



PEB Exchange, Programme on Educational Building 2000/07

The Changing Infrastructure of Tertiary Education

**William A. Daigneau,
Jan Ivar Mattsson,
Jean-Pascal Foucault,
John Rushforth,
Richard Yelland**

<https://dx.doi.org/10.1787/840041748815>

THE CHANGING INFRASTRUCTURE OF TERTIARY EDUCATION

Technological, economic and social changes are putting growing pressures on teaching methods and programmes and pointing to new trends in tertiary education. Is existing infrastructure flexible enough to meet the changing demands? What new forms of facilities governance and funding are proving successful? What impact does the built environment and maintenance have on student achievement? At a time when property management budgets are shrinking and maintenance costs are on the rise, it is important to be able to quality and quantify performance and draw comparisons with other institutions and other sectors. These topics were addressed at the PEB seminar entitled "The Changing Infrastructure of Tertiary Education". The seminar, which took place in Quebec City and Montreal in October 1999, was co-hosted by the Ministère de l'Éducation du Québec and the Association of Institutional Property Managers (AGPI/AIPM), with the participation of the OECD Programme on Institutional Management in Higher Education (IMHE). The PEB publication Strategic Asset Management for Tertiary Institutions served as a background report.

Following are summaries of a selection of presentations and the seminar conclusions. These and other presentations are available in full in the Resources section of the PEB Web site, <http://www.oecd.org/els/edu/peb/>

Facilities and Educational Quality

By William A. Daigneau, Vice President, Operations and Facilities Management, M. D. Anderson Cancer Center, University of Texas, United States

Well equipped, modern buildings and facilities seem to be basic requirements for providing quality higher education. Without the most modern, well-equipped and properly maintained building and grounds, higher education would be unable to properly educate its students or to expand the boundaries of knowledge. Few would dispute that argument. The equation is simple: Better facilities equals better education.

Not all universities or colleges can afford the best facilities, and some can barely take care of the buildings and grounds they own. Do their graduates suffer in comparison to those in the better-equipped institutions? Is there truly a relationship between the quality of education and the quality of the facilities

that are provided? It would be nice to answer such questions definitively. Yet when one looks for the studies or research to support the argument that the best facilities lead to the best education, there is a void. Is it because the answer is so obvious that it does not warrant scientific investigation? Or is it because the variables that influence the questions are so complex that they are not determinable? This presentation seeks to shed some light on these questions and to stimulate future research to help provide better answers. It includes:

- a review of the fundamental educational processes used by higher education;
- examination of the research that is relevant to an understanding of how the physical environment enhances or hinders those processes;
- discussion of what this means to facilities management practices and how this information might be used to develop more directed research.

Higher education utilises specific processes by which properly motivated students learn. These processes consist of four interrelated components: demonstration, discussion, experimentation and investigation. To deliver the educational process, higher education pursues several fundamental objectives. The most important objective is to first assemble the faculty and students necessary to engage in the educational process. This implies both a selection and a recruitment objective for higher education. This means higher education must create the conditions that attract both a competent faculty and motivated, capable students.

A second objective must be to organise and manage the educational process itself. Accomplishing this requires organisation and the development of management processes. Facilities, equipment and administrative systems for management of the enterprise must be available. So another key objective is to garner the necessary financial resources to support the operation of the institution or to support its capital requirements. To meet this objective, higher education needs to solicit the involvement and support of government, business and industry.

The physical environment and facilities are integral to meeting these objectives. Dating back to the beginnings of universities and colleges, the pursuit of knowledge and understanding has been best accomplished by bringing both teachers and students together at a single location to interact on a continual basis. This model has persisted to this day, in varying degrees, with the creation of college campuses. The campus provides the classrooms, laboratories and libraries that create the space to support the educational process.

The argument for providing the best possible facilities generally goes like this:

1. Facilities are an essential component of the educational enterprise. To be successful requires that a university have the best faculty teaching the brightest students, with the most extensive scholarly resources and curriculum, in the most modern and well-equipped buildings and grounds. Short-changing any one of these elements diminishes the entire educational experience.
2. The design of a college or university's physical environment reflects its goals and values. In other words form follows function. If an institution values a high quality education, its facilities will reflect that value. Furthermore, the quality of the facilities provided represents the institution's priorities as well as the overall priorities of the society it serves.
3. The condition of an institution's buildings directly affects educational outcomes. Students cannot learn in crowded spaces with leaky roofs and inadequate lighting. Faculty cannot teach effectively without the necessary equipment, which works properly. And the educational process suffers if students and faculty feel insecure or threatened in the physical environment.

The validity of such arguments appears to be self-evident. However, a body of research supporting or refuting the argument for better facilities does not exist. Only limited research exists and much of this research is flawed because it fails to isolate key variables for evaluation. So instead, we must look at related research into **human motivation**, **human factors engineering**, **pedagogical studies** and **environmental psychology** to determine how the physical environment may affect the human capacity to learn.

Research into **human motivation** has been pursued by many, and the theories postulated by Maslow, Herzberg, Mayo and Vroom provide some insights into the effect of the environment on one's motivation to teach or to learn. This research suggests that the environment can diminish or strengthen a student's motivation to learn, as well as an instructor's interest in teaching. The central factors within this research appear to be those associated with creating a perceived safe and supportive environment while a higher quality environment has little effect on learning if it is not associated with positive learning experiences.

Human factors research has been very productive in determining the impact of the environment on human physiology. Temperature, lighting, noise, fatigue and furniture have all been demonstrated to affect a student or instructor's ability to function in relation to factors

including maintaining concentration, processing information and memory retention. The research suggests that environmental conditions must be maintained in a certain "bandwidth" which supports effective human functioning. Anything beyond that is wasted, as it regards efficient information processing or learning.

Pedagogical research has focused on how humans learn. This body of work concentrates primarily on the interaction of the curriculum, teacher effectiveness and student attitudes. In this case, the environment is of secondary importance and can only enrich or interfere with the interaction of these primary variables. Traditionally the focus of environmental concerns has been directed toward ensuring adequate blackboards, audio-visual equipment and acoustics, as well as essential instructional tools such as properly equipped laboratories, libraries and educational supplies. Recently, attention has been directed toward the use of technology and how it supports and even replaces traditional pedagogical methodology.

Environmental psychology, a subspecialty of general psychology, began to emerge in the late 1950s. Psychologists began to focus on how the manipulation of the environment could influence human behaviour. Research suggests that human perception of the environment invokes certain reactions, such as inducing stress, thoughtfulness, relaxation and other behaviours. Environmental stimuli can influence behaviour conducive to learning. Since perception is highly individualised, environmental psychology may explain why some students thrive in a given environment and others do not. Therefore the value of this research lies in the discovery of factors that generally support educational processes, and avoiding those factors that do not. One example would be the concept of "personal space", and how crowding can block learning by diverting personal energy and feelings of well-being.

As noted earlier, there has been some research directed toward evaluating the quality of the learning environment and educational outcomes. The Carnegie



Commission, for example, measured those factors that influenced a student's college selection. They found that a major factor was the overall appearance of the institution's facilities. Other studies have been inconclusive primarily because of failure to effectively isolate pertinent variables.

A review of this research allows some general conclusions. First, the physical environment does affect human motivation, behaviour and performance. There is also a "bandwidth" of environmental conditions that a human finds "neutral", in other words it provides no stimulus or distraction. Third, research supports that there are physical conditions that create a sense of security, well-being and aid brain development. Finally, the research shows that effective education requires a supportive physical environment to successfully pursue educational processes and objectives.

Considering these general conclusions, what inferences can we draw with respect to creating and managing facilities? The research appears to indicate that while maintaining a campus in "like new" condition enhances protection of the investment, this may not necessarily support educational objectives. In fact, effective facilities design (types and usefulness of space) may have a greater impact on educational outcomes than overall facilities condition. In other words, all facilities maintenance is not the same. There may exist an order of priorities in maintaining facilities which maximises educational quality.

It also appears that natural settings positively influence overall human condition, meaning that the provision of attractive grounds, art and photographs of natural landscapes, or atriums with plants, fountains and natural light can lower stress and foster concentration and reflection.

In reviewing the relationship between the physical environment and educational quality, an important conclusion is that more specific, useful research must be conducted. For example, what specific factors in the design and maintenance of buildings and facilities most affect quality higher education? What is the optimal balance between economics (maintaining building values) and enhanced educational processes supported by facilities redesign, renovation or replacement? What impact will technology have on useful building life and the need for space on college campuses? What is the minimal level of maintenance required to protect learning processes? How does the introduction of natural settings affect educational outcomes? And what should be the design and maintenance priorities to maximise "curbside" appeal to support recruitment or philanthropic objectives?

In conclusion we have discovered that there are probably diminishing returns for building maintenance with respect to educational quality. In addition, in the future, facilities master planning and design should shift from finding the "best land use" to emphasising the "best educational environment". We know that good, flexible facilities design and effective facilities maintenance are integral to the success of higher education outcomes. Therefore, a comprehensive facilities management strategy needs to consider all factors related to education including economics, educational processes and the role of facilities in the entire higher education enterprise. To accomplish this much more targeted, relevant research is needed to aid such strategy development.

Who Should Own University Buildings?

By Jan Ivar Mattsson, Director, Buildings Office, University of Uppsala, Sweden

A major reform of the governance and funding of universities took place in Sweden in 1993. At the same time, the system of managing public buildings was remodelled. Under the new system, universities cannot own their buildings but are free to lease premises from any property owner. Universities receive grants according to their number of students and are at liberty to use the money as they choose. The other Nordic countries are making similar changes.

With one or two exceptions, all Swedish universities are state-owned. Prior to 1993, a central authority – the National Board of Public Buildings – managed government-owned property and leased premises to user authorities. The user authorities were charged rent that included capital costs, maintenance costs and electricity consumption. However, this rent was paid from a special grant which could not be used for other purposes, so in effect space was a free utility.

The National Board was also responsible for the acquisition of premises for the users. If more space was needed, the National Board decided how much and whether the needs were to be met by renting or



Renée Méthot

constructing new space, and then leased the space to the university. All decisions, even on fairly small investments, were made by the government.

The procedure was very slow, the mechanisms for prioritising different needs were far from transparent and investments in public building were frequently used as a regulator for unemployment or other economical or political purposes. The National Board was also criticised for its rigidity and for being overstaffed.

With the new system, ownership and management of all university property, formerly owned by the state and managed by the National Board, was transferred to one real estate company: *Akademiska Hus Ltd*. This company is owned 100% by the state.

It should be noted that the total space in public buildings in Sweden is about 14 million m². The value of the property can be estimated at some 40 billion Swedish crowns or about USD 5 billion. If this capital were sold to companies, though themselves owned by the state, the companies would finance the purchase on the ordinary loan market, and the National Debt Office would be relieved by the same amount.

The system of governance and funding of universities in Sweden underwent a no less drastic change. Instead of governing by legal framework and detailed decisions by government for dividing resources among the various educational sectors and faculties, the new system features governing by goals and objectives, leaving the detailed decisions to the institution. Resources are allocated to each university, which has the right to further divide them as it sees fit between study programmes, faculties and departments.

Another important change is that Swedish authorities are not allowed to use their grants directly for investments. If an investment is needed, such as for buying equipment and furniture, the authority must take out a loan from the National Debt Office. Grants may then be used for paying the capital costs (mortgage and interest). In this way, no investment can be written off directly and every component of the expenditure budget appears as an annual cost.

Today Swedish universities have an almost total freedom to lease premises. As long as the university can fit the lease costs and capital costs for equipment and furniture into its annual budget, it is at liberty to lease from any real estate owner. The budget boundaries are set by the grants for students and research and, of course, any external funding that the university can obtain. (At present, the average level of costs for premises in Swedish universities is about 16% of the total annual expenditure.)

The change in system was accompanied by an increase in grants for university education and the founding of a number of university colleges. This was a step taken by the Swedish Government to enhance higher education and reduce unemployment. In combination with the dammed-up demands for space which were a result of the shortcomings of the old system, this has led to a building boom with almost all universities undertaking extensive construction programmes. (There have been some signs of “cold feet” from the government vis-à-vis this development.)

After seven years of use, the new Swedish system has proven to work very well. It has led to much greater responsibilities for universities, and all of them have had to create or expand their administrative units responsible for premises planning, lease negotiations and internal charging of space. However, the number of employees in the new companies represent about two thirds of those employed by the National Board for the same purposes under the old system.

The question of how rent for university premises should be calculated has created controversy. Owners argue that market-like rents should be used. Tenants, on the other hand, argue that rent should be based on the costs for management and capital.

The changes in systems of management for university buildings in the other Nordic countries – Denmark, Finland and Norway – although starting from different points all seem to lead to variants of the new Swedish model. The most important feature is the aim to separate the management of buildings from their use. This in turn leads to the possibility of creating a professional organisation for planning, constructing and managing property and the necessity of a lease agreement between the parties, to define costs and the responsibilities of the tenant and the landlord. The principles for the calculation of rent, and hence the underlying distribution of risk, created a major obstacle in the Swedish system. It seems that the other Nordic countries (possibly by looking at the Swedish example) have tried to avoid these problems by having government authorities rather



than companies manage the special-purpose properties and by specifying a cost-based rent.

The Swedish National Agency for Higher Education has published two reports on related subjects which can be obtained from their Web site:

- “The Current Swedish Model of University Governance – Background and Description” (in English), <http://www.hsv.se/publikationer/skrifter/pdf/HsV199810S.pdf>
- “Rental Costs in Swedish Higher Education – Report to the Government” (in Swedish with a summary in English), <http://www.hsv.se/publikationer/rapporter/pdf/HsV199831R.pdf>

Indicators on Strategic Performance and Equitable Financing: Key Parameters for Managing School Infrastructure

By Jean-Pascal Foucault, Executive Advisor on Management, Montreal Island School Council, Quebec

In Canada, more than 53% of schools were built between 1950 and 1960. These schools were cheaply constructed, designed to meet the rapidly expanding post-war population and to last an average of 30 years. In 1993, the overall maintenance and renovation deficit for schools was estimated at some USD 1 billion.¹

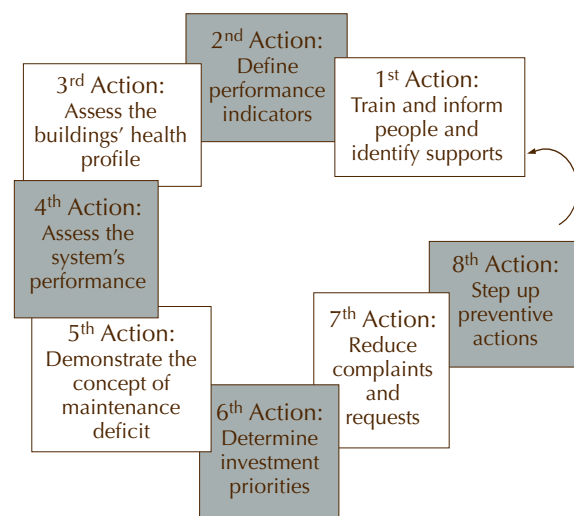
There were identical developments in the other industrialised countries during the same period, although obviously on a different scale. This period of mass construction of infrastructure and plant, both public and private, created a series of new challenges. For example, as demand soared and outstripped supply, it promoted the use of new building techniques and materials. This was dictated by short-term interests, as priority was often given to building rapidly and at low cost at the expense of quality. The consequences of this approach, in the wake of the oil crisis of the early 1970s, were that as schools began to age, it became apparent that the components of buildings were proving short-lived, buildings were not energy efficient and there was insufficient financing for maintenance and renovation.

The proliferation of changes and additions to laws, standards and regulations in the construction industry and the public budget cuts of the last decade have placed enormous pressure on those responsible for managing school infrastructure. For example, preventive maintenance is often neglected in order to meet short-term needs, and carrying out maintenance and renovation only after major problems have emerged is increasingly the norm.

Economic climate and environmental pressures



Strategic facilities management process



The managers of school infrastructure have no choice but to convince policy-makers and funding authorities of the strategic importance of plant (grounds and buildings) in the mission of their organisation.

The first step towards a solution is to provide clear and transparent information on the situation and on the medium- and long-term consequences of failure to take concerted action. We must even say that there is a problem of risk management. This risk can be defined as the threat that an occurrence, action or failure to act will be detrimental to the objectives and implementation of an organisation's strategy. For instance, there are the financial risks connected with

1. Hanson, Shirley J. (1993), *Les écoles canadiennes dans le rouge: La première étude nationale sur les installations scolaires*, Association des administrateurs scolaires de l'Ontario, 252, rue Bloor Ouest, bureau 5-110, Toronto, Ontario, Canada, 30 pp.

civil proceedings due to injuries or even loss of life, the inflated cost of work because demand is greater than supply, or the loss of revenue caused by a decline in the number of users. This calls for stringent management of the maintenance and renovation of buildings. Are we willing to assume this responsibility?

What financial resources must be invested in order to carry out regular maintenance and renovation? What budget is required to meet present and future needs? Which components of buildings should be given priority within a strategic intervention plan for school infrastructure? Can one estimate the cost of demand due to the ageing of school infrastructure? Do we have the necessary tools to support decision-making to manage the situation?

By defining the parameters of school infrastructure management, such as maintenance and current operations, upgrading, renovation and the maintenance deficit,² one can develop measurable and comparable strategic indicators. Performance indicators are by no means exclusively of a financial nature, but also involve analysis of the internal management procedures of the service responsible for facilities, evaluation of service to customers and assessment of the ability of human resources to learn and innovate.³

2. Office fédéral des questions conjoncturelles (1992), *PI-BAT, Méthode MERIP*, Bern, Switzerland.

3. APPA, The Association of Higher Education Facilities Officers (1999), *The Strategic Assessment Model*, TechniGraphix, Alexandria, Virginia, United States, 117 pp., <http://www.appa.org>

The following is a set of basic performance indicators that can enable managers to maintain a balanced scoreboard of indicators:

<p>1 - Condition of facilities indicator (CFI): CFI = (maintenance deficit/replacement value) x 100</p>	<p>CFI < 5%: satisfactory 5% < CFI < 10%: acceptable CFI > 10%: low to critical</p>
<p>2 - Indicator of major repairs and renovation (modernisation) effort (IMRRE): IMRRE = ((annual cost of major repairs + annual cost of renovation and modernisation)/replacement value) x 100</p>	<p>1.5% < IMRRE < 3%: satisfactory</p>
<p>3 - Indicator of renovation (conversion) effort (IRE): IRE = (annual cost of renovation and conversion/replacement value) x 100</p>	<p>IRE: varies from one year to the next and according to plant planning schedules</p>
<p>4 - Indicator of operations and maintenance effort (IOME): IOME = ((annual cost of operations and maintenance + cost of minor repairs)/replacement value) x 100</p>	<p>0.5% < IOME < 2.5%: satisfactory</p>
<p>5 - Indicator of team productivity (ITP): ITP = (number of hours spent on repair work/number of working hours) x 100</p>	<p>ITP < 50%: satisfactory ITP < 20%: excellent</p>
<p>6 - Indicator of customer satisfaction (ICS): ICS = (number of satisfied customers/total number of customers) x 100 <i>N.B. Based on complaints or congratulations received or on surveys.</i></p>	<p>ICS > 70%: satisfactory ICS > 80%: excellent</p>
<p>7 - Indicator of funding bodies' satisfaction (IFBS): IFBS = (number of board members in favour of the manager's recommendations/total number of board members) x 100 <i>N.B. On the basis of the recommendations adopted or on surveys.</i></p>	<p>IFBS > 70%: satisfactory IFBS > 80%: excellent</p>
<p>8 - Indicator of employee satisfaction (IES): IES = (number of satisfied employees/total number of employees) x 100 <i>N.B. On the basis of labour relations (complaints, disciplinary measures, absenteeism, etc.) and on surveys.</i></p>	<p>IES > 70%: satisfactory IES > 80%: excellent</p>
<p>9 - Indicator of work standardisation (IWS): IWS = (annual cost of standardised or regulated work)/replacement value) x 100</p>	<p>IWS > 50%: satisfactory IWS > 70%: excellent</p>
<p>10 - Indicator of learning and innovation (ILI): ILI = (annual cost of training/wage bill) x 100</p>	<p>ILI > or = 1%: satisfactory ILI < 1%: low</p>
<p>11 - Indicator of occupation of facilities (IOF): IOF = (number of students/capacity in terms of places) x 100</p>	<p>IOF > 100%: growth IOF = 100%: satisfactory IOF < 100%: decline</p>

Higher Education Statistics Projects

By John Rushforth, Head of Estates, Higher Education Funding Council for England, United Kingdom

A detailed and consultative study was carried out in the higher education sector in the United Kingdom, which aimed to produce a set of key estate management statistics and definitions to support them. The Higher Education Funding Council for England (HEFCE) commissioned the study on 26 January 1998. Outputs of the research were published in *PEB Exchange* February 2000, and the process developed to carry out the project is developed here.

The study arose because it was recognised that there was a need to develop a coherent, consistent, relevant and usable set of data which could assist estate managers and senior managers of institutions in improving the management of their institutions. The study focused on “core” estate matters. There is always debate as to the precise boundaries of the role of estates: does it include those roles often ascribed to facilities management, such as telecommunications and catering, or is it concentrated on estate strategy, development and maintenance? Undoubtedly the precise role of estate management differs from institution to institution and will change over time, but for the purposes of this study attention was focused on the more “traditional” role of estate management, and hence the data needed to support this role.

Participation in the project was voluntary and 39 institutions volunteered. Central to the successful completion of the project was the process used to carry out the work. A key first stage was developing and agreeing to a set of sound governing principles; these were:

- The methodology was kept as simple as possible.
- The project was designed to use existing institutional data as far as possible.
- It was capable of being extended to others in the sector.
- It allowed the basis for the comparison of higher education institutions with other sectors and internationally.
- The conclusions were intended to be transparent and readily understood by institutions.
- Any audit and checking of information could be incorporated, wherever possible, into existing arrangements and should be non-intrusive.
- The conclusions were intended to be non-judgmental; there is no right answer for what the space utilisation target for an institution should be – the research was to enable informed judgements to be made.



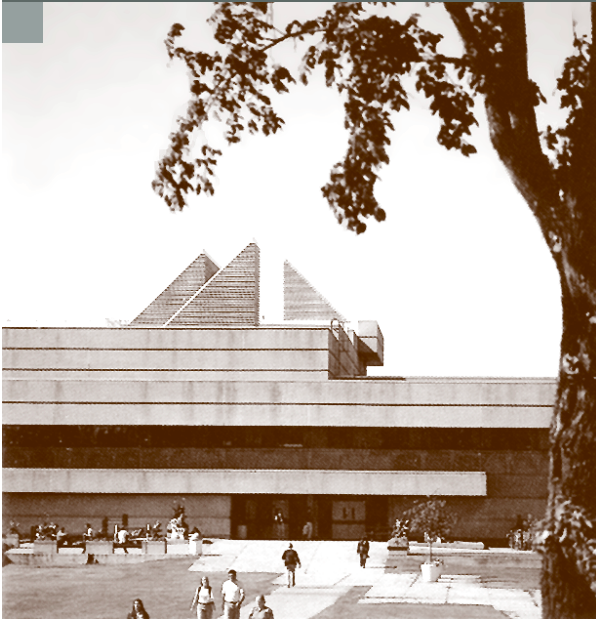
A central element of the methodology used as part of the study was consultation with the participating institutions (termed “sponsors”). Also a Steering Group was set-up and comprised a representative selection of members of the sector, including non estates professionals. The Steering Group played a key role in ensuring the research satisfied the needs of the sector.

Early on in the project a questionnaire was issued to the sponsor institutions. It elicited information about estate management roles and responsibilities, what the sponsors wanted from the project, how and what statistics are used currently, limitations with current measures and data availability.

HEFCE avoided describing things as performance measures; instead they used the notion of a Key Estate Ratio (KER) which was simply a combination of core statistics. KERs were viewed as basic interrogation tools for estate management and the senior management of institutions.

A one-day seminar discussed the results of the questionnaire analysis and probed more deeply topics such as defining data, KERs to focus upon, using and applying the data, and the most appropriate means of taking the project forward.

An initial set of KERs were developed and reviewed by the project team and Steering Group. The KERs were then formally assessed by the sponsors. In particular, a rank was attached to each KER by the director of estates, the director of finance and the vice chancellor/principal. An assessment was then made based upon three key criteria: likely data availability, ability to misinterpret the data and relevance of the indicator. From a wide potential range of key statistics and indicators, 14 which could be delivered “now” and which were considered to be “priority” were selected. They fell into four categories: meeting business needs, controlling costs, using space effectively and managing well.



A set of definitions relating to the data items supporting these KERs was developed. As an example of some of the definitional issues that arose, it is worth briefly examining the breakdown of space required by type of activity. This was an area of some controversy amongst the sponsors with comments from some that such a breakdown was artificial since it was difficult or impossible to distinguish how space is used in the higher education institution. If institutions could not break down the type of space they use it would be very difficult to develop inter-institution comparisons. Thus, one of the main drivers of space utilisation is the amount of research activity undertaken. It is very difficult to compare one institution with another if the effects of different types of activity cannot be split out. Breaking down the type of space allows attention to be focused on key parts of the higher education service, looking at costs per square metre and per student and also space utilisation for research, teaching, office and other support space. Other institutions commented that they did not realise how little teaching space they had in relation to office space.

The next step was the collection of the data. Testing of the data capture mechanism was fast-tracked with a selection of the sponsors. Following this, the formal full data collection was undertaken electronically. It was necessary to provide detailed support and guidance to sponsors in completing the electronic return. This included an opportunity to review their return after it had been checked by the project team, with any inconsistencies or apparent errors in returns highlighted. Following this validation process the full results were issued to sponsor institutions.

HEFCE at first assumed that institutions would want their data to be confidential. However, once the analysis and suggested groupings were looked at by the Steering Group, they agreed that the sector is so diverse that any groupings would not be reasonable. This was because for some indicators, institutions would want to look at indicators for say all city centre universities, whilst for others subject mix would be important, whilst for others regional factors would be relevant. What would make the data useful would be to look at the data of other known institutions so that each institution could construct the peer group of its choice for specified statistics. This meant that information would have to be freely available, and all the participating institutions readily agreed to this.

Alongside issuing the final data results to sponsors, a “user satisfaction” questionnaire was issued. This asked for comments on the success of the project, including the usefulness of the outputs, methodology used and relevance of material. The sponsors reported clear support on all these issues, particularly in terms of the consultative approach used in the study.

Some Results:

Space requiring major repair or inoperable space: 31%

Non-residential property costs

- per square metre: GBP 73
- per student (full-time equivalent): GBP 731
- as percentage of total revenue: 9%

Research property costs as percentage of research revenue: 6.7%

Maintenance costs per square metre of gross internal area: GBP 13.39

Gross residential income per bed space: GBP 1 748

Non-residential space per student (FLE): 11.3 m²

Office floor space per office-based staff: 13.4 m²

Estate management costs as percentage of total property costs: 3.7%

Conclusions

Whilst there was commonality in terms of data “needs” between institutions, there was a wider difference in terms of capabilities to deliver data. This was built into the recommendations of the project in terms of application of the KERs.

It was also clear that the consultative and iterative process used helped to achieve sector “buy-in”. This approach was viewed as important as a means of progressing work in this area in the future.

In certain respects the actual definitions and data produced from the study are not the most important outputs, valuable as they have been to the sector. Of greater value – arguably – is the fact that such definitions and data have been produced for the first time. The details can now be sorted out now that a consistent, comprehensive and usable framework is in place.

Comparative data is not an end in itself. Unless the information is rooted in the business needs of the organisations, people will not participate or contribute.

The challenge is now how to extend the exercise from the 39 institutions to the 200 institutions in the United Kingdom. In keeping with their efforts throughout the project, HEFCE has consulted and is moving towards an all sector analysis, with the first national collection of data due in May.

Seminar conclusions

By Richard Yelland, Head of Programme, OECD Programme on Educational Building

The infrastructure of tertiary education has to change in response to a changing policy environment.

Higher and tertiary education is changing in three main ways:

- It is becoming more diverse.
- The institutions that provide it are becoming more business-like in the way they approach their task.
- Although judgements in this area are subjective it seems to many that the pace of change is becoming ever more rapid.

Secondly, it is now widely accepted that we live in a knowledge-based society. The knowledge economy is growing fast, and interdisciplinary-learning is becoming increasingly important.

Moreover the public sector, which in some systems never had a monopoly of provision, is losing it in some countries where it did. The challenges from the private not-for-profit and increasingly the private for-profit sectors as well as competition from conventional providers within and across international boundaries are growing.

In this context there are some things that we know and that we can hold on to; some things we think we know – or at least know how to find out; and some things we clearly do not know as well as we need.

Things we know

We know that growth in student numbers (“massification”) has been strong. Although it is showing signs of stabilising in some countries – at least for full-time students under the age of 25 – there is still considerable unmet demand for continuing vocational and professional training.

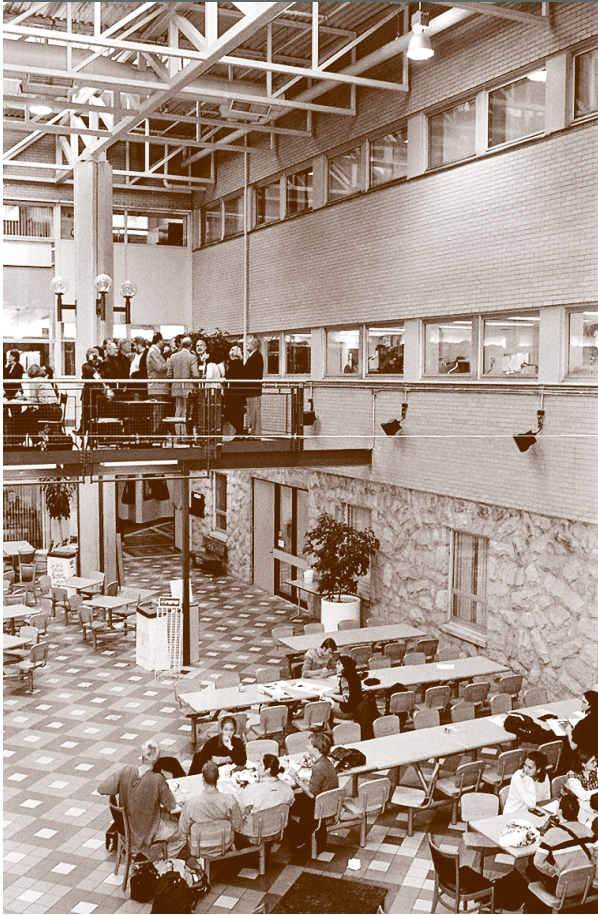
As lifelong learning has developed, the proportion of adult students has increased, changing the needs that facilities must meet.

Students have greater choice: of programmes, of institutions, of methods of delivery.

For a number of reasons, not the least of which is the fact that students are being asked to finance their studies directly, the expectations of clients – students themselves, their families or their employers – have been raised. This applies to the relevance of programmes and qualifications, the quality of outcomes and the employability of graduates, as well as to the standards of service provided.

There is greater pressure on institutions to provide evidence of efficiency and to be accountable for the resources under their management.





Things we think we know

We have some confidence in the information available to us about the facilities we have, their condition, their costs and their suitability. We believe we know how to manage them reasonably efficiently and how much ought to be spent to get them into good shape. We may not be able to convince those who hold the purse-strings to make available the necessary funds or to treat facilities management with the seriousness which we believe it deserves, but we are growing in confidence in our professional capacity to manage.

We also have a reasonably good understanding of what education used to be like, and continues to be in the majority of institutions: of how teachers work and how students behave.

Things we don't know

However we are very unsure of the impact of competition, particularly from the private for-profit sector, including organisations such as media companies which have not hitherto been seen as education

providers. Related to this is our lack of understanding of how information technologies will develop and influence the sector. There appears to be an explosion of on-line delivery, but we do not know to what extent this is meeting new demand, will replace traditional mode of delivery for existing students, or will be incorporated in and enhance that provision. In short, we do not feel very confident in our analysis of where our business is heading and of how education is changing.

And crucially we are unable to answer the questions which as professionals we are going to have to get used to facing more frequently. What difference do facilities design and management actually make? How will it impact on student outcomes if we deliver in one way rather than another?

Responses to change

The tertiary sector and its managers have been responding in a number of ways:

- flexibility of design (more variety of spaces and facilities);
- flexibility of procurement (more leasing and shared use);
- flexibility of management (better planning of space use);
- new management tools;
- more professionalism in our work.

Work to do

But there are a number of areas where we need to do more. There is a clear need for some basic research into the impact that facilities have on learning. The information and knowledge that we have needs to be better shared between ourselves – nationally and internationally. The case needs to be made more strongly that facilities management has a legitimate voice in strategic institutional management.

In conclusion...

It is important that we strive to bring together facilities management, the development and analysis of educational policy, and the practice of teaching and learning. Each of these fields is complex and has its own professional and research literature, but if they do not work together the opportunity for change will be lost. In the final analysis our business is about educational excellence, but it is also about institutional survival at a time when there are no guarantees for the future.

Contacts

William A. Daigneau

Vice President
Operations and Facilities Management
M. D. Anderson Cancer Center, University of Texas
1515 Holcombe Boulevard, Box 238,
Houston, TX 77030, United States
Fax: 1 713 745 1753
E-mail: Daigneau@mail.mdanderson.org

Jean-Pascal Foucault, ing.

Conseiller cadre en gestion
Conseil scolaire de l'île de Montréal
500, boulevard Crémazie Est
Montreal, (Quebec) H2P 1E7, Canada
Fax: 1 514 384 2139
E-mail: jean-pascal.foucault@csim.qc.ca

Jan Ivar Mattsson

Director, Buildings Office
Uppsala University
PO Box 256
S-751 05 Uppsala, Sweden
Fax: 46 18 471 1708
E-mail: JanIvar.Mattsson@uadm.uu.se

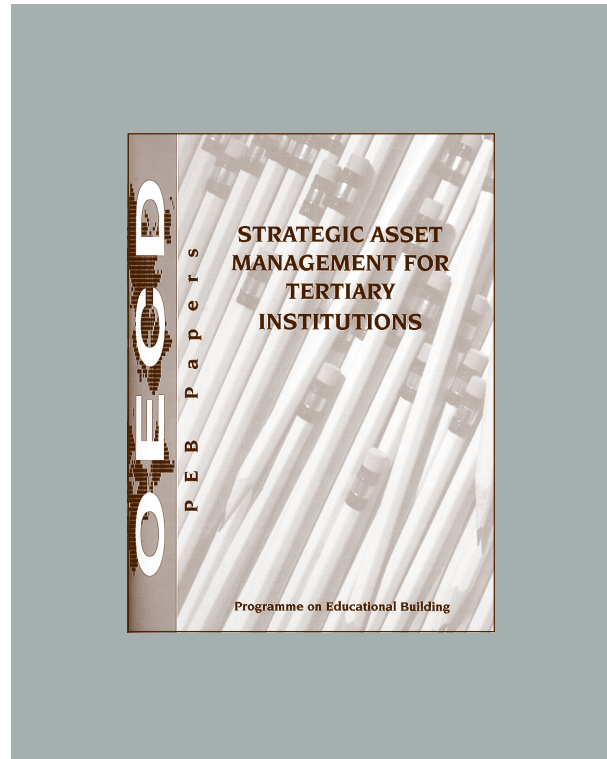
John Rushforth

Head of Estates
Higher Education Funding Council for England
Coldharbour Lane
Bristol, BS16 1QD, United Kingdom
Fax: 44 117 931 7173,
E-mail: J.Rushforth@hefce.ac.uk

Richard Yelland

Head of Programme
OECD Programme on Educational Building (PEB)
2, rue André-Pascal
75775 Paris Cedex 16, France
Fax: 331 42 24 02 11
E-mail: richard.yelland@oecd.org

The photographs illustrating this article are of tertiary institutions visited during the Quebec seminar. PEB wishes to thank the University Laval, the Université du Québec à Montréal, the Cégep de Sainte-Foy, the Centre intégré en alimentation et tourisme (Quebec City) and the École de technologie supérieure (Montreal) for their welcome.



STILL AVAILABLE

Strategic Asset Management is based on the proceedings of the PEB international workshop in Sydney, Australia, that examined current trends in tertiary education policy: a more open market, student-centredness and user choice, lifelong learning and the blurring of sectoral differences. It shows how the role of facilities managers is evolving and how the resources invested in facilities can be made to work more efficiently in the pursuit of institutional objectives.

OECD Code 951999011P, 72 pages,
ISBN 92-64-17014-6, Oct-1999
FRF 140, USD 25, DEM 42, GBP 15, JPY 3 150