The management of teachers

Developing a database for teacher management

Ian Halliday and Joe Hogan

UNESCO

International Institute for Educational Planning

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In many parts of the world, especially in countries facing structural adjustment policies and cuts in the education budget, planners and decision-makers are presently becoming more and more interested in retaining the investment in teaching staff, particularly in optimizing the deployment and utilization of the teaching force available.

In this perspective, decision-makers, planners and administrators have to address crucial questions such as:

- Are teachers equally distributed among the different areas and schools in the country?
- What kind of measures can help overcoming such imbalances?
- How can trained teachers who are presently overstaffing the offices of public administrations be redeployed?
- How can a better match be achieved between the requirements of a teaching post and the profile and motivation of the teaching staff available?
- What must be done to ensure that the right *people* are allocated or promoted to posts of higher levels of responsibility and remuneration?
- Which policies and structures of teacher remuneration and promotion can help improve the motivation and utilization of teachers?

Related to the issue of better teacher deployment and utilization are questions about the possible ways of enhancing teachers' actual presence on the job, how to make sure that the teachers deployed are provided with the necessary level of knowledge and skills required to do their job properly; and about the modes of teaching: double shift; multiple grade; school subject clusters, etc., to be set up in different specific contexts.

The general objective of the IIEP project is to analyze present problems, strategies and practices of teacher deployment and eventually to identify and help in defining and developing efficient policies and management tools in this area. More specifically, the project aims to:

- identify - on the basis of several country monographs and case studies - relevant policies, strategies and instruments for addressing the major problems of teacher deployment and ulilization;
- develop appropriate tools and indicators for the diagnosis and monitoring of teacher deployment and utilization;
- contribute to building up national capacities in the field of teachers deployment through the development of context-related teaching materials.

The policies and management systems used in the posting, transfer, promotion, utilization and redeployment of teachers will be given particular attention.

In many countries efforts aimed at improving the efficiency of teacher management are hampered by a lack of appropriate information on which rational decisions in this area can be based: the data on the teachers' payroll are sometimes incorrect; information included in the record system are often incomplete, partly irrelevant or outdated; etc. The development and use of an appropriate database for teacher management, constitutes one of the most crucial challenges that managers of education sector have to raise. The review prepared by Ian Halliday and Joe Hogan tackles the main issues which need to be addressed by those who want to improve the development of the information system underpinning the management of teachers: What kind of information is required for the principal staff planning and routine management tasks? How to determine a grid of core data on teachers which should be collected in the annual census? What are the appropriate procedures for the establishing and maintaining of a database for teacher management whether it is computerized or not? How to facilitate the access and use of such a database? etc. The authors provide major elements of response to these central questions and state some basic principles for planners and administrators involved in databased teacher management.

Contents

Introduction

Content and target audience

This volume is intended for all who wish detailed information about developing a database for teacher management and administration. The content is directed, principally, at senior planners, senior administrators (including personnel officers), inspectors and accountants who work within ministries of education.

It may be of value also to others in related ministries whose work involves teacher management issues (e.g. the Public Service Commission).

This review can be used as a training or self-learning material. At the end of each chapter the reader is invited to reply to a few questions on the issues tackled. For a final cross-checking of the answers provided he/she may find it useful to review the chapter to which the questions are referring.

Objectives

After reading this review and completing the related questions you should:

(i) appreciate the importance of maintaining accurate records for individual teachers;

(ii) be in a position to develop reliable procedures for the storage, retrieval, upkeep and use of such records;

(iii) be able to identify the discrete elements of a record which are of fundamental importance and which, of necessity, must be verified before use as a management tool;

(iv) understand how to codify these elements of the record which are objective in nature, thereby allowing this data to be collated and analyzed easily and readily.

(v) comprehend the issues surrounding the development of a computerized database for teacher management.

(vi) be able to aggregate, from all or some of the records, specific items of information which can then be used to provide the evidence necessary to make justifiable management decisions.

Part I
Management responsibilities
in the education service

Chapter I
The structure of management

Is the existing management structure appropriate for the needs of your country?

As the school population grows and the education service expands to meet the needs of all age groups an appropriate management structure should be in place to provide the necessary support to teachers and other employees upon whom the success of the service depends.

In many developing countries the management structure is still highly centralised and authoritarian in approach. Where attempts have been made to decentralise responsibility no formal scheme of delegation exists with the result that Regional and/or District Education Officers merely become Post Boxes; they have no real authority to make even minor decisions. As a result, delays in providing decisions on day-to-day matters are common, bringing the administration into disrepute with subsequent loss of morale to those in the classroom.

What steps can be taken to ensure an appropriate management structure is in place?

1. Resources for the education service

In all countries the provision of education is one of the most expensive services financed by government. This is due, principally, to the substantial number of pupils and students to be educated and,

consequently, to the high cost of trained teaching staff who must be employed. In addition, there are the related costs of the educational infrastructure which includes school buildings, teaching materials and equipment, transport and provision of central administrative services.

The result is that the management team of the education service is responsible for one of the government's largest financial budgets.

These resources must be managed with efficiency, effectiveness, skill and sensitivity if the maximum return is to be gained from such a major investment. With, (in many developing countries,) over 90 per cent of the education budget being spent on the salaries of teachers an effective teacher management structure, supported by an efficient management information system, is essential.

2. Management responsibilities

Overall responsibility for the management of the education service often falls on the Permanent Secretary (or Secretary of State) who is answerable to the Minister of Education. The remit of this officer will include, amongst others, such tasks as:

- planning the development of the service;
- translating policy into programmes and projects;
- preparing realistic budgets and monitoring expenditure;
- setting acceptable educational and administrative standards;
- ensuring staff are paid their salary and allowances on time and according to scale;
- delegating tasks to Senior Officers, both within the Ministry and, where appropriate, at Regional and/or District level;
- promoting staff motivation and staff development;
- establishing a participatory management style;
- monitoring progress in achieving the above objectives.

One of the senior officers in the organisation, the Chief Personnel Officer, will have responsibility for all personnel functions relating to the teaching force. In some Anglophone countries this officer may report to someone other than the Permanent Secretary - for example, to the Chairman Of the Teaching Service Commission.

3. Allocation of management duties

3.1 Strategic

While in some countries the appointment, confirmation, promotion, discipline and other personnel matters may be the responsibility of a Teaching Service Commission, the staff of the Ministry of Education will be responsible, a tall times, for implementing policy decisions of the Government, planning the future of the education service, preparing and monitoring the budget, evaluating the quality of the education provided in schools and, not least, ensuring that the administrative system operates effectively. These strategic tasks are best carried out at the centre.

To assist the Permanent Secretary (or the Secretary of State) and acting as members of the senior management team, there will be a Deputy and Assistant Heads of Service who will have one, or more, specific responsibilities delegated to them. For example, there will normally be a Chief Planning Officer, a Chief Finance Officer, a Chief Personnel Officer etc.

Where an Education or Teaching Service Commission is in place some, if not all, of the personnel management responsibilities will be the domain of that body. This requires close liaison between the Ministry of Education and the Teaching Service Commission on many matters including the responsibility for the maintenance and oversight of the 'Teachers'Records System'.

3.2 Operational

The day-to-day management of the education service in a country with a large population and/or with a vast geographical area may be delegated to Regional or District Education Officers (REO or DEO). These officers will be responsible for the implementation of national policies and for operational management in their area. By living nearer schools these officers will be well placed to respond to local needs and aspirations.

They will *also* be in *a* position to ensure that accurate information is available for onward transmission to the centre.

Where a decentralised structure is in place it is highly desirable that teacher records are maintained in the local offices and that headquarters are supplied with a synopsis of the basic data, regularly updated, which is required to operate a management information system. This, however, may not be possible due to a number of factors - lack of administrative resources for local offices, insufficient trained personnel and no presence at District level of personnel from other Ministries, particularly Finance. In such instances the record system may have to be maintained at the Ministry of Education. *(Appendix VII* gives an illustrative example of the process of decentralisation of some basic personnel functions in the Strathclyde Region/Scotland).

Chapter I. Some questions for you to consider

(i) In your country what factors affect the costs of the education service?

(ii) What percentage of the education budget is normally used for each discrete aspect of the budget?

(iii) When considering control and accountability of the education service what, in broad terms, are the advantages and disadvantages of decentralisation?

The records system

What problems face Senior Officers in your Country when they wish to respond to enquiries?

The system for the maintenance of records, particularly teachers' records, is haphazard in many developing countries. No clear procedures are specified; where instructions exist they are often ignored, particularly by senior officers.

The clerks whose job it is to maintain the system and to locate the appropriate record when correspondence is received are inadequately educated and trained. A post in the registry is generally considered to be of the lowest status in government service. In Uganda, for example, a recent survey found that in District Offices not one of the registry staff could put 50 Ugandan names in alphabetical order! As a result of low basic qualifications records are filed randomly and cannot be found when required. Enquiries from teachers go unanswered for long periods with a loss in confidence in the administration of the education service.

In addition, working conditions in the registry are frequently substandard.

How then can we ensure that all the information we gather about teachers is stored in a form which can be produced when required?

1. Need for information

Without adequate, reliable and up-to-date information Senior Officers cannot carry out properly their responsibilities. Teachers are the most expensive of all the resources of the education service; hence, a comprehensive database drawing information from a reliable teacher record system is essential. Without this schools may be over-staffed, teachers may be paid on wrong scales, too many students may be trained for teaching, the wrong size of schools may be erected and so on.

Inappropriate decisions, made as a result of poor information arising from an inaccurate database, will have an adverse effect on the education budget. In some cases this detrimental budgetary effect will continue over a long period of time and will affect the credibility of the education service, particularly its ability to plan coherently and effectively.

2. Individual teacher records

Reliable individual teacher records are essential if appointment, confirmation, promotion, staff development and disciplinary action are to be handled successfully. In addition, these records provide the basic data for salary and allowance payments, housing and school requirements.

Where any necessary action, resulting from information provided from an accurate database, is taken timeously the positive effect on the teaching force should not be underestimated; teachers will feel valued and motivated. An inadequate and inaccurate record system can often lead to apathy amongst teachers and a general distrust of the system which manifests itself in a poorer quality of education.

3. School records

It is essential that accurate records are maintained concerning all schools and other educational establishments. These will not only provide information about the location of the school, its type, capacity and other physical data but should also indicate its staffing establishment, the number of teachers in post and a description of any vacancies which exist.

4. Aggregate information

Records also contain the essential data which senior officers require for managing, planning and monitoring the education service. Hence, in addition to individual and school records there must be a good database of aggregated information which provides:

(a) The essential information to plan and monitor the budget
(b) A firm estimate of growth in the system
(c) The staffing consequences of the national curriculum plan
(d) A schedule of teacher availability
(e) A schedule of teacher vacancies
(f) An estimate of wastage in the system
(g) An estimate of demand for training, both pre-service and in-service
(h) An accurate assessment of the financial resources necessary to develop new initiatives.

5. Who requires access to records?

The main users of the records are normally:

• Personnel Officers
• Pay Officers
• Inspectors of Schools
• Regional/District Education Officers
• Finance Officer, Ministry of Education
• Planning Officers
• Accountant General's office

The first four groups are concerned, mainly, with individual records; the latter groups wish to handle aggregate information.

Other users of records on an occasional basis are:

• The Chief Executive Officer and higher Deputy
• The Chief Personnel Officer

• Ministers
• The Cabinet Office
• The Ministry of Finance
• The Public Service Commission/Teaching Service Commission.

6. *Maintenance of the record system*

Teachers' and school records are stored in a large room in conditions similar to those found in a warehouse. This room, normally referred to as the Registry, has space for receipt and registration of all in-coming mail, shelves for the storage of the records, and a section which handles all out-going mail.

Full details of the operation of a Registry and of the maintenance of the record system will be found in *Appendix VI.*

Chapter II. Questions

(i)   What are the implications of an inadequate record system?

(ii) The staff of which departments are most likely to make use of an effective record system?

(iii) You are asked to evaluate the record system in an education office. What performance indicators would you use?

(iv) Give some illustrations of the use of 'aggregated records'?

Part II
Selection and organisation of data

Determining the information necessary for teacher management

How do we determine the content of the census?

(i) All too often the responsibility for the annual census is handed to the Planning Unit of Planning Office who see this as the instrument for collecting statistics for the services they provide to the Ministry of Education.

(ii) The long-term goals of planning can be linked to the immediate needs of personnel and the finance department; methods of eliminating 'ghost teachers' and of avoiding double counting of teachers can be found. The Permanent Secretary of one developing country stated that according to the Personnel Department there were 105,000 teachers in the country; Planning said 91,000 but the Treasury said they were paying 120,000. What steps can we take to resolve these differences?

(iii) While a census is an essential tool of the Planning Department it should be extended to collect the full range of information required by *All* departments of the Ministry. Planning the census is an opportunity for co-operation between all departments, each learning the reasons why certain items of data are essential for its function. Tensions and rivalries can be eased by a joint approach.

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1. Information requirements of senior officers

On appointment Senior Officers should assess the data they require to carry out their remits. This falls into two categories - supply information and demand information.

The Chief Personnel Officer and other Personnel Officers, for example, must have access to data about every teacher's educational background, qualifications, application for appointment, experience and so on.

The Pay Officer requires to know the salary scale and the appropriate notch on the scale for each teacher in addition to the school where the teacher is located. A check must be made that this is the appropriate scale and salary; hence qualifications and appointment information will be necessary.

Inspectors of Schools will wish to be informed about appraisal reports, any recommendations on suitability for promotion or qualification improvement and be aware of other background information about teaching ability.

Planning Officers will be interested to learn not only of the needs of Universities and other Higher Education establishments (other than Colleges of Education), e.g. their demand for trained staff, but also the likely outputs from these establishments which may provide potential teachers.

Where Regional and District Education Officers are in post they will require information about the staffing requirements of each school in their area. This will be used to deploy teachers allocated to their areas and to carry out other delegated tasks such as appraisal, staff development, study leave etc.

Senior Officers also wish to be aware of the other side of the coin. They require to have not only information about teacher supply - i.e. the number in post, their qualifications and salary scale, those qualified but awaiting appointment etc., - but also the data about demand. This would include information about the number of teaching posts in every educational establishment and if these are filled, the quality of the staff in post and the types of vacancies which exist.

2. Location of information

Much of the 'Supply Information' - i.e. data about both the number of teachers in post and of those awaiting appointment- can be found by an examination of the individual files of teachers. This can be time-consuming and, consequently, steps are often taken to extract key

items of data on to a 'Teacher's Record Card' or to a computer record. A sample of a record card is shown in *Appendix 1*.

The 'Demand Information' - the number and type of teaching posts both filled and vacant- is contained in the records or files of individual schools and other educational establishments. Again, to save time, this data can be extracted and placed on a record card.

The needs in the Ministry of Education of the Finance Officer and the Planning Officer cannot readily be met by examining individual files. While the information they require should be contained in the teachers' and schools' records this cannot be determined and then aggregated without a great deal of research and effort. As a result officers in these departments often resort to sending census forms at regular intervals to schools where the response to such requests is, normally, less than enthusiastic.

3.   *Review of present position*

Simultaneously with the review of the data necessary to carry out their remit all senior officers should make an examination of what information is presently collected and how often it is used.

It is often found that:

• much of the information asked for each year is out-of-date;
• some documentation which is of no value is still on file;
• schools are frequently asked for the same data by different departments of the Ministry of Education.

4.   *Listing the data*

Before one can discuss the possible form of a comprehensive management information system which, of necessity, must be based on information contained in teachers'and other records, it is essential that a complete detailed specification is made of all the data required by each of the potential users of the proposed system. This is best carried out by drawing up a data grid and completing this department by department, officer by officer.

On an individual basis senior officers have, in the first place, to list all the information necessary to carry out each element of their duties.

For example, the Finance Officer responsible for the compilation of the teacher salary budget will require to know:

- the number of teachers on each scale;
- the number of vacant posts;
- the number of surplus teachers, where appropriate;
- the number at each notch of individual scales;
- the number due to retire
- the estimated numbers who will resign;
- the number likely to be absent on maternity leave;
- the number of teachers (in secondary, by qualification) who wil be appointed;
- the number who are upgrading their qualifications.

In the same way, the Principal Planning Officer who has responsibility for forecasting the demand for teacher training will wish to know:

- the number of classes at present (based on number of pupil/clas and pupil population);
- the number of additional classes planned (based on propos growth of the system);
- any proposed change in class size;
- any changes likely to occur in the curriculum which would ge rate change in the present pattern of teacher distribution;
- the teacher demand, subject by subject, which this will generate;
- the number of teachers in post and, in secondary school, by subject;
- the wastage rate, subject by subject, and by sex;
- the number of potential teachers under training.

In each case some of these elements reflect policy decisions, others are factual and can only be found through an examination of the records or by the census.

If an adequate management information system is to be planned it is essential that senior officers detail every piece of information they require to carry out their individual remits.

5.   Co-ordination of the exercise

The Educational Planner is ideally suited, because of his/her skills and training, to act as co-ordinator of the census. As its content must include every item required by each department of the Ministry of Education and other related bodies the planning of the census content must actively involve senior representatives from all departments.

Co-ordination will not be an easy task. Different departments in the Ministry of Education will have different priorities, even individual officers in the same department will have different viewpoints on what data is important to them. The proposed list of data prepared by each department for collection will often include items which are desirable, but not essential. Personnel Officers will seek, for example, a wide range of details which they require for the deployment of staff.

Qualifications and teaching experience are essential information; a record of in-service training, on the other hand, may be seen only as desirable. While such information can be collected it should be resisted when the initial database is being established to ensure success of the project by collecting only the absolutely essential core data.

Tensions will develop between members of the team and these must be resolved. Hence, in making the appointment of the co-ordinator the Permanent Secretary must take account of the need to establish a harmonious working group led by an officer who has the qualities of tact and experience.

Without a 'team approach' to the range of data to be collected gaps will be found and the pressure for further census requests will be hard to resist. The concept of reducing the administrative load on school headteachers by having only one comprehensive census each year rather than numerous requests for data from different departments of the Ministry of Education will, regrettably, have been lost.

6.   The data collection grid

Once this task has been completed by all departments a *'Data collection grid'* can be devised. This will quickly show what information is common to different departments. As a result a complete specification

of all the information which must be gathered from the annual census and by other means can be assessed. A specimen grid is shown in *Appendix 11*.

7. *A comprehensive annual census*

It is essential that senior officers agree on using a corporate approach to determine not only the essential information necessary for teacher management but also a method of collection which allows teachers to respond easily and correctly and, at the same time, permits simple processing. In addition, there must be a storage system which allows ready access by all users.

A single, annual, comprehensive census should be the objective, designed to gather, on the one occasion, every piece of essential information required by all the departments of the Ministry of Education. This would not only avoid considerable repetitive work but would be greatly appreciated by schools. A single census can be allocated a special priority, thus ensuring that the data collected is more likely than normal to be provided accurately. The census must be 'user friendly'; it should have been the subject of consultation and it should provide feedback to schools to illustrate that the data is being used to the advantage of the education service.

For example, the Scottish Education Office issues to schools after each census one or more Statistical Bulletins dealing with such matters as 'Key Statistics on Demand and Supply', 'Teacher Qualifications and Activities of Scottish Secondary Teachers ', ' Scottish Probationer Teachers', etc. These are written in a non-technical language drawing out trends which have a bearing on the future development of the education service in Scotland.

8. *A possible alternative*

One alternative to having a complete comprehensive census covering each and every teacher, year after year, is to have a one-off comprehensive 'start-up' census which achieves the same initial objective as that described above.

Thereafter, in future years, teachers previously in service will be sent, at the start of each session, a print-out of their record as it exists, together

with a form on which the teacher notes any alterations which should be made to the record in the light of changing circumstances. Newly appointed teachers will be asked to complete the full census.

This method requires that the Personnel Department can identify all recently appointed teachers. There must also be the assurance that both the headteacher and the Ministry of Education can agree upon who these teachers are (which requires good communication links between school and office), that the headteacher ensures each new teacher completes the full census form, and that all other teachers can be relied upon to provide the details of all changes in their personal circumstances which are not recorded on the print-out of their record supplied.

9.   *Determining the size of the database*

It is important that careful consideration be given to the size of the proposed database. The more questions posed by different officers the greater the number of items of information to be collected and updated. With a manual system only a very limited amount of information can be processed successfully. Even with electronic systems there is a limitation occasioned not so much by the system itself but by the organisational process necessary to collect and process the data.

As it is fundamental that success is guaranteed when such a system is first introduced it is important that the size of the initial database is controlled, only absolutely essential items being included. As experience is gained further data can be added.

10.   *A warning*

A general word of advice to all who wish to establish a database for a management-information system would be to start with modest ambitions and build on these gradually over a period of time. What is proposed in this document is the minimum database required to provide an effective management information system.

Chapter III. Questions

(i)   Prepare a detailed list of information that:

     (a) a personnel officer
     (b) an inspector of schools - may wish to have access to a
         management information system?

(ii)   What are the drawbacks to relying solely on an annual
       census to update the database? Give some specific
       examples.

(iii)   Who in your country would contribute to a comprehensi
       ve database on teacher information?

(v)   How would you evaluate the effectiveness of a database?

Establishing and maintaining the database

What problems exist in setting up a database?

It is a common problem in many developing countries to find that many months after a census has been issued less than 50 per cent of the census returns have been received at headquarters.

Why should this be so?

Headteachers find that they are asked to make returns to the different departments of the Ministry of Education at frequent intervals. As a result the major census is seen by headteachers as just another return to be put aside until time can be found to complete it.

Again because of the deluge of paper work little time and care is given to the quality of the data provided. As a result the information collected can be inaccurate and misleading.

The process of verification of personal information about teachers their dates of birth, marital status, qualifications and training, etc. is often ignored and, as a result, when the officers use the data they often make errors which not only have budgetary effects but can cause teachers' unnecessary alarm and despair.

What precautions must we take when establishing a database for teacher management?

1.   *Auditing existing practice*

Having reviewed existing practices and revised the range of information which must be collected on an annual basis it is now essential that consideration be given to the design of the census form and the ways in which the data about teachers will be maintained in an accurate form.

2.   *Design of forms in use*

The opportunity should be taken at this stage to revise the design of all forms used for first appointment, confirmation, promotion and salary revision to make them compatible with any manual or computer system planned.

3.   *The census form*

The next step in the process is to consider and then agree the methods which are to be adopted to process all the incoming data. Only when these steps have been completed can the census form be devised.

The design of the census form is best determined by the methods which will be used to process the data collected. Hence the census form for a manual system may well have a different layout from one used with an electronic system.

4.   *Design of the census form*

While the determination of the information to be collected is a corporate responsibility of all the Heads of Departments in the Ministry of Education the planning of the census form itself is a job which requires the input of specialists.

If it is the intention, eventually, to computerise the database a systems analyst should be appointed at this stage to contribute to the design of the form and other matters relating to the collection and processing of the information.

A well-designed form can minimise the administrative work arising from the census. By devising a layout which matches the proformas which will be used later to process the data a straight transfer of

information is possible. This also reduces the possibility of error being introduced. A specimen census form to be used to collect the most basic information about individual teachers is shown in *Appendix IV'*.

5.   *The need for accurate data*

It is crucial that all the data to be used is as accurate as possible. Whether the information is used to handle specific personnel issues such as payment of salaries or the filling of promoted posts or the provision of global information such as budget monitoring or manpower forecasting, the 'good'image of the Ministry of Education depends on 'getting it right'.

If the payment of salaries and allowances is to be based on this information, if the budget is to be developed from the system, if future human resource requirements are to be calculated from this data it is essential that the information used is as exact as it can be.

6.   *Assembling the data*

Once the design of the census form and the methods to be used to verify the data have been agreed by the main users, one must examine methods whereby all the necessary information about each teacher and each school can be assembled.

As the Ministry of Education is remote from schools and their teachers a system must be devised which locates the exercise within the school. The form(s) to be completed by every teacher must be written in clear and unambiguous language without any statistical or computer 'jargon'.

In the same way the more complex form to be completed by headteachers about their school must be equally explicit.
It is helpful if a completed sample form with 'line-by-line' explanatory notes is provided for reference.

The officers in charge of the exercise or, where appropriate, the District Education Officers and headteachers should be trained at local seminars to appreciate why this return is essential, why accuracy is important and the reasons for submitting the completed forms on time.

To ensure that this census is seen as having national importance all schools in the country should be dismissed early on a predetermined day.

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Headteachers can then gather all teaching staff together and assist them to complete the form, line by line. The forms should then be collected and returned the next day to the Ministry of Education via the local officer in charge.

Where forms are not returned by the given date immediate steps must be taken to investigate the position. A member of the local education office should visit the school to determine the problem. Headteachers and teachers should be encouraged to complete all missing forms, any delay perhaps being due to difficulty in interpreting the instructions. With the assistance of the local officer forms should be able to be completed on the spot and taken away. Where the problem cannot be resolved immediately a short but defined period of time should be allocated. Thereafter, if the proformas are not returned firm action must be taken.

Where a decentralised system is in operation the District Education Officer must be held equally responsible with the headteacher for the completion and return of the census. In other systems an officer, perhaps an inspector, should be given responsibility for a group of schools, thereby creating a strong personal link between school and education office.

7. *Verification of data*

Verification of the data is a time-consuming job which may take months, if not years, to complete. Dates of birth, qualification and training records must be supported by documentation; dates of appointment to schools must be cross-referenced with the information on the teacher's personal file.

To extract all this data from individual files or other records which exist within the Ministry of Education is a long and laborious task. While it would be of great advantage to find a short-cut to avoid a search of the existing individual files there is no obvious alternative answer to such a task.

One cannot assume that the information provided directly by teachers through the census will be accurate. Memories can play tricks, the temptation to alter basic qualifications or even date of birth can be overwhelming particularly in situations of dire need. It is, therefore, a fundamental necessity to verify all data before it can be taken as

acceptable. The most effective method of establishing accurate data is by adopting a two-pronged approach:

- asking the teacher for the necessary information through a cen sus;
- extracting the same information from the teacher's file on to a data sheet.

To minimise the administrative work involved in this matching process the design and layout of the census form *(Appendix IV)* and the data sheet *(Appendix V)* should be complementary. The entries on each can then be compared for accuracy and any deviation investigated.

Where teachers do not appreciate the importance of taking time and making the effort to provide accurate information about themselves on the census form many needless hours will be spent on correspondence between school and office to check items which do not match - hence the proposals that headteachers be trained in local groups on how to gather the census data and that teachers be brought together in school to complete their census form, being led through it, line by line, by their headteacher.

Once the database has been established teachers, theoretically, should only have to confirm, from time to time, that the data held about them is accurate. This, however, depends on establishing a reliable system for continuous updating of the information in the database.

8. *Annual updating of information*

The information which is provided from a database is only as reliable as the data which is supplied. Even with good verification procedures incorrect data will find its way into the system. An annual update is, therefore, the minimum requirement to ensure that the bulk of the information is reliable. This is best carried out about one month after the start of each new session.

Once the initial database has been compiled and verified annual updating becomes much easier. Teachers can be sent at the start of each session, via their headteacher, a copy of their record for checking as part of the annual census exercise. A correction slip, attached to this copy of

their record, can be completed by the teacher showing any amendments required. Further verification of any changes notified must be made.

9. *Data on new entrants*

Having established the layout of the data sheets for existing teachers it is relatively simple to obtain the essential information, on an appropriate form, for all new entrants to the teaching profession.

The initial application form can be specifically designed to elicit the necessary data in a suitable format for direct entry into the information system. Likewise, forms for confirmation, promotion, study leave, etc., can all be laid out in a complementary design.

10. *Confirmation*

At the end- of the period of probationary service, a teacher should be encouraged to apply for confirmation on a form issued for the purpose. This proforma should be designed for easy identification of the teacher and the essential data required by the Chief Personnel Officer or the Teaching Service Commission listed in a format which can be processed with the minimum of administrative effort.

11. *Transfer*

When the transfer of a teacher from one school to another has been effected a proforma designed for the purpose should be sent to the various offices who maintain copies of the record system. Again, this form should be designed to minimise the clerical work involved.

12. *Promotion*

Applications for promotion should be submitted on yet another proforma designed for the purpose.

If sufficient thought is given at the design stage to the various steps which must be taken in the promotion procedure it is possible to avoid, once again, many clerical tasks. For example, where electronic processing is being used a computer programme can be designed to use the data

on the teacher's record to prepare the necessary documentation for the body who will make the promotion decision.

Likewise, standard letters authorising the promotion can be printed along with letters to the unsuccessful candidates.

13.   Casualty returns

The information in the system becomes out of date on the day following its input! To have an accurate up-to-date database headteachers must be trained to complete 'casualty returns' and send these to the Ministry of Education via, where appropriate, the District Education Officer, as soon as any change in personnel occurs. Without this the record system will become more and more inaccurate as the school session passes.

On arrival at the records office this information must be processed without delay. The aim should be an input to the file within one working day.

Chapter IV. Questions

(i) Would you add or subtract information from the specimen census form shown in *Appendix IV*.
Why?

(ii) How would you approach the verification of data supplied by teachers?
Does every item require verification?
Who should do the verification and when should it be done?

(iii) Draw up a list of performance indicators which would help you to monitor and evaluate the success of the census.

Processing the information in the database

What are the problems to be overcome?

(i) In every country electronic processing is seen as the key to making the database more effective. Manual systems are slow, laborious and usually inefficient. The computer promises fast results, solutions to complex enquiries and a comprehensive management information system.

(ii) Many countries have taken the road to electronic processing but before long have had to abandon this technology due to a number of factors - inability to recruit trained staff, training staff who then leave for the private sector, purchasing hardware before finalising their software requirements, being persuaded by slick computer sales staff that a management information programme can be easily developed within weeks.

(iii) One African country lost two years hard work in developing a computer record system by ignoring the need to ensure that back-up disks were prepared at the end of each working day.

(iv) What can we learn from others' mistakes?

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1. *Manual or computerised processing?*

To meet the requirements of the Planning Section most countries now use a computer system to process the census data generated from the annual census. However, the comprehensive database proposed for

Teacher Management is more complex than that required for the planning component by itself.

In many countries the use of computers is restricted, partly because of costs but more often by the lack of available and appropriately trained staff. Even where Government provides training many leave their posts in the Public Service to move into the more rewarding private sector.

It is prudent, in the first place, to consider establishing a basic manual system particularly where the financial resources are likely to be restricted for not only the purchase of a computer system but also for the appointment and training of concomitant staff.

If such a choice has to be made the procedures and the proformas designed for the manual system should anticipate a subsequent move to a computerised system.

2.   *Comparison of manual and electronic processing*

In large systems manual processing, by its nature, tends to be inaccurate, labour-intensive, dated and limited in the ways in which it can be used. Electronic data- processing can have many advantages:

- accuracy
- flexibility
- quality
- reliability
- speed

A comparison of traditional and electronic methods is given in *Appendix III.* However, the use of a computer can cause problems:

- the computer can break down
- data can be distorted or lost
- operators do make errors in input
- inaccurate data gives bad results (hence the adage 'Garbage in, Garbage out')
- procedures for checking the input of data can be flawed

There are methods of overcoming such problems. These can best be solved by the appointment within the Ministry of Education of a systems

analyst and a number of programmers. This is essential if a computer system is to be installed and to ensure that the system operates effectively. In addition, there will be a process of amending the programmes continuously to meet new requirements.

Complementary to this is staff training, particularly relating to the procedures which will be used in operating the system.

3.   Who inputs the data and how should it be done?

In principle, while it is possible to process all data at ministry headquarters, particularly in big countries which have decentralised administrative systems, in some cases, basic input-data can be entered on personal computers at District level. Provided a fully compatible system has been installed at both District and Ministry of Education offices updated disks can then be sent by the District to the Ministry at regular intervals. In this way the Ministry will have the information about all the teachers in each District; such data can then be entered into the main system as a single operation. Where this system can be adopted the DEO and other staff located in the District would have a management package for their own use. Such a system would require a small computer and a trained member of staff for every District in the country.

If, on the other hand, it were decided to process ad the data centrally census forms would be returned to headquarters via the DEO. Verification would be carried out in the office where the records were maintained i.e. at the District Office or the Ministry of Education.

4.   Back-up disks

Where microcomputers are used it is essential that staff are trained to make a back-up disk at the end of each day. This ensures that all new data entered into the teachers' records that day will not be lost should any computer fault occur.

5.   Systems update

Improved software becomes available at regular intervals. It is important that the system devised is of a type which can be updated regularly.

6.   *Security of information*

To ensure the security of the system the software programme ought to be written in such a way that the majority of staff would be able only to 'read' the information contained in the files. A few selected staff should be trained to 'write' as well as 'read'; they alone would have the authority to make alterations to the information on file. To ensure that this essential restriction is maintained the staff selected to 'write' alterations to the records of teachers must ensure that their individual 'password' is not disclosed to anyone else.

7.   *Training of staff*

All staff who will use the new computer procedures must be trained before the system becomes operational. This training need not be technical in nature, its purpose being to familiarise registry clerks, personnel officers, finance officers, pay clerks and planners with keyboard commands, ensuring that they can access all the functions effectively.

Whatever the system adopted it must be user-friendly and produce information which, as far as teachers are concerned, does not depersonalise the work of the Ministry of Education.

It must be stressed that the existing teacher record files must continue to be maintained as they provide the only written evidence of the data in the computer system.

8.   *Specification of user requirements*

Various steps must be taken before the purchase of any hardware is made. A complete brief for the computer specialist, based on the data required and the ways in which it will be used, should be compiled.

The specification drawn up by the main users of the proposed management information system - i.e. the Personnel Officers, the Planners, the Finance Officers and all others who intend to use the system frequently - must permit the Systems Analyst to determine the 'software' which will be necessary to provide the service required.

Flexibility for future developments must be built into this specification, including space for growth in the number of teachers, room for

additional items of information and possibilities for other methods of utilising the available data to meet new management requirements. The facility to cross-reference this programme with other management programmes is desirable. Only when everyone has agreed that the proposed software specification is satisfactory should suitable 'hardware'be purchased.

9. *Analysing the data electronically*

Computerisation allows interrogation of the records system to take place in minutes rather than days. It must be emphasized, however, that to transfer all the data necessary for a complete management information package from an existing manual record system to a computerised system takes some years to complete. There is no quick solution.

Additional clerical staff will be required in the records office so that the data can be prepared for entry into the computer system. The existing manual system must continue to function whilst these preparations are being undertaken. Only after all the preparatory steps outlined in *Chapters* 3-5 of this Manual have been completed should computerisation be authorized.

10. *What if a computer is not yet available?*

In many developing countries computer systems are not yet available for general use in Ministries of Education. However, it is likely that sufficient computer power will become available in most offices in the next few years.

The processes outlined in this document have been designed for use not only with a microprocessor but also for manual systems; if the suggestions made are followed the data will be expressed in a form which can be readily transferred to a computer when this becomes available.

Chapter V. Further exercises

(i)   Before introducing a computerized database what essential sub-structure must first be in place?

(ii)   If a phased introduction of the computerisation of teacher management information were agreed which elements of the information collected would you include in *Phase I?*

(iii)   Draw up a user specification for a computerised database for teachers' personnel records which would be consistent with current developments in your country.

(iv)   If you were asked to provide a report on the success or failure of a computerized system for management information on teachers what criteria would you use?

Part III
Developing the database for
management

Chapter VI
The teachers' database

What evidence exists to justify the development of a database?

The overall view obtained when management practices in most African Ministries of Education are scrutinised is one of over-centralisation. As the Ministry in many countries is far distant from the majority of schools the information held about the majority of teachers is minimal, inaccurate, difficult to locate and, most frequently, out-of-date.

Appointments, confirmation, promotion and other personnel functions carry long delays before action is taken; and this is often based on wrong information, causing frustration in schools and in rural communities.

Salary problems are hard to resolve causing teachers to leave their posts and travel long distances to the Ministry in an attempt to remedy the situation, leaving the school understaffed.

The establishment of an accurate database should, in theory, allow complaints from schools, headteachers and teachers to be resolved quickly and with accuracy. There are practical problems, however, which must be solved before the database is up and running.

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1.   The teacher's data sheet

The first step in establishing a database for all teachers in service is to complete a data sheet for each teacher. This assists in the process of verification of the data received through the census process.

If this data sheet is designed with a similar layout to that of the census form the verification process will become administratively simpler. Consequently, all the items specified on the Data Grid must appear also on the data sheet. By taking time, at this stage, to match the detail on both forms many hours of administrative work will be saved later when every item has to be cross-checked. A sample Data Sheet is shown in *Appendix V.*

2.   *Completion of the data sheet*

While the census form is being prepared, circulated and returned a special section should be established within the records section of the Ministry of Education to collect the data already known about every teacher. This may be obtained from the Teacher's Record Card, where one existed previously. If not, the files of every teacher must be analyzed, and the basic information which exists collected from each and entered on the data sheet.

3.   *Verification of information*

It is essential that all the objective information provided by teachers is checked, item by item, against the data gleaned from individual files. Where a difference exists a further check should be made with the teacher and, if necessary, documentary evidence requested.

4.   *The teacher's record card*

Once the data has been verified a record card for each teacher can be opened. This will show the essential items of personal information, academic and teacher training qualifications, service and salary record, etc.

In some countries, e.g. Uganda, a photograph of the teacher will be attached to the card. This assists in eliminating double appointments and the payment of 'ghost teachers'.

A sample record card from the Mpigi District of Uganda is shown in *Appendix 1.*

5.   *A teacher's identification/reference number*

It is possible to encapsulate in an extended coded profile number all the essential data listed in the Grid *(Appendix 11)* about individual teachers.

The first part of this profile is the creation of a unique reference number for each teacher. This can take several forms:

(i)   A serial number can be allocated For example, 126543. The next tea cher being appointed would be given 126544 and so on. Such a num ber, however, teachers find difficult to recall.

(ii) Where a national registration system exists the identity card number could be used.

(iii) In Scotland not more that 9,999 new teachers are registered each year. Hence the number for a teacher being registered there for the first time in, say 1981, would have been between 81/0001 and 81/9999 where the latter part is a serial number allocated in order of registration. Once again, teachers can forget this number thereby making it diffi cult to identify them.

(iv) Other countries use, for various registration purposes, a combination of the first five letters of the teachers surname followed by one or two initials from their given name(s) and he date of birth. For example, Mrs Marion Jane Ramatebele who was born on 25 July, 1965, would be shown as *RAMAT/MJ/25.07.65.*
      Such a number need not be remembered by individual teachers. However, if in all communications teachers are asked to quote their full name and date of birth registry staff can then identify the teacher and locate the appropriate file.
      The one problem with this system is that when a lady teacher marries and changes her surname the registration number requires to be amen ded.

(v)   Another method which overcomes the possibility of a change in the reference number on marriage is to use the maiden name of the mother of the teacher rather than the teacher's surname. While used particu larly for security information purposes this is cumbersome and is not recommended for general use.

The selection of the appropriate method will require to take account of the incidence of the most common surnames, their structure and length and other relevant factors. Whatever method is chosen this then becomes the unique, file reference number for the teacher.

6.   *Creating a coded data profile number*

From the data grid drawn up earlier the essential data about a teacher required by all departments would probably consist of the following elements:

A   Name
B   Title
C   Date of Birth
X   Year of first appointment as teacher
D   Sex
E   Marital Status
F   Nationality
G   Best Academic Qualification
H   Teacher Training Qualification
J   Employment Sector
K   Main Teaching Subject
L   Subsidiary Teaching Subject
M   Year of Present Posting
N   Present School
P   Post Held
R   Current salary - Salary Scale and Point on Scale
S   Date and Reason for Resignation/Retirement

This list is clearly a minimal one. For example:

- only the best academic qualification is mentioned.
- no reference is made to absence, disciplinary action, appraisal and staff development activities.

The more information listed the more data has to be collected, which, in turn, increases the power of the computer required.

7.   *Adaptation for local needs*

Obviously the content of the database must be selected to reflect the needs of a country-specific education service. For example, local culture might well demand that teachers appointed to certain regions must be able to speak the local language or come from a tribe indigenous to that area. In some countries the religious affiliation of the teacher might also have to be taken into account before a posting to an area is approved. There must be a section in the profile to elicit that information.

8.   *Preparation of reference/storage codes*

Irrespective of whether the data is being prepared for manual or computer use it is helpful, for reference or storage purposes, to reduce it to a series of letters or digits.

Each of the above elements is allocated a single or double digit, single digits being preferable as this reduces the necessary capacity of the computer. Hence the allocation of digits could be as follows:

A *Teacher's reference number*
B *Title*   1 = Mr
                          2 = Miss
                          3 = Mrs
                          4 = Ms
                          5 = Dr, etc.

C *Date of birth 65.07.25* (in reverse order*)*

X *Year of first appointment as teacher*

D *Sex*   1 (or M) = Male
                          2 (or F) = Female

E *Marital status*   1 = Single
                          2 = Married
                          3 = Separated
                          4 = Widowed, etc.

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F   Nationality   1 = Local
                           2 = Indian
                           3 = Ugandan, etc.

G *Best academic qualification*
                           01 = Primary School Certificate
                           02 = Secondary School Certificate
                           03 = Local Degree
                           45 = B.Sc.(Sydney)

H Teacher-training college
                           01 = Certificate, Local College
                           02 = Diploma Local College
                           03 = Degree, Local University
                           06 = Diploma, Australia
                           07 = Degree, Australia
                           17 = Degree, U.K.

J   Employment sector
                           1 = Pre-School
                           2 = Primary School
                           3 = Junior Secondary School
                           4 = Secondary School
                           5 = Upper Secondary School
                           6 = College of Education, etc

K and L   Teaching subjects
                             • possibilities are listed in *Appendix VI*

M Year of present posting • last two numbers

N Present school   • As code shown in Chapter VI

P   Post held   1 = Headteacher
                            2 = Deputy Headteacher
                            3 = Head of Department
                            4 = Unpromoted teacher
                            5 = Temporary teacher

R   Salary scale

> 01 = Scale 0, notch 1
> 02 = Scale 0, notch 2
> 35 = Scale 3, notch 5

S   Resignation   1 = Retirement
> 2 = Resignation
> 3 = dismissal etc.

Manually, when all the individual codes are combined a complete Coded Teacher Profile Number could look like:

A   B   C   X D E   F G   H J K L M   N   P   R   S

RAMAT/MJ/2/650725/86/2/3/02/45/17/3/54/25/91/62313/3/16/

Code S is only entered on resignation or retirement.

9.   *Preparing the profile number*

To prepare this profile number it is probably easier to use the record card or data sheet designed for the verification process which contains all the information necessary. Once each item has been verified it can be entered on the card, given the appropriate code which is then shown in the relevant space in the grid at the top of the card (see *Appendix I, Side 1).*

10.   *Computer recall of the data*

It should be noted that, in an electronic system, when this number is read by a computer the letters and/marks will not appear. The screen or print-out will reproduce the information in a 'user-friendly' form showing the meaning of each element. For example:

Further information about Ms Ramatebele would appear on subsequent pages of the screen.

Teacher's name: Marion J.Ramatebele
Title: Mrs
Date of birth: 25 July 1965
Sex: Female
1 st appointment: 1986
Marital status: Separated

Chapter VI. Questions

(i)   Examine all the elements of the profile described above. Are there any of these, A- S. which would be inappropriate to your own coun try situation 9

(ii)   What further country-specific data should be considered for inclu sion in the profile?

(iii)   Bearing in mind that the number of elements in the database must be restricted which of these items are:
     (a) essential
     (b) desirable.

Chapter VII

Developing a database for schools

Why a database for schools?

With teacher salaries being, by far, the main charge on the education
budget it is important that teachers are deployed across the country in
accordance with a staffing establishment formula.

All too often one finds many more teachers than necessary in the cities,
particularly the capital. Again one can find more teachers in one school
of a certain roll and structure than in another similar one - frequently
due to the advocacy of the headteacher of the former.

A school database should be structured to provide the essential infor-
mation to overcome this unnecessary over-expenditure and inequitable
distribution of scarce resources. What essential information should the
school database contain?

1.   *A profile for schools*

As for teachers a 'coded profile number' can be established for
every educational establishment. Again this is of value for use with
mechanical systems and for preparing the input of the database with
computer systems.

At its most basic level the coded profile number for a school should include the following information:

A - The School Identification Number.
B - The Type of School.
C - Its Capacity.
D - The Current Total Roll.
E - Roll in Class 1.
F - Roll in Class 2.
G - Roll in Class 3.
H - Roll in Class 4.
J - Roll in Class 5.
K - Roll in Class 6.
L - Roll in Class 7.
M - Staff Establishment (including Headteacher).
N - Number of Teachers in Post.
P - Staff Vacancies to be filled.

2. *A school identification number*

It is important that each educational establishment is allocated a unique number which allows it to be identified. It assists administrative and managerial staff to distinguish schools if this number is a meaningful one.
For example:

> 6/231/3
> where 6 represents the district
>
> 231 is a number provided nationally in sequence
> 3 represents a Junior Secondary School

By referring to this number a record card will show:

- the full name of the school;
- the district in which it is located;
- its address;
- its telephone number (if available).

3.   Some sample codes

From the data obtained through the annual census a school profile number can be established using the information listed above. These elements can be recorded as codes in a form similar to the following:

A   School Identification Number (less School Typed
B   School Type
  1 = Pre-School Unit.
  2 = Primary School.
  3 = Junior Secondary School.
  4 = Senior Secondary School.
  5 = Primary with Pre-School unit.
  6 = Combined Junior Secondary and Primary, etc.

C   Capacity of School - 4 digit number
  e.g. 0762 = 762 places.

D   Current School Roll - 4 digit number
  e.g. 0774 = 774 pupils on roll.

E - L   Roll by Class - 3 digit number
  e.g. 096 = 96 pupils.

M   Staff Establishment - 2 digit number
  e.g. *25 = 25* authorised posts.

N   Number of Teachers in Post - 2 digit number
  e.g. 23 = 23 teachers in post.

P   Staff Vacancies - 2 digit number
  e.g. 02 = 2 posts unfilled.

4.   Creating the school profile number

When combined into a School Profile Number the following form, for manual use, is obtained:

A B   C   D   E   F   G   H   J   K LM NP

6/231/3/0762/0774/286/268/220/000/000/000/000/25/22/3

This number once recorded can then be entered on a record card with all other schools of the same type. Information about teacher demand as well as data concerning the roll and the capacity of the school can be read at a glance.

Like the teacher profile number in a computer system the letters and the / marks will not be shown on the screen or on the print-out. As with the teacher profile the output will be in a user-friendly form similar to the following:

Name and type of school: Mbeya Junior Secondary School

Capacity:	762
Total Roll:	774
Form 1:	286
Form 2:	268
Form 3:	220
Staff Establishment:	25
No. of Staff in post:	22
Staff Vacancies:	3

---

5. *Amending the profile number*

This number will be amended annually after the census. However, whenever an additional teacher appointment is made the relevant changes should be made to sections M, N and P. Likewise, when a teacher leaves and is not replaced the necessary amendment should be made.

6. *Improving the profile*

The profile illustrated above can be improved by adding further additional sections, subject to available computer capacity, if electronic processing is being used. For example, for secondary schools not only can the total teacher establishment be recorded but it can be broken down by subject. This offers personnel officers, in particular, much more information.

Chapter VII. Questions

(i)   All the elements of the profile shown above are probably not relevant to the situation in your country.

What would you omit?

(ii)   What information could be added to improve the profile? Make two lists:

(a) items which are essential
(b) items which are desirable

Chapter VIII
Cross-indexing the databases

In a computerised database system it is important to minimise the demand for computer storage and, consequently, the size of the computer required. This can be achieved by drawing information from a number of individual computer files rather than having each subject with its own complete database.

Thus, it is desirable, at the software design stage, to plan to take certain categories of information from one profile and insert it, when required, into another.

This is often known as cross-indexing or cross-referencing.

The following are two examples whereby the size of the computer memory can be reduced by the use of cross-indexing:

Example l:

The major information regarding a school will be obtained from the school profile. This would include the number of teachers in post.

Frequently, the user of the database will wish to know not only the number of teachers in the school but also their names and, if secondary, the subjects which they are qualified to teach. While it is possible to include this information in the school profile it is much less demanding on computer capacity to draw such information by cross-indexing the teacher profile. The computer programme will search the teacher profiles

looking for all the teachers who have that school's reference number. A list of names can then be printed out.

In this application one could go further, asking the computer to list the names of all the teachers in that school by subject, or by age, or by type of post held. Again, this information about the school staff is found partly from the school profile and partly from that of the teacher system.

Example 2:

Another example of the use of cross-indexing could be where the user wishes to have not only the data about the teacher but also information about his/her school e.g. its address and/or telephone number and, perhaps, the name of the headteacher. While the bulk of the information will be found from the teacher's profile number the supplementary facts will be found from the school profile, the key for entry to this being the school reference number contained in the teacher's profile.

Part IV
The use of the database for teacher management

Interrogating the database

Some of the problems faced in answering enquiries!

Answers to questions raised by Members of Parliament, the Minister, Senior Officers and the public often cannot be found without massive effort. Either members of staff in the Ministry have to search through files collecting relevant information or, more often, schools are asked to supply the data which is then collated centrally. Both methods take considerable time and much administrative and clerical work.

What can an electronic database do to assist an over-stretched Ministry of Education?

1. Analysing the data manually

1.1 Use of a mask

In situations where no mechanical aids exist the best method to extract information is to prepare a mask with cut-outs which reveal the codes to be identified. This assumes that the profile number is visible at the top of the record card or data sheet and laid out in a standard format.

By pulling the mask down over each profile in turn it will then be possible to identify those numbers which match the information being sought. This is a slow and laborious process; nevertheless, it is quicker than either searching through individual records or sending a request to schools to supply the information from their records.

1.2   Use of a punch card machine

In some countries a punch card system may be available. To use this system a card must be punched for each teacher with successive holes corresponding with individual items of the profile code.

Using a machine selected items of information required for management purposes may be identified from position of the holes in the cards. While being more efficient than using a mask the process is still slow and outdated.

2.   Analysis by computer

Having established coded profile numbers for each teacher and each school and having decided upon a method for processing the data including its input into the computer system, it is now possible to use these numbers in a variety of ways for management purposes. Thus the database becomes the basis of a Management Information System providing the user with information about not only individuals but also groups of teachers.

Further, by comparing outputs from both the teacher system and the school system a variety of management initiatives can be taken (see cross-indexing) .

3.   Interrogating the system

Once profile numbers have been established for teachers and schools it is possible to examine these to find the answers to a wide variety of management questions.

Example 1: Should a planner wish to know the number of female mathematics teachers in the country who are aged 50 and over he would interrogate all the coded profile numbers by looking for those which have

Date of Birth: C = Current Year less 50 (e.g. in 1994, C = 44 or less)
Sex: D = 2,
Teaching Subject:
L = 25

Example 2: Personnel Officers, by using this system, can identify which schools are in most need of additional teaching staff by examining *Column P* of the School Profile Number. As a result, recently appointed staff can be allocated on a priority basis.

Example 3: The Finance Officer in preparing the budget wishes to know the number of teachers in service at each point on the pay scales. This can be found by asking for the number of teachers at every digit in *column R* of the profile.

4. *Extending the database*

If more detailed information is desired from the database the profile numbers for both teacher and school would require to be extended. If the Personnel Officer in example 2 above wished to use the system to find not only which school had the greatest need for additional staff but also the teaching subject(s) required the school profile would have to be increased to include a breakdown of the staff establishment, subject by subject. This would greatly increase the size of the database.

Decisions of this nature have consequences for the capacity of the computer system, the complexity of the programme, the content of the census, the additional work entailed at school and office level and so on. Before reaching any decision on an issue such as this there must be detailed discussion between all the parties involved to assess whether or not the use which will be made of the modification justifies the cost of the additional input.

5. *Information output*

Various methods of obtaining information output should be considered, including the use of terminals in the Ministry itself and, where the telecommunication system within the country is reliable, at remote offices such as at Region and District. Non-urgent information can be produced in batch and sent out by mail.

Alternatively, provided a compatible system exists, a disk containing all the appropriate information for local management purposes can be sent at regular intervals to regional/district offices.

Even if this more sophisticated system cannot be afforded at the time of installation the computer system being purchased should be capable of extension to meet these objectives at a later date.

6.   *Other administrative benefits*

(a) Many former clerical tasks can be included in the specification relating to interrogation. For example, the output, either arising from a search for specific data or for routine administration, should be able to be produced: (i) alphabetically (ii) by school (iii) by subject (vi) by age group (v) by salary scale.
(b) Lists of teachers can be produced by qualification and/or length of service. This is a most useful facility when promoted posts fail to be filled.
(c) The system also allows letters to be personalized in address. By using this facility the image of the Ministry of Education will be seen by teachers to be more friendly and much less bureaucratic.
(d) Mailing labels showing the name of the teacher, post held and school name and address can be produced.

Answers to questions on Chapter IX

> *Question I*   P = 3,
> K = 01, and then taking note of
> A/B (name of teacher) and
> N (the school).

> *Question 2*   F = 2 or greater
> J=3,4 or 5
> K= 31 or
> L = 31

> *Question 3*   D = 1
> K = 01 or 51
> L = 51 or 01

Question 4　　C = 64 - 69
　　　　　　　　G = 2
　　　　　　　　H = 2
　　　　　　　　J = 2
　　　　　　　　P = 2

Chapter IX. Questions

(i)　　If the Chief Education Officer wished to contact all Heads of Department in Agriculture what elements of the code would he/she specify?

(ii)　　You are asked to prepare a draft answer to a question in Parliament asking how many teachers with a qualification in French and having a foreign passport are employed in secon dary schools in the country.
　　　　Specify the elements of the profile described above which must be examined.

(iii)　　Describe the specification for a search for male teachers with dual qualifications in Agriculture and General Science

(iv)　　It has been agreed by government that a number of primary school deputy headteachers have to be given the opportunity to obtain a Masters Degree in Education.
　　　　An Inspector has been asked to identify all primary school teachers, between the ages of 25-30, who have the Secondary School Certificate and who hold a Teaching Diploma from the local College of Education.
　　　　Assuming this exercise is carried out in 1994, what profile criteria should be used?

Chapter X
The Management Information System (MIS)

How can the image of an inefficient Ministry of Education be improved?

As indicated earlier teachers and parents often believe that the education service is poorly administered simply because it cannot provide answers to enquiries with accuracy and within a reasonable time. A Management Information System will not solve all the many problems which are inherent in the system but it can ensure that the data required to provide answers to questions is at hand, that it can be interpreted in a meaningful fashion and that developments can be anticipated and plans laid accordingly.

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1.   *Purpose of the Management Information System (MIS)*

The Management Information System is designed to provide senior managers with the essential data they require to manage, in this case, the education system.

This system permits those bearing major responsibility to have the information they require to carry out the following functions:

- controlling the quality of provision, ensuring that the resources available are utilized in accordance with government policies;
- forecasting trends and needs, taking account of demographic factors, curricular developments, training requirements and other develop ments which have an impact on the education service;

- planning the future shape of the service, taking account of the forecasts made and accepted;
- answering parliamentary questions and other legitimate requests for information;
- preparing the education budget;
- monitoring, throughout the year, the way in which resources are being deployed;
- evaluating the performance of the various components of the education service.

The database can provide some, but not all, of the information required to carry out the above responsibilities.

2. *Limitations of the database*

A database can only provide quantitative information. Whether the data is processed by manual or electronic means the accuracy of the information ultimately depends on the record system in use and the methods adopted to ensure that the input information is as exact as possible. Without well managed records, the ultimate source of information i.e. the database and, in turn, the management information system will not be an effective instrument.

3. *Need for qualitative data*

For many purposes the quantitative information supplied by the database is not sufficient for education managers to reach a decision. They will also require information about the quality of teaching and learning which is being provided in schools of varying types, the nature of the resources available and how they are being used, the ethos of the school and so on. This qualitative data can be obtained only by reports from inspectors, education officers and others who make regular visits to schools.

Such reports must be filed in a form which allows easy access by potential users.

By being able to draw on both quantitative and qualitative information a more complete picture of the education scene can be obtained.

4.   Modelling

A Management Information System would not be complete, however, without the development of a set of models against which proposals can be tested.

Where a computer system is available it is possible to write programmes providing models to

- monitor control mechanisms.
- analyze and synthesise projections.
- forecast likely outcomes.
- plan and evaluate managerial and financial decision.
- establish timescales for the implementation of policy initiatives.

The database provides one essential input to this process - the quantitative information.

Chapter X. Question

What are the problems which would have to be overcome in your country to make the introduction of a Management Information System a success?

Conclusion

> ***Final reflections on common problems in data-based manage -
> ment!***
>
> This list could be extensive; however the main problems are:
>   (i)   data in use is out-dated;
>   (ii) procedures used are seldom evaluated;
>   (iii)data collection is considered the preserve of planners;
>   others who use the systems feel they have no place in
>   planning the database. Tensions are created unnecessarily;
>   (iv)lax procedures exist for:
>   • access to data which can lead to unauthorised alterations, etc.,
>   • processing data,
>   • providing 'back-up' disks;
>   (v) lack of skilled personnel with the essential computer
>   qualifications and background to provide support.
>   (vi) lack of appreciation of the time and resources required to
>   produce a computerized database.
>   (vii) lack of appreciation of the range of services which the
>   computer system can provide.

---

1.   Some basic principles

     Users of database management must always remind themselves of a
number of important basic principles. These are:

(i)   From the date of the census the data becomes progressively less
     accurate as time elapses.

Consequently, it is essential that when any change occurs, whether it be marital status, qualification, promotion etc. this is immediately advised to the District Office and/or the Ministry of Education. It is important to ensure that all schools are aware of the importance of submitting 'casualty returns'notifying changes on the prescribed dates.

Equally, the administrative office staff must constantly process all changes in data reported to them. The database ought to be amended the day the change is notified.

(ii) Regular monitoring of the procedures in use must be part of the system. Suggestions advanced by headteachers, District Education Officers and those who process the data at Headquarters should be examined carefully with a view to adopting proposals which would improve the system.

(iii) Direct access should be restricted to those whose work demands instant availability of the information.

The Personnel Officer interviewing a teacher must be able to call up the data on the spot. On the other hand the Planner, who is more concerned with aggregated data, can obtain his information by batch print-out, using the computer at off-peak times.

(iv) The more staff who can call up data directly the less confidential the information becomes.

It is essential that managerial, administrative and clerical staff appreciate that what information they can access about a teacher must not be passed on to others who have no right to be informed of the teacher's personal background.

(v) Only a few chosen staff should be given the authority to amend the database.

Those with this authority will be provided with a password which must be kept secret and not divulged to any other member of staff. This password should be changed regularly if the system is to remain secure.

2. *Development of computer technology*

Every year great strides are made in computer technology, both in the hardware and the software which process the data. As investment in

computer applications for databased management is expensive it is imperative that independent, knowledgeable and experienced advice is obtained before any purchase is made.

A few years ago the system adopted would have been based on a mainframe computer. At the time of writing the advice might well be to develop a network of P.Cs (Personal Computers). By the time you read this document it is likely that computer technology will be yet further advanced with improved software and less expensive hardware providing user-friendly access.

It is absolutely essential, therefore, that independent advice is obtained before investment is made in any system.

3. Preparing for computerisation

As indicated earlier, it is important that a user specification is first drawn up listing all that is necessary at the initial stage, together with a description of what additional features may required in the future. In many countries Government has established a 'Computer Services' 4 department to provide specialist assistance with this planning task.

The software users' programme must be prepared first. It is much easier to adapt a programme which has common elements to the one required and which has been used successfully elsewhere than to design a completely new programme from scratch.

Once the specification of the software is known a list of the different hardware systems which are suitable for its operation can be compiled. It cannot be stressed too often that hardware should not be purchased until the detailed software programme has been developed.

Within the specification for both the computer software and hardware there must be a clause which emphasises the need for a system which can be expanded both in size and in user location.

4. Beware!

Do not believe all that you are told by enthusiastic computer sales staff. There is no hardware system which can be purchased 'off-the-shelf' which, together with a pre-designed, immediately available software package, will be the exact answer to all your problems.

5.   *Staffing considerations*

While it is important that the Officer responsible for the maintenance of the database can call on the services of a Systems Analyst and a small number of Programmers, the staff using a computer system will be Personnel Officers, Planners, Finance Officers as well as those who previously maintained the original manual filing and registry system.

These members of staff must be trained in the procedures used to operate the terminals. It means that all must be numerate and literate, a problem in some countries where registry staff have not always completed primary education. The essential on-the-job training is relatively straight-forward and, after a few days practice, staff gain the necessary confidence to learn the basic routines.

One effect of the introduction of 'new technology' into offices is the continuous development of the system leading to new uses and improved procedures. Consequently, continuous training of all the users must be a character of computer operations.

6.   *A final word!*

Educational management is a dynamic system. Its components manpower and resources as well as objectives - are always changing. The aim of those managing the education service must always be to have, at hand, as much accurate information as is possible and in a form which can be accessed readily to provide the best solution to each problem at that point in time.

A computer-based system is the most appropriate tool to provide that service - subject to the qualification that the data used is both reliable and accurate.

Glossary of terms

As it is likely that this manual will be used by readers from different regions of the world it was felt that it would be helpful if officers carrying out similar duties in different countries could be identified by a common title. In the same way terms used to describe various management and administrative processes should be defined to assist the reader.

This glossary describes:

- the title used in the book to identify officers carrying out specific types of tasks; and
- other terms which may have different connotations in different countries.

The Permanent Secretary

The most senior executive officer in the Ministry of Education, in Francophone systems known as the Secretary of State. This officer bears responsibility for all aspects of the provision of education in a country.

Chief Personnel Officer

The officer with responsibility for all teacher personnel management functions in the education service. In Anglophone countries this may be the Head of Personnel Services in the Ministry of Education, the Director of an Education Service or the Secretary of the Teaching Service Commission. In Francophone countries. the responsibility of these functions lies, in general, with the Head of Personnel Services *(Direction do Personnel* or *Direction des Ressources Humaines)* in the Ministry of Education.

Headteacher

The teacher who has been appointed to assume the management responsibility for an educational establishment. This may be a pre-school unit, a primary or secondary school or a tertiary college.

Teacher Management

The management process which comprises the personnel functions relating to the training and appointment of teachers, their deployment, promotion, discipline and all other matters affecting their teaching service. This will normally include responsibility for the preparation of information relating to the payment of salaries and allowances.

Management Information System

A system developed to collect data from a wide range of relevant sources which, when processed, can be presented to managers in a diversity of forms thereby assisting them to make effective management, planning and financial decisions without undue delay.

Public Service Commission

The body of Commissioners appointed by the Head of Government to handle all personnel functions related to civil servants including, in many countries, teachers.

Teaching Service Commission

The body of Commissioners appointed by the Head of Government to handle all or some of the personnel issues related to teachers.

Decentralisation

The system of moving the administrative apparatus of a centralised state system from headquarters to a local area - regions and/or districts. The officer charged with this operational responsibility for the education

service in the area is frequently known as the Regional or District Education Officer.

Performance Indicator

A performance indicator is a measure used to demonstrate if an objective is being achieved. It assesses, quantitatively or qualitatively, whether or not the organisation is meeting that aspect of the service with efficiency and effectiveness.

Records

Files containing a historical collection of written information, mainly objective in nature. The record normally includes detailed personal information about a teacher, for example, date of birth, sex, marital status etc., academic and training certificates, salary and allowances, appointments held and other factual data which, in total, provide authentic legal evidence. The file may also contain some subjective reports (e.g. information about suitability for promotion).

The Registry

The room where records are maintained - opened, indexed, stored, retrieved for use by officers and stored once again after use. All incoming and out-going mail also passes through the Registry where an entry is made recording its passage.

Appendices

Correspondence address:

G.	Academic qualifications		
	Type	Institution	Date
Diploma			
First degree			
Other degrees			

H.	Teacher training qualifications		
	Type	Institution	Date
(a)			
(b)			
(c)			

J.	Teacher deployment

Primary   Yes/No
Secondary   Yes/No
If Secondary   K.Main subjects
                                L .Other subjects

R.	Salary and allowance

Salary scale   Point on scale
Responsibility allowance Other allowances
Loans   Sum advanced   Date

S.	Resignation/retirement

Date of leaving service
Reasons for leaving

Year	School	Post held	From	To	Remarks	Authority	Signature	Date

Ref. letter	Date required	Personnel officers	T.S.C.	Planning officers	Financial control	Pay officers	Other
	Identification No	*	*	*	*	*	
	Personal information						
A	Name	*	*		*	*	
	Previous name	*	*		*	*	
B	Title	*	*		*	*	
C	Date of birth	*	*	*	*	*	
D	Sex	*	*	*	*	*	
E	Marital status	*	*	*	*		
F	Nationality	*	*	*			
	Academic qualifications						
G	Diploma						
	First degree	*	*				
	Others	*	*				
	Best academic qualifications	*	*	*	*	*	
	Teacher training qual.						
H	(a)	*	*	*	*	*	
	(b)	*	*	*		*	
	(c)	*	*	*		*	
	Teaching deployment sector						
J	Sec : Main subject	*	*	*	*	*	
K	Other subject	*	*	*			
L		*	*	*			
	Appointments						
	Date of 1st appointment						
x	Date of present post	*	*		*	*	
M	Present school	*	*		*	*	
N	Type of appointment (Permanent/Temporary)	*	*		*	*	
	Post held	*	*	*	*	*	
P		*	*	*	*	*	
	Salary & allowances						
	Salary scale						
	Point on scale	*	*			*	
	Responsibility allowance	*				*	
	Housing allowance	*	*		*	*	
	Loans	*			*	*	
	Resignation/retirement						
	Age						
S	Dismissed	*			*	*	
	Maternity	*	*			*	
	Emigration	*	*	*		*	
		*	*	*		*	

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Appendix III
Comparison of traditional and electronic methods of data processing

Function	Traditional methods	Electronic methods
Collecting data	By census	By census
Recording data	By hand/typewriter	By keyboard
Verifying data	Clerks checking f iles/returns	Clerks checking files/returns
Storing data	In files/cards	On disc/tape
Retrieving data	Clerks from files or cards	Clerks form terrninal/batch
Presentation of data	Written/typewriter	Printer/word processor
Analysing data	Manual research sorting	Electronic sorting

Annual census form

National registration number:

Code:

A = Surname:

Forename(s):   Code:

B = Title: Mr/Mrs/Miss/Dr/
Code:

C = Date of birth: /   /
Code:

X = Year of first appointment:19.....
Code:

D = Sex: Male/female
Code:

E = Marital status:
Single/Married/Widow/Widower/Separated/Divorced   Code:

F = Nationality :   Code:

| | | | | | | | | | |

| | |

G = Academic Qualifications: Code:

| | | | | | | | | | |

| | |

H = Teacher training Qualifications: Code:

| | | | | | | | | | |

| | |

J = Employment sector: Code:

| | | | | | | | | | |

| | |

K = Main teaching subject: Code:

| | | | | | | | | | |

| | |

L = Subsidiary subject (s):   Code:

| | | | | | | | | | |

| | |

M = Date of present posting:
Code:

| | |

N = Present school: Code:

| | | | | | | | | | |

| | |

P = Post helld:Probation/Teacher/Senior/teacher/HoD/DHT/HT
Code:

| | |

<u>R = Salary scale: Point on scale:</u>

| | | | | | | | |

| | | | |

Code:

| | |
| | |

Specimen data sheet

Teacher reference number ... / ... / ... / ...

Code letter	Description of item	Information supplied	Code number	Code letter
A	Surname	Ramatebele	Ramat	A
B	Forename (s)	Marion Jane	MJ	
C	Date of birth	25.07.65	650725	C
X	Year appointed	1986	86	X
D	Sex	Female	2.	D
E	Marital status	Separated	3	E
F	Nationality	Indian	02	F
G	Best academic qualify cation	B.Sc (!Sydney)	45	G
H	Teacher training qualification	Dip. Ed (Edin)	17	H
J	Employment sector	Secondary	3	J
K	Teaching subject	Physics	54	K
L	Other subject (s)	Mathematics	25	L
M	Year of present posting	1991	91	M
N	Present school	Mbeya J.S.62313		N
P	Post held	Head of Dept.	3	P
R	Salary scale	6	16	R
S	Retirement	Not Applicable		S

Appendix VI
Database for teacher management secondary education

Examples of subject code lists

Teaching subject	Code	Teaching subject	Code
Agriculture	01	Foreign Languages	
Art/Art & Design	02	French	31
Business Studies	03	Gemman	32
		Portuguese	33
Computing	05	Spanish	34
Computer Studies	06		
Drama	10	Local Languages	
		Seswate	41
Economics	12	Setswana	42
English	14	Science	
History	15	General Science	51
Geography	16	Biology	52
Modem Studies	17	Chemistry	53
Civics	18	Physics	54
		Physical Science	55
Home Economics	23		
Needlework	24	Technical Subjects	
		Metalwork	61
Mathematics	25	Woodwork	62
Statistics	26	Tech. Drawing	63
		Technology	64
Religious Education	29		
_		Learning Support	71

Appendix VII
The registry

The role of the registry

The Registry is the power-house of the record system'. Every file therein must be named, numbered and indexed. It must be stored in an orderly fashion with its name clearly seen. If in circulation there must be a record showing who is using it.

To ensure success a high quality Registry Supervisor must be in post.

Problems which exist in maintaining a filing system

These fall into 6 groups:

(a) Identifying the file required

This is overcome by having a file index within the Registry. It is important that this be maintained to show related subjects by a system of cross-referencing.

(b) File storage

The most effective method is to place the files in a vertical position in strict serial order with the file reference and file title shown on Me spine. Racks of substantial wooden shelves built from the floor upwards are probably the cheapest solution for storing files. It is possible to purchase metal racks of shelving which run on tracks laid on the floor.

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1. For detailed information on maintaining the record system please refer to «Good Registry Practices» by Ian Halliday, published by the Education Programme, Commonwealth Secretariat, London.

While being expensive these maximise the use of limited floor space and are more durable.

(c) Locating files

A good Registry Supervisor will ensure that all files issued are entered in the Register. However, without the co-operation of the users in completing file transfer cards when files are passed on to other officers the system will break down.

(d) File maintenance

It is essential that files are examined at regular intervals and that all documents which were of transient interest are removed. Any paper which has become loose should be re-attached. When the file becomes too thick a consecutive file should be opened.

(e) File security

Only specified staff should be allowed free access to the Registry. This is important-its purpose being to ensure that individual records are not altered by unauthorised persons.

A decision must also be made on whether or not confidential files on individual teachers are to be maintained and, if so, what type of information is to be filed therein and who should have the right of access.

(f) File movement out with the Ministry of Education

This should be resisted as far as is possible. For example, in some countries the Ministry of Finance, in the role of the Pay Office for teachers, asks that whenever the salary grading of a teacher is changed the file be sent to them. With co-operation, it is possible to design a proforma which equips the Ministry of Finance with all the information required and, providing this form is countersigned by an officer of acceptable seniority, this will normally be accepted in place of the file.

Staffing of the registry

All too often the registry staff are appointed without due consideration being given to the type of work which they will be required to carry out. It is essential that registry clerks will have not only the basic skills to list the alphabet in correct sequence but be able to read letters and documents intelligently to ensure that they are attached to the appropriate file. Before taking up their post all registry staff should receive some form of induction training followed by regular 'on-the-job'training by their supervisor.

They should also receive a copy of a manual outlining the registry procedures in use.

Is the registry layout important?

If a quality service is to be obtained from the Registry it is essential that not only are the staff well trained but that they have reasonable working conditions. This will include strong, adequate and readily accessible shelving for the files and also a large area for the staff to carry out their work.

In addition to each registry clerk having a good-sized table for spreading and sorting documents there must be space at either end of the Registry for dealing with incoming and outgoing mail.

Appendix VII - More exercises!

(i) Draw up:

    (a) a job description, and
    (b) a person specification for the vacant post of registry supervisor.

(ii)What specific advice would you give to staff working in the registry?
(iii)What performance indicators would you use to evaluate the quality
    of service the Registry provides to its customers?

The process of decentralisation of some basic personnel functions in Strathclyde region, Scotland

An illustrative example

One of the basic functions of a personnel section of an education department is to ensure that there are efficient and effective procedures for the recruitment, appointment and promotion of teaching staff to educational establishments and for their transfer from one school to another.

These functions can- be exercised either centrally or through a devolved system of management which allows all or some of the basic functions to be carried out at a more local level, such as a district, or even by the headteacher of a school.

In the Strathclyde Region of Scotland, where this local authority employs some 26,000 teachers, the education department adopted a policy of progressive delegation of decision-making from regional headquarters to six geographical divisions and, later, to the schools.

Appointment

Up to 1990 the education department had arranged for the recruitment and appointment of unpromoted staff to be organised centrally with all prospective teachers making their application to headquarters. The department then arranged for new applicants to be interviewed professionally by an education officer, an adviser and a headteacher.

References on all staff were taken up either from the College of Education or from previous employers. The prospective teachers were then graded according to their qualifications, experience, interview performance and reports/references.

A bank of all suitable applicants for a teaching post was then maintained in the education department headquarters. When a vacancy arose in a school the personnel section of the divisional office was informed. They, in turn, requested that the best available teacher in the bank at headquarters be allocated to fill the vacancy.

Headquarters sent the appropriate application form and report to the divisional personnel section who then issued an appointment letter to the teacher. The letter of appointment and contract stipulated that the teacher would be assigned to a specified school in the division with the education authority reserving the right to transfer the teacher to another school as and when the education authority felt this necessary.

When the acceptance proforma was returned the teacher's record card and the computer file was opened. This set in train the necessary steps to arrange the salary scale and make the monthly payments to the teacher's bank account.

During the years 1991-93 the education department has conducted a pilot scheme which delegates, within clearly described parameters, the appointment of unpromoted teaching staff to secondary schools. The evaluation of the pilot scheme has been positive and it is the intention of the department of education to create a policy which would be applied to all secondary schools in the near future.

In summary, the administrative arrangements for this new decentralised model are as follows:

The school identifies, within its agreed complement of staff, that there is a vacancy for a permanent teacher. The vacancy is notified to the divisional office who, having checked that a vacancy exists, arranges for the post to be advertised. The application forms from the teachers are sent directly to the schools who decide on the basis of the application form and C.V., experience, qualifications and references to interview a number (4/5) of potentially suitable candidates for the post. The applicants selected for interview are invited, at their own expense, to visit the school prior to interview. The interview panel normally includes the headteacher and one or two of the school's promoted staff. After the interviews the headteacher recommends to the Divisional Education Officer the appointment of the selected teacher.

The formal letter of appointment and the contractual agreement between the education authority and the teacher would still be sent from the divisional personnel section to the teacher. As before the teacher's

record would be opened and steps taken to ensure salary would be paid to coincide with the date of appointment. The personnel section would also ensure that the teacher's salary was coded against the school for budgetary purposes.

Promotion

Promotion arrangements in all schools are broadly in line with these new appointment procedures.

The appointment of senior teachers and heads of department are recommended to the Divisional Education Officer by a promotion board after advertisement, the consideration of references and interview. Members of this board comprise the headteacher, a promoted teacher of the same rank and another promoted teacher from an adjacent school.

However, the most senior promoted posts in schools, viz assistant headteacher, depute headteacher and headteacher, involve parents and in the case of the headteacher an elected representative from the education committee of the authority. The widening of the membership of the selection group is to be welcomed and allows for a very clear focus on the needs of the school and its partnership with the community it serves.

The personnel department of the divisional office, having received the approval of the Divisional Educational Officer, agrees the date of appointment, amends the record system and advises the Pay Office accordingly.

Transfer

The arrangements for the transfer of teachers from one school to another falls into two categories. The first group are teachers who request a transfer on a voluntary basis either to be closer to home, for personal reasons or to gain a different teaching experience. These requests are always considered sympathetically and are acceded to where possible. Requests for voluntary transfer are made to the Divisional Education Officer who has the delegated power to make the transfer if it is considered to be in the interest of the schools and the teacher

The second group comprise teachers who, either because of a new appointment to a school or to correct curriculum imbalance or because of a reduced complement of staff, are 'surplus' to the school's entitlement.

Those teachers who are identified for 'compulsory transfer' (usually those with the shortest length of continuous service) are accorded special consideration. Following detailed consultation with the teacher trade unions the teachers are 'matched' by the Divisional Education officer into vacancies in other schools in the division. This 'matching' takes place in advance of the filling of any unpromoted teaching vacancies in schools either by voluntary transfer or direct appointment.

Again, once the transfer date is agreed the teacher record is altered by the personnel section at division and all concerned notified.

Financial resources

The Regional Council in Strathclyde has agreed to devolve to schools substantial responsibility for the management of their resources-known as D.M.R. (Delegated Management of Resources). Currently, this delegation allows schools, within the policies of the education authority, to have direct control of around 85 per cent of their budget.

As teacher salary costs in Scotland account for almost 60 per cent of the education budget and if the principles of delegation are to be seen by all to be consistent it is important that headteachers be given an increasing responsibility for the selection of their teaching staff. Hence the reason for the procedures outlined above for appointment and promotion. To continue this devolution of responsibility from office to school it is envisaged that voluntary transfer requests will at some time in the near future be subsumed into the new procedures for the filling of unpromoted posts. However, to protect teachers who fall to be transferred compulsorily responsibility for their placement will remain with the divisional office.

Likewise, control of the personnel record system, with salary calculation and payment, will remain the responsibility of the Divisional Education Officer.

Conclusions

The administrative procedures for the appointment, promotion and transfer of staff in Strathclyde Region illustrate the gradual shift away from a centralised system to a more decentralised model. This is

consistent with trends in teacher management in many developed countries and with good personnel practice in business and industry.

However, any proposal to change from a central to a more decentralised model for teachers' personnel functions requires careful auditing of the existing arrangements. It is suggested that a detailed cost benefit analysis should be undertaken which would include:

    (i) the workload implications for staff at Headquarters, District and in schools,

    (ii) very clear administrative arrangements which detail the respective roles and responsibilities and functions of each tier,

    (iii) consultation with:
- staff at each tier;
- teacher trade unions;

    (iv) the cost implications of any change;

    (v) adequate preparation and training of all staff involved at each tier,

    (vi) a strategy for ongoing evaluation of the programme of change.

No change should be contemplated without a full review of all of the factors listed above.

While the original appointment arrangements were bureaucratically efficient it did not always ensure that the needs of the school were being fully met nor was it consistent with the broad policy trend of recent years of devolving important decision-making to the schools. A centralized system has the one advantage of control. When there is a shortage of teachers those applying for appointment can be distributed equitably across the school system. Apart from that, decentralisation of authority should ensure a more rapid response to filling vacancies together with the involvement of the school in finding the most appropriate teacher to meet its needs.

It is also worth bearing in mind that a relatively large education authority like Strathclyde Region with a very good record in teacher management has had a centralised system for the majority of personnel functions from 1975-1990 and the process of change to a more decentralized system, based substantially on the school, is likely to take some 4 or 5 years to implement - not too dissimilar a time-scale from that required to establish their basic computer record system.

IIEP publications and documents

More than 750 titles on all aspects of educational planning have been, published by the: International Institute for Educational Planning. A comprehensive catalogue, giving details of their availability, includes research reports, case studies, seminar documents, training materials, occasional papers and reference books in the following subject categories:

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adult and rural education.

Copies of the catalogue may be obtained from the IIEP Publications Unit on request.

The International Institute for Educational Planning

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