

# **Part III: Making Multiple-Shift Schools Work**

## **Chapter 6: School Organisation and Timetabling**

Multiple-shift schooling requires careful organisation in order to operate efficiently and effectively. This chapter comments first on alternative arrangements of classes within multiple-shift schools. It then turns to details of timetabling.

### **1. Which Classes should be Taught in which Shifts?**

Should junior classes study in the morning or the afternoon? What about the senior classes? Should classes alternate between shifts, or should pupils join one shift and stay in it permanently? These questions are addressed in this section.

#### *(a) Primary Schools*

The range of options for internal organisation may be illustrated by reference to a six-grade, double-shift primary school. Six options are considered here.

*Option 1:* Grades 1 to 6 in the morning, and parallel Grades 1 to 6 in the afternoon.

- Advantages:*
- The morning and afternoon sessions operate like two independent schools. They can have different staffs and even different headteachers.
  - Children can stay in either the morning or the afternoon shift for the whole of their school

careers. This may make life easier to organise for their families. If they have brothers or sisters in the same shift, everybody can go to school and leave school together.

- Equipment and materials used e.g. by the Grade 1 class in the morning can be used by the parallel Grade 1 class in the afternoon.

*Disadvantages:* — Teachers of the same grade cannot coordinate easily. The morning teachers of Grade 3 may not see the afternoon teachers of Grade 3. This may cause problems when deciding on the furniture for classrooms, purchasing books for class libraries, setting examinations, etc..

- The morning and afternoon sessions have separate identities. They may not feel like one school.
- The afternoon session is usually less popular than the morning one. It may be difficult to attract good teachers, and the pupils and staff may feel inferior. Parents may exert pressure to get their children transferred from the afternoon to the morning session.
- The system seems unfair. Children who are allocated to the morning session have an advantage, while children allocated to the afternoon suffer a disadvantage.

*Option 2:* Grades 1, 2 and 3 in the morning, and Grades 4, 5 and 6 in the afternoon.

*Advantages:* — During their six years at school, children study in both morning and afternoon sessions. This is more fair.

- Teachers of the same grade can easily liaise with each other.
- Children of the same age-group have more peers with whom to socialise.
- Pupils in the same grade can all sit examinations together.
- In some systems, senior classes have longer hours than junior classes. It may therefore be better to group all senior classes together and all junior classes together. Examples of curriculum

times from several countries were given in Chapter 4. A more detailed example from Solomon Islands is provided in the box below.

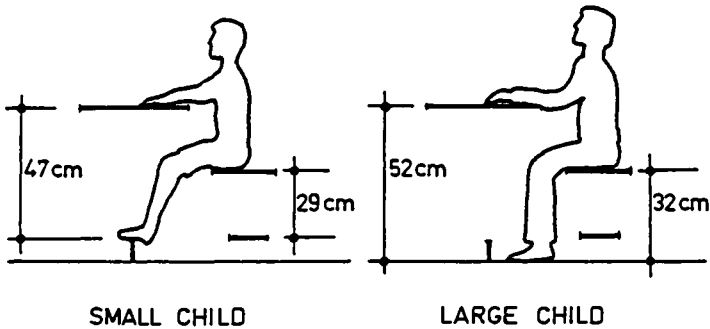
- Disadvantages:* — Pupils in Grades 1, 2 and 3 have to use the same desks and chairs as pupils in Grades 4, 5 and 6, even though the children are physically of different sizes. Special furniture designs may be needed.
- It is necessary to buy two sets of class readers, etc., because all children of the same grade are at school together.
  - In many systems, Grade 6 pupils have to take an important examination. They are in the afternoon session, and may find it hard to concentrate.
  - The morning session has no pupils above Grade 3. It loses the leadership that senior pupils can provide.

#### ***Different Periods of Study for Different Grades?***

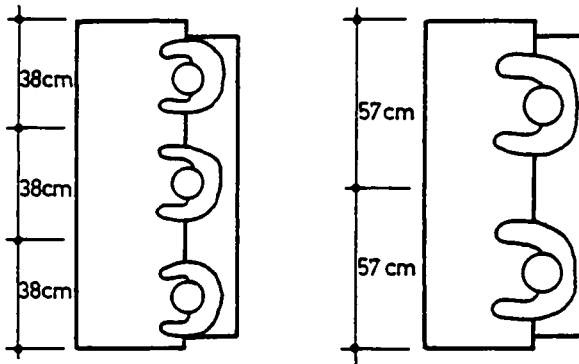
*In some systems, junior children are started off gently with a shortened school day. Their ability to concentrate improves as they get older, and more is demanded from them as they progress through the school system.*

*In Solomon Islands the curriculum for Standards 1 and 2 has only four hours of teaching time. For Standard 3 it has four and a half hours, and for Standards 4, 5 and 6 it has five hours.*

*Such variation in the duration of teaching has implications for organisation of multiple-shift systems. It may be best for all children of the same grade to study at the same time. Thus, if all the Standard 1 and 2 children start together, they will all finish together. Standard 3 is anomalous; but if Standard 3 classes start with Standards 1 and 2, they will finish only 30 minutes later. This arrangement releases all classrooms for Standards 4, 5 and 6, and simplifies general organisation.*



Most primary schools in Bangladesh accommodate Grades 1 and 2 in the morning and Grades 3, 4 and 5 in the afternoon. Unesco staff have designed special furniture for use by pupils of different sizes. The table has a bar underneath which small children can use as a foot-rest; and the bench has a shelf underneath for small children to use as a foot-rest and for other children to store books.



The designers also recognised that (a) many children drop out of school after the early grades and (b) large children need more horizontal space. Accordingly, they designed their furniture to accommodate either three small children or two large ones.

*Option 3:* Grades 4, 5 and 6 in the morning, and Grades 1, 2 and 3 in the afternoon.

This is the reverse of Option 2. Most points are similar, but this option has two additional advantages and one additional disadvantage.

- Advantages:* — Grade 6, the examination class, is in the morning. Pupils may find it easier to concentrate on their studies.
- Junior children start in the afternoon, and later move to the morning session. This gives them something to look forward to. Instead of feeling that they have lost a privilege, the senior children feel that they have won a privilege.
- Disadvantage:* — Children who are just beginning school have to start with an afternoon session. This places an extra burden on small children at a critical point in their lives.

*Option 4:* Grades 1, 3 and 5 in the morning, and Grades 2, 4 and 6 in the afternoon.

- Advantages:* — As children move through the school system, they alternate between morning and afternoon sessions.
- Teachers of individual grades can easily liaise.
- Grade 1 children are given the morning session.
- Disadvantages:* — Alternation of morning and afternoon sessions may cause problems for families, especially if other children are in opposite sessions.
- As in Options 2 and 3, it is necessary to buy two sets of class readers etc. because all children of the same grade are at school together.
- Grade 6 children (who may be taking important examinations) are in the afternoon session.
- Grade 6 children do not feel they have won the privilege of studying in the morning for their last year.

*Option 5:* Grades 2, 4 and 6 in the morning, and Grades 1, 3 and 5 in the afternoon.

This is the reverse of Option 4. Similar points apply, but some are reversed.

- Advantages:* — Grade 6 pupils study in the morning.
- Grade 5 pupils, who study in the afternoon, can

look forward to the privilege of studying in the morning when they reach Grade 6.

*Disadvantage:* — Grade 1 children have to start their school careers with afternoon study.

*Option 6:* Grades 1, 2, 5 and 6 in the morning, and Grades 3 and 4 in the afternoon.

The box on page 61 noted that in many countries junior grades have fewer hours of instruction each day than do senior grades. The box gave the specific example of Solomon Islands, suggesting that in this case it was preferable to teach Grades 1, 2 and 3 in one session, and Grades 4, 5 and 6 in the other.

Sometimes the difference in the number of hours of instruction for each grade is so great that another pattern becomes possible. In some Indonesian schools, for example, the duration of daily teaching (excluding breaks) is:

Grades 1 and 2: 2 hours and 30 minutes,  
Grades 3 and 4: 4 hours and 10 minutes,  
Grades 5 and 6: 4 hours and 30 minutes.

This means that two sessions of Grade 1 or 2 take only a little more time than a single session of Grade 5 or 6. In turn, this means that schools can operate as follows:

|                   | <b>Grade</b> | <b>Total School Day</b> | <b>Break Times</b>             |
|-------------------|--------------|-------------------------|--------------------------------|
| Morning Session   | 1            | 8.00 — 10.40            | 9.30 — 9.40                    |
|                   | 2            | 10.40 — 1.20            | 11.55 — 12.05                  |
|                   | 5            | 8.00 — 1.00             | 10.00 — 10.15<br>11.30 — 11.45 |
|                   | 6            | 8.00 — 1.00             | 10.00 — 10.15<br>11.30 — 11.45 |
|                   |              |                         |                                |
| Afternoon Session | 3            | 1.00 — 5.30             | 3.00 — 3.10<br>4.30 — 4.40     |
|                   | 4            | 1.00 — 5.30             | 3.00 — 3.10<br>4.30 — 4.40     |

- Advantages:* — Both the children starting school for the first time and the senior children preparing for examinations have classes in the morning.  
 — More classes attend school in the morning than in the afternoon.
- Disadvantage:* — The model is only possible in systems with very short teaching times for pupils in Grades 1 and 2. While it is common for junior grades to study for fewer hours than senior grades, the gap is not usually as wide as this. Many educators would argue that daily teaching time of just 2 hours and 30 minutes is too short.

This discussion shows that school administrators may have a wide range of options. The options are not necessarily exclusive, for in many education systems some or all of the models operate side by side.

In some countries, school authorities are permitted to decide for themselves which model to use. In other countries, central authorities decide on the best system and then issue instructions to individual schools.

### *(b) Secondary Schools*

The options for secondary schools may be broadly similar to the options for primary schools. However, some additional factors may need to be considered:

- i) *Senior Classes in a '5 + 2' System.* Many countries have a '5 + 2' secondary school structure, i.e. with junior secondary school lasting for five years and leading to a school certificate, followed by senior secondary school lasting for two years and leading to a higher school certificate.

Double-session institutions may choose to have one set of Forms 1 to 5 in the morning and another set of Forms 1 to 5 in the afternoon. But they are then left with the problem of Forms 6 and 7. Teachers for these classes are often more highly qualified than the other staff. If Forms 6 and 7 are put in only one shift, then the other pupils in that shift have an advantage not shared by their colleagues.

One solution is to allow Forms 6 and 7 to operate across

the shifts. Careful timetabling can allow the students to come half-way through the morning shift and to leave half-way through the afternoon shift. Schools which have tried this system have found that it is harder to supervise the Forms 6 and 7 students because they come and go at odd times. They have also found that the senior students provide less leadership because they are less involved in school life. Nevertheless, the model can be made to work reasonably well.

- ii) *Forms 1–3 versus Forms 4 & 5.* An alternative system avoids this problem by placing Forms 1–3 in one shift and Forms 4 and 5 in another. Forms 6 and 7 can then be taught with Forms 4 and 5. In this system Forms 1–3 lose the better qualified teachers; but the model is at least more simple.

Indeed, this model may be desirable even in schools which do not have Forms 6 and 7 (i.e. only go up to Form 5). Pupils usually begin to specialise in Form 4, and a system which keeps Forms 4 and 5 together ensures that class sizes are sufficiently large in the options for arts, science, agriculture, woodwork, etc.

These remarks apply to '5 + 2' systems, which may be the most problematic. Many countries operate '3 + 3' systems, with three years of junior secondary and three years of senior secondary schooling. In these countries it is usually best to keep all junior pupils in one shift and all senior pupils in another. The arrangement ensures that staffing and other aspects of organisation are kept fairly simple.

## **2. How should the Timetable be Organised?**

### *(a) General Principles*

Four basic timetabling questions face administrators in multiple-shift systems:

- i) *What is the earliest time that children can start school?* The answer chiefly depends on the time it takes children to reach school. In some societies children travel for up to two hours. If school commences at 7.15 am, the children

have to leave home very early, perhaps without breakfast. In other societies, children only have to travel for 20 minutes or less, and school can begin earlier.

An additional problem in some countries is that the early mornings are rather cold. This applies not only to countries in the far north and the far south of the world, but also to all mountainous countries.

- ii) *How frequent, and how long, should be the breaks within sessions?* Because of the pressures of time, many multiple-shift systems allow only one break during each session, though some fit in two breaks. The breaks generally last for 15 to 20 minutes.
- iii) *How much time is needed for the transition between shifts?* Most schools allow 20 to 30 minutes, though some allow more and others allow less. A short change-over period saves time, and therefore allows the morning session to start later and the afternoon session to finish earlier. But change-over periods that are too short are also chaotic. Also, a reasonably long period is needed when afternoon-session children are prohibited from entering the school compound until the morning-session has completed its classes. Otherwise, afternoon children hang around outside the school gate, perhaps causing problems for other people in the neighbourhood.
- iv) *What is the latest time by which classes must end?* The answer depends on the nature of the community and the environment. Most communities consider it desirable for children to be home before dark. But it may be difficult to adjust going-home times to fit the time of nightfall in different seasons; and urban areas may have reasonable lighting, which makes the deadline less urgent.

Schools in Islamic countries must also be sensitive to the times of prayer. It may be especially important for pupils to be home in time for the prayers at dusk.

## *(b) Specific Examples*

### *(i) End-on Systems*

Most of this book is concerned with 'end-on' systems of shift schooling. As explained in Chapter 1, this means that one group

of pupils concludes its lessons before another starts. This is the most common form of shift system.

A typical daily timetable for a double-shift primary school in this system might be:

|                  |                                        |               |
|------------------|----------------------------------------|---------------|
| Morning Shift:   | Guidance & Extra-Curricular Activities | 7.35 – 8.00   |
|                  | Lesson 1                               | 8.00 – 8.35   |
|                  | Lesson 2                               | 8.35 – 9.10   |
|                  | Lesson 3                               | 9.10 – 9.45   |
|                  | Break                                  | 9.45 – 10.00  |
|                  | Lesson 4                               | 10.00 – 10.35 |
|                  | Lesson 5                               | 10.35 – 11.10 |
|                  | Break                                  | 11.10 – 11.25 |
|                  | Lesson 6                               | 11.25 – 12.00 |
|                  | Lesson 7                               | 12.00 – 12.35 |
|                  |                                        |               |
|                  | Lesson 1                               | 1.00 – 1.35   |
|                  | Lesson 2                               | 1.35 – 2.10   |
|                  | Lesson 3                               | 2.10 – 2.45   |
| Afternoon Shift: | Break                                  | 2.45 – 3.00   |
|                  | Lesson 4                               | 3.00 – 3.35   |
|                  | Lesson 5                               | 3.35 – 4.10   |
|                  | Break                                  | 4.10 – 4.25   |
|                  | Lesson 6                               | 4.25 – 5.00   |
|                  | Lesson 7                               | 5.00 – 5.35   |
|                  |                                        |               |
|                  | Guidance & Extra-Curricular Activities | 5.35 – 6.00.  |
|                  |                                        |               |
|                  |                                        |               |

This seems a good schedule because the children get two breaks, both of which have a reasonable duration. It has been made possible by the early start.

However, in some societies a starting time of 7.35 am is considered unreasonably early for both pupils and teachers. In Imo State of Nigeria, for example, classes do not commence until 8.00

am. Because they must finish at 12.45 and fit in four hours and 25 minutes of teaching time, children in double-shift schools have only one break lasting 20 minutes. This contrasts with the timetable in single-shift schools, which allocates one break of 40 minutes and another of 15 minutes. The result, according to one observer, is that pupils in double-shift schools spend too much time inactively at their desks:

One can see that it is sitting and listening for most of the time, and the pupils easily get bored. The only organised activity is the physical education lesson, which often is haphazard because many playgrounds are too small. The afternoon session is not much better because most pupils are worn out before coming to school....

This comment emphasises the value of two breaks, even if they require the school day to start earlier.

### *(ii) Overlapping Systems*

Alternatively, schools may operate overlapping shifts. Students arrive and leave at different times, and pupils of different shifts are on the school compound together.

One example of an overlapping shift system was given in the box on page 17 (Chapter 1). The first shift operated from 8.15 am to 3.10 pm, and the second shift operated from 9.35 am to 4.30 pm. Between 9.35 am and 3.10 pm, all students were on the compound together. During this period sufficient space was found by (i) using every single room — including the assembly hall, library, laboratories, workshops, etc., (ii) using fields or other open spaces for physical education and agriculture classes, and (iii) if necessary holding some lessons under a tree or in some similar location.

The chief *advantages* of this type of system are:

- \* Students and staff feel that they belong to a single institution. There is less separation between the shifts. When necessary, the whole school can be assembled in one place at one time.
- \* Staff can be used more flexibly to teach pupils of both shifts.

Timetabling is therefore simplified, and it is easier to give pupils in different shifts equal access to particularly good teachers.

- \* Staff find it easier to liaise with each other for subject meetings, ordering of supplies, coordination of examinations, etc..
- \* Students are available at a common time for sports competitions, choir practice, etc..
- \* Students are less likely to feel disadvantaged if they are in one shift rather than the other.
- \* The school day starts later than it would in an end-on shift system. It also finishes earlier. More time is available for staff meetings and extra-curricular activities at the end of the school day.

The chief *disadvantages* of overlapping shifts are:

- \* The school compound is very congested during the overlap period. This may cause confusion, and may even be a safety hazard.
- \* If extra buildings are constructed to accommodate students during peak times, the financial savings of multiple-shift schooling are reduced.
- \* If extra buildings are *not* constructed, then some students have to study under trees, etc.. Learning conditions may be unsatisfactory.
- \* Physical education, agriculture and other lessons which are held outside have to be scheduled for the hottest time of day.
- \* If it rains, students who are learning outside have to come inside. There may not be any space for them, even in the corridors etc..
- \* The fact that students arrive and leave at different times of day may seem untidy and disruptive.

Some administrators feel that the advantages outweigh the disadvantages. The timetable on the next page shows perhaps the most intensive possible type of system, having four overlapping

Timetable from a Philippines Secondary School (Form 2), showing Quadruple-Shift System

F = Filipino

E = English

M = Mathematics

SS = Social Studies

Sc = Science

H = Handicrafts

VOC = Vocational Subjects

YDT = Youth Development & Training  
(Physical Education, Music, Health)

Free Time

Block of Classroom Study

shifts. The timetable is organised around use of classrooms (as opposed to laboratories or open areas for physical education). The four groups of students have been scheduled in turn to take their lessons in the classrooms, and engage in other activities either before or after their classroom time. This timetable allows the classrooms to be in constant use from 7.00 am to 7.40 pm. There are no breaks in classroom use for recess or change-over between sessions: as soon as one group of pupils moves out, the next moves in. Most other systems allow breaks between blocks of lesson-time, so make less intensive use of classrooms.

Preparation of such a timetable is, of course, very complex. This one was done by hand, but ideally should have been done by computer. The particular school whose timetable has been reproduced here is in the Philippines. It has 36 streams and 8,300 pupils! This enrolment is larger than that in many universities, and one aspect of the school is similar to that of a university, for pupils are permitted to arrive and leave according to their own schedules. There is no fixed time at which everybody begins and ends the school day.

Some additional features of this timetable are also worth highlighting:

- \* All classroom lessons last for 40 minutes, but many other lessons last for 60 minutes, i.e. one and a half periods. If there is no immediate lesson following, the students take a break. Students break at different times according to their own specific timetables.
- \* Although at first glance it appears that the last shift does not get so much classroom time as the other shifts, this is not actually the case. The last shift gets the same total number of lessons, though some of the classroom lessons are held in laboratories or other places, and are scattered among the periods before the block of classroom time.
- \* Because of the variable times of breaks, the compound is often noisy. To reduce this problem, the classrooms have been put at the top of a four-storey building so that there is less disturbance from the noise below.
- \* On the other hand, variation in the times of breaks has the advantage that pressure on the school canteen is spread out.

The person who drew up the timetable noted the need for each student to have a break around lunchtime, but also noted the need to stagger these breaks.

- \* Some students have to take lessons in physical education (which is part of Youth Development & Training or YDT) at mid-day. They therefore become hot and sweaty, and it is difficult for them to concentrate when they return immediately to ordinary classroom work. This problem cannot easily be solved.
- \* Some extra-curricular activities are fitted into the school day after classes, but most take place on Saturday mornings. The fact that all students are free on Saturday mornings allows formation of teams from different sessions, and helps foster a feeling of cohesion and school identity. However, students only come on Saturday mornings when they are involved in a particular activity. This means that the whole school is never in the same place at the same time. It would in any case be impossible on a small campus.
- \* Apart from this school timetable, there is another for adult education. Adult classes operate from 5.30 pm to 8.30 pm, so the facilities are used even more intensively than is indicated by the school timetable!

### **3. Conclusions**

The choice of school structure and timetable may be partly determined by specific constraints on individual administrators. For example, safety regulations may prohibit administrators from having too many children on a school compound at once, and may therefore require an end-on rather than an overlapping shift system. Alternatively, the need to avoid pupils' travel during the hours of darkness may require an overlapping rather than an end-on system. Each country has its own regulations and specific circumstances.

The choice of school structure and timetable may also depend on administrators' personal preferences. The first part of this chapter presented six ways that the classes of a six-grade primary school could be divided between morning and afternoon shifts. Each option has both advantages and disadvantages. The final choice of system depends on the weight that individuals give to

these advantages and disadvantages. Similar observations apply to the choice between end-on and overlapping shifts.

It is therefore impossible to recommend a single 'best' system. Individual administrators must explore the options and decide for themselves.

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 \*  
 \* *Different Systems for Different Seasons?* \*  
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 \*  
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\* *Regions which are distant from the equator have wide seasonal* \*  
 \* *variations in the number of hours of daylight. Administrators usual-* \*  
 \* *ly prefer schools to close in time for children to get home before* \*  
 \* *darkness. During the winter months, end-on multiple-shift schools* \*  
 \* *find it difficult to complete their lessons in time.* \*  
 \*

\* *One solution is to operate an overlapping instead of end-on shift* \*  
 \* *system. However, administrators aware of the disadvantages of* \*  
 \* *overlapping shifts might be unenthusiastic about making this a* \*  
 \* *permanent arrangement.* \*  
 \*

\* *In this case, an alternative solution might be a compromise. Schools* \*  
 \* *could operate end-on shifts when daylight hours are long, and* \*  
 \* *overlapping shifts when daylight hours are short. The mixture of* \*  
 \* *systems might seem untidy; but with careful organisation it could be* \*  
 \* *quite workable.* \*  
 \*

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