Strategies for Managing Educational Facilities Infrastructure

By Manfred Hinum, PhD,
BMUK (Federal Ministry of Education and Cultural Affairs), Austria

Track 3 of the UEF/PEB/CAE International Symposium 1999
Baltimore, Maryland, USA

Introduction

Each year OECD countries devote, on average, more than 5% of their gross national product to education. Recent work of the OECD Programme on Educational Building (PEB) suggests that the cost of building, running, cleaning, heating and maintaining schools approaches one fifth of that amount.

Many countries, regions and communities are becoming extremely concerned about issues such as the maintenance of ageing stock, vandalism, the reuse and adaptation of buildings, up-to-date furniture and equipment, the use of premises for more than one purpose and the reduction of premises, as well as related expenditure. In many cases, however, even the basic information necessary for effective management is lacking.

As witnessed at an international seminar in Austria in 1998 on "Improving the Quality of Educational Building", the conviction is strengthening and this is backed by experience and research indicating that the quality of facilities has an impact not only on educational outcomes but on the well-being of students and teachers. There is a growing awareness of the role that educational facilities play in shaping attitudes toward the environment and the contribution they make to urban renewal.

Mr. Glen J. Earthman of the Virginia Polytechnic Institute and State University, USA, reported at the Austrian seminar that studies have demonstrated a relationship between student achievement and behaviour and the condition of the built environment. Some of the most important factors that influence learning and living are those that relate to control of the thermal environment, proper illumination, adequate space and furnishings.

If, as studies and experience strongly indicate, achievement (*i.e.* student test scores) is greater in above-standard schools than in substandard buildings, it is the obligation of the responsible authorities to improve the facilities. If it is not the pupils' fault that they are not the most successful, who is to blame?

The quality and duration of a building are affected by how it is looked after, the ways in which servicing and repairs are carried out, and the rate at which needs and requirements change.

Therefore it is necessary to develop strategies for managing educational facilities but also to do research to better understand how facilities influence student behaviour and achievement.

As the French Institute for Research on the Economics of Education expressed it: For a long time, the quality of education was measured in terms of the quality of its inputs (*e.g.* more resources, better trained teachers, smaller classes, better teaching aids) generating a corresponding improvement in the cognitive performance of the learners. Without challenging

any of these ideas, modern research is endeavouring to grasp the laws that link inputs and outputs.

What are the main problems experienced?

- An inability to present sufficiently convincing justification for (increasing) funds.
- A marked deterioration in the condition of facilities and in the morale of facility-users.
- The use of existing facilities to provide adequate, up-to-date educational and social services.

Asset Management

Coverage	Main decision level
site acquisition and disposal	authority/school
new building, extensions	authority/school
structural (programmed, periodic) and emergency maintenance and repair	authority/school
day-to-day maintenance	school
improvements (educational, environmental, etc.)	school/authority
school place provision (quantity, quality)	school
furniture	school
facility-related running of school assets	school

Authorities must decide whether to integrate requirements within an existing system or to invest in a new system.

Action plan:

1. Establish a condition survey (strategic and optional).
2. Appoint realistic costs to needs.
3. Establish standards.
4. Convince authorities (key people).
5. Ensure financing; arrange "funding routes".
6. Ensure adequate management in regard to documentation, planning, implementation and evaluation.
7. Review performance.

The "Asset Management Plans" of the Department for Education and Employment in London are an excellent example of the allocation and management of resources. (See the symposium presentation by Ken Beeton and "PEB Exchange" February and October 1999.)

The table below outlines the stages and processes in developing an asset management plan.

Process, key elements and responsibilities

Stages	Responsibilities of the school	Responsibilities of the authority
Policy Statement identify roles, responsibilities and scope	Identify school/educational programmes, plans, objectives and priorities. *e.g.* "Educational Development Plan EOP", United Kingdom; "School Programmes QIS", Austria	Develop policies, objectives, priorities and action plans. *e.g.* "School Organisation Plan SOP", UK; "School Maintenance and Development Programme SCHEP 2000", Austria
Assessing Existing Premises/Facilities compile basic data on each school -- set up the database (bottom-up, computerised systems to support the development, monitoring of capital, maintenance and running programmes)	Compile information on location, ownership, size, capacity, type of building/school, pupils, running costs, asset value and performance indicators (*e.g.* area per pupil, use of space, teaching area as percentage of gross area, energy consumption/cost per m², maintenance cost/m², other premises related costs/m², pupils (existing/forecast) as % of standard capacity). *e.g.* "School Premises Data", UK; "School Management System-SAM", Austria	Compile "core" data base (collect and analyse key elements); carry out comparisons and benchmarking (performance indicators). *e.g.* "Property Information System", UK; "SAM", Austria; Asset management computer data phases, South Australia
Identifying Needs consider condition; consider needs relating to sufficiency and suitability; identify areas of concern; consider "development plans"	Conduct condition surveys about the quality of learning and living in regard to internal and external areas, existing physical and environmental conditions, costs of repairs, priorities according building type, etc. Assess the suitability of the number, size, shape and location of spaces, environmental conditions, furniture, technology, heath, safety, security, economic use of the premises. *e.g.* "Early Years Development Plan – EDYP of School", UK; "SAM", Austria	Evaluating the condition surveys and identify needs not being met on the school level (also using performance indicators as a basis). Provide guidance on aspects of conditions, sufficiency and suitability. *e.g.* "School Organisation Plans", UK; "SCHEP 2000", Austria
Determining Priorities develop overview (categories) of priorities	Accord funding (and responsibility). Prioritise needs to be developed on the school level.	Develop views, standards and guidelines on priorities.

		e.g. AMP, UK
Funding and Procurement Arrangements finalise funding (budgeting)	List projects and costs that address prioritised needs. Look at the best way of funding, if necessary in co-operation with the authority.	Conduct feasibility studies considering costs and benefits of alternative solutions. Provide guidance and make decisions on funding routes: block/lump fund allocation, capital grant, credit approvals, capital receipts, revenue budgets, private investment, based on contract with agency or authority.
Implementation, Review, Evaluation	Implement according to the responsibility structure. Review and evaluate the system from the bottom up and performance indicators.	Implement if the school is not responsible. Provide guidance; evaluation and controlling.

Maintenance

A number of factors contribute to the "maintenance gap". They include insufficient funds, poor management of funds, and estate management and provision that do not match educational needs.

Poor maintenance increases running costs, such as for energy and cleaning. Energy expenditure, for example, can amount to more than one third of premises–related expenditure; reducing energy consumption can help not only to save money but also to reduce carbon dioxide emissions and other forms of pollution. Other consequences of poor maintenance are:

- deterioration of parts of the building;
- an unsafe and unhealthy environment;
- a lower quality of teaching and learning;
- a lower quality of living;
- vandalism.

There are educational, social and environmental advantages of good maintenance:

- educationally – the condition of the environment indicates society's support for education;
- socially – it sets an example to pupils, that the environment in which we live should be cared for;
- environmentally – good maintenance promotes the aims of education.

Aspect of maintenance	Responsibility	Budgeting
- day-to day-maintenance	school	1.5–2% of replacement value, block/lump (appr. 25-30% of total sum)
- programmed maintenance of elements according to their different servicing and life cycles and environmental standards	school/authority (service packages for schools?)	School: block/lump sum (app. 25-35% of total sum)
- periodic improvements to the building fabric to meet new health and safety requirements, improve energy efficiency, reduce fire risks, develop the environmental quality, etc.	authority	according to a 3-5 year investment programme
- emergency and unforeseen actions to repair damage (storm, flood, theft, arson, outside vandalism, etc.)	authority	
- improvements to meet changing educational and social needs (*e.g.* in regard to technological developments)	school/authority	school: block sum for local improvements; authority: projects

The precise definitions of responsibilities and budgeting may vary from country to country as all elements are interdependent, related actions in one area having profound implications for another. There is therefore a need for integrated planning and co-ordination.

Establish a Condition Survey to assess needs and priorities

The questions raised by this issue centre on:

- how such information should be gathered, at what frequency and by whom;
- to what extent information technology can provide a ready form of accessible storage;
- how to strike the right balance between planned and day-to-day maintenance;
- how best to mobilise manpower and materials;
- how to balance centralised control and autonomy.

Steps towards keeping schools in good and up-to-date condition include:

1. Have accurate information about the condition of the facilities and the scale of funds needed. Keep the condition of the building stock and resources under regular review.
2. Define priorities for expenditure (funding).
3. Ensure financing by convincing authorities (key people)
4. Establish resource and funding allocation mechanism.
5. Stick to planned maintenance schedules.
6. Act promptly to repair damage.
7. Give responsibility for the condition of the facilities to people who are close to the facilities concerned.
8. Involve the users in the management.

Budgeting and funding

Often final budgets are determined either by reference to the resources available or, more often, by updating the previous year's budget with some allowance for inflation and changes in the budgeting stock.

Attempts have been made to devise benchmarks, or norms, standards and guidelines.

The view of most authorities is that a valid method for establishing an appropriate level of expenditure is through a systematic and realistic assessment of conditions, needs and priorities leading to a long-term programme and an expenditure plan.

Traditional sources of funding are:

- authority funds (budget);
- (value added) tax;
- revenue funding;
- grants (capital);
- running cost savings;
- commercial sources;
- gifts and foundations;
- school fees;
- loans from (financial) institutions or parents;
- interest subsidy.

New approaches to funding include:

- norm–based systems (Denmark);
- build and maintain contracts (Ile-de-France, Austria);
- transferring "ownership" to an agency (Austria);
- transferring "ownership" to school boards (New Zealand).