania and Dominica. Even Hong Kong, which most people think of as one big city, has a rural periphery with a few one-teacher schools. And in such countries as Finland and the Maldives, small schools far outnumber the medium-sized and big ones.

But although they are very common, small schools are not universally liked. Some people strongly recommend them, arguing that they can provide a personal atmosphere and a centre for community development. These people wish to protect existing small schools and to open new ones. Other people dislike small schools, arguing that they have high unit costs and can offer only a restricted curriculum. These people would like to close existing small schools and to prevent new ones from being opened.

Both sets of views have some validity, and administrators often find it hard to devise appropriate policies. This book aims to help them. It reviews the international evidence on the advantages and disadvantages of small schools.

(a) Different Models
The book identifies several different educational models. The main options for policy makers may be summarised as:

1. accepting small schools and classes but using multigrade teaching and other techniques to make them work;
2. ensuring fairly large classes but in rather small schools by having biennial or triennial intakes;
3. ensuring fairly large schools and fairly large classes by extending the geographical range of the schools, e.g. by boarding and bussing;
4. ensuring fairly large schools but with rather small classes by combining primary and secondary sections to form 'straight-

through' schools; and
5. trying to have both fairly large schools and fairly large classes by raising enrolment rates and by rationalising competing schools.

These models are discussed in different chapters. The book also looks at staffing policies for small schools, and at needs for central administration and support. It is chiefly written for national and provincial educational administrators, but some points may also be relevant to local level staff and to teachers in small schools themselves.

(b) The Meaning of Cost-Effectiveness

Cost-effective investments may be defined simply as the ones that produce the best results from a fixed set of inputs. Usually, policy makers use cost-effectiveness analysis when they have already identified a goal and want to decide on the best way to achieve it.

Sometimes, administrators start with fixed budgets: a project's financial ceiling has already been set, and the administrators want to know how money can be spent in the best possible way. On other occasions they have no fixed budget in mind, but want to know how to invest resources wisely. And on yet other occasions they have to *cut* budgets by a certain amount, and need to know how to do so. In all cases, they can use cost-effectiveness analysis to compare different strategies and decide on the best action.

An Example

The nature and purpose of analysis may be explained by an example. Suppose that educational administrators want to raise the mathematics scores of a group of students. They can assess cost-effectiveness in five steps:

Step 1. Identify Alternative Ways to Achieve the Goal
In this case, four alternatives are identified:

i) employing a special instructor to work with small remedial groups;
ii) designing a programme for self-instruction, in which students work at their own pace in a special resource room

11

with special curriculum materials and a coordinator;
iii) introducing computers on which students can practise problem-solving; and
iv) introducing peer-tutoring, in which older students spend 30 minutes a day tutoring younger ones.

Step 2: Work out the Costs of Each Strategy

i) The first method would have a high cost. Because of its low pupil:teacher ratio, the administrators estimate a cost of $200 per student.
ii) The second one would require a special room, materials and a coordinator. But it could cater for 25–30 students at a time, so would only cost an estimated $100 per student.
iii) The third method would require a special room, a computer, a coordinator and some special materials, and would cost $150 per student.
iv) The fourth method requires some instructional materials, a coordinator and some study space, but at $50 per student is the cheapest.

Step 3: Estimate the Effectiveness of Each Strategy

The effectiveness of each strategy can be determined by comparing the test scores of students who gain help with those of similar students who receive no help. On the basis of research studies and their own experience, the authorities decide that:

i) the first method will improve each pupil's score by 25 points,
ii) the second method will improve each pupil's score by 4 points,
iii) the third method will improve each pupil's score by 15 points, and
iv) The fourth method will improve each pupil's score by 10 points.

Step 4: Combine the Information in a Table

	Cost per Student (a)	Effectiveness (test score) (b)	Cost-Effectiveness (a) ÷ (b)
Small Groups	$200	25	$ 8
Self-Instruction	$100	4	$25
Computers	$150	15	$10
Peer Tutoring	$ 50	10	$ 5

12

Step 5: Analyse the Results

From the table, two main points emerge:

* In this example, peer tutoring is the most cost-effective. It costs only \$5 to increase a pupil's score by one point, compared with \$8 for small groups, \$10 for computers, and \$25 for self-instruction.
* In this case, the most cost-effective strategy also happens to be the cheapest. But the second most cost-effective (small groups) is the most expensive. Although small groups are costly, they have a big impact.

Of course, the authorities would then have to decide whether massive implementation of the most cost-effective option would always yield the same return, or whether returns would diminish with scale. If they felt that returns would diminish, they might instead decide on another option, or on a combination of options.

The authorities would also need to consider the amount of money that they have available. Sometimes the budget is restricted, and expensive items cannot be chosen even if they are highly cost-effective.

Most importantly of all, the authorities would have to check both that their original estimates of cost and effectiveness were reasonable, and that they would *stay* reasonable in the future. A change in costs, for example, could radically change the conclusions.

Cost-Effectiveness and Cheapness

Cost-effectiveness is not necessarily the same as cheapness: some strategies may be cheap but ineffective. Sometimes it is worth investing more money on a project, choosing a higher-cost strategy that also has higher cost-effectiveness.

However, cost-effectiveness can always be increased by improving efficiency. If one strategy uses more resources to achieve the same goal as another strategy, then it is both less efficient and less cost-effective.

(c) Cost-Effectiveness Analysis and School Size

The above example illustrates the main principle of cost-effectiveness analysis: that it combines information on costs with information on effectiveness to reach a conclusion on the best developn ent strategy. As readers go through this book, however, they will become aware of several difficulties when using such analysis to decide on school-size policies:

* *Objectives:* Policies on school size often have several objectives, which sometimes conflict. For example, the authorities might simultaneously be worried about the extent to which (i) pupils in small schools perform well in exams, (ii) large schools have discipline problems, (iii) children in small schools lack social contact with other children of their own age, and (iv) every community needs its own school as a centre for social development. The existence of several objectives means that analysts must create a 'basket' of goals, in which some are weighed against others.

* *Measurement:* Many of the benefits of large or small schools are hard to quantify. The role of a school in a community, for example, is a very qualitative matter, which can be assessed differently by different observers. The same applies to discipline problems and children's social contacts. Examination scores should be easier to quantify, but it should not be assumed that administrators *do* have the necessary information. Comparison of school scores is a complex research exercise, and the results vary between schools, between localities, and over time.

* *Costing:* Few administrators have accurate data on costs. Because of the way government budgets are constructed, it is hard to compare expenditure on small schools with expenditure on large ones. In addition, many financial costs are incurred by families and individuals rather than by the government. And thirdly, many costs are not financial at all: they are the costs of time (e.g. of pupils travelling a long way each day to attend a large school), of tiredness, and of social problems.

Because of all these difficulties, this book cannot present a detailed framework that is applicable in all settings. However, it can at least

discuss the elements for analysis: the advantages and disadvantages of both large and small schools, and the factors that determine costs. It can also indicate some ways to use existing resources more effectively, i.e. to maximise effectiveness from a fixed cost.

(d) How Small is Small?

Finally, a conceptual problem on scale must be dealt with. Small is a relative term, and what one person may call a small school, another may call a large one. Moreover, primary and secondary schools have to be treated separately. Most people would consider a primary school with 180 pupils to be medium-sized; but the same people might consider a secondary school with only 180 pupils to be rather small.

As a guideline, this book will consider primary schools to be small when they have 100 pupils or less, and secondary schools to be small when they have 180 pupils or less. However, many schools are much smaller than this. In some countries it is common to find primary schools with fewer than 15 pupils, and secondary schools with fewer than 60 pupils. In general discussion, therefore, it is dangerous to set cut-off points that are too rigid. Governments do sometimes need to set specific cut-off points, e.g. to decide which

****

Categorising Schools: A Canadian Formula

Like many authorities, the Government of Canada's Manitoba Province needs a specific definition in order to determine which schools are eligible for special grants. The definition it employs is that:

a small primary school is one in which the member of pupils enrolled, divided by the number of grades taught, is less than 15; and
a small secondary school is one in which there are fewer than 200 students in Grades 9 -12.

However, other governments might find these definitions too rigid, and inappropriate in their cut-off points. Each government should work out its own definitions to match its own circumstances.

****

schools are eligible for special grants and staffing. However, these definitions always have the problems:

i) that schools or the borderline may constantly require a change of classification if their size fluctuates each year, and

ii) that institutions just outside the limits gain no help, even though their problems are barely different from schools that are just inside the limits.

In most contexts, therefore, it is more useful to think of a continuum of size and its associated advantages and problems.

16

Part I: The Debate on School Size

Chapter 1: Social Factors

When governments have a choice between one large school or several small schools, they have to assess social, economic and educational factors. The weight they give to each factor depends on specific contexts and on the preferences of individual decision-makers. In many countries, however, recent years have seen more weight being given to social factors. Usually, this has favoured small schools rather than large ones.

(a) Schools as Centres of Social Development

Schools are always major centres for social development. It is usually desirable to have as many centres as possible, and they are especially necessary in rural areas.

> *Towns* have many foci for social interaction. As well as schools, they have government offices, shops, post-offices, hospitals, sports clubs, bars, religious centres, and so on.
>
> *Villages,* by contrast, have very few foci. In many cases, the only ones are churches/mosques/temples (depending on the culture), and schools.

Thus, if the choice is between (a) several small schools which allow each village to have one or (b) a large school in one village but no schools in the others, the social arguments will almost always

favour the former.

Of course, it cannot be said that several small schools are *always* preferable to a single large one. For example, if a small village has two schools, it may suffer from social division and would be more united if there were only one. Also, large schools sometimes widen pupils' and parents' horizons, helping them to meet people outside their immediate neighbourhood.

However, the generalisation remains true: that it is important for every co...munity to have its own school. This fact usually favours small schools rather than large ones.

The Role of the School in the Community

Roy Nash and two colleagues studied five one-teacher schools in rural Wales. Commenting on the schools' crucial social roles, they stated:

"In a rural area where communications are extremely bad, it is quite enough to have to go to the nearest town for one's household goods without on top of that having to send one's children to school in the next parish. The area that was served by school B had, in fact, no village as such and it represents as well the typical form of scattered settlement common in many parts of rural Wales. The one building in the parish which acted as a central point was the school. This school had built into its wall a memorial to the community's war dead. To our eyes it seemed a grim ornament for a school-room, but there was nowhere else to place it. The school was the people's only focal point. This cannot be emphasised too much...."

This community did not even have a church or chapel. But in any case, the researchers continued:

"Although church and chapel have far more influence in the Welsh countryside than they have in urban areas, and clearly help to integrate the community and give it a sense of identity, attendance is declining and they no longer hold the central position that they had only 30 or 40 years ago. The place of the school as a focal point is therefore possibly of greater importance today than at any time previously."

(b) Implications oj .he Prominence of Schools

The prominence of schools in rural areas has several implications — both for communities which do have schools and for communities which do not.

(i) Communities which do have Schools

Because schools are important centres for social development in rural areas, even people who do not have school-aged children are likely to take a strong interest in school activities.

Also, because of their links with the outside world, teachers in rural schools tend to play stronger leadership roles than they do in urban areas. And to the extent that alternative sources of information are lacking, the messages conveyed by the schools have particular force.

(ii) Communities which do not have Schools

The other side of this coin is that communities without schools are deprived — sometimes even to the point of threatened existence. If children have no educaticnal opportunities at all, the communities are left behind in a fast changing worlc; and if children leave the community to attend a boarding schoo! somewhere else, the population that remains has been deprived of its young.

Moreover, some parents perceive schools to be so important that they decide to leave rural areas in order to give their children better opportunities in the towns. When this happens, a marginal community becomes even more marginal. The box below gives some statistics on communities which have declined in population, in part because they had no schools.

Village Schools and Population Movements

To measure the effect that village schools (or the lack of them) have on population, one researcher examined population changes in Devon, England.

The researcher looked at 400 communities which had records for the years 1911 to 1961. Among the communities, 287 had a school throughout the period, but 113 had no school.

The study found that communities with a school grew on average by 2% during the period, but communities without a school declined by average of 12%. The population changes, of course, were not caused only by the existence or lack of schools. But schools were certainly a major factor.
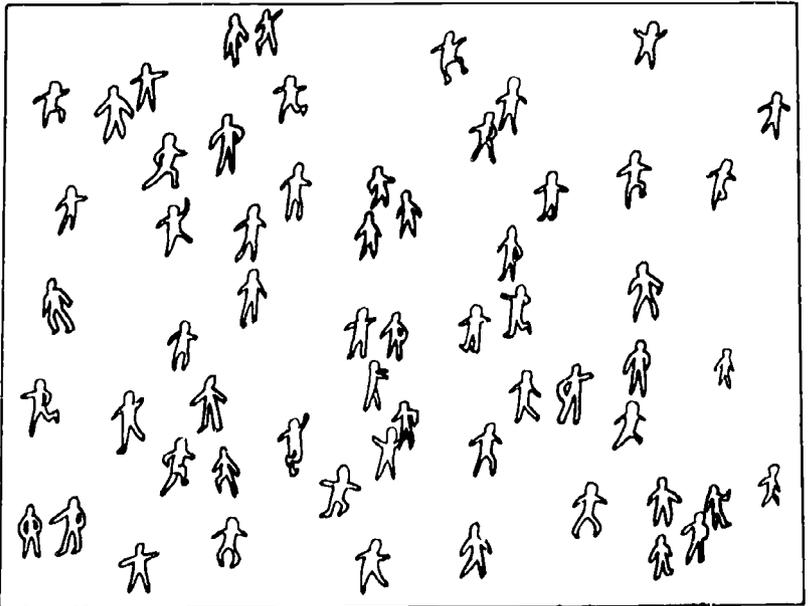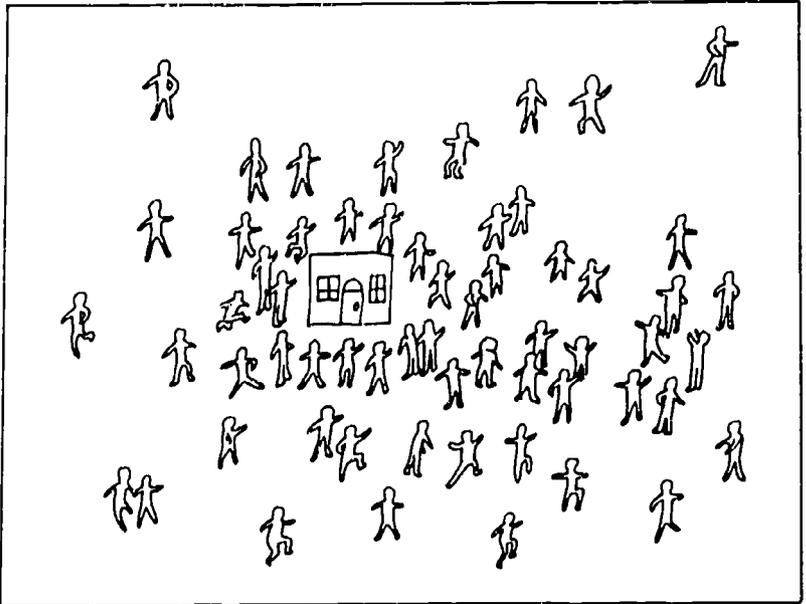
Especially in a rural area, a school is an important centre for social interaction and development. If the school is closed (or never opened), the community is deprived of such a centre.

(c) Changing Government Policies

Although the arguments about small schools remain hotly debated all over the world, recent years have seen policy swings in several countries. Particularly in industrialised nations, governments are now much more supportive of small school: than they were a few years ago:

* In New South Wales, Australia, a 1984 Education Commission was "of the view that a Ministerial statement which acknowledges the important of small schools would be most timely". It stated:

  While the closure of some schools may be unavoidable, the Commission considers that this should be the last resort. Such is the educational and community value of small schools that closure should be assessed in terms of benefits to children and to the community as a whole, rather than in terms of operating costs.

* Likewise, in the United Kingdom, a major report in 1965 led to closure of many small schools. But 13 years later its author felt that the case for small schools was stronger. "With all that we know today," she wrote, "the policy about village schools needs rethinking."
* Similarly, in Norway and Finland many schools closed during the 1960s have been reopened.

Chapter 2:
Economic Factors

Recent economic depression has bitten deeply into government budgets, and has made cost factors even more important than before. In general, small schools have higher unit costs than large ones. But this is not always true: sometimes it is cheaper to run several small schools than a single large one. And small schools sometimes find it easier to generate more resources from their communities.

(a) Costs and their Calculation

Compared with the related process of cost-benefit analysis, cost-effectiveness analysis does not require such rigorous and far-reaching mathematical calculations. This fact simplifies the task of the educational planner concerned only with cost-effectiveness. However, the planner certainly needs cost assessments that are as accurate and complete as possible.

In this connection, two conceptual points should be made:

* First, cost is not the same as e·penditure.

    Expenditure is a narrow term, referring only to the use of money.

    Cost is a broader term, referring to both financial and non-financial inputs. It includes donations 'in kind', of labour, land and goods. It also includes the 'opportunity cost' of benefits sacrificed when money is used for one project rather than another.

* Second, official calculations even of expenditures (and even more so of costs) are often too narrow. When comparing expenditures on schools of different sizes, governments often calculate only *their own* expenditures. They ignore the expenditures of non-government bodies, of families and of

individuals. This creates a misleading total picture. Some government schemes may save *government* money but impose a heavy burden on society as a whole.

The value of non-financial and opportunity costs is very hard to calculate. Professionals concerned with cost-benefit (as opposed to cost-effectiveness) analysis have to deal with this matter very carefully. They have first to consider the amounts involved, and then what prices to put on them in order to express everything in monetary terms. Often, they have to use 'shadow' prices and discounted cash flow techniques. These are beyond the scope of this book, but more detailed discussion is contained in the works by Levin and by Little & Mirlees, mentioned in the Further Reading section on pages 85 and 86.

But even if cost-effectiveness analysis can avoid most problems of pricing non-financial and opportunity costs, it must still recognise and make some assessment of them. For example:

* When schools become too large, they usually become more impersonal. This is a cost from expansion. By contrast, smaller schools usually achieve the benefit of a better atmosphere.
* If the authorities decide on a large school rather than several small ones, it is likely that many children will have to travel long distances each day. At least five costs are involved:

    — the actual expenditure on their transport (which is in fact relatively easy to work out in money terms),
    — the cost of the children's tiredness, which is both a problem in itself and may reduce the effectiveness with which they learn,
    — the cost of a narrower curriculum if the school cannot organise extra activities because children must leave school as soon as the day is over,
    — the cost of the children's time spent in travelling, and,
    — if parents drive the children to school in a private car, the cost of the parents' time and tiredness.

* As already mentioned, in many cases the direct financial costs of several small schools are greater than the costs of one large

school for the same children. If the authorities nevertheless opt for the small ones, they must also assess the opportunity costs of spending money in this way. When they decide on the more expensive option, they are also *sacrificing* alternative projects, e.g. in roads, sewage, forestry, etc..

Cost-effectiveness analysis does not have to express points of this type in monetary terms. But it does have to recognise their existence and make some judgement of their importance.

(b) Unit Costs
(i) Factors Favouring Large Schools
It is commonly said that large schools have lower unit costs. This means that the cost of educating one pupil at a specific grade/level for one year is lower in a large school than in a small one.
Lower unit costs are achieved in two main ways:

* *Fixed Facilities.* All schools need at least some 'fixed' facilities: libraries, laboratories, playgrounds etc.. Large schools can spread the cost of these facilities over more children than can small schools.
* *Pupil:Teacher Ratios.* Large schools often have higher pupil: teacher ratios, which result in lower costs per pupil.

    — Secondary schools usually offer a range of curriculum options (e.g. between science and arts), and large schools find it easier to get reasonably full classes in all subjects. In contrast, small schools may find that very few students want to do 'minority' subjects such as agriculture, French or music, and therefore that classes in these topics have high unit costs.

    — Large primary schools may also have higher pupil: teacher ratios, for is easier for them to get full classes, particularly if there are many streams of each grade.

Teachers' salaries usually account for 80 per cent of school recurrent budgets. It is therefore particularly important to use teachers efficiently and to have reasonably high pupil:teacher ratios.

Small schools do not necessarily have low pupil:teacher ratios,

however, for sometimes the numbers fit neatly and classes are full. At the secondary level, a lot depends on the range of subjects that must be offered: schools can raise class sizes if they are allowed to reduce the number of options. At the primary level, the most important factor is the threshold number beyond which regulations require one class to be divided into two.

The latter point is illustrated by Figure 1. With only 10 pupils, the school has only one teacher. If the number of pupils increases but no new teacher is employed, unit expenditures (i.e. average expenditures per pupil) fall. However, in the system illustrated here, the regulations set a maximum class size of 35. As soon as 36 pupils are enrolled, the class must be split, an additional teacher must be employed, and unit costs rise sharply. This is because instead of one teacher's salary being spread over 35 pupils, each teacher's salary is now spread across only 18 pupils (because 36 pupils have two teachers). A similar process happens when there are 71, 106, 141 and 176 pupils.

Figure 1: School Size and Instruction Costs per Pupil
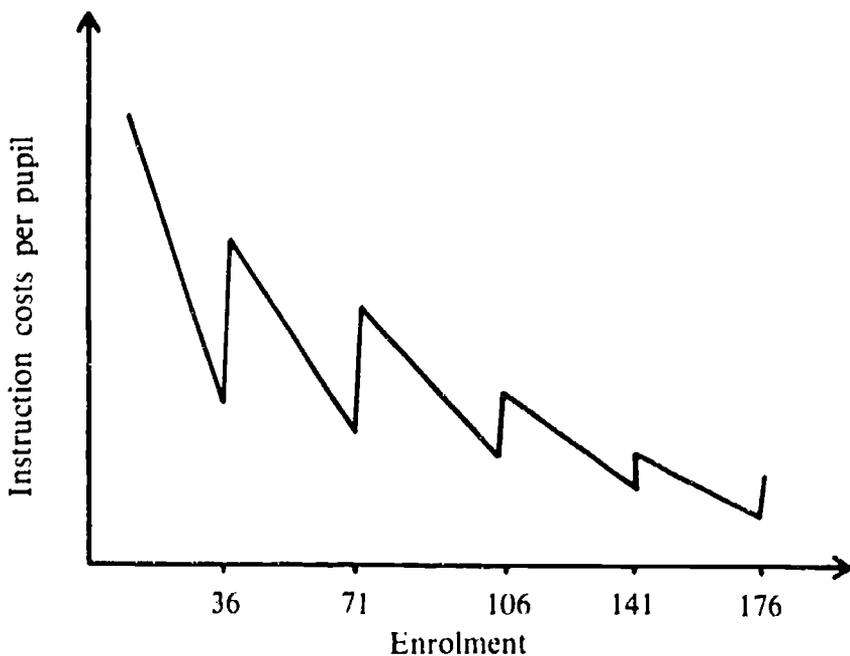
Three extra points are worth making about the graph:

* Althcugh unit expenditures jump every time a new teacher is employed, each jump is lower. This is because each new salary is spread over a larger number of pupils.
* The bottom point of each curve gradually gets lower. This is because the costs of fixed facilities (libraries, playgrounds etc.) are being spread over more children.
* Despite the gradual fall in the curve, if the school continued to grow there would be some jumps in expenditure on fixed facilities. The school would need additional football pitches, classrooms, administration blocks, etc.. This would cause occasional jumps in the curve.

****
Planners must pay Close Attention to Threshold Points

Regulations on threshold points and maximum class sizes are very important. Sometimes they eliminate savings from amalgamation of small schools.

This may be demonstrated by an example. Suppose:

(i) that regulations state that no class should have more than 40 pupils, and

(ii) that there are two small schools near each other. School A has one teacher and 20 pupils, and School B has one teacher and 21 pupils.

In this case, amalgamation would not save a teacher's salary, for the combined school would still have two classes. Indeed, amalgamation would probably increase costs. Some children would have to travel further each day, and a new classroom would have to be built on one of the school sites.

On the other hand, suppose that School A had one teacher and 20 pupils and School B also had one teacher and 20 pupils. Then a salary could be saved by combining the schools.

However, planners would still have to think about the future. Population projections would be especially important, for as soon as an extra child enrolled, the school would have 41 pupils and two teachers would again have to be employed.
****

(ii) Factors Favouring Small Schools

When making cost estimates, it is essential to include *all* factors. Several factors favour small schools.

* *Travel.* If pupils have to travel long distances each day to attend a large school, they have to spend money on transport and they get very tired. Some governments provide buses or give travelling allowances to help the children get to school. Other governments require the children and their families to pay for themselves.

  In both contexts the costs must be calculated, (a) because they are always a cost to the nation as a whole, and (b) because in countries where schooling is not compulsory the travel might discourage children from attending school. In the latter case, replacement of one large school with several small schools might increase total enrolments, and the small schools would turn out to be bigger than originally calculated.

* *Boarding.* In an area without a good transport system, it may only be possible to fill a medium-sized or large school if boarding facilities are provided. Small schools are generally nearer children's homes, so are less likely to need boarding facilities and can be cheaper.

* *Salaries.* Sometimes, schools get so large that they have to employ specialised administrative and liaison personnel. This increases their unit costs.

  Also, headteachers of medium-sized and large schools are usually more senior, and thus have higher salaries than headteachers of small schools.

(c) Generation of Resources

In many countries, schools have to rely heavily on resources contributed by their communities. Construction and maintenance of buildings is particularly common, and in some systems communities also provide money for teachers' salaries.

For three reasons, small schools usually find it easier to raise community resources:

* small schools are likely to be physically closer to their communities, so it is easier for communities to identify with them;

* in a small school, individual contributions are more likely to
be noticed and appreciated; and

* communities usually know that the unit costs of running their
small schools are high, and are keen to protect their schools
against closure.

⊡$⊡ : Government financial support

($) : Community financial support
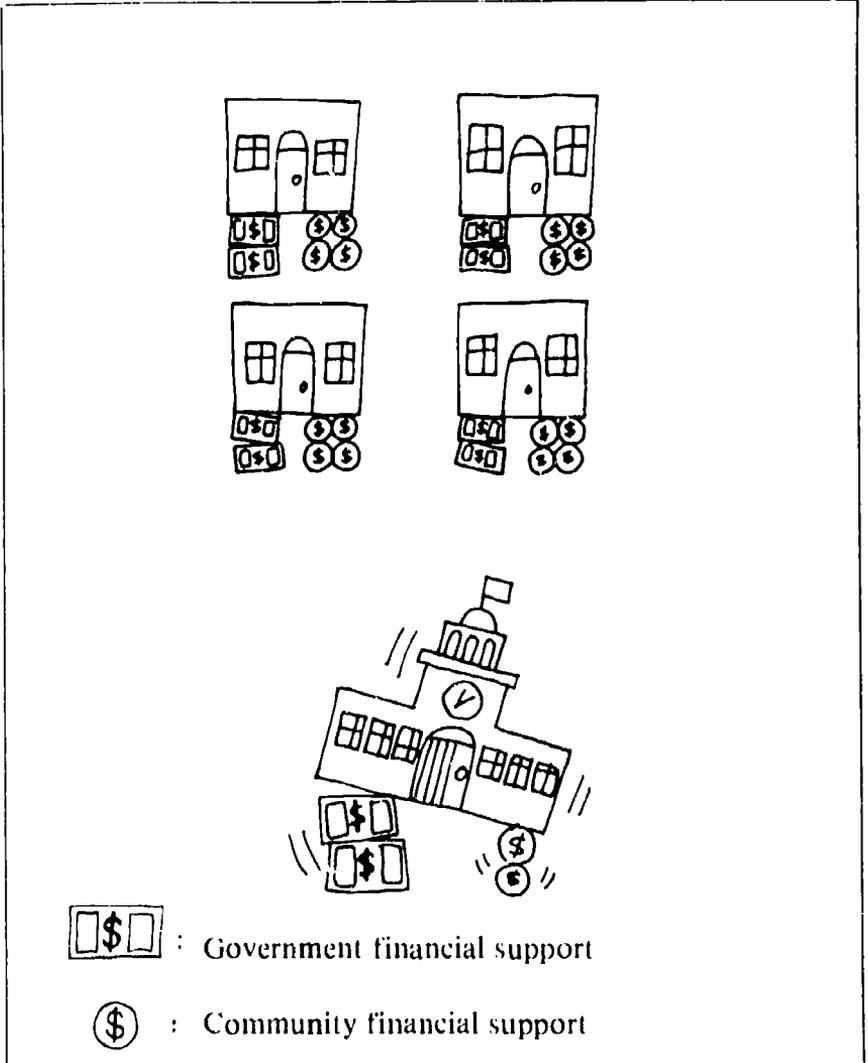
**Small schools often attract more community funds than do large
schools. This helps them to be more stable.**

(d) Where is the Balance?

Even within a single country it is impossible to make general rules
or determine the optimum size of schools. Conditions vary too
widely, and cases have to be considered separately. Demographic
considerations, which determine the distances pupils have to travel
each day, are particularly important.

However, it is worth noting some specific examples. The box
below reports on studies in Canada, the USA and Australia.

***

At What Size of School are Unit Costs Lowest?

*Research in several countries has shown that schools achieve
economies of scale (i.e. lower unit costs) as they grow. However, at a
certain point they encounter higher unit costs if they continue to grow.
At what point are unit costs lowest?*

*At the secondary school level, two North American studies are
available. Research in Ontario (Canada) found an optimum size of
4,000 pupils. But in Winsonsin (USA), the cut-off was said to be
around 1,700.*

*Neither of these studies found conclusive evidence at the elementary
level. However a third study of Prince Edward Island (Canada)
reported that increasing the size of an elementary school from 100 to
200 pupils would reduce operating expenditures by $70 while a further
increase to 300 pupils would realise savings of $140 per pupil. And a
fourth study in Pennsylvania (USA) reported an optimum size of 600.*

*A fifth study of New South Wales (Australia) looked at different
types of cost. Administrative costs showed economies of scale up to
the 100 pupil level. However, they then stayed constant and increased
in schools with over 600 pupils. Maintenance costs also showed
economies of scale, but were mostly exhausted by the 200 pupil level.*

However, these studies should be interpreted with caution.

1. *They all exclude transport costs, so do not necessarily imply that
   smaller schools should be closed.*
2. *They are specific to the contexts investigated. The fact that they
   show so much variation emphasises that there is no such thing as
   an optimum size in all countries of the world — or even an
   optimum size for all schools in a single country.*
3. *They refer to a specific point in time; and conditions change.*

***

Chapter 3:
Educational Factors

It is commonly said that large schools are qualitatively superior to small schools — particularly because they can have broader curricula, but also because they can give their teachers more support. The statement contains some truth, but should be treated with caution.

(a) The Curriculum in Small Schools
Usually, small schools can only offer a limited range of subjects. This may be especially serious at the secondary level, but is also true of primary schools. The range is limited by four main factors:

* *A Limited Pool of Talent:* Small schools have few teachers, and thus small pools of talent. The smallest schools have only one-teacher. They can only offer what that teacher can teach.
* *Limited Demand for Specialist Subjects:* Even when teachers *do* have specialist skills, the number of interested pupils may be too small. For example, a small secondary school may have teachers who are able to teach business studies as well as economics, Russian as well as French, and zoology and botany as well as biology; but the number of pupils who want to take those options may be too small to justify the teachers' time.
* *Limited Demand for Specialist Facilities:* Small schools find it hard to justify costly investment in libraries, computers, science equipment, sports fields, etc. because they would not be used by enough pupils.
* *Lack of Children for Sports:* Very small schools may not even have enough children to make up a pair of football teams. Thus small schools may even be handicapped in sporting activities.

However, these problems can often be reduced, and sometimes can be avoided altogether. Many governments supplement teachers' skills with radio and television broadcasts; they arrange for schools to share specialist equipment and staff; and they encourage schools to cooperate in sporting and other activities. Some of these strategies will be discussed in later sections of this book.

******************************* :***
*   *
* *What Curriculum can a Small Secondary School Offer?*   *
*   *
* *Of course there is no fixed and internationally valid answer to*   *
* *this question. However, some general observations can be*   *
* *made.*   *
*   *
*   *Take, for example, a rural secondary school in a developing*   *
* *country. Assume that it has four teachers and 60 pupils spread*   *
* *over three grades.*   *
*   *
*   *If at least some staff are prepared to teach more than one*   *
* *subject, such a school can ʌ̛ffer five basic subjects, such as*   *
* *English, maths, general science, social studies and a language.*   *
*   *
*   *Although this curriculum might seem unadventurously*   *
* *academic, it cove. ; the basic requirements for admission to*   *
* *further education. As such it would be favoured by parents. It*   *
* *would also have the merit of being cheap to offer.*   *
*   *
****

(b) The Internal Environment of Small Schools

Small schools are also criticised for their restricted internal social environment:

* pupils lack competition, and interact with relatively few peers, and
* pupils may get stuck with the same teacher for an entire school career.

The latter may be particularly unfortunate if the pupils and teachers suffer personality clashes. In a large school, both pupils and teachers get a partial new start every academic year when the pupils move up one grade; but in a small school this is less likely to happen.

The picture has another side, however:

31

* small schools usually have a more cooperative environment than large ones, and
* teachers in small schools can get to know their pupils much better.

The cooperative environment may be particularly important for children who lack self-confidence. This can help both academic and extra-curricular activities: children learn from their peers how to do arithmetic or to recite poetry, for example, and they have better chances of joining the school football team and the school play. One researcher has summarised these benefits:

All the children, by necessity, must be given responsibilities, and must contribute to discussions and assemblies. Thus, they develop more self-confidence. In larger schools, these responsibilities tend to be given to a select few.

(c) Teachers and Teaching in Small Schools

Since the quality of education chiefly depends on the quality of formal teaching, one must ask whether small schools can expect better or worse teaching than large ones.

Although of course the answer will depend on individual contexts, several factors are common:

* *Teacher Qualifications:* In many countries, teachers in rural areas (where small schools predominate) have fewer formal qualifications. This is for three reasons:

    — ambitious and well qualified staff are able to arrange postings in desirable environments, which usually means suburban or urban ones;
    — administrators find themselves under strong pressure to post the good teachers to suburban and urban communities, who usually have more political power; and
    — remote areas are sometimes used as dumping grounds for teachers who are incompetent or rebellious.

* *Isolation:* Teachers in small rural schools are professionally more isolated than staff in larger institutions. They have fewer

colleagues with whom to exchange ideas, and it is harder for the central administrators to give them professional support.

* *Streaming:* Small schools cannot stream pupils according to ability. Indeed, teachers may be faced by multigrade classes and wide age-ranges. This makes teaching more challenging; yet it is uncommon for colleges to give much attention to these matters while the teachers are being trained, so teachers may be poorly prepared for their task.

However, small schools do not always suffer. When administrators ensure that good teachers are posted to small schools, and when the teachers are well supported, the quality of staff and their work can be at least as high as in large schools. Indeed, many teachers feel that their efforts are noticed more readily in small schools. In the more personal atmosphere, they become more committed in their work.

****
Quality of Schools and Quality of Teachers

In small schools, the quality of education is more dependent on the quality of individual teachers than is the case in big schools.

In a single-teacher school, the personality of that individual 'makes or breaks' the whole educational process. By contrast, the average quality of teaching in a large school is a combination of the good and the bad. Small schools cannot do so much averaging, so tend to have greater variations.

The question then becomes: "Given that small schools are more vulnerable to bad teachers, how can administrators ensure that they are given medium-ability or good ones?" Particular attention must be given to the needs of small schools when teachers are posted and when support mechanisms are discussed.
****

(d) Size of School and Educational Achievement
It is clear from this discussion that large schools usually have resource advantages which help improve the breadth of the curriculum. However, many observers feel that in the past this factor has been given too much weight. Recent research suggests

that small schools can still provide good (or even better) quality education, with a depth that can more than compensate for a lack of breadth. Some of the conclusions are as follows:

* One of the most comprehensive studies in the USA covered 218 secondary schools with enrolments ranging from 18 to 2,287. It found that:

  — students from the large schools were *exposed* to a larger number of school activities, and the best of them achieved standards in many activities that were unequalled by students in the small schools. But
  — students in the small schools *participated* in more activities, both academic and extra-curricular; their versatility and performance scores were consistently higher, they reported more satisfaction, and they displayed more motivation in all areas of school activity.

  [W.J.Campbell, *School Size: Its Influence on Pupils*, 1980.]

* Another researcher investigated British primary school pupils' achievements in French. She followed the careers of 17,000 pupils over 10 years, and included small rural schools in her sample. She reported:

  "In spite of apparently adverse circumstances, the test performance of the pupils in the small schools was consistently superior to that of the pupils in the large schools".

  The Chief reason for this appeared to be:

  "The classroom situation in the small school tends to encourage cooperative behaviour and to lack the negative motivational characteristics of the competitive classroom in which success for the few can only be achieved at the expense of failure for the many."

  [C. Burstall, *Primary French in the Balance*, NFER, 1 ' ']

* Analysis of the 1985 examination results in Alberta, Canada, showed that "pupils in small high schools (under 200 pupils) achieved at or near the provincial average, with some exceeding the average significantly." The same was true at the primary level. [J.S. Farrant, *Improving the Cost-Effectiveness of Small Schools*, The Commonwealth Secretariat, 1986.]

34

* "There is no evidence to support the view that small schools
are any less educationally viable than large schools. [We have
received] several well-founded reports that secondary schools
have found pupils from small rural schools not only as well
prepared academically as pupils from other schools, but that
they generally had a better attitude to work. Having been
accustomed to working much of the time on their own, they
could be given more responsibility for the organisation of their
work." [R.A.Howells, *Curriculum Provision in the Small Primary School,*
1982.]

* "The fears often expressed about the limited curriculum of
small schools received no support from the visits except in the
case of science, which is a weakness by no means restricted to
small schools." [L.C. Comber et al., *The Social Effects of Rural Primary
School Reorganisation,* University of Aston, UK, 1981.]

* "There is no evidence whatsoever from surveys of attainment
in Wales that the measured attainments of children in small
rural schools are depressed." [R. Nash, *Conditions of Learning in
Rural Primary Schools,* SSRC, 1977.]

* "There is evidence that some small schools do succeed in
offering as wide a curriculum as large schools. The evidence is
that small schools e   a great deal to compensate for their
size and limited resources, particularly when they have the
active support of their local authority." [*Primary Practice,* The
Schools Council, UK, 1983.]

To summarise this chapter, therefore, it appears that small schools
may suffer some educational limitations, particularly at the
secondary level. However, they also have strong advantages, and
supportive education authorities can help them to overcome their
problems. By themselves, arguments about the quality of education
are rarely strong enough to justify either refusal to open, or
decisions to close, small schools.

Part II: Operating Small Schools Effectively

Chapter 4: Creating Viable Teaching Groups

This chapter discusses two ways in which small schools can be organised to create economically viable teaching groups. They are (a) multigrade classes, and (b) biennial and triennial intakes.

(a) Multigrade Classes

In a multigrade class, pupils of two or more grades are grouped together in the same classroom, and are taught by a single teacher. Other names for multigrade classes are multilevel, composite, multiple, or family classes.

Because of the nature of the curriculum, multigrade teaching is less common at the secondary then at the primary level. However, it is possible at the secondary level:

— pupils may easily be grouped for such non-academic subjects as music and physical education, and

— they can also be grouped in academic subjec's if there is a system of flexible modules.

The modular system assumes that although some subjects have to be learned in a fixed sequence, other subjects (or topics within

those subjects) can be learned at any time within a two or three year period.

****
Multigrade Teaching: An Evil to be Lived with or a Goal to be Aimed at?

Many educatc ᐧ feel that multigrade teaching is difficult, and that it is an evil to be lived with only when there is no alternative.

But other educators are much more positive. They point out that:

i) *Pupils are never exactly the same. It is inᐧpossible to have complete uniformity, even within one grade. As such, all teaching is multilevel teaching.*

ii) *If two children are in different grades, you cannot assume that one is necessarily more advanced than the other. There is always an overlap between the top of one grade and the bottom of the next.*

iii) *Young children should learn from their elders, and senior children should help their juniors. This happens at home in the family, and it can also happen at school. Family classes can build good attitudes.*

If teachers have the necessary personalities, training and materials, multigrade teaching can be very effective. Many educators consider it a goal to be aimed at for all schools.
****

(i) Different Combinations

When a school has more than one teacher, classes can be combined in different ways. For example, in a two-teacher six-grade primary school, classes could be combined as:

Grades 1,2,3 and Grades 4,5,6; or
Grades 1,3,5 and Grades 2,4,6; or
Grades 1,2,4 and Grades 3,5,6; or
any other combination.

Most staff find it easiest to teach consecutive grades so that the range of ages and abilities is smaller. Sometimes, however, staff choose other combinations, for example because they want:

* to form classes of roughly equal size, and find that pupils are not distributed equally within the grades,
* to keep some pupils together for several years even though Grade 6 has graduated (thus removing pupils from the top of the system) and has been replaced by Grade 1, or
* to place well-behaved pupils together so that another group of badly behaved pupils can be supervised more easily.

(ii) Techniques
a. Primary Schools
At the primary school level, a single teacher is normally responsible for a whole class and teaches all subjects to that class. Experienced teachers recommend several techniques for handling multigrade classes:

Timetabling
* A timetable is essential to effective multigrade teaching. All timetables should be displayed clearly, and should be familiar to all pupils.
* When preparing a timetable, the teacher should pay attention to:
    — distribution of attention to pupils at each level,
    — pupils' levels of maturity and attention spans,
    — balancing curriculum areas,
    — sharing of school resources, and
    — flexibility, to allow for changing circumstances.
* In most systems, the largest blocks of time should be allocated to language, mathematics, social studies, science and cultural topics. Timetables should allow for daily or weekly patterns within these blocks, and have a set order for groups working at different levels.
* Timetables can be organised on different patterns:
    — Organisation is simplified if all classes work in the same subject area at the same time. An example is given in Timetable 1 on the next page.

Timetable 1: Single Teacher (All Classes Working on Same Subject at Same Time)

	BLOCK	*PURPOSE*	*ACTIVITIES*
9.00	Introductory activities	Beginning the day together: building up a favourable working tone	Planning the day's work -- si .ging, music, news, health, poetry
9.30			
	Centre of interest; developmental period	Intellectual and social development; Practice of language skills	Free choice activities -- 'centre of interest' in social studies, science or health. Language through discussion and presentation of previous research
10.30			
10.45	MORNING INTERVAL		
	Language	Formal and informal instruction in language	Instructional reading and reading activities, language activities, (which may develop from the 'centre of interest' block) and language skills -- spelling, handwriting, printing
12.00			
1.00	LUNCH		
	Mathematics	Improvement of mathematical skills	Whole-class, group or independent worl
1.40			
	Physical Education		20 minutes a day
2.00			
2.05	AFTERNOON INTERVAL		
	Social studies, science, health, art, drama, mime, language, sport, gardening	Enlarging pupils' experiences in social studies, science, health, or the arts	Topics may be integrated (or not), with emphasis on individual research and discussion. (Making notes, records or charts, etc., could be done in 'centre of interest' block)
3.00			

39

Timetable 2: Single Teacher (Split Timetable)

	GRADES 1 - 3	GRADES 4 - 6
9.00		
	Oral, social, roll	
9.15		
	Work suggested by the environment, 'centre of interest', visits, stories, social studies, science, associated oral and written language activities — a free developmental programme	Mathematics
10.00		
		Spelling
10.15		
		Writing for those who need it; other individual language work
10.30		
	MORNING	*INTERVAL*
10.45		
	Reading and associated activities	
11.30		
	Monday, Wednesday, Friday:	Physical Education
	Tuesday, Thursday:	Music
12.00		
	LUNCH	*INTERVAL*
1.00		
	Listening	Stories Poems
1.15		
	Individual enrichment/ extension work in reading	
1.30		Language
	Mathematics, including enrichment/extension work	
2.00		
	AFTERNOON	*INTERVAL*
2.05		
	Art and craft, social studies, science, health and related activities,	
3.00	physical education for the infants (when possible)	

- A variation is a 'split' timetable, in which junior and senior sections sometimes work on different subjects and sometimes work on the same subject. Timetable 2 above shows an example of this.
- Split timetables may also be staggered, so that the starting and ending times for particular subjects differ between groups. This overcomes the problem of starting two groups on new work at the same time.

Other Aspects of Organisation

* The whole class should be together at the beg ning and end of each day. This provides a sense of cohesion.
* During or after group sessions, the teacher should comment on the work of each group.
* Groups should be flexible enough to allow for different speeds of work. For example, an individual child may be in one group for mathematics and another for English. Groups may combine and reform at different times of the day, week and term.
* The teacher has to train children to concentrate on their own work and not be distracted by the others. Curiosity is reduced when each group knows what the others are doing.
* Each grade within the multigrade class can have its own area in which to display work, develop 'nature corners', 'maths corners', etc..

****

Advice to a Beginning Teacher

Knowing that many staff at first find primary school multigrade teaching a major challenge, one inspector had the following advice:

"Start with the topics which you do well and in which you are confident. If poetry is your strength, then include it. If attribute blocks and set theory are something you love, then teach them. If you have favourite stories, read them.

"Be careful not to be too unbalanced; but starting with your own strengths will help you to develop techniques for handling the wide range of pupils. Once you have made this start, you will be in a better position to teach the rest of the curriculum."

****

Preparation

* The teacher must carefully plan the day in advance.
* A good supply of self-instructional materials allows children to work by themselves or in small groups. The materials must incorporate the answers to questions so that the children do not need to bother the teacher. The materials must be easily accessible, so that pupils can locate them without help.
* Teachers must constantly prepare new approaches and

materials, so that pupils are not faced by the same routines for several years on end.

Spreading the Load

* In some communities, parents help supervise children. The teacher must carefully tell the parents what is needed, but must also allow them to use their own initiative.
* The older or more advanced children can often teach the others. Peer teaching is often particularly effective because children use their own language patterns. It also develops the leaders' self-confidence.

b. Secondary Schools

At the secondary level, multigrade teaching is little different from other teaching. This is partly because subjects are already taught separately by individual teachers: the economics teacher teaches economics, the English teacher teaches English, the biology teacher teaches biology, etc.. Students are already used both to blocking off their time and to independent study.

It may be hard to combine grades in the early stages of a subject. For example, suppose that students begin economics in Form 3. For the first few weeks, they must concentrate on elementary concepts. They cannot easily be taught simultaneously with Form 4 students, who may be assumed already to have learned the basic principles and who would be bored at the repetition.

Before long, howe· er, it should be possible to move to modules that can be studied together. Separate modules could cover international trade, banking, and public finance, for example. The only complication is that the Form 4 students would have more background knowledge. The teacher must be aware of this fact, on the one hand explaining concepts to the newcomers and on the other hand recognising the existing knowledge of the more senior students. But if the module is being tackled by both sets of students for the first time, there is unlikely to be much more conceptual and knowledge range than in a normal class where some students work harder or grasp ideas more readily than others.

At the end of the course, combined teaching again becomes difficult. At this point the senior students are taking exami-

nations, and they have special needs for revision of the whole course, for general discussion of examination techniques, and for 'question-spotting', etc..

Even at this point, however, the different grades do not need to be taught entirely separately. Sometimes the teacher has to set work to the junior students in order to release time for the senior ones; but even the junior students can benefit from revision of the topics that they have studied, and from discussion of examination techniques.

****
An Indonesian Project to Help Multigrade Teachers

Of the 1,300 primary schools in Central Kalimantan, 460 have only one to three teachers. To assist them with multigrade teaching, the Indonesian government developed materials with which pupils could teach themselves and each other.

The materials are available in five subjects: maths, social science, Pancasila (Indonesia's national ideology), natural science, and the Indonesian language. The project leaders assumed that religion, sports and music could be taught to combined classes, and therefore that self-instructional materials were less necessary in these subjects.

The materials are only available for Grades 4 to 6 because children in lower grades are not considered sufficiently mature to work by themselves. However, other programmed materials have been developed for the lower grades. They enable adult volunteers to work with children, so still allow teachers to concentrate on children with particular difficulties.

Detailed evaluation in 1984 showed (a) that the project pupils performed better in most subjects than did other pupils, and (b) that the project children were more self-reliant.
****

(iii) Staffing

Because multigrade teaching presents major challenges, ideally it should be done by the best teachers. But in many countries it is left to the worst and the least supported staff:
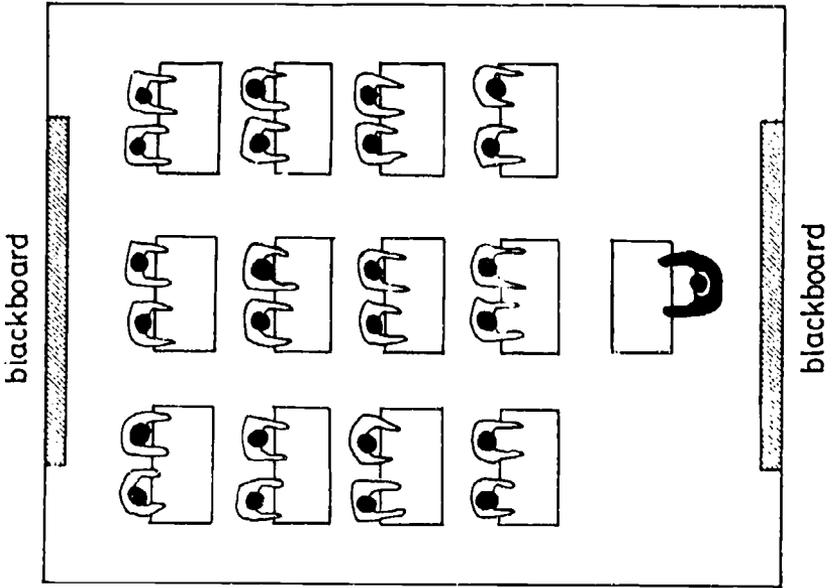
In multigrade classes, the pupils need sometimes to work together and sometimes to work in groups
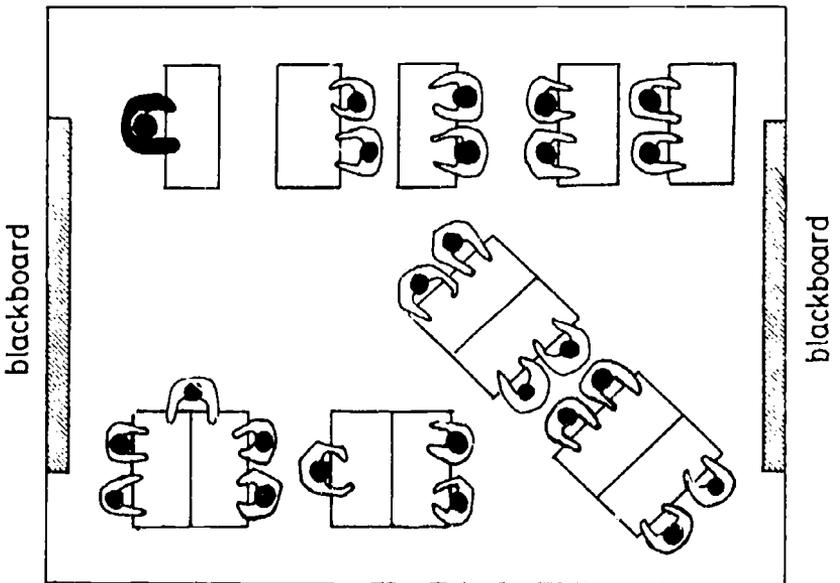
Three aspects of classroom design greatly assist multigrade teaching: (1) desks that can be moved easily, (2) long blackboards at each end of the classroom, and (3) plenty of space.

— the greatest need for multigrade teaching is in small, remote schools, but the good teachers manage to get transfers out of remote areas; and

— simply because the schools are remote, the central authorities cannot easily send equipment or advisers.

In addition, few governments provide adequate training in multi-grade teaching. Teachers' colleges often assume that trainees will be faced by single grade work.

(iv) Resource Needs

Multigrade teaching is much easier when teachers have certain resources:

* desks that can be moved easily for group work,
* spacious classrooms so that the children can work in groups without disturbing each other,
* blackboards at each end of the classroom, so that groups can face different directions,
* textbooks which have not been written on the assumption that all children are at the same academic level and are under the constant guidance of a teacher,
* library books and ot' self-instructional materials,
* radios, tape-recorders and, in countries that can afford them, video recorders.

(b) Biennial and Triennial Intakes

Most schools have annual intakes to Grade 1, i.e. receive new groups of children every year. However, in areas of sparse population or low enrolment it is often impossible to find enough children each year to form a whole class. One way to solve this problem, as has just been pointed out, is to introduce multigrade teaching. An alternative strategy is:

* a *biennial intake*, in which children are admitted only every second year, or
* a *triennial intake*, in which children are admitted only every third year.

(i) Biennial Intakes

The system may be explained by an example. Table 1 shows a biennial, six grade primary school. In this school:

1. Each tick ($\surd$) indicates that the school has a class. Each dash (–) indicates that the school has no class.
2. In 1988, it has a Grade 1, a Grade 3 and a Grade 5, giving three classes altogether.
3. In 1989, the previous year's Grade 1 becomes Grade 2, the previous year's Grade 3 becomes Grade 4, and the previous year's Grade 5 becomes Grade 6. Because it is a biennial school, receiving an intake only in each *second* year, the school does not receive a new Grade 1 in 1989. The school still has three classes altogether.
4. In 1990, the previous year's Grade 2 becomes Grade 3, the previous year's Grade 4 becomes Grade 5, and the previous year's Grade 6 graduates. This time the school *does* receive a new Grade 1, to replace the Grade 6 that has graduated. It still has three classes altogether.
5. This cycle then continues as before (steps 3 and 4). The school only takes Grade 1 classes in alternate years, and always has three classes in total.

Table 1: Intake Patterns in a Biennial School

Year	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Total
1988	$\surd$	—	$\surd$	—	$\surd$	—	3
1989	—	$\surd$	—	$\surd$	—	$\surd$	3
1990	$\surd$	—	$\surd$	—	$\surd$	—	3
1991	—	$\surd$	—	$\surd$	—	$\surd$	3
1992	$\surd$	—	$\surd$	—	$\surd$	—	3
1993	—	$\surd$	—	$\surd$	—	$\surd$	3

$\surd$ = group of students enrolled

(ii) Triennial Intakes

The triennial intake system works similarly, but the schools are smaller. Table 2 shows an example in which:

1. Again each tick ($\surd$) indicates that the school has a class, and each dash (–) indicates that the school has no class.

2. In 1988 it has a Grade 1 and a Grade 4, giving two classes altogether.
3. In 1989, the previous year's Grade 1 becomes Grade 2, and the previous year's Grade 4 becomes Grade 5. Because it is a triennial school, receiving an intake only in each third year, the school does not receive a new Grade 1. The school still has two classes altogether.
4. In 1990, the previous year's Grade 2 becomes Grade 3, and the previous year's Grade 5 becomes Grade 6. Because it is a triennial intake school, it still does not receive a new Grade 1. It still has two classes altogether.
5. In 1991, the previous year's Grade 3 becomes Grade 4, and the previous year's Grade 6 graduates. Only now does the school take a new Grade 1, to replace the graduated Grade 6. Once again it has two classes altogether.

Table 2: Intake Patterns in a Triennial School

Year	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Total
1988	\	—	—	\	—	—	2
1989	—	\	—	—	\	—	2
1990	—	—	\	—	—	\	2
1991	\	—	—	\	—	—	2
1992	—	\	—	—	\	—	2
1993	—	—	\	—	—	\	2

\ = group of students enrolled

(iii)   Advantages and Problems with these Systems
The chief *advantage* of biennial o. triennial intake systems is that they enable communities to have their own small schools, and avoid multigrade classes. The alternative might be either to send the children away to school, or to have no school at all.

The main *problems* are:

* The system requires the government to be flexible on ages of entry. It cannot be used if the education authorities insist that all children must attend school when they are aged six (for example) — not before and not after. In biennial and triennial systems, some children are allowed to attend school early, and others have to wait one or two years.

Biennial and Triennial Intake Policies Must be Consistent

If authorities decide to have a biennial or triennial system, it is important to stick to it. The table below shows that when a school receives intakes in the 'wrong' years it can be seriously upset.

In this example:

1. The school started out in 1988 on the same pattern as the example in Table 1.

2. Under normal circumstances, the school should not receive a Grade 1 intake in 1989. But, perhaps because of political pressure or because the authorities have an extra teacher, the school does receive an extra class. It then has four classes altogether, and an extra house has to be built or rented for the teacher.

3. The fact that children were admitted to Grade 1 in 1989 means that there are too few children to form a Grade 1 in 1990. The authorities want to revert to the biennial intake pattern. But because Grade 6 has graduated, there are only three classes altogether. One teacher has to be transferred, and the extra teacher's house is vacated.

4. By 1990 it is again time for a Grade 1 intake. But this means that again the school has four classes. A new teacher must be recruited, and housing must again be found for him.

5. In 1991 there is no Grade 1 intake. But the graduation of Grade 6 again reduces the total number of classes to three. One teacher has to be transferred, and again his house falls empty.

6. In 1992 the Grade 1 intake again pushes the total number of classes back to four. A teacher has to be recruited, and again has to be housed.

Similar problems arise if triennial intake systems are not followed consistently. Teachers are constantly being transferred, and houses are either empty or in short supply.

Year	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Total
1988	√	—	√	—	√	—	3
1989	√	√	—	√	—	√	4
1990	—	√	√	—	√	—	3
1991	√	—	√	√	—	√	4
1992	—	√	—	√	√	—	3
1993	√	—	√	—	√	√	4

* A child who was *just* too young to enter a triennial-intake school in 1988 would have to wait till 1991. This is rather a long time.
* Biennial and triennial intakes create a range of ages within classes. The range may require the same kind of independent work in groups as in multigrade classes.
* The system can only be used where the educational stage has a certain length:

  — biennial intakes can only operate if the school system lasts for two, four, six or eight years, and
  — triennial intakes can only operate if the school system lasts for three, six or nine years.

In other cases, biennial or triennial intakes would cause fluctuations in the total number of classes in each school. Thus in the example shown in Table 1, the new Grade 1 intake is received just as the Grade 3 graduates. This maintains three classes in the school. But if the length of primary schooling was only five years, the total number of classes in the school would fluctuate between two and three.

Chapter 5:
Staffing Small Schools

This chapter has four parts. It discusses (a) the minimum number of staff required by a school, (b) the types of teachers that are needed, (c) teacher training systems for small schools, and (d) recruitment and retention of staff in small schools.

(a) Minimum Staff Numbers
Single-teacher schools are very common, and are the model for the smallest school in most countries.

In some countries, however, single-teacher schools have been phased out. Policies in Sri Lanka and the Republic of Ireland, for example, require all schools to have at least two teachers. Similar policies have been adopted by some state governments in India.

These decisions have been based on four main considerations:

* *School Vulnerability*: In staffing matters, small schools are particularly vulnerable. It is true of all schools that when the teachers are good then the schools are fortunate, and when the teachers are bad the schools suffer. But when the teacher in a one-teacher school is bad, there is no one else to compensate for her/his weaknesses.
* *Teacher Isolation*: Staff in single-teacher schools may also suffer from professional isolation. They have no colleagues in their own institutions, and because they are likely to be in remote areas the central authorities are unable to provide close supervision or support. Problems can be greatly relieved if teachers have at least one colleague.
* *Staff Continuity*: When the teacher of a single-teacher school is transferred, all staff continuity is lost. If there are two teachers, continuity is easier to arrange.
* *Teacher Absenteeism*: This has particularly serious effects in

small schools, and also tends to be more common. The headteacher often has to leave to attend to administrative matters, and other teachers take the maximum leave to which they are entitled in order to escape from their isolated environment. Even in Sri Lanka, where each school now has at least two teachers, there remain severe problems. It is said that:

> a teacher is entitled to leave for nearly 20 per cent of the school sessions. This means that if both teachers in a two-teacher school take by turns the leave to which they are entitled, the school gets reduced to a one-teacher school for 40 per cent of the school sessions.

And although staff can set assignments, one-teacher schools generally close down entirely when the teachers are away.

Although insistence on a minimum of two teachers for each school seems desirable, however, few governments can afford it. And even if they have the money, they may not have enough suitably qualified staff.

(b) The Types of Teachers Needed

All teachers, of course, need sufficient knowledge of their subject curricula, and require basic skills in teaching and classroom management. The best teachers also have positive attitudes: they enjoy working with children, with their colleagues and with parents, and they feel that their work is worthwhile.

Teachers in small schools need some additional attributes:

* In many schools, teachers have to take multigrade classes. This demands extra preparation and organisational ability.
* Biennial and triennial intakes avoid the need for multigrade teaching; but the teacher may still be faced with a wide age range in a single class, which requires group work and careful preparation.
* The fact that teachers in small schools have few colleagues and have less supervision or support from the central authorities requires them to be more self-sufficient.
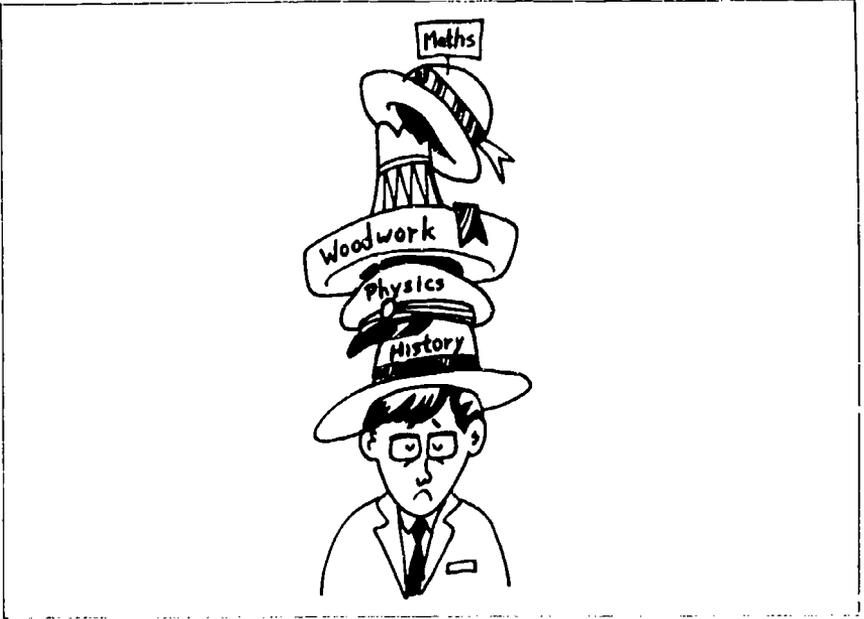
In a small secondary school, each teacher must teach several subjects. He must wear several curriculum 'hats', and may find this difficult.
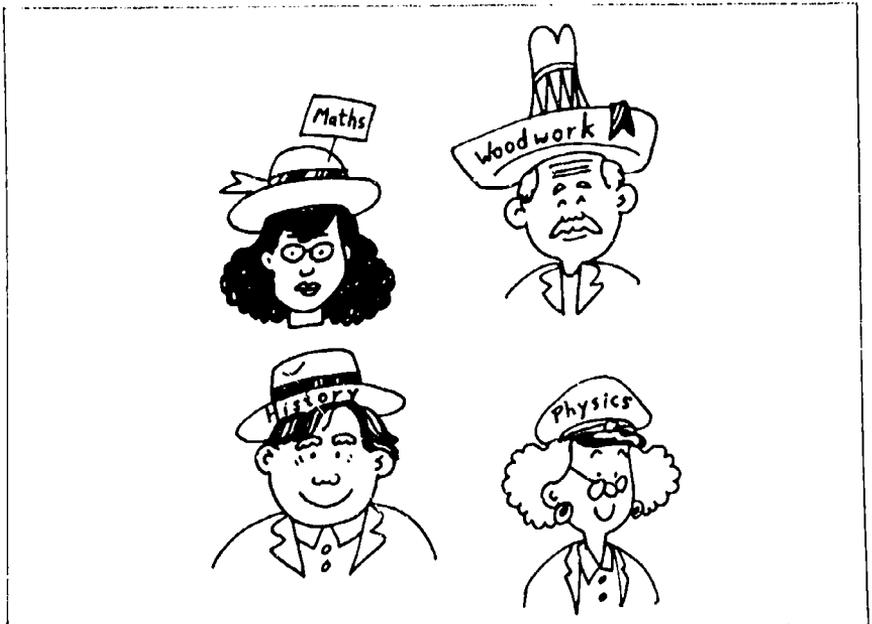
But in a larger school, teachers can specialise. They may find this easier.

* Teachers in small secondary schools must be able to teach more than one subject.
* In their personal lives, teachers in remote areas may have to accept that their husbands or wives may find it hard to secure suitable jobs; that their own children may have limited educational opportunities; and that hospitals, recreational facilities and other amenities are scarce.
* The fact that staff in small schools are likely to be prominent members of the community requires them to have extra skills in communication and leadership.
* Staff in remote schools may also have to accept that when they first arrive they are regarded as outsiders by the community, and thus are rather isolated. Moreover, they and their families may have much less personal privacy than they would have in a town.

Mobile Teachers

Many governments also employ mobile teachers. They are specialists in subjects like music, drama and physical education, and can supplement the normal staff of small schools. They may be found at both the primary and secondary levels.

A few governments take this idea further with 'part-time' schools, in which mobile teachers are the *only* staff members. Each teacher serves two schools. He goes to the first at the beginning of the week and then sets homework to be done while he is in the second school for the rest of the week.

Part-time schools were first opened in Norway, and were later adopted in Australia and New Zealand. They may still be found in China and Thailand. However, they have two big disadvantages: (a) few teachers are willing to travel so much and to split their homes between two communities, and (b) the children are disadvantaged in the small amount of direct teacher instruction that they receive.

(c) Teacher Training for Small Schools
(i) Multigrade Teaching

Although multigrade teaching is very common, few training colleges give it adequate attention. One survey of eight Asian countries, for example, found no pre-service courses in multigrade work. Two reasons for this were:

* Although multigrade classes are common, they are a minority. Teachers' colleges tend to cater for the type of situation in which the majority of their trainees will work.
* Teachers' colleges are usually sited in towns. They find it too difficult and expensive to send trainees to remote schools for teaching practice.

But although the social environment of a remote small school is hard to simulate, the techniques of multigrade teaching can be taught anywhere. In New Zealand, for example, all training colleges have model small schools. The staff of the schools are paid slightly higher salaries in recognition of their special role, and the good quality of instruction removes any parental misgivings about children being in multigrade rather than single grade classes. The schools enable trainees to observe and participate in multigrade teaching without travelling long distances.

At the same time, authorities should guard against the danger of 'branding' individuals as multigrade teachers, and thus of reducing their chances of ever getting a job outside a small school.

(ii) Teacher Specialisms
In small secondary schools, most staff have to teach at least two subjects. Their scope for specialisation is limited.

To meet this need, teacher training colleges can require each trainee to develop skills in at least two subject areas. An education system with many small schools should train *all* teachers in at least two subjects. Even in larger systems this strategy might be a wise one.

(iii) In-Service Training
Because they have few colleagues in their own institutions, staff in small schools also have particular needs for organised professional enrichment.

* Some governments organise special courses for teachers of small schools. The courses are taught either by correspondence, sometimes backed by radio broadcasts, or in residential sessions during vacations.
* Alternatively, many governments assist teachers to visit other

54

How well does Training Prepare Teachers for Small Schools?

In Western Australia, about 25% of schools have fewer than 100 pupils, and about 40% have fewer than 200. Each year, about 70% of primary and early childhood teacher trainees are immediately posted to small schools. One researcher (Lake, 1985) conducted a survey to assess the effectiveness of teacher training.

The survey covered 186 teachers, who represented 84.9% of staff who had less than three years' teaching experience and who worked in communities of 1,000 people or less. The table below indicates their views on the adequacy of their training:

	Poor training or none (%)	Training fairly/ very good (%)
Living in a rural community	83.9	16.1
Teaching multigrade classes	80.6	19.4
School/community relations	60.2	39.8
Handling exceptional children	56.5	43.5
Administrative duties	50.5	49.5
Utilising the environment	38.2	61.8
Individualising instruction	...J	64.0
Programming	32.3	67.7
Curriculum development	30.1	69.9
Discipline	18.3	81.7
Subject teaching	10.2	89.8

Few teachers reported problems in their subject areas or in discipline. However, 83.9% said that they were either not prepared or inadequately prepared for living in a rural community. Almost as many reported inadequate training in multigrade teaching, and 60.2% felt poorly prepared for school community relations.

These shortcomings arose despite the fact that all pre-service colleges in Western Australia provide opportunities for practice teaching in small schools, and that 50 per cent of the teachers surveyed had gained such practice. However, the researcher reports, "the experience was so structured as to limit the potential benefits". Most practice teaching was too short, and its impact was limited by the tendency for colleges to group students near large or medium sized towns in order to facilitate supervision and reduce costs.

55

small schools, to learn from the ideas of others and to reflect on their own experiences. Visits of this kind are valuable at least every two or three years.

Three particularly important areas for in-service training are (a) school organisation, (b) teaching techniques, and (c) community relations.

(d) Staff Recruitment and Retention

In some systems, governments have powers to assign teachers to different schools. Compulsion cannot be a wholly satisfactory solution, however. Administrators must always pay attention to attraction and persuasion. Problems of recruitment and retention are particularly severe in small schools tha. are remote.

Three broad categories of factors affect teachers' attitudes to small remote schools:

(i) Pers)nal and Family Factors

Some aspects of life in a rural community can be very rewarding. Teachers are likely to be respected figures, and they can form close ties with their pupils. Many opportunities arise for leadership.

However, there are also negative sides. Teachers may find that they lack privacy, and individuals who are used to life in towns may suffer from the lack of facilities. Housing may be difficult to obtain and may be substandard; hospitals may be distant; cultural and religious patterns may be quite different; all-weather communications with towns may not exist; and the teachers' own children may not have good educational opportunities.

Although education authorities cannot do anything about all these, they can take some appropriate measures:

— try to recruit more staff from rural backgrounds, on the assumption that they are more used to rural conditions,

— during pre-service training, try to provide more opportunities to visit remote schools,

— stress the value of the teachers' community development roles,

— help with accommodation, and

— make sure that postings are fair, and that staff who do not

Factors Influencing Teacher Turnover (1): A Papua New Guinean Study

In Papua New Guinea's West Sepik Province, half the primary schools have no access by road or air. In many cases, teachers must walk 10-12 hours to reach them. Sometimes, teachers must walk up to two days.

A study by Kelly, Moipu & Weeks (1982) pointed out that teachers in such schools have many problems: "They are often 'outsiders' who do not speak the community's vernacular. They may be the only educated people in the area. Because the culture of the people is often different from their own, they sometimes suffer 'culture shock'....

"If at all, isolated schools may be visited only once or twice a year by the inspector, instead of the three times expected. The teachers are often lonely. Sometimes their wives refuse to join them (a) because they do not want to live in an isolated area with inadequate health care for them and their children, (b) because there is no one else to talk to, (c) because goods imported by air cost twice their price on the coast, and (d) because there is no market selling fresh food.

"In addition, communities in isolated schools are often poor and have very little cash to support the school. The teachers do not get school supplies, and must often take classes without the required materials. Letters sent to Headquarters, they claim, go unanswered. The cost of living is high. The K200 allowance for being in an isolated school is not paid on time, and is not enough.... It takes a month for mail to arrive. Teachers often do not get their pay."

The researchers added that not all teachers were 'complainers': that some enjoyed the challenge of pioneering. But the problems were formidable. Six ways to improve the situation were suggested:

1. *Give remote schools first priority in distribution of supplies,*
2. *Double the allowance for work in isolated schools,*
3. *Give inspectors incentives to go to remote schools by counting such visits as worth twice ones to normal schools,*
4. *Provide more in-service training,*
5. *Assign better teachers — do not use remote schools as 'punishment' posts, and*
6. *Give every isolated school a two-way radio so that they can communicate with HQ at a fixed time each day. This would help deal with emergencies, order supplies and reduce teacher absenteeism.*

wish to stay in rural posts are transferred out on a strict rotation basis.

(ii) Economic Factors

Small schools cannot justify many promotion posts, so their staff are often on lower salaries than those in large schools. Staff in rural areas also tend to have lower salaries because they are younger and less experienced than colleagues in the towns.

In some societies, these factors are equalised by a lower rural cost of living. But in other societies life is more expensive in rural areas — particularly for those with urban backgrounds who like to consume goods that have to be transported over long distances. Teachers may also find it costly to visit urban friends and relatives,

****
Factors Influencing Teacher Turnover (2): A Canadian Study

Teachers in remote Canadian schools have tended to be very mobile. However, not all schools have been affected equally: some have experienced greater turnover than others.

Haughey & Murphy (1985) surveyed 528 teachers to investigate the reasons for this. They wanted to know why some teachers stayed and why others moved.

The teachers who had decided to remain in remote schools placed particular emphasis on salary benefits, housing, the support of the principal, and the teaching philosophies of colleagues. Some also mentioned good community spirit, small class sizes and good student attitudes.

The teachers who intended to leave particularly stressed isolation from friends and family. Some also emphasised poor community support, lack of cultural activities, lack of professional contacts, and lack of shopping facilities. Most said that salary incentives were not important to them, and relatively few stressed lack of medical facilities, lack of employment opportunities for spouses, or lack of educational opportunities for their own children.

However, the researchers also found that a generally harsher economic climate had reduced alternative job openings, and had sharply reduced the extent of teacher mobility.
****

and have to send children away to school. If the teachers' spouses cannot find suitable jobs, the families have to sacrifice some income.

To reduce this problem, many governments offer salary bonuses for remote teachers. Some also help with accommodation and other costs. Often, however, the special allowances are inadequate even to meet the higher cost of life in rural areas, let alone to provide an extra incentive.

(iv) Professional Factors

Remoteness and isolation affect the quality and quantity of professional facilities available to teachers. Staff may be frustrated by the lack of classroom materials, and the official curriculum may seem irrelevant. There may be greater chances to become a head-teacher at a younger age, but general promotion may be restricted by the fact that inspectors visit only rarely. Also, secondary schools may be too small to have department heads or more than one deputy headteacher. Many rural schools are so small and isolated that teachers lack contact with other teachers.

In this sphere, the education authorities can do several things:

— sponsor professional meetings and pay the teachers' travelling costs,
— pay the membership fees for independent professional associations,
— when distributing supplies, deal first with the needs of remote schools and only then deal with the other schools,
— make sure the inspectors get to the remote schools, perhaps by giving the inspectors themselves extra credit, and
— offer stronger promotion prospects to staff who have worked in remote schools.

Chapter 6: Central Administration and Support

Because most small schools are in remote areas, the central authorities find it hard to provide adequate support. However, several strategies can be employed to reduce problems. This chapter looks at (a) systems for sharing resources, (b) school broadcasts, and (c) correspondence courses.

(a) Shared Resources

Because their enrolments are too small to justify employment and heavy investment, it is often hard for small schools to gain access to specialist teachers, equipment and services. One way to solve this problem is to group small schools together. For example:

* In several Latin American and Asian countries, school clusters have been formed to give small schools access to the laboratories, libraries and specialist staff of larger ones. In Latin America the clusters exist in Brazil, Colombia, Costa Rica and Guatemala. In Asia they exist in India, Sri Lanka and Thailand.
* In one part of Canada, four small school divisions made their own arrangements to enable pupils in Grades 10 – 12 to take courses : cosmetology, power mechanics, welding, building and food trades.
* In parts of the USA, schools are served by specially designed mobile laboratories.
* In Queensland, Australia, Technical Maintenance Officers travel round remote schools repairing overhead projectors, radios, televisions, etc.. They have greatly reduced 'out of action' time for equipment, and have saved the schools from needing to take broken equipment to a town.

Sharing is not always easy, however. Most of all, it depends on the cooperation of the people involved. Petty jealousies and inconsiderate attitudes can easily destroy such schemes.

Moreover, when pupils move to different institutions to make use of specialist workshops (as in the Canadian example), they consume considerable time, energy and money in travel. It is also harder for them to develop a sense of identity with their own schools.

***

School Clusters in Sri Lanka

Since 1981, many schools in Sri Lanka have been grouped into clusters. Each cluster has about 10 schools, and includes both primary and secondary institutions. Staff and other resources are allocated to clusters as a whole, and are then distributed by the cluster heads according to needs.

This system allows resources to be used flexibly. In particular, small schools gain access to the resources of larger ones. For example:

— *in some cases, primary schools with teacher shortages have gained the part-time services of secondary school staff. Without the cluster system, the teachers could not be shared between schools. And it would not normally be possible for university graduates to work at the primary level.*

— *in other cases, schools have shared library books, science equipment and playing fields.*

— *school staff join together for in-service sessions. This gives teachers in small schools more colleagues with whom to exchange ideas.*

Of course, the effectiveness of school clusters chiefly depends on the personalities and skills of its members. There is a danger that the cluster head will merely use cluster resources to enrich his own institution. But experience so far has been encouraging. Many clusters have worked very well.

***

(b) School Broadcasts

Many governments broadcast special radio and television pro-
grammes for schools. They are designed for all schools, but are
particularly helpful to small ones:

* Because small schools have few teachers, they have access only
  to a limited range of talents. Broadcasts supplement the
  teachers' knowledge and skills.
* Broadcasts also liberate teachers for other duties. In a multi-
  grade class, some children can listen to a broadcast while the
  teacher attends to others
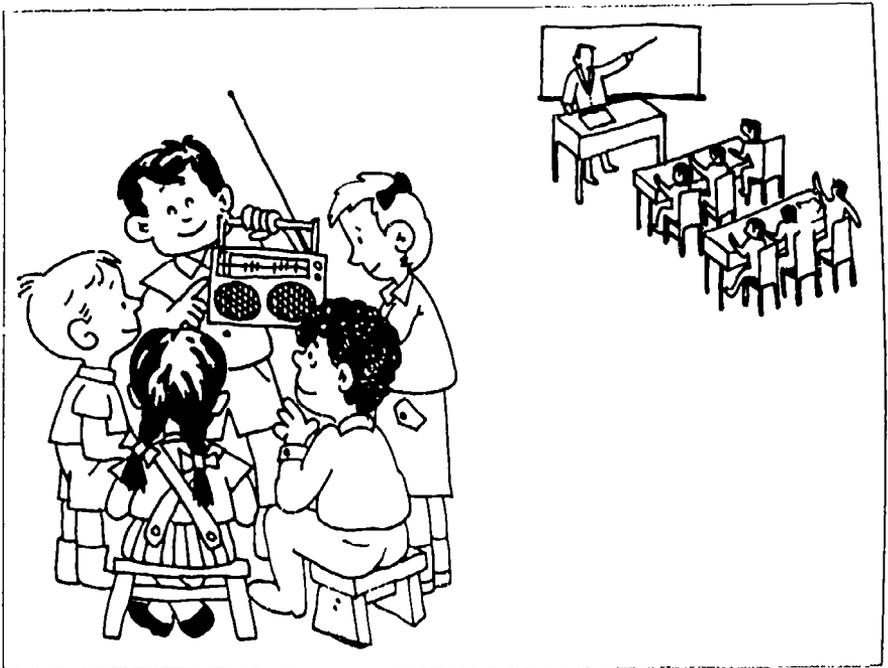
**School broadcasts are particularly helpful to small schools. They
supplement teachers' knowledge and skills, and liberate teachers
for other duties.**

Learning from broadcasts is not always straightforward, however. Some common problems are:

* Reception is not always good. Some schools find it hard to receive clear signals, even in good weather.
* Radios sometimes break down, and remote schools cannot easily get them repaired.
* Remote schools may fit.d it hard to get batteries for the radios.
* Lessons which operate in a sequence are sometimes hard to use. If pupils are absent for some time, e.g. for farm work, they may be too far behind to follow the broadcasts.
* Schools have to adjust their timetables to match the broadcasts, even though it may not be very convenient.
* The broadcasters rarely have enough feedback on how well pupils can understand the lessons.

But these factors do not destroy the value of school broadcasts. Problems of pupil absence and of timetabling can be solved by using tape-recorders. Broadcasts can still be very useful, especially to small schools.

(c) Correspondence Courses
Many governments use the postal system to run correspondence courses. The courses are mainly designed for:

— children who cannot attend normal schools because they are handicapped or because they live in very remote areas,
— children who have completed primary school but did not achieve sufficiently high examination scores to secure secondary school places, and
— youths who have dropped out of school for personal reasons but who wish to continue their education.

But correspondence courses can also be taken by children in normal schools. They are particularly valuable to small schools that cannot provide specialist teachers.

Enrolment of this type of child also helps the correspondence school. It increases the number of pupils taking correspondence courses, and so enables the correspondence school to achieve economies of scale.

Education by Correspondence in New Zealand

New Zealand's correspondence school was established in 1922. It was mainly founded for children unable to attend normal schools because of handicaps or because they lived in remote areas. It has established a very good reputation, and can provide instruction at a reasonable cost.

Today's correspondence school courses are also taken by full-time pupils who are in school but who do not have specialist teachers. The courses offered are as diverse as embroidery, Maori, horticulture and Latin. From viewpoint of the correspondence school, enrolment of these in-school pupils helps create a demand for courses and reduce unit costs.

Part III:
Making Schools Larger

Chapter 7:
Expanding Catchment Areas

After considering all the social, economic and educational factors, authorities may decide that they prefer medium-sized or even large schools to small ones. In areas of sparse population and/or low enrolment, expansion of catchment areas (i.e. the areas from which schools draw their pupils) is one way to do this. This chapter discusses two mechanisms for expansion of catchment areas: (a) boarding, and (b) bussing.

(a) Boarding
Boarding schools may be found all over the world. Sometimes pupils are weekly boarders (normally going home each week-end). Alternatively they may be termly boarders (normally going home only at the end of term).

The main *advantages* of boarding schools are:

* By drawing pupils from larger catchment areas, the schools can themselves become larger. They are then more easily able (a) to offer broad curricula, and (b) to achieve economies of scale.
* They avoid children's daily travel, and thus its associated financial and physical costs.
* They can enrol some children who otherwise would not be catered for at all, even with long daily journeys.

Day Schools or Boarding Schools? Experiences from Papua New Guinea

During the 1970s, the Papua New Guinean government tried to reduce education costs by insisting that all new secondary schools would be day ones. It calculated that buildings for day schools would cost only K150,000, compared to K1,000,000 for boarding ones. If per-pupil costs were reduced, secondary education could be spread to more people and more regions.

However, in rural areas the innovation worked poorly. Even in relatively densely populated places, many students found it hard to travel each day because there were few roads or buses. And students from remote areas found daily commuting quite impossible, on both practical and financial grounds.

To solve their problems, the students and their families built informal hostels near the schools. But the hostels were not supervised by the education authorities. Students often tried to bring food on Sundays to last the rest of the week, but found that vegetables went rotten. Also, the hostels were often crowded and insanitary, and girls felt vulnerable to unwanted attention.

These difficulties contributed to poor performance in examinations. Pupils in day secondary schools felt like second-class citizens.

Thus although the government was to be applauded for its aim to serve more people, its policy created hardship and qualitative problems. Three main lessons emerged:

(a) Secondary schools in remote areas cannot be completely day schools unless they are very small, which implies high unit costs. In poor countries it may be better to have medium-sized schools, and to allow some pupils to board while others travel daily.

(b) It is dangerous for planners to look only at financial expenditure. Both qualitative and quantitative costs have to be matched against benefits.

(c) It is also dangerous for governments to look only at costs to themselves. If communities have to finance daily travel or self-help boarding facilities, the total financial burden may in fact be higher.

* Because children are in the schools' care for longer periods each day, the educational programmes can have a stronger impact. Also, it is easier to organise extra-curricular programmes.
* Children may receive a better diet than they might get at home.
* In order to promote national unity, some governments use boarding schools to encourage contact between children of different ethnic groups.

However, there are also several *disadvantages*:

* In addition to all the staffing and educational facilities of day schools, boarding schools have to provide dormitories, food and extra supervisory staff. They therefore have high unit costs.
* The children are separated from their families. Many people consider this psychologically undesirable for young children. Also, removal of children's labour from the home can have economic implications.
* It is harder for boarding schools to have close links with parents and communities. Because the parents are far away, they have less contact with the schools, and can less easily cooperate with the schools in educating the children.
* Because a single large boarding school replaces several smaller day schools, communities are deprived of institutions which, as Chapter 1 pointed out, can provide major centres for social development.

Governments therefore have to weigh up these factors very carefully. Sometimes it is more desirable and even cheaper to have several small day schools than to have a single large boarding school.

(b) Bussing

In areas with good transport networks, it is possible for pupils to travel long daily distances by bus (or car, train or boat). It is then possible to have fairly large day-schools.

The chief *advantage* of this system is that it avoids the problems of boarding schools. The children return to their families every day; the staff do not have to look after the children after school hours; and the costs of accommodation etc. are saved.
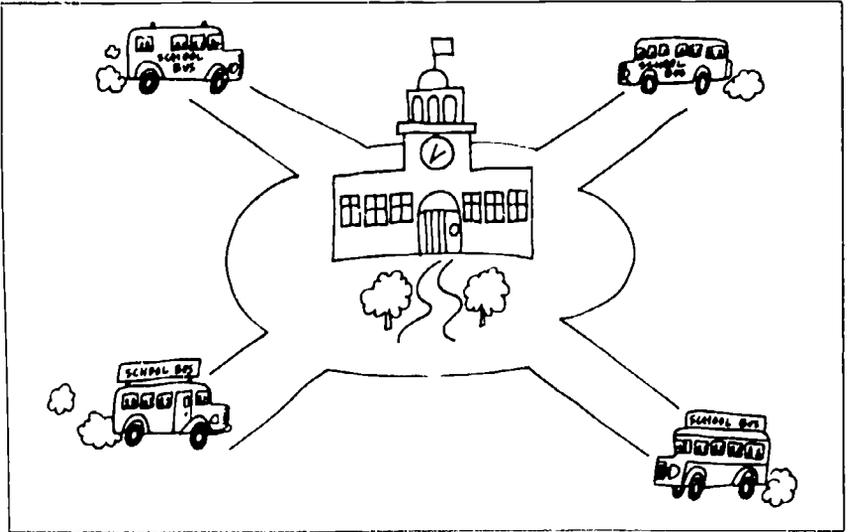
A school can enrol more pupils if it has its own bus service.

The chief *disadvantages* are that:

* daily travel can be very expensive — particularly (i) in areas with rough roads and high vehicle maintenance costs, and (ii) in countries where the salaries of drivers are high;
* it may also be very tiring for the children; and
* because the children have to leave school in time to get home reasonably early, it is hard for the school to organise extra-curricular activites.

Who Pays?

Some governments which favour this system meet all the costs of transport, while others require pupils' families to meet some or all the costs.

The first case, in which the government meets all the costs, is particularly common in the prosperous countries of Europe and North America.

* Often, the government provides special school buses and drivers to take the children to school at the beginning of each day and to bring them home at the end. This can be easier to

justify if the buses and drivers serve other community purposes during the day.
* Alternatively, the government allows parents to make their own arrangements and then repays expenses. For example, parents may use public transport or may group together to share the cost of a car.

But even when governments do not pay all costs, it is important for administrators to calculate them. First, they are costs to the nation, whoever pays them. Second, transport can place a heavy burden on poor families, and can destroy plans to promote equality.

Chapter 8:
Raising Enrolment Rates
and Restructuring

If authorities wish to have larger schools without expanding catchment areas, they can achieve their goal in several ways. The main strategies are (a) to raise enrolment rates, (b) to construct 'straight-through' schools, and (c) to rationalise systems to avoid duplication.

(a) Raising Enrolment Rates

In many Third World countries, the problems of sparse population are compounded by low enrolment rates: the population has enough children to support a school, but many children do not enrol. In these cases, schools can be enlarged by increasing enrolment rates.

Table 3 illustrates this point by showing the relationships between population density, catchment areas and enrolment rates. The table has been drawn up for the primary level, but it would be easy to draw up a similar one for the secondary level.

The four columns in the table may be explained as follows:

1. The first shows population density. It starts at just 10 people per sq. km., and increases to 100 people per sq. km.. The table can therefore be used both in different areas of a country and in specific areas that expect to have population changes.

2. The second column shows the number of people within a single school's catchment area. In this example, the catchment area has been defined as a circle with a radius of 5 km.. This circle has an area of 75.88 sq. km.. (However some children still have to travel more than 5 km., because roads and paths

cannot always go straight to the school from the home of every child.)

3. The third column shows the percentage of the total population that is in the official primary school age range. In this case the age range has been set at 6 — 11, and the percentage has been determined from census data.

4. The final column shows the size of school that can be achieved at different enrolment rates under the previous assumptions. The first row indicates that in an area with a density of 10 people per sq. km., an enrolment rate of 50% will give the school only 70 pupils. An increase of enrolment rate to 60% will give it 84 pupils, an increase to 70% will give it 98 pupils, and so on.

Table 3: Enrolment Rates and School Size

(1) Population per square kilometre	(2) Population in 5 km radius (c. 1.1 × 78.55)	(3) Population aged 6 – 11 (17.8% of Col.2)	(4) Enrolments given different participation rates (% of Col.3)					
			50%	60%	70%	80%	90%	100%
10	786	140	70	84	98	112	126	140
20	1,571	280	140	168	196	224	252	280
30	2,357	420	210	252	294	336	378	420
40	3,142	559	280	335	391	447	503	559
50	3,928	699	350	419	489	559	629	699
60	4,713	839	420	503	587	671	755	839
70	5,499	979	490	587	685	783	881	979
80	6,284	1,118	559	671	783	894	1,006	1,118
90	7,070	1,258	629	755	881	1,006	1,132	1,258
100	7,855	1,398	699	839	979	1,118	1,258	1,398

It follows from this table that if the density of population and the catchment area are fixed, the authorities can increase the size of schools by increasing the enrolment rate. The main ways to do this are:

* *Increasing initial enrolments.* This can be done by launching a special campaign, perhaps reinforced by fines and a compulsory schooling law.

* *Reducing drop-out rates.* Measures can focus on:
   — in-school strategies, such as improvement of the quality of teaching, the quality of facilities, school nutrition programmes, etc., and

— out-of-school strategies, such as economic measures to make primary schooling desirable, improving roads to make it easier for pupils to come to school, etc.

* *Encouraging older pupils to attend school.* Under the regulations indicated here, primary education is supposed only to serve the 6-11 age group. However, the schools can be expanded if they admit children:
    — who did not enrol at age 6, and so are in danger of having missed their chance,
    — who dropped out of school but now want to drop back in, and
    — who want to repeat classes.

Two further points should also be made in connection with the table:

— While fixed size catchment areas are useful as initial guidelines, they should not be enforced too rigidly. Mountains, valleys, forests and rivers sometimes make it impossible for children to attend schools that are a short distance away on the map. Also, roads and other lines of communication do not always go directly to the nearest schools. Sometimes it is easier for children to travel to relatively distant schools.
— It is essential to forecast population changes. If the population is expected to grow, schools may also be expected to grow. But if the population is expected to decline, schools may be expected to decline.

(b) Straight-Through Schools
Larger schools may also be created by combining primary and secondary sections. In some systems the combined institution is called a 'straight-through' school. In others it is called an all-through, area or central school.

Advantages
* In this system, staff are assigned to the institution as a whole, and may used flexibly for any class. Some staff can specialise, e.g. in music from Grades 1 to 10 or science from Grades 4 to

10. Others can integrate studies within a single grade, as in the typical primary school classroom.

* The school becomes large enough to justify investment in more specialised facilities, e.g. for sports and science.
* Staff can watch the development of children over a long period of time, and the pupils have a stronger sense of continuity.
* Pupils often find the transition from primary to secondary school emotionally exhausting. It is avoided in a straight-through school.
* The group of pupils with whom an individual child can interact is larger. Thus the atmosphere can broaden a child's horizons. It can also be more competitive.
* Staff have more colleagues with whom to discuss professional matters.
* Community support is concentrated on one institution, not two.
* The pupils who in other systems would be at the top of primary school and the bottom of secondary school can share library books and other materials appropriate to their age group.

Disadvantages

* Secondary school teachers normally have higher qualifications than primary school ones. Parents, administrators and others may consider staff with primary school qualifications unsuited for work in the secondary grades; and teachers with secondary school qualifications may be too scarce to be 'wasted' on primary grades.
* In the normal system, pupils who have become unpopular with specific primary school teachers gain a 'new start' when they move to secondary school. In a straight-through school this is not possible.
* In some systems, secondary teachers have higher salary scales than primary ones. In these systems, straight-through schools require new, common salary scales. On the common scale,
  — teachers who would otherwise be in primary schools would probably receive more (which would make those teachers happy but raise the cost to the government), while

— teachers who would otherwise be in secondary schools
would probably receive less (which would reduce the
government's bills but make the teachers unwilling to
work in straight-through schools).

***

A Central School in Australia

*Schools that in other countries are called 'straight-through'
schools are called 'central' schools in Australia. This box
illustrates their advantages by reference to one example.*

*Wilcannia Central School is situated in a remote part of New
South Wales. It serves a total population of 1,000, and in 1986
had 200 pupils. The infant and primary pupils numbered 130,
and the secondary ones 70. Had they not been combined
together, therefore, the separate primary and secondary
schools would have been rather small.*

*The central school is large enough to employ 18 teachers and
four ancillary staff, and uses some teachers for all grades. For
example, in order to coordinate and emphasise science at all
levels, the science/agriculture teacher works with every class.*

*Because of its size, the school is also able to justify
investment in expensive facilities. It has a central library,
specialist art, home-science, industrial arts and science rooms,
and a multi-purpose gymnasium-theatre complex. Total
construction costs were A$3.8 million.*

Additional benefits are that:

*— individual pupils have contact with a wider range of other
   pupils,*
— staff have more colleagues with whom to interact, and
*— when staff have to be absent, their colleagues are more
   easily able to cover for them.*

***

(c) Rationalisation

The authorities may be able to increase school size by rationalising
the school network. When two or more schools serve a single
catchment area, they have to divide the population between them.

Rationalisation of Schools: An Irish Example

County Sligo is in the northern part of the Republic of Ireland. Because of both emigration and declining birth rates, in recent decades the population has fallen sharply. In the early 1970s it was clear that enrolments in many schools had declined to an uneconomic level. Hallak & McCabe (1973) were invited to propose plans for rationalisation.

The researchers began by examining the situation on a school-by-school basis. The three initial parts of their study required assessment of:

i) current enrolments,

ii) population projections and thus future enrolments, and

iii) the feasibility of pupils in very small schools being concentrated in a few larger schools.

At the primary level, they proposed two alternative plans. The first was rather drastic. It took account of a national aim to phase out single teacher schools, and envisaged that 54 of the 107 schools would be closed. The map of this proposal is reproduced on page 77.

The second proposal was less drastic. It called for retention of at least some single teacher schools, but still envisaged closure of 40 schools.

The researchers then calculated the costs that could be saved. The main savings were in salaries. But although the first proposal saved more salaries, it required greater expenditure on daily transport and ultimately would have saved less than the second proposal.

However, the researchers also observed that the final decision might reflect neither (or a combination) of these proposals. They recogni.. d the very important social rol? of the school, and noted that the final decision could only be reached after negotiation between the authorities and the communities concerned.

In the example in Table 3 (page 71), an area with a population density of 10 people per square km. and an enrolment rate of 50% would only have 70 primary school children. In ideal circumstances these should be concentrated in one school. But sometimes, for historical and other reasons, they are divided into two schools.

Three common factors create a need for rationalisation:

* because populations have declined, areas which formerly had enough children to fill two or more schools can no longer do so,
* separate schools have been established by different religious, language or racial groups in order to provide education with a particular bias and to promote their own ideologies, and
* public education has been considered poor in quality, and better quality private schools have been established for those who can afford it.

Four essential instruments for rationalisation are:
— accurate statistics on present enrolments and staffing,
— projections on future enrolments and staffing,
— detailed school maps, and
— estimates of both recurrent and capital costs of different rationalisation options.

The International Institute for Educational Planning (IIEP) has conducted extensive work on rationalisation and school mapping in a wide range of countries. For discussion of techniques, readers are referred to the items listed in the Further Reading section on page 86, and to the bibliographies in those book themselves.

Rationalisation is rarely easy, however. As pointed out in Chapter 1, schools serve important social functions, and communities are never happy for their schools to be closed. Threats of school closure usually create considerable political opposition, and rationalisation schemes are always highly controversial.

First level school for development

First level school for phasing out

First level school (new) to be built

———— Main roads

········ Secondary roads

········ Railways

— — — Catchment area boundaries
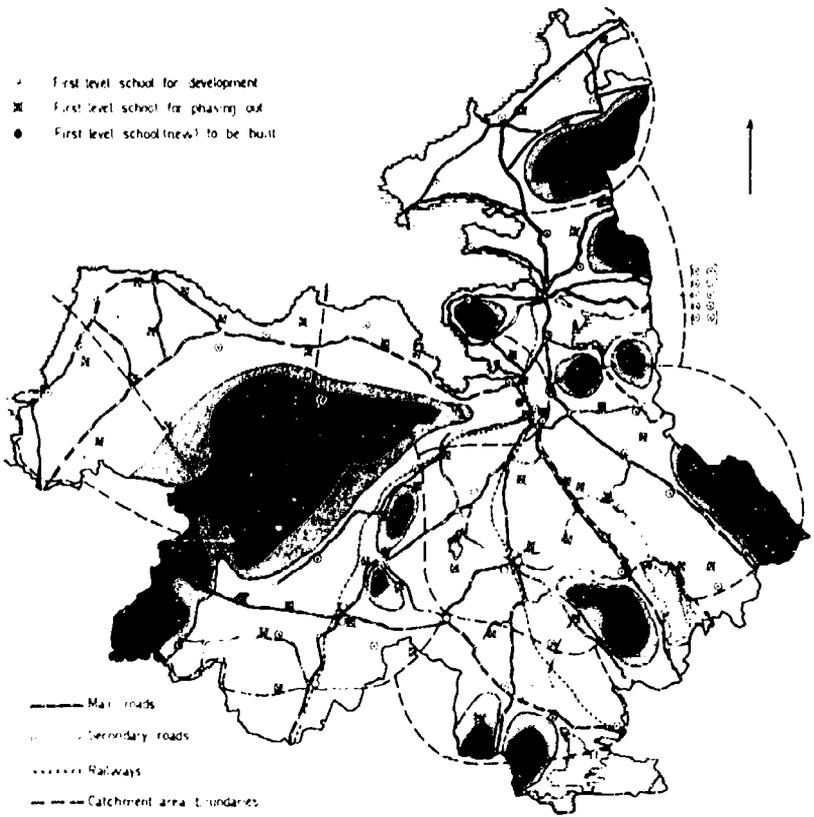
[Reproduced in revised form from Hallak & McCabe (1973:54-5), with permission from the IIEP]

School Maps are an essential instrument for rationalisation studies. This map shows one option in a proposed rationalisation of primary schools in County Sligo, Ireland.

Part IV:
Conclusions

Chapter 9:
Small Schools or Large Schools?

Governments throughout the world need to get the best educational and social benefits from the least expenditure of resources. The title of this book asks: ''Are Small Schools the Answer?''. It is clear (a) that circumstances vary widely, both within and between countries, and (b) that education authorities have to weigh up the advantages and disadvantages for themselves. It is evident, therefore, that small schools *are* the answer in some circumstances, but that they are not the answer in others.

Going beyond this, some further concluding remarks are needed. This chapter comments on (a) the concept of a minimum viable size, and (b) ways to get the best performance out of small schools.

(a) A Minimum Viable Size?
(i) Policy Variations
Viability is not a scientific notion, applicable in all circumstances. Thus scientists can state, for example, that water freezes at zero degrees Celsius everywhere in the world; but no comparable cut-off point can be determined for school viability.

It follows from this that different governments have different policies. For instance:

— The New Zealand government has set the official minimum size for a school at nine pupils. Cases are examined in-

dividually, but almost all schools are closed as soon as their enrolments fall below nine.

— The Hong Kong government, by contrast, has no official minimum. Some schools are very small: one has only four pupils but two teachers.

One reason why some governments avoid fixed cut-off points is that they sometimes unjustifiably condemn schools to death:

* There is a danger of schools being closed as soon as enrolments fall below the cut-off point, even though enrolments might rise again in later years; and
* Threat of closure can become a self-fulfilling prophecy. Parents decide not to send their children to the school because they fear that their children's school careers could be disrupted by future school closure; and these decisions mean that enrolments actually do fall below the minimum.

(ii) Common Factors
Whatever policy they finally decide on, however, all governments have to consider certain factors. The following are among them:

Social Factors
* Schools are very important centres for community development. Closure of schools can seriously damage community cohesion, and opening of schools can greatly improve it. Even though they are expensive, small schools may still be a justifiable investment.
* On the other hand, communities that focus on small schools are sometimes inward-looking. Interaction of different communities can be encouraged if they all serve a common, larger school.

Economic Factors
* Small schools usually have higher unit costs. This chiefly arises from low pupil: teacher ratios and low utilisation of such fixed assets as libraries, playgrounds, laboratories, etc..
* However, they do not always have higher unit costs. Sometimes the pupil:teacher ratios match or even exceed those

of large schools; there are ways to share fixed assets among schools to achieve economies of scale; and large schools sometimes suffer diseconomies of scale because they are too complex.

* Small schools are likely to be nearer children's homes. This reduces transport costs and helps avoid boarding.

Educational Factors

* It is hard for small schools to offer broad curricula, (a) because they have few teachers and thus a limited range of skills, and (b) because even when teachers do have a broad range of skills, there may not be enough children to justify subject options.
* However, there are ways to share teachers among small schools. Also, school broadcasts and correspondence courses can supplement teacher capacity.
* It is hard for small schools to give children a wide range of social contacts and strong competition.

Large Secondary but Small Primary Schools?

The advantages of medium-sized or large schools may be stronger at the secondary than at the primary level:

1. *It is at the secondary stage that pupils begin to specialise. It is easier to offer a wide range of options when the school is fairly large.*
2. *Because the libraries, laboratories and workshops required for specialisation are expensive, it is important for them to be fully utilised. Unit costs are lowest when the facilities are used by a large number of students.*

At the same time, medium-sized or large secondary schools may also be easier to create. Older pupils do not suffer so much either from boarding or from long daily travel.

And if each community still has its own primary school, the social needs for a secondary school are less urgent.

---

* However, small schools usually have a more intimate and cooperative atmosphere. Competition is not always an unmixed blessing.
* Children in small schools are often more socially mature. This is because they are used to having responsibility both for self-motivation and for supervision of others.

(b) Getting the Best Performance

Almost all governments consider small schools to be desirable in some situations. It is therefore necessary to ask how the schools can best be supported. With particular reference to rural contexts, the following strategies are worth noting:

(i) Finance

* Recognise that small schools may have higher unit costs in both the recurrent and capital budgets. Give them favourable treatment in financial allocations.

(ii) Staffing

* During pre-service teacher training courses, examine methods for multigrade work. If teaching practice cannot be arranged in ordinary small schools, set up special model ones.
* Stress the professional rewards of work in small schools, and try to attract teachers who will take it as a worthwhile challenge.
* Provide a reasonable career structure. Avoid the situation in which teachers can only get promotion in large schools.
* Give teachers professional support:
  — in-service courses for staff who have been in small schools for several years and who need to reflect on methods,
  — opportunities to visit other small schools and to exchange ideas,
  — advisory visits by inspectors, and
  — support for associations of teachers in small schools.
* Train all teachers in at least two subject areas.
* Examine the potential for mobile teachers and sharing of staff resources.

(iii) Materials and Facilities

* Devote resources to curriculum development, e.g. special textbooks and self-instructional materials for multigrade classes.
* Build large classrooms and provide furniture that is easily moved when group work in multigrade classes is needed.
* Encourage schools that are reasonably close to each other to share equipment and resources.
* Provide school broadcasts, and bear the needs of small schools specifically in mind during preparation.
* Establish correspondence courses, and make them available to pupils in small schools.

(iv) Community Involvement

* Recognise that communities are particularly likely to display a strong interest in the activities of small schools. Make sure that teachers are sensitive to the positive and negative aspects of this fact.
* Explore ways to use parents and other community members as auxiliary teachers and helpers.
* Make use of strong community interest to offset the higher costs associated with small schools.

82

Further Reading

This is a selection of work that should be fairly easy to locate, either locally or through international inter-library loans. Additional references may be found by checking (a) universities and other local libraries, and (b) the bibliographies of each item listed here.

(a) General

Darnell, F. & Simpson, P.M. (eds.) (1981): *Rural Education: In Pursuit of Excellence*, National Centre for Research on Rural Education, University of Western Australia, 244 pp.

> This book has been well edited into a coherent set of papers. Discussion chiefly focuses on Australia and on European countries. Four chapters on finance and one chapter on the survival of small schools in Scotland are particularly useful.

Education Research and Perspectives (1985): Special Issue on *Rural Education,* University of Western Australia, Vol. 12, No. 1, 85 pp.

> Articles include 'Strategy for Improving the Impact of Research on Rural Education Policy' (S. Brown), 'Secondary Education in the Outback: The Western Australian Scene' (J.E. Davis), 'Aboriginal Education in the Northern Territory' (E. Willis), 'Rural Discrimination in the OECD Nations' (J.P.Sher), and 'Education in Rural Areas' (R.J. Meyenn).

Nachtigal, P.M. (ed.) (1982): *Rural Education: In Search of a Better Way*, Westview Press, Boulder, Colorado, 326 pp.

> The book has 19 chapters, of which some are interesting case-studies indicating the ways that small schools were organised and the ways communities reacted to the threat of school closure. It contains little information on costs.

Nash, Roy (1980): *Schooling in Rural Societies*, Methuen, London, 160 pp.

> The author focuses on both industrialised and less developed countries, but has particularly extensive information on Wales. Separate chapters examine sociology and rural life, rural primary schools, rural secondary schools, and minority cultures. Nash makes particularly useful comments on curriculum and quality.

83

Nash, R., Williams, H.L. & Evans, M. (1976): 'The One-Teacher School', *British Journal of Educational Studies*, Vol. 24, No. 1, pp. 12–32.

> This is a detailed and informative study of five schools in Wales. It particularly comments on their social role and on the quality and costs of instruction. The Welsh case-study on page 18 is taken from this source.

Sher, J.P. (ed.) (1977): *Education in Rural America: A Reassessment of Conventional Wisdom*, Westview Press, Boulder, Colorado, 394 pp.

> The text has eight chapters which include: 'The Urbanisation of Rural Schools, 1840-1870', 'Economy, Efficiency and Equality: The Myths of Rural School and District Consolidation', 'A Review of Rural School Finance', 'A Research and Action Agenda for Rural Education', and 'School-Based Community Development Corporations'.

Tonigan, Richard F. (ed.) (1980): *Small Schools Bibliography*, Bureau of Educational Planning & Development, New Mexico University, Albuquerque, USA, 40 pp.

> The bibliography chiefly covers work from the USA. Parts I and II contain 220 items which specifically examine small schools, and Part III contains 54 items relevant to all schools.

Turney, C., Sinclair, K.E. & Cairns, L.G. (1980): *Isolated Schools: Teaching, Learning and Transition to Work*, Sydney University Press, Sydney, 140 pp.

> This book focuses on a disadvantaged region in New South Wales, Australia. It examines a programme to assist isolated schools, and comments on (a) pupil motivation and achievement in such schools, and (b) school leavers and their occupations. Frequent comparisons are made with disadvantaged inner-city schools. Some findings are very pessimistic.

(b) Cost-Effectiveness Analysis

Henry M. Levin (1983): *Cost-Effectiveness: A Primer*, Sage Publications, Beverly Hills, 167 pp.

> Levin explains in simple and clear terms the basic procedures for conducting cost-effectiveness analysis and the related procedures for cost-benefit analysis, cost-utility analysis and cost-feasibility analysis. His examples are all taken from the education sector.

Little, I.M.D. & Mirlees, J.A. (1974): *Project Appraisal and Planning for Developing Countries*, Heinemann Educational Books, London, 388 pp.

> This is a more technical book for economists. It explains techniques for discounted cash flow analysis, shadow pricing, etc.

(c) School Costs and Financing

Hind, Ian W. (1978): 'Estimates of Cost Functions for Schools in Rural Areas', *Australian Journal of Agricultural Economics*, Vol. 21, No. 1, pp. 13–25.

> Hind examined 116 schools in New South Wales, Australia. The enrolment in the schools ranged from nine to 928. The article pays particular attention to tuition, maintenance and transport costs, and shows a series of points at which the costs are minimised.

Hind, Ian W. (1981): 'Some Economic Aspects of the Provision of Educational Services in Rural Areas', in Darnell & Simpson (eds.) (see Section (a), above).

> The paper first examines the correlation between population density and unit costs It then assesses rural school consolidation from a cost-efficiency perspective. Three of the four studies on which the paper reports found economies of scale following consolidation. However, political/social circumstances also have to be taken into account.

Holland, D., Baritelle, J. & White, G. (1976): 'School Consolidation in Sparsely Populated Rural Areas: A Case Study', *Educational Administration Quarterly*, Vol. 12, No. 1, 1976, pp. 67–79.

> The authors investigate the relationships between internal schooling economies and transport diseconomies with regard to consolidation of rural schools in Lincoln County, Washington State, USA. Some consolidation would minimise costs, but savings would be relatively small.

Keane, Michael J. (1978): 'Economics and the Size of Rural Schools', *Canadian Journal of Agricultural Economics*, Vol. 26 No. 3, pp. 47–52

> Between 1961 and 1977, the number of schools on Prince Edward Island, Canada, was reduced from 428 to 84. Keane reports on the costs of 1' schools that were operating in 1971-72. He does not find significant economies of scale.

Marshall, David G. (1985): 'Closing Small Schools: Or When is Small too Small?' *Education Canada*, Vol. 25. No. 3, pp. 10–16.

> The article examines two of the most common arguments for closing elementary schools in Canada: curriculum and economy. The author finds most curriculum arguments unconvincing, and suggests that the most important constraint on operation of small schools is the cost of teachers.

(d) Curriculum and Quality

Howells, R.A. (1982): *Curriculum Provision in the Small Primary School*, Occasional Paper, Cambridge Institute of Education, 32 pp. (Obtainable from Shaftesbury Road, Cambridge CB2 2BX, UK, £1.50)

> This is a useful study, based on 18 schools in England. Separate chapters discuss classes with multiple age ranges, mixed ability classes, and cooperation between schools.

Campbell, W.J. (1980): 'School Size: Its Influence on Pupils', in Fitch, A. & Scrimshaw, P. (eds.), *Standards, Schooling and Education*, Hodder & Stoughton, London, pp. 114–25.

> A study in Kansas (USA) indicated that students in large schools were exposed to a greater number of school activities, and the best of them achieved standards that were unequalled by students in small schools. However, pupils in small schools participated in more activities, were more versatile, and performed at consistently higher average levels. This paper discusses the research findings, and generally supports small schools.

(e) School Size and School Location Planning

Gould, W.T.S. (1978): *Guidelines for School Location Planning*, Staff Working Paper No. 308, The World Bank, Washington, 103 pp.

> The main sections of this book discuss the meaning of school location planning, the role of the central authorities, the role of local officials, and the implementation of a school location planning programme. Particular attention is paid to projects in Burundi, Honduras, Malaysia and Thailand.

Hallak, Jacques (1977): *Planning the Location of Schools*, International Institute for Educational Planning, Paris, 250 pp.

> Hallak's book summarises the experience and methodology of IIEP school mapping work in a wide range of countries. Examples are taken, among other places, from Austria, Costa Rica, Ireland, Morocco, Nepal, Sri Lanka and Uganda.

Hallak, Jacques & McCabe, James (1973): *Co·inty Sligo, Ireland, Planning the Location of Schools: Case Study 1,* International Institute for Educational Planning, Paris, 109 pp.

> This is a detailed study of both primary and secondary schools in one of Ireland's 26 counties. It illustrates the methodology for school rationalisation in a country with a declining rural population.

(f) Boarding vs Day Schools

Guthrie, Gerard (ed.) (1980): *Day High Schools,* Report No. 34, Educational Research Unit, University of Papua New Guinea, 84 pp. (Obtainable from ERU, Box 320, University P.O., Papua New Guinea, K1.25)

> During the 1970s the PNG government tried to reduce costs by replacing rural boarding high schools with day schools. The contributors to this volume agree that the concept was largely sound, but highlight shortcomings. Even the name was misleading, for most so-called day schools had either formal or informal boarders. Some students lived 2 or 3 days' walk away, and prohibition of boarding would have severely discriminated against them. The authors conclude that although day high schools may be feasible in relatively densely populated areas, uniform policies are undesirable.

(g) Multigrade Teaching

Pietila, Asta (ed.) (1978) *.ill Schools and Combined Grades in Finland,* Information Bulletin No. 3, National Board of General Education, Helsinki, 22 pp.

> Over half of Finland's elementary schools have only one or two teachers. This document has two papers. The first examines population shifts that are requiring many schools to close (2,070 by 1978), but argues that preservation of small schools is a better strategy than consolidation. The second paper discusses problems in multigrade teaching, and strategies to deal with them.

Unesco (1981): *Education of Disadvantaged Groups and Multiple Class Teaching: Studies and Innovative Approaches,* Bangkok, 100 pp. [Obtainable free from Unesco, Box 1425, GPO Bangkok, Thailand]

> This is the report of a meeting in Jakarta. Participants came from Indonesia, India, Korea, the Maldives, Nepal, Thailand, the Philippines and Sri Lanka. The report documents country experiences, and comments on innovative projects.

Unesco (1982): *Multiple Class Teaching and Education of Disadvantaged Groups: National Studies*, Bangkok, 98 pp. (Obtainable free from Unesco, Box 1425, GPO Bangkok, Thailand)

> This document follows-up the 1980 Jakarta workshop (above). It contains lengthy studies of India and Sri Lanka, and shorter ones of the Philippines and the Republic of Korea. It has been edited well, and is very informative.

(h) Biennial & Triennial Intakes

Kelly J., Moipu, J. & Weeks, S. (1982): *A West Sepik Education Strategy*, Report No. 40, Educational Research Unit, University of Papua New Ç inea, 222 pp. (Obtainable from ERU, Box 320, University P.O., Papua New Guinea, K3.50)

> This is a detailed assessment of education in one of PNG's 19 provinces. Pages 68-87 examine the desirability of biennial and triennial intakes, providing statistics on individual schools and their catchment areas. The report stresses the need for consistent policies. Some biennial and triennial schools had received intakes in the 'wrong' years, which disrupted patterns and led to staffing problems.

(i) Staffing

Dove, Linda (1982): 'The Deployment and Training of Teachers for Remote Rural Schools in Less Developed Countries', *International Review of Education*, Vol. 28, No. 1, pp. 3–27.

> Pointing out that schools in less developed countries are likely to be poor in quality, the author suggests that two causes are the low quality and high transfer rates of teachers. She presents two models to illuminate the policy assumptions behind different strategies to remedy this. To improve situations, she recommends field-based preparation, teamwork in training, community support programmes, and recruitment and training of local staff.

Ducharme, E.R. & Fleming, D.S. (eds.) (1985): *The Rural and Small School Principalship: Practice, Research and Vision*. 179pp. (Obtainable from Northeast Educator Service, P.O. Box 453, Groton, MA 01450, USA, US$8.00).

> Designed to help principals in American schools, this volume contains 29 articles under the three headings of new possibilities in everyday practice, applications of recent research, and initiatives to help schools and communities grow. Specific topics include staff evaluation and parent involvement.

Lake, Murra~ (1985): 'The Preparation of Novitiate Rural Teachers', *Education Research and Perspectives* (University of Western Australia), Vol. 12, No, 1, pp. 26–36.

> The author points out that rural primary school teachers have special needs, some of which arise from the smallness of rural schools and their different organisational and instructional procedures. He suggests that teacher training in Western Australia pays insufficient attention to this.

Haughey, M.L. & Murphy, P.J. (1985): 'Why Teachers Stay in Rural Schools: A British Columbia Report', *Education Research and Perspectives* (University of Western Australia), Vol. 12, No. 1, pp. 37–45

> This Canadian study assesses the extent of teacher mobility in rural schools. In recent years, economic depression has reduced the number of openings elsewhere, and teachers have begun to stay in rural schools for longer periods. Other factors are also discussed.

(j) Sharing Resources

Nash, R., Williams, H.L. & Evans, M. (1976): 'The One-Teacher School', *British Journal of Educational Studies*, Vol. 24, No. 1, pp. 12–32.

> This is a detailed study of five schools in rural Wales. The authors recommend federation of small schools as a possible solution to some of their problems.

Rogers, Rick (1978): 'Federate, or Die', *The Times Educational Supplement* (London), No. 3299, 22 September, pp. 19–20.

> The article explains how four small schools in Cambridge (UK) have decided to federate in order to survive. It reports that similar ideas are being tried in other parts of England.

Samaranayake, M.R. (1985): *Introduction of School Clusters in Sri Lanka*, IIEP Occasional Paper No. 67, Paris, 81 pp.

> In 1981, a pilot project was launched in several parts of Sri Lanka to group schools together and require them to share resources. The document analyses the project, and provides useful case-studies.

Planners and policy-makers often find it hard to decide whether to favour small schools or large ones. On the one hand, financial constraints require them to seek systems with the lowest unit costs. But on the other hand, administrators are keenly aware of the role of the school in social development, and thus that under ideal circumstances every community should have a school of its own.

This book highlights the advantages and problems of school size, paying particular attention to social, economic and educational issues. It draws on a wide body of literature from both prosperous and less developed countries, and digests it into a readable and readily accessible form. As well as highlighting the overall issues, it makes practical suggestions on ways to improve cost-effectiveness.

The book is mainly intended for national and regional educational administrators. However, much of the discussion (e.g. on strategies for multigrade teaching) will also prove useful at the school level.

The Author

Mark Bray lectures in educational planning at the University of Hong Kong. He has taught in secondary schools in Kenya and Nigeria, and at the Universities of Edinburgh, Papua New Guinea and London. He has travelled extensively in Africa, Asia, the Caribbean and the Pacific and has written several books on aspects of educational financing, administration and sociology in the Third World.

****

Other Titles in the Series 'Resources for Education and their Cost-Effective Use':

— *New Resources for Education: Community Management and Financing of Schools in Less Developed Countries* (Mark Bray, 1986) Price £4.00.

— *Practical Secondary Education: Planning for Cost-Effectiveness in Less Developed Countries* (Dennis Chisman, 1987) Price £4.00.

— *Lending for Learning: Designing A Student Loan Programme for Developing Countries* (Maureen Woodhall, 1987) Price £4.00.

****