

# PEB *EXCHANGE*

THE JOURNAL OF THE OECD PROGRAMME ON EDUCATIONAL BUILDING

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OECD



## The OECD Programme on Educational Building (PEB)

The Programme on Educational Building (PEB) operates within the Organisation for Economic Co-operation and Development (OECD). PEB promotes the international exchange of ideas, information, research and experience in all aspects of educational building. The overriding concerns of the programme are to ensure that the maximum educational benefit is obtained from past and future investment in educational buildings and equipment, and that the building stock is planned and managed in the most efficient way.

Seventeen OECD Member countries and 14 Associate members currently participate in the Programme on Educational Building. PEB's mandate from the OECD Council to advise and report on educational facilities for students of all ages runs until the end of 2006. A steering committee of representatives from each participating country establishes the annual programme of work and budget.

### PEB Members

Australia	Netherlands
Austria	New Zealand
France	Portugal
Greece	Slovak Republic
Hungary	Spain
Iceland	Switzerland
Ireland	Turkey
Korea	United Kingdom
Mexico	

### PEB Associate Members

Albania Education Development Project
Chile
CISEM (Research Institute of the Province of Milan and Italian Provinces Union)
Communauté française de Belgique
Dienst voor Infrastructuurwerken van het Gesubsidieerd Onderwijs (DIGO – Belgium)
Het Gemeenschapsonderwijs (Belgium)
Ministerium der Deutschsprachigen Gemeinschaft (Belgium)
Province of Quebec (Canada)
Provincia di Rovigo (Italy)
Regione Emilia-Romagna (Italy)
Regione Toscana (Italy)
Republic of Slovenia
Service général de garantie des infrastructures scolaires subventionnées (Belgium)
Tokyo Institute of Technology (Japan)

# PEB AND OECD ACTIVITIES

## NEW ASSOCIATE MEMBERS

The OECD Programme on Educational Building happily welcomes three new Associate members: the French Community and DIGO in Belgium and the Republic of Slovenia. The *Communauté française de Belgique* manages education for French speakers in Wallonia and Brussels. Their Web site, <http://www.cfwb.be/>, provides an extensive explanation in four languages of the Community's workings and a wealth of additional information in French on its educational services.

DIGO, *Dienst voor Infrastructuurwerken van het Gesubsidieerd Onderwijs* (Subsidised Education, Infrastructure Works Department) is Belgium's Flemish governmental organisation responsible for subsidising educational facilities. DIGO subsidises the purchase, construction and renovation of buildings for municipal, provincial and private institutions.

The Republic of Slovenia, according to its site at <http://www.sigov.si/vrs/ang/slovenia/education.html>, finances its education system almost fully from the state budget. The country counts 814 elementary schools for approximately 180 000 students and 144 secondary schools for 104 000 students. At elementary level, there is one teacher per 12 pupils and 20 pupils per class.

## “CLICKS ON BRICKS” SEMINAR

The interaction between technology and capital investment, or “clicks on bricks”, will be the theme of a PEB seminar on 24-26 March 2003, in Australia. The seminar will concentrate on facilities for tertiary education. Research commissioned by the Australian Department of Education at the level of vocational education and training will be presented, in addition to

expert presentations from other countries. The Queensland University of Technology in Brisbane will provide the venue. For more information, please contact the PEB Secretariat or consult the PEB Web site (see page 28).

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## **SCHOOL SECURITY AND TERRORISM**

A 14-page report summarising the “International Meeting on Helping Schools Prepare for and Respond to Terrorist Attacks” is now available on the PEB Web site. The meeting, which took place in Washington, D.C. in February 2002, was organised by the U.S. Department of Education, PEB and the U.S. State Department. Copies of the report can also be obtained from the PEB Secretariat. For other publications on school security, see page 6.

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## **NEW OECD DIRECTORATE FOR EDUCATION**

A new directorate was created exclusively for education within the OECD Secretariat in September 2002. Education was formerly part of the Directorate for Education, Employment, Labour and Social Affairs. Announcing this change, the Secretary General said, “Education is a priority for Member countries. In recent years, under the leadership of John Martin, the OECD has played an increasingly important role in this field. The creation of a new Directorate for Education is a testimony to the success of this programme. This change should further improve education’s visibility within the OECD and with the public at large, and give further impetus to its work.” Barry McGaw heads the Directorate for Education of which PEB is a part.

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## **LOOKING AT ICT POLICIES**

The OECD is looking at policies for using information and communications technologies (ICT) in education, considering the funds involved and ICT’s potential to improve learning. Annual expenditure on educational ICT in 1999 was estimated at around USD 19 billion across OECD countries.<sup>1</sup> This massive spending is being driven partly by fear that a lack of ICT skills could slow down economic growth, and that without ICT skills individuals’ employment prospects would suffer. Another factor is the belief that ICT has enormous potential to

improve the quality of teaching and learning. In the 1980s many thought that computer-aided instruction would make education more “efficient” by replacing teachers, reducing costs and standardising delivery of content. Current enthusiasts for ICT in education are fascinated by the potential of connected technology to change control over the learning process and to change the relationship between teachers and learners. Visions abound of ICT making possible “anywhere, anytime” learning, more independent learning, more team-based learning, greater access to resources outside the classroom, and teachers as “guides-at-the-side” rather than “experts at the front”.

What is the reality? Stanford University’s Larry Cuban recently referred to ICT in education as “oversold and underused”.<sup>2</sup> Much of the technology is used unimaginatively; computers are often used as little more than an expensive typewriter. Other evidence suggests that students and teachers use ICT more *outside* of the classroom than they do at school. Why? One reason could be that hardware has not been matched by sufficient funds to train teachers. Another might be that how school systems define things like assessment requirements, class sizes and attendance requirements inhibits creative uses of the technology.

Another part of the explanation might be found in how ICT is incorporated into the physical fabric of the school. What is the educational case for computer laboratories, compared to having the machines in the classroom? Do wireless PC networks lead to better learning outcomes than hard-wired networks? How is learning affected if computers are located in common spaces such as libraries and canteens? And how is learning with ICT affected by the interaction between infrastructure and the way schools are organised: for example, class sizes or the length of the teaching period?

These are the sorts of questions that PEB will explore jointly in 2003 with the OECD’s Education and Training Division in a new activity on “ICT: Policy Challenges for Education”.

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1. OECD (1999), “Technology in education: Trends, investment, access and use”, *Education Policy Analysis*, Paris.

2. Cuban, L. (2001), *Oversold and Underused: Computers in the Classroom*, Harvard University Press, Massachusetts.

## EMSOM, THE VOCATIONAL TRAINING SCHOOL IN SOUTH-WEST MONTREAL

EMSOM (*École des Métiers du sud-ouest de Montréal*) is one of the largest multi-purpose centres in Montreal. Its course on **elevator engineering** is the only one of its kind in Quebec, Canada and even North America.

Formerly known as the Saint-Henri Vocational Training Centre, the school was founded in 1987. Over 1 000 students can choose from ten vocational programmes covering five sectors: applied arts, building and public works, electrical engineering, maintenance mechanics and mechanical production. Students attend full-time day or evening classes.

The premises have been extended to cater specifically for the elevator-engineering course, with the support of a large subsidy from the Quebec Ministry of Education. There is now a four-floor building block with fully operational elevators, plus a wing with escalators donated free of charge by private firms.

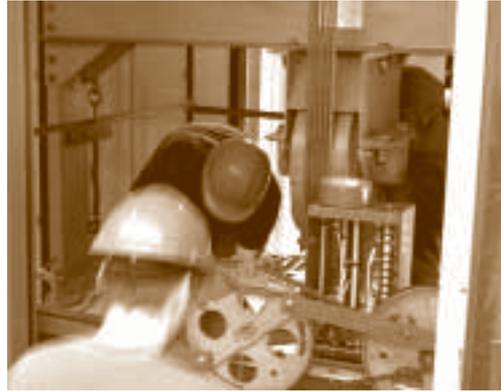
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The course teaches students how to read electrical wiring plans and identify faults in electrical, electronic, mechanical and hydraulic systems. They also learn how to install elevators, escalators, moving walkways, dumb-waiters and other machinery. And finally they are taught how to maintain all this equipment.

The programme covers a total of 1 800 hours. Across the various courses, 90 hours are spent on reading diagrams, plans and specifications, for instance; 120 hours on installing infrastructure and equipment; 90 hours on installing escalators; 90 hours on installing and operating elevator platforms; 105 hours on assembling and finishing elevator cabins, and 120 hours on dismantling elevator components.

Students therefore benefit from hands-on training, meaning that they enter the labour market as highly valued technicians with a placement rate of almost 100% and can command high wages for the sector.

EMSOM also has a special five-year programme with the opportunity to obtain three qualifications, *i.e.* the DES, the DEP and the DEC (secondary, vocational and college diplomas) in industrial engineering and industrial maintenance.



Other courses available at EMSOM focus on:

- building plan, survey and topography (building and public works sector);
- industrial design, use/adjustment of plastic moulding machinery (mechanical production sector);
- industrial construction and maintenance engineering, maintenance mechanics for industrial controls, and preventive/predictive industrial maintenance mechanics (maintenance mechanics sector);
- electrical engineering for automated systems, repair and installation of electrical home appliances (electronics sector);
- jewellery (arts sector).

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## **EARTHQUAKE TORTOISES**

How can safer areas be identified in ageing school buildings that fail to meet earthquake standards? In the French Overseas Department of Guadeloupe, the most earthquake-prone part of France, a private company is proposing a scheme called “Earthquake Tortoises”.

The scheme is for school buildings that cannot be retrofitted or rebuilt for several years. It comprises seven steps, including the following:

- Investigate ground structure and conduct a preliminary survey of the buildings.

- When planning evacuation routes to the muster-points where people will gather after the earthquake, take into account which parts of the building are likely to fall or collapse.
- Use the tortoise symbol to indicate safer areas within the building. This saves precious time when making individual and collective decisions as to where to shelter during the quake.
- Conduct an evaluation to measure satisfaction among users, their representatives and operating staff. The evaluation will be based on the results of an earthquake drill.

This is an operational project launched in 2001 and run by a multidisciplinary team with complementary skills, including knowledge of ground characteristics, earthquake-resistant construction, rescue of persons trapped under debris and crisis management.

The “Earthquake Tortoises” scheme was developed in response to the United Nations resolution on an International Strategy for Disaster Reduction (ISDR).

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## **ARCHITECTURE AND POVERTY**

The participants at the VI International UIA Seminar on “Architecture and Poverty” drafted a charter that solicits architects to help combat poverty and exclusion in developing countries, based on experience in Latin America and the Caribbean. The seminar, in Puebla, Mexico, closed the cycle of six events on this topic (the preceding ones were in Manila, Mumbai, Almaty, Dublin and Durban) organised by the International Union of Architects (UIA), with the participation of its president, Architect Vassilis Sgoutas.

The Charter of Puebla cites the growing need for family housing as a cause of these ills and suggests that ownership of land and one’s home facilitates participation in society “through self-help construction and social, cultural and economic integration”.

Here are excerpts from the Charter of Puebla:

- Poverty and exclusion from which suffer many regions and communities of Latin America and the Caribbean are the result of profound social problems, such as lack of education, lack of cultural opportunities, the absence of adequate health systems, unemployment and the growing need for housing for families.
- Architects and architecture are faced with the responsibility of influencing the equitable construction and distribution of dignified dwellings and education and health services.
- Architecture and architects could become a decisive factor in the reduction of the social segregation of space and must take on a new role that opens up new fields of action to overcome the plague of poverty and exclusion.
- Architects should pressure the competent authorities to create “territorial reserves” propitious to social housing, with access to educational, health and urban services.
- Architects of the world must play a fundamental role in joining transdisciplinary teams to exercise influence on policies and projects with an aim to combat poverty and exclusion.

The seminar was organised by the UIA, the UNESCO Regional Office for Education for Latin America and the Caribbean and the International Centre of Prospective and Higher Studies (CIPAE). It took place 24-26 May 2002.

The president of the UIA disseminated the Charter of Puebla at the World Congress of Architects in Berlin in July 2002.

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## U.S. SAFE SCHOOL PUBLICATIONS

Together the U.S. Department of Education and the U.S. Secret Service have published a report and a guide following a three-year partnership called the Safe School Initiative. *The Final Report and Findings of the Safe School Initiative: Implications for the Prevention of School Attacks in the United States* examines the behaviour and thinking of young persons who commit acts of targeted violence in the country's schools. The



A settlement built illicitly under high-voltage power lines, due to the difficulty of finding land



50-page report summarising their work reveals that incidents of targeted violence in schools are rarely impulsive and that attacks are typically the end result of a process of thinking and behaviour that often can be detected by others.

In addition to the report, a 103-page guide was developed to share with schools and law-enforcement agencies throughout the country. It is entitled *Threat Assessment in Schools: A Guide to Managing Threatening Situations and to Creating Safe School Climates*.

To access the final report and the guide visit <http://www.ed.gov/offices/OESE/SDFS/publications.html>, or to order copies send your request by e-mail to [edpubs@inet.ed.gov](mailto:edpubs@inet.ed.gov) or fax: 1 301 471 1244.

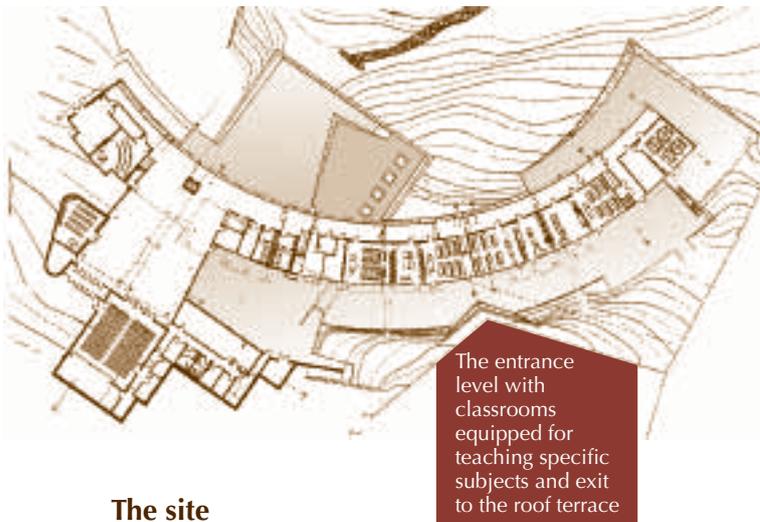
*For more on school security, see page 3.*

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# PROJECTS

## HUNGARY'S GERMAN SCHOOL OF BUDAPEST

Hungary's newly-built German School of Budapest is adapted to its site, is safe and environmentally friendly, and has comfortable indoor areas that are tailored for its users, including those with physical disabilities. The school's new three-storey building, put in operation in August 2001, caters to students in grades five through 12.



The entrance level with classrooms equipped for teaching specific subjects and exit to the roof terrace

### The site

Erected on a steep slope, the building is adapted to the difficult features of the site and opens out onto nature at every possible location. One section of the building curves around the hill while others are embedded in the slope. Each floor directly connects with the gardens, terraces or rural landscape of the hillside. A group of healthy trees on the grounds were preserved during construction.

### Safety

In case of fire, the school's 320-360 students can rapidly evacuate the building to a safe place. For easy evacuation, the building is divided into fire protection sections according to the logical structure of the layout. The smoke detectors, fire alarm system and evacuation routes were carefully designed. The many links to the outdoors are highly functional for evacuation.

### Environmentally friendly

The German School of Budapest successfully uses environmentally friendly products and installations. Non-hazardous and non-allergenic products are used for

cleaning. The lavatories and toilets are equipped with water-saving devices. Motion sensors in the restrooms reduce electricity consumption, and low-consumption lighting units are used throughout the building. Energy for heating is provided by a fully automatic gas boiler with an energy-saving control system. Evidence to date indicates a low level of energy consumption, despite the building's large glass surfaces, openness and spacious rooms.

### Indoor areas

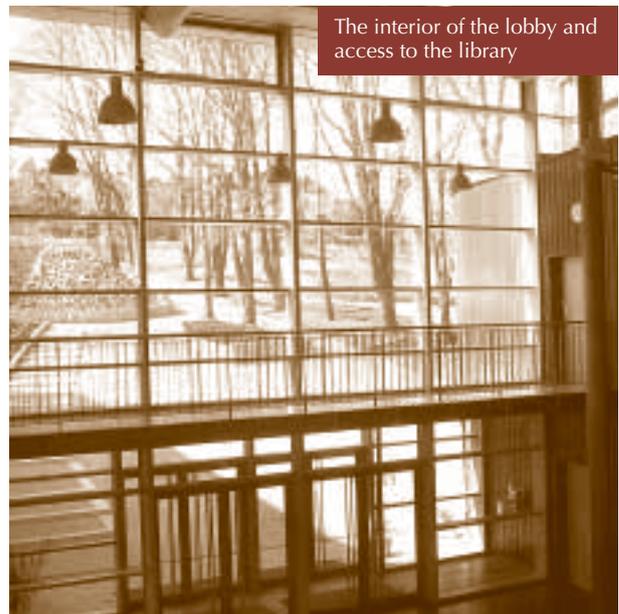
The surfaces and structural solutions throughout the building were chosen to meet the needs of teachers and students, with special attention to those with physical handicaps. The lighting, ventilation, indoor climate and acoustics are well adjusted to the function of a school. Examples are given in the descriptions below of the lobby, classrooms and other areas.

### Lobby

The school's main entrance gives onto a two-storey lobby that serves as the centre of the school community and provides links to the outside. The lobby is the central area from which most communal functions are accessible: the teachers' room, the administrative offices, the library, a 300-seat theatre and an eating area. The lobby's link to the garden and array of doors leading to the roof terrace ensure direct contact with nature year round. Its glass walls look onto the inner yard, where one can exit to the hilltop.

A durable, dark, easy-to-clean stone surfacing and brightly lit spaces characterise the lobby. Its glass walls let an abundance of light into the building. The panelled ceiling improves the acoustic features of the predominantly glass and stone surfaces.

However, the lobby can become too warm in the summer, a problem that could have been avoided if an extensive green roof had been designed for the building.

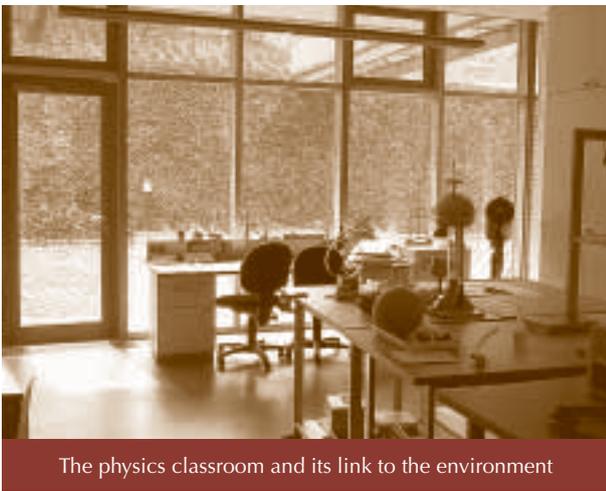


The interior of the lobby and access to the library

## Classrooms

The new school building has 32 classrooms. Sixteen traditional classrooms form the educational wing that wraps around the hill; they are lined up opposite a wall of lockers, and their windows offer a pleasant view of Budapest. Six smaller classrooms for group work are arranged on a separate corridor. Ten additional classrooms equipped for teaching specialised subjects share a third corridor with a laboratory and equipment storage areas.

The classrooms provide ample room for 20 people and allow for different types of furnishings. They are equipped with mobile desks, ergonomically designed



chairs, a mobile screen, a blackboard and a water supply connection. A television and video and slide projectors can be wheeled into the classrooms on a stand. While not every classroom has computers yet, connection points for Internet and Intranet are installed throughout.

The classroom doors, floors, walls and ceiling were designed with consideration for use by people with disabilities and students in general. The doors are wide enough for wheelchairs, are without thresholds, close automatically and have an excellent acoustic design. The floor covering is an easy-to-clean, environmentally friendly cork linoleum, that does not produce hazardous gases in case of fire. Some walls are painted with additive-free white paint, and others are covered with laminated wooden boards with an acoustic back panel. The ceiling is also designed to reduce noise.

Good lighting and ventilation are ensured by well-designed windows with controls accessible to all. The windows are made of aluminium, and most have fixed glazing. The upper hopper windows, which can be

controlled manually or through a central control system in each room, can be used to let fresh air into the classrooms. The classrooms receive a great deal of natural light due to their southern exposure. Proper shading makes it possible to darken rooms when necessary for certain presentations. The control switches for the windows and shades are low enough to be used easily by teachers or students in wheelchairs.

## Other areas

Internal circulation was also given particular attention. The corridors constitute a consistent, clear and well arranged system. Their walls and ceiling are acoustically designed. Elevators are wheelchair accessible and equipped with audio information systems and tactile control panels. A colour-coding system facilitates finding one's way around the building.

The library is designed as a stand-alone box. An extension with the Internet café and its windows looking onto the park make it friendly and open to the world outside.

The gymnasium is a flexible space. It is large enough to be used by two groups simultaneously; a mobile partition wall can divide the space in two. An ergonomic floor covering was chosen to reduce the risk of injury. Apparatuses attached to the ceiling can be lowered for use. The gymnasium is adapted to wheelchair activities.

## Cost, regulations and results

The total cost of construction amounted to EUR 10 million, or EUR 23.5 thousand per person based on the institution's 426 students at the time of construction. The area cost was less than EUR 1 700 per square meter for a total area of 6 000 square meters.

The school was set up under an intergovernmental agreement, and its layout and design had to take into account German standards for school buildings as well as Hungarian regulations.

The German School of Budapest received the 2002 Building of the Year award from Hungary's Ministry of Agriculture and Rural Development, and the experience from this building will be helpful for designing further public education facilities in Hungary.

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# DESIGN DOWN PROCESS: DESIGNING A SCHOOL IN ICELAND WITH ITS USERS

This is an example of an architect working with future school users in Iceland to design their school. The architect has developed a process that he uses with students, staff and the local community to create a learning environment in which the design intends for freedom and creativity to be integrated into the students' daily learning experiences.

The school to be built, called *Ingunnarskoli*, aspires to be a place for learning that is based on the needs of children, their families and their community. It is a basic school at *Grafarholti*, a new neighbourhood on the edge of the capital. The school is designed for 400 students in grades one through ten, the standard basic school configuration in Iceland.

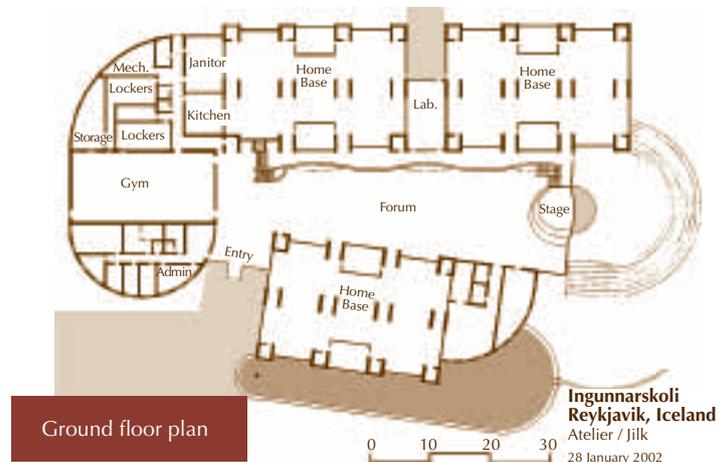
## Design Down process

The process for making decisions about this new school is called "Design Down". It starts with the biggest issues and moves toward more detailed aspects. Its goal is to make all the parts fit together, like a puzzle. Through this process, the physical space will support all elements of how the school is organised (students, time, curriculum, staff, etc.) and thus fit with the learning process. The Design Down Committee, a multi-stakeholder group of parents, teachers, administrators, students, employers, neighbours and other concerned citizens, make the decisions.

The process starts with looking at the major cultural issues – the community challenges, opportunities, aspirations and assets – and the school's learning signature, learning expectations, the learning process and the learning environment. These four learning elements are described below.

### Learning signature

The learning signature focuses on what is special and unique; it becomes the identity of the school. While most school-planning processes include consideration of mission, vision, values and logo, these components are rarely linked together in a compelling and highly meaningful signature for the school. Giving a school a special focus provides coherence, consistency and spirit



to the school and thereby adds to the quality of the learning experience and accomplishments.

The Design Down Committee for *Ingunnarskoli* defined four themes as their highest priorities: community, nature, spirit and flow.

### Learning expectations

Learning expectations are those things that are expected from the school by the community, parents and students. These expectations are consistent with what is special about the school and the larger community issues. They represent the students' accomplishments as promised by the school in exchange for the public's investment in teaching and learning. Eight learning expectations were set for *Ingunnarskoli* such as the ability to seek knowledge, learning the basic skills needed to access and evaluate information; and the development of effective communication skills using written, oral and visual forms of self-expression.

### Learning process

The learning process consists of the design for curriculum, instruction and assessment. As learning is viewed as a continuous process, learning inside the school and in the community are valued and closely co-ordinated. The learning process for the school at *Grafarholti* includes the following:

- Integrate the subjects.
- Use individual, small group and large group learning.
- Include learning in multiple settings: outdoors, elderly care centre, homes and Internet.
- Integrate learners of different ages.
- Involve students in managing their learning, teaching them to take responsibility to plan, organise and maintain their environment.
- Involve teachers working together and being trained in new teaching methods.
- Address the real needs of the community, producing useful products and services.



Architect's model of *Ingunnarskoli*



East elevation



South elevation

## Learning environment

The learning environment includes decisions about facilities, equipment and technology. Designing the learning environment begins with a detailed review of the learning signature, expectations and process, as well as organisation, partnerships and staff, in order to develop a supportive environment. The learning environment extends well beyond the school building to include all of the settings used by learners (for example, workplace, home, public library and community). Smaller learning environments placed strategically around the community optimise the use of partnerships. The close blending of school and community ensures that learning is rigorous and relevant. A learning environment networked by computers provides each learner with essentially her or his own school.

The learning environment was approached through the committee's four signature themes and includes:

- A library, sports facilities, a dining area, an art gallery and a coffee/pastry shop to bring the community into the school.
- The heart of the school as an open forum space, like a city hall, to reinforce the idea of democracy.
- A parents' room.
- Grouping two grades together.
- Direct links to outdoors from the teaching spaces.
- A greenhouse for growing vegetables.
- A sod roof.
- A stream or creek to flow through the school.

## Design concept

The design concept is a synthesis of the Design Down parameters, the site, the landscape and the historic precedents. Having brought these components together, the committee took on the task of designing the new school.

Three "use variations" are embraced by the design concept in order for the school to start with what its users

are familiar with and then "grow" into the more innovative learning systems. The three variations are on a continuum from "traditional classroom" to the more recent "students at their own workstations in small groups" to future focused "learner and teacher determined" possibilities. Corresponding space-defining elements include non-permanent walls (traditional variation), landscaped partitions (team-based variation) or what the learners develop (learner determined variation).

The Design Down Committee set the spatial concept: light as the spiritual essence of the design; the forum as the major organising space; the interior being visually connected to the exterior; vertical level changes being limited to "split levels"; and the roof being partially sod. The architect further developed the ideas.

## Freedom and creativity

The key element in this physical environment design is the ability of the children and teachers to create their own learning environments rather than having everything predetermined for them, as is the case when schools are over designed. Predetermining nearly every aspect of children's interaction with their environment limits the range of possible learning experiences, minimising the development of creativity. The approach to the design of *Ingunnarskoli* has intentional ambiguities to provide a space which enriches creativity by allowing the children the freedom to create their own environments.

*This article is based on a document entitled "Freedom and creativity: a story of learning, democracy and the design of schools". The complete text and images are available on the Internet at <http://www.designshare.com> or from its author:*

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# A FEW FACTS ABOUT UNIVERSITIES IN SLOVAKIA

Civil Engineering Faculty, Bratislava

Student and teacher numbers for the 2001/02 school year at state and private institutions

	Institutions	Students	Women students	Full-time teachers	Full-time women teachers	Part-time teachers	Part-time women teachers
State	18	92 140	45 648	9 286	3 754	2 734	704
Private	2	1 019	679	143	66	91	39
<b>Total</b>	<b>20</b>	<b>93 159</b>	<b>46 327</b>	<b>9 429</b>	<b>3 820</b>	<b>2 825</b>	<b>743</b>

Universities in Slovakia specialise in the following subjects:

- natural science;
- technology;
- forestry and wood technology;
- medicine and pharmaceuticals;
- veterinary medicine;
- humanities, political and international science;
- music, dramatic arts, fine arts and design.

The Slovakian university campus usually consists of separate functional zones assembled around the campus centre. The central area allows for interaction and directs students towards other integrated centres. The zones correspond to the following functions:

- educational (teaching, research, science, experiments, production);
- social and service (accommodation, canteen, health-care and other basic services for students);
- athletic and recreational;
- administrative.

Campus area and building sites are calculated according to a technical-economic coefficient. The optimum size takes into account the various spaces needed to meet educational needs, such as auditoriums, lecture halls, rooms for technical drawing, workshops and laboratories.

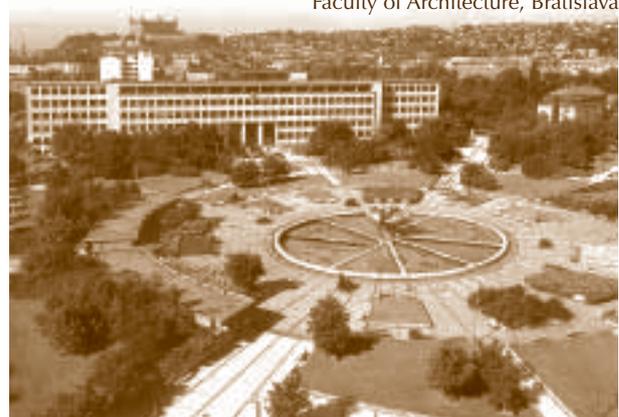
Developments in education influence both building design and equipment. To help students learn information technology, for example, various types of spaces equipped with computers are available outside of class time.

Each campus is unique. The project designer utilises his or her aesthetic know-how while respecting operational, climatic, technological and scenic requirements.

Most of the universities in Slovakia belong to the state; only two are privately owned.



Agricultural University, Nitra



Faculty of Architecture, Bratislava

In the near future, for educational and economic reasons, Slovakia is unlikely to invest in building new university campuses, rather it will concentrate on reconstructing and renovating existing facilities. While providing healthy indoor environments, the country will aim to reduce energy consumption which has been a major expense for many years.

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## TERTIARY EDUCATION INFRASTRUCTURE IN THE UNITED KINGDOM

Infrastructure for tertiary education is currently the object of attention in the United Kingdom. Presented here are four articles that describe recent planning and research regarding facilities for UK universities and colleges of higher education. They cover a case study in planning a sustainable business school building, research on the impact facilities play when students choose a university, a report on the cost and need to modernise teaching and learning infrastructure, and finally a project on effective space management to improve use of space and resources.

## ACCOMMODATING CHANGE: A CASE STUDY IN PLANNING A SUSTAINABLE NEW BUSINESS SCHOOL BUILDING

*“Buildings and the built environment play a major role in the human impact on the natural environment and on the quality of life; a sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land use, and an aesthetic sensitivity that inspires, affirms and ennobles; a sustainable design can significantly reduce adverse human impacts on the natural environment while simultaneously improving quality of life and economic well being.” (UIA/AIA World Congress of Architects, 1993)*

*“There is an imperative to identify and implement workplace strategies that alleviate the pressures organisations are facing as they struggle to be more competitive. In this shift, the workplace becomes a dynamic tool for supporting and even stimulating new ways of working, rather than a fixed asset whose performance is assessed primarily in terms of ... money.” (Becker and Steele, 1995)*

### Introduction

Physical estate costs – capital and recurrent – are usually the second largest organisational expense after staffing for higher education, which is a major and multi-million pound industry in many countries. In a four-year period (1993-96), for example, 239 major building project costs were initiated within higher education in the United Kingdom at a cost of GBP 1.6 billion (National Audit Office, 1998). Running costs, particularly of older buildings, can be high. In the developed world, buildings account for up to 50% of overall energy consumption in terms of their construction and space and water heating, cooling, lighting and use of appliances (Wigginton and Harris, forthcoming). Universities seek to grow and thrive in an increasingly competitive environment, and many espouse social and environmental responsibility. Yet it appears that comparatively little attention has been paid in higher education either to reducing the environmental impact of building design, or in considering the relationship between interior workplace design and knowledge creation, management and productivity in order to maximise the use of a scarce and valuable resource.

This paper provides a case study of the planning of an GBP 11.5 million new building for the Open University Business School, United Kingdom (OUBS). Construction (by John Sisk and Son Ltd) was completed for occupation in October 2001. When agreement was reached to commission a new building, the university had ambitious objectives to ensure an energy-conscious building that would also break the paradigm of traditional university working methods. Thus the university looked to the architects – Jestico + Whiles – to provide an innovative solution to both the design of the building itself and the internal space planning and challenged the business school to consider its ways of working. The author has been the project leader within OUBS.

### Context

Although the Open University (OU) is committed to distance learning, and has only a small number of post-graduates on campus, it has a sizeable physical estate. The main campus has been constructed since 1969 on a largely greenfield site in Milton Keynes, surrounded by parkland on two sides. The university also operates in 15 regional locations in the United Kingdom, and in Brussels and has two large warehouses close to Milton Keynes. Over 3 000 staff work at the Milton Keynes campus. The campus itself is not architecturally distinguished; it is composed mainly of two- and three-storey brick-built

conventional office blocks with a high proportion of single or double occupancy partitioned offices. Handling growth has always been problematic, with accommodation consistently lagging behind demand. The business school previously occupied two smaller buildings on different parts of the campus. The cost of “churn” – changing accommodation to meet new requirements – was considerable. The new building was planned for 350 staff, around 100 of whom are academics – the OU being rather different in staff mix from other universities. The site for the new building was formerly a meadow, outside the main university ring road, on a site of potential archaeological interest (Roman and medieval remains of the former Walton village, wiped out in the 13<sup>th</sup> century plague). The medieval “ridge and furrows” are still very evident on the meadows on which the building is sited; apart from regular hay-cutting, the site was undisturbed for centuries and had well-established hedgerows, a pond with protected newts and a badger set. The building is however now a prominent feature on one of the approach roads, and is visually linked to the three original buildings on the site, the 12<sup>th</sup> century church, former rectory and 17<sup>th</sup> century Walton Hall.

The business school (<http://www.oubs.open.ac.uk>) offers a range of courses, including undergraduate business and law, and a Certificate, Diploma and MBA. It currently has a turnover of GBP 35 million, and 25 000 students in the United Kingdom, and 30 countries worldwide. It has Association of Masters of Business Administration (AMBA) and European Quality Improvement System (EQUIS) accreditation.

## Overall design

The 5 340 m<sup>2</sup> building has been designed as three-storey, with a core and four “splayed” wings. Access to the building is through one entrance, via a reception area. The core is the shared community area, with most of the meeting rooms and all of the services; no-one will be further than 30 meters from a copier, a kitchen or the toilet. This central provision is designed to promote a flow from the wings into the core to encourage interaction. The core itself is spacious, and as well as meeting rooms of all sizes, there is a café area (with touchdown computer facilities) and plenty of “serendipity” space for casual meetings. The wing spaces are untrammelled open spaces, designed to provide as much flexibility as possible.

## Building design

One of the aspirations for the building was to achieve a “very good” BREEAM rating. BREEAM (the Building Research Establishment Environmental Assessment

Method for new offices) seeks to minimise the adverse effects of new buildings on the environment at a global and local scale, whilst promoting healthy indoor conditions for the occupants. The environmental implications are assessed at the design stage and compared with good practice by independent assessors. The building has achieved an “excellent” rating. The design team has taken the environmental approach to the building’s design very seriously.

- The workspaces have been orientated east/west to maximise the aspect of the surrounding landscape and optimise passive solar gain, whilst limiting unwanted solar glare.
- The workspaces provide flexible, naturally ventilated and lit space, which can accommodate open group working, or be partitioned into individually serviced areas.
- Servicing the workspaces is based on the use of the Termodeck system of closely controlled ventilation, which is highly energy efficient. Fresh air is introduced into the space at high level, and is tempered on its path through voids set into the concrete floor slab. It can be heated in winter and cooled passively in summertime through its contact with the concrete slab, which can have been night heated or cooled. No perimeter heating is thus necessary in the workspaces, due to the low heat losses and heat recovery. Windows are still openable to allow local “fine tuning” of environmental conditions by the occupants.
- There are high levels of insulation, including triple glazed windows, with an integral blind and a “blanket” of insulation round the building.
- There is a high level of natural daylight, which reduces the need for artificial light; the lighting system is computer controlled, which allows daylight responsive dimming, absence detection and monitoring. Central controls can be overridden by occupants via their desk PC.
- Water conservation measures have been installed, including rainwater collection and reuse (toilet flushing), and water monitoring.
- Where possible, materials have been selected on the basis of an environmental assessment of overall global impact. For example, sustainable timber has been used for part of the external cladding, derived from managed forests, whose growth helps the absorption of carbon dioxide.

- The landscape design preserves the site's medieval principle of ridge and furrow meadowscape. The concept of the landscape design is to extend the principles of the building into the site layout, enhancing the setting of the building. The intention is to have a "natural" landscape rather than an imposed "corporate" landscape; thus, there will be a continuation of the centuries-old tradition of a managed meadow, augmented by indigenous species tree planting and complemented by artwork, see Figure 1. Considerable attention has been given to conserving the habitats of the indigenous rare newt population. (Landscape architects: J&L Gibbons).
- Transport issues have been considered; the university has a green transport plan which aims to reduce the number of staff travelling by car to the site. Cyclists have been provided with lockable bike buildings, and with showers and changing facilities.

### Internal space planning

In parallel to the external building design process, the internal space planning has grappled with the issue of how to make the space more productive. The school wanted to use the move to the building to think about how to develop a livelier and more effective learning community, and to use changed working practices to underpin its ambitious strategy of growth. It wanted to reduce the cost associated with "churn" changes, and be able to accommodate growth and project work easily. In addition, there was a strong imperative to drive down costs through understanding the key elements in the school's value chain. These aspirations are common to

Figure 1 A "montage" photo of the new building



many organisations; British Airways, for example, has invested GBP 200 million in its London Waterside headquarters "as a way of enhancing profitability and ensuring the sustained success of the airline in the 21<sup>st</sup> century" (British Airways, 1998, p. 2). They use the mantras of new office design in their literature: the building is seen as "a catalyst for change" providing "a creative and stimulating 'people focused' workplace that is friendly, informal and less hierarchical" (British Airways, 1998).

As a management faculty, OUBS naturally turned to the research literature and expected to benchmark. However, there is a relatively narrow body of literature directly concerned with workplace planning, and a smaller body of research on productivity; the literature on the interplay between organisational strategy and internal design is limited, and there is little direct mention of spatial issues in the burgeoning literature on knowledge management. Benchmarking visits were made to a number of other business schools, and to UK commercial organisations that were recognised as innovative (e.g. BA Waterside, Boots, Addison Wesley Longman, Microsoft); the latter proved more useful.

The work of Francis Duffy of DEGW (Duffy, 1997) has been widely influential. He argues a holistic case for considering workspaces based on what he terms two iron laws: the need to remain competitive through simultaneously driving down occupancy costs and using "the physical environment to attract, retain, stimulate and inform the increasingly valuable people who work for them" (Duffy in Clements-Croome, 2000, p. 329).

The most recent University Estates plan (Open University, 1998) notes that the main campus is characteristic of an office environment, with related research and development facilities, with the current office space utilisation rate of approximately 10.4 m<sup>2</sup> per employee. This is in line with the recommended national allowance of 9.3-11.6 m<sup>2</sup>. The plan recognised that "distance working" impacts on future accommodation requirements; an institutional homeworking policy has been in gestation for over three years.

The plan argued in several ways for improved space utilisation on campus, including a move towards more open plan space, to be achieved through the removal of existing walls, increased sharing of cellular offices and hot-desking/sharing of workstations for staff who are in the office a small proportion of the time. In addition, the plan sought to avoid "tailor made" accommodation by creating flexible space, capable of being altered to accommodate new uses.

A survey of usage showed that academic workstations were occupied less than 44% of the time (which accords with industry research) but that there was a resistance to change, with a reluctance to move from individual office accommodation. Some of the open-ended comments make interesting reading. Academics recorded the diversity of their working practice – “my pattern is one of cyclical rather than consistent usage” – and raised status issues: “it would give the wrong signal for a professor not to have his own office”. There was a call for more storage, and the need for more IT hardware (scanners, specialist printers, etc). The interplay between working at the institution and working at home was seen as problematic: “by not supplying us with individual offices, we are driven off the premises to work”; “I cannot stress too strongly the importance of my personal office to my effectiveness at work” whilst there was a call for the university to clarify its support on homeworking: “the OU will need to improve its support for those of us working at home. There is an expectation that my employer should provide acceptable working conditions or compensate for (not doing so) e.g. paying for phone rental.” On the other hand, there was also recognition of the desirability of better co-location of teams and more interaction.

In sum, however, the survey showed under-utilisation of expensive space, but with little insight from occupants about the cost of space, and an apparently inexorable rise in the espoused need for (and cost of) more space and equipment. During this period, the business school introduced a policy that provided IT equipment not only on campus, but also (on demand) at home, together with reimbursement for telephone costs for those choosing to work at home, and loan laptops for mobile workers. Flexible working appeared to add cost.

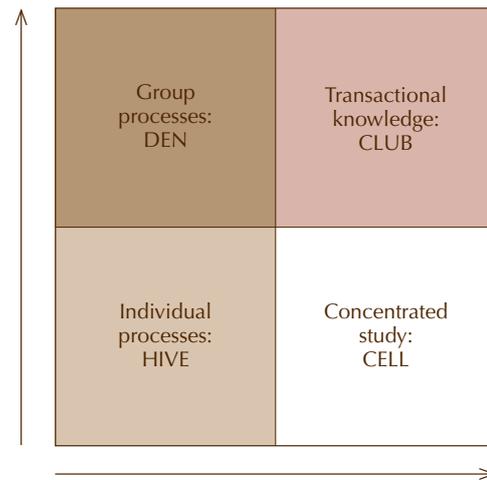
### Duffy’s design logic of new offices

Francis Duffy has developed a powerful and extensively used matrix model (Duffy, 1997) examining the design logic of what he calls “the new office”. The axes are based on autonomy of control of work processes, and need for interactivity. He argues that there are four major organisational types, shown in Figure 2. These types are illustrated in typical layouts in Figure 3.

- The “hive” (low autonomy, low interaction): individual workers involved in individual, routine processing with little interaction with others. As routines become automated and are often exported to cheaper locations (e.g. the Far East), hive offices are declining; however, there are notable new examples such as call centres.

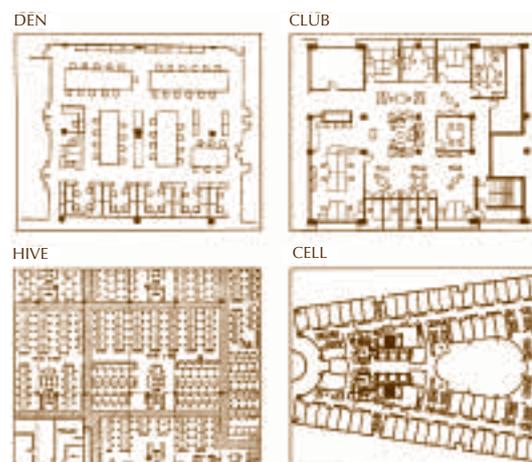
**Figure 2**

The design logic of the new office (Duffy, 1997, p. 61)



**Figure 3**

Space planning in relation to Duffy’s model (de Grey, 1998)



- The “den” (low autonomy, increased interaction) is demonstrated through open-plan, interactive team working areas, such as design offices.
- The “cell” (high autonomy, low interaction) is typically seen in professional offices such as law firms and academic offices.
- The “club” (high autonomy, high interaction) represents the move towards more complex forms of working involving transactional knowledge; this maps onto more effective knowledge management.

### Space planning in relation to Duffy’s model

An exploration of OUBS functional needs reframed the debate. It became clear that all categories of staff had

similar needs at different times: for quiet concentrated work, for small and large team interactive work, for meetings, for social interaction, for various kinds of IT support. Research shows that interactivity and serendipitous meetings foster innovation. All staff were concerned about environmental features, wanting an “acoustically comfortable” environment, with individual control over heating and lighting. Overlaying these aspirations were fears, primarily of a “covert” management agenda to force everyone into open plan offices. There were significant concerns about status, largely voiced by academic-related staff, that academics would continue to have the choice offices despite using them least and having the most choice over work patterns.

An unplanned but highly useful side effect of having part of the school located in two temporary buildings was the opportunity to pilot different ways of working, particularly for academic related staff, and enable discussion about best methods of working. Thus, it was possible to provide customised plans for different teams:

- the “hive”: the school’s call centre, clustered with a central focus;
- the “den”: the operational unit dealing with special schemes as a large interactive working area, with screens “sculpting” individual space;
- a mix of “cell” and “den”: programme offices, with directors retaining single occupancy offices, with the agreement that they can be used by others when unoccupied;
- the “club”: informal meeting areas and teamworking “incubation” areas.

Very few people have single occupancy offices or “pods”: the dean, directors and professors. All other staff have their own workstations in team groups, with privacy derived from moveable screens.

There was a carefully orchestrated set of briefings and consultation meetings with all staff over the two-year planning period, including “open” question and answer sessions with the architects and landscape designers, and at least two meetings between the architects, internal project team and space planners with each discipline/team within the school, along with several iterations on space plans with the head of each team, who consulted widely. The process raised questions about who the client group was, and how decisions were taken; the University Project Board (chaired by the secretary) and internal project team maintained a consistently robust line related to criteria outlined earlier for space planning

to assist interactivity, productivity and minimise the cost of “churn”.

The most challenging part of designing layouts for the new building was for academics, who were little affected by the temporary moves described above. Many remain unconvinced that the mix of “pods” and spaces sculpted by screens will give them the acoustic privacy they want, and are particularly concerned about the lack of fixed shelving. Storage of material is part of the emerging document management strategy. IT solutions will be utilised to store the majority of documents, with individuals having personal storage units by their workstations, shared team storage close by and “deep storage” facilities available in the building. A filing survey showed that over 600 meters of filing was disposed of during the move. It is expected that it will take at least a year into occupation for teams to work out how to use the team workspaces and the interactive core to best effect, and to “bed in” the document management change policies. It is also expected that individuals’ patterns of work will be more transparent, and hence peer pressure will influence more effective use of space.

## Conclusion

The building has recently been occupied, and like all new buildings “snagging” is underway to sort out teething issues. It has already shown its environmental sustainability through the achievement of the BREEAM rating. The temperature control, acoustic comfort and pleasure for occupants in being close to a natural landscape are being tested during occupancy.

A planned post-occupancy evaluation throughout the first year of occupation will show whether the workspace planning works well – if the different mix (core and workspace/ shared and personal) does indeed create a more productive environment, which uses space effectively, and whether “churn” can be managed cost-effectively. It will take time to embed the culture shift for individuals from thinking of “my office” to “what do I want to do today, with whom, with what tools and where”.

The user project leadership has demonstrated to the author the importance of the physical estate financially, environmentally and as a “dynamic tool for supporting and stimulating new ways of working” (Becker and Steele, 1995) and the need to manage it carefully. It has also emphasised the role of a generalist administrator in handling a major change project, particularly in “holding the ring” with school colleagues, and representing user

views tenaciously with the wider stakeholders involved in the project, including the institutional estates function and the architects. It has proved important to develop and implement parallel effective policies on teleworking, office protocols, document management and overall facilities management.

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# THE IMPACT OF FACILITIES ON STUDENT CHOICE OF UNIVERSITY

How much do facilities and locational factors influence the decisions undergraduates make when choosing where to study? For many institutions, these factors, where provided to a high standard, are perceived as having an important influence. The Facilities Management Forum HIGHER EDUCATION, an independent group of universities and colleges in the United Kingdom, co-ordinated and serviced by the Facilities Management Graduate Centre, commissioned research to determine the impact of facilities factors on student choice. Presented here are the research methods, some general observations, and findings related to accommodation factors and to teaching and learning facilities.



## Research methods

The research centred on a questionnaire based survey of first-year students carried out in 2000 and 2001 at 12 tertiary institutions in the United Kingdom. Twelve questioning modules were included, among them type of university, reputation of town/city, accommodation, learning facilities, university security, transport, social facilities, sporting facilities, childcare facilities and university environment. A total of 87 closed questions sought rankings of importance on a standard five point scale defined as “essential”, “important”, “neither important nor unimportant”, “unimportant” and “not important at all”. Ratings of 4 or above are considered as “highly important” (see Table 1). Before the closed questions two open-ended questions asked students to list up to three reasons why they chose a particular university and three reasons why they did not choose an alternative institution (see Table 2).

Table 1 Average ratings of 4 or higher

Item	2000 average	2000 ranking	2001 average	2001 ranking
• Had the course you wanted	4.84	1	4.80	1
• Availability of computers	4.48	2	4.41	2
• Quality of library facilities (e.g. availability of books, journals, CD-ROMs, information technology)	4.47	3	4.41	3
• University had a good teaching reputation	4.35	4	4.29	4
• Availability of “quiet” areas (e.g. library, study rooms)	4.23	5	4.22	5
• Availability of areas for self-study (e.g. group work areas)	4.16	6	4.21	6
• Quality of public transport in the city/town	4.07	7	4.13	7
• A friendly attitude towards students	4.05	8	4.04	8
• Prices at the catering outlets	4.01	9	4.00	13
• Cleanliness of the accommodation	4.00	10	3.92	15
• Quality of the university grounds	4.00	11	3.94	18
• Availability of university-owned accommodation	4.00	12	4.00	14
• Quality of lecture theatre facilities	3.90	18	4.03	9
• Quality of bars on campus	3.90	19	4.01	11
• Union social facilities	3.92	17	4.01	12
• Diversity/range of shops at the university (e.g. banks, bookshop, travel agents, food)	3.95	15	4.01	10

**Table 2 Open-ended items cited by at least 3% of respondents**

	<b>2000 average</b>	<b>2001 average</b>
<b>Reasons for choosing university</b>		
• Course / subject	22.2%	20%
• Reputation of course / department / school / university / league tables	18.2%	18%
• Convenient location / proximity to home	10.4%	10.5%
• Location	6.7%	7%
• Facilities resources	6%	5%
<b>Reasons for deciding against alternative institutions</b>		
• Course not suitable (in some way or other)	20.5%	13.5%
• Quality / standards / reputation / league tables <sup>1</sup>	9%	8%
• Did not get grades / no offers, etc.	5.5%	6%
• Distance too far	10.5%	12%
• Location	7.5%	7.5%
• Didn't like area / place / city, unfriendly, etc.	5%	5.5%

1. Various newspapers publish league tables of universities. They rate universities on a set of criteria, such as the average A-level scores of the entering students, the ratio of applications to places, the staff-student ratio, research quality as assessed by the government Research Assessment Exercise, teaching quality as measured by the Quality Assurance Agency, percentage of first class degrees, the employment rate of leaving students, etc. The outcomes from these criteria are assigned weightings, summed up, and ranked in a league table.

It should be kept in mind that in the United Kingdom, higher education students pay tuition fees. The university market is very competitive and increasingly driven towards a "customer service" model.



## General observations

Each participating institution has its own unique profile of importance ratings. However, certain patterns can be identified. Groups of institutions with wider facilities management appeal do not correlate with university type, *i.e.* profiles cut across wider groupings such as "old universities" and "new universities". Instead, there are clear groups where facilities are rated highly (indicated by a large number of facilities factors rated 4+) and those that are relatively "facilities-independent" (small number of 4+ factors).

Apart from the number one item, "course", there is no consistent ranking throughout all institutions. The "availability of computers" is universally one of the top three items, sometimes relegated to third place by the "availability of library facilities" and in one instance by the university's teaching reputation. "Quality of library

facilities" reaches the top three in all but two instances: one case is the institution where "teaching reputation" scored as particularly important, the other one where (by a statistically insignificant margin) the importance of library facilities was edged into fifth place by the "cleanliness of the accommodation".

There is evidence that where the estate has been treated as a strategic asset it figures more highly in students' perceived reasons for choosing a particular location. This is not necessarily a description of an objective reality. It is quite plausible that respondents to the questionnaires attached greater notional importance to factors which they perceived as being better supplied. On the other hand, it can also be argued that dissatisfaction with a particular service or product might lead to greater attention to this factor and hence higher importance ratings.



An attractive physical environment enhances the "student experience".

### Findings related to accommodation factors and to learning and teaching facilities

**Accommodation factors** tend to follow provision. The importance of "availability of university-owned accommodation" was, hardly surprisingly, significantly lowest for three institutions where "proximity to home" was significantly more important. These institutions also had higher proportions of mature students. The "availability of self-catering accommodation" was rated significantly lowest in a collegiate institution (where basically all first-year students live in catered halls anyway), and high in three institutions that have gone to pains to arrange it.

The message seems to be that where higher-quality arrangements are made, they are perceived as such and become differentiating factors. Catered halls were of significantly higher importance in the institutions which provide them. In two of the three, where en-suite facilities are provided, they were rated not only significantly more important but actually in the 4+ list; a stark contrast to most other

accommodation ratings, which in general did not show this as an important factor. The same institutions receive significantly higher importance ratings for "IT in bedrooms", "telephones in the accommodation", "cleanliness" and "cost", factors where the population breaks down into two groups, one of which rates accommodation factors generally significantly higher than the other. The higher-scoring quartet are the same institutions that receive the higher number of 4+ scores overall. With various slight differences of emphasis, the same group generally receive higher ratings on other factors relating to accommodation.

Generally all questions relating to **learning and teaching facilities**, especially library facilities and the availability of computers, receive high importance ratings throughout. Again two groups exist, showing to varying extents significant differences on most aspects except the "availability of quiet areas for study". Interestingly the groups are not the same as those for accommodation. The institutions whose research reputation was most significantly rated as important tend to receive lower significance ratings

for the importance of teaching accommodation and library facilities. In general, importance ratings seem to coincide with the researchers' impressions of aspects of physical quality gained during benchmarking visits, though it has to be emphasised that no rigorous verification has been attempted. In general, higher quality environments do seem to have an impact on choice; a conclusion that may also lead to problems of expectation, if impressions gained during recruitment are not matched by subsequent reality.

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# TEACHING AND LEARNING INFRASTRUCTURE IN HIGHER EDUCATION

A recent report by JM Consulting for the Higher Education Funding Council for England (HEFCE) analyses the cost of bringing teaching infrastructure up to date. The report estimates that “over the long term institutions should be investing approximately 4% of their insured asset value on an annual basis to allow for the necessary renewal and replacement of buildings and equipment.” It points out that while the UK has invested about GBP 4 billion in the past ten to 15 years on higher education capital, most of this went on research infrastructure and only 35% was attributable to teaching use. The underspend in teaching facilities is thought to be as much as GBP 5 billion.

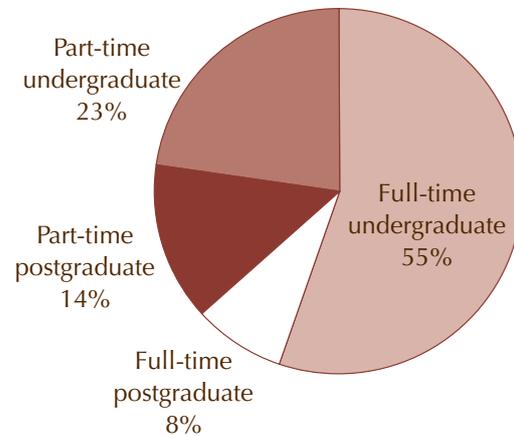
The report reviewed requirements for infrastructure for teaching and learning in UK universities and colleges of higher education. It noted a number of factors driving change in teaching, including:

- past and projected growth in student numbers, and the diversity and breadth of the student population;
- the rise of new subjects, e.g. the non-medical health professions, media and creative arts;
- developing regimes of quality assurance, and the quest for quality enhancement;
- changes in schools and in the expectations and abilities of students entering higher education;
- information and communications technologies;
- increasing interest and demands by employers, the professions and other stakeholders about the qualities and characteristics they expect of graduates.

The report looks at a range of types of teaching and learning spaces including classrooms, laboratories, pastoral and support space, learning resources such as libraries, and social space. It does not cover student residences. There are currently almost 2 million students in higher education in the United Kingdom.

Figure 1

Higher education students by level and mode



Although the student profile is changing – with more part-time students, more distance learners and mature students, and a growing international market – the report’s authors believe that there will continue to be a need for a higher education estate of good quality, technologically up-to-date and fit for purpose.

In addition to the need to provide GBP 5 billion for remedial investment in existing infrastructure, the report recommends that government needs to clarify and support the responsibility of institutions for planning and investing to maintain their own physical infrastructure. As part of this, institutions should be required to assess their own infrastructure needs and to prepare an asset management strategy, including a five-year plan for remedial investment in generic and teaching infrastructure, clearly linked to their estate and teaching and learning strategies. Finally the report recommends that up to GBP 100 million be set aside for a fund for projects for advanced facilities to improve UK capability in e-learning and for widening participation.

Teaching and learning infrastructure in higher education (publication June 2002/31) is available on <http://www.hefce.ac.uk>

Source: VC-Net 28 (June 2002) and HEFCE.

# SPACE MANAGEMENT IN HIGHER EDUCATION

*This project was one of a number making up the Higher Education Funding Council for England (HEFCE) Good Management Practice (GMP) programme. It was jointly funded by Newcastle University and HEFCE.*

*Further details of the GMP Programme are available at [http://www.hefce.ac.uk/pubs/hefce/2002/02\\_27.htm](http://www.hefce.ac.uk/pubs/hefce/2002/02_27.htm)*

Space is typically the second highest revenue expense for higher education institutions. Reflection on how to manage space better has developed during the 1990s, in response to growth in the sector, pressure of student numbers and increased research activity all of which are taking place at a time of growing scrutiny of performance.

The aim of the project was to improve space use by identifying and implementing effective space analysis and allocation techniques by developing a rationale for space allocation. This necessitated recognising and tackling some deeply-held beliefs about space and its management. The full report is available from <http://estates.ncl.ac.uk/documents/manpract/index.php>

Despite a decade of attention, progress in improving efficiency has been slow. Awareness of space costs is poor and the potential for savings not well understood. Although some good techniques for space management exist, lack of top management support has meant that they have not been used to full effect.

Too often space is seen as a “free good” which at best does nothing to encourage effective use, and at worst encourages departments and faculties to acquire and hold more space than they need. Space management needs reliable data and sophisticated analysis, and a champion within the institution to push for change.

Amongst the items in a space management “toolkit” are:

- space data systems, audit and data analysis;
- space allocation according to accepted standards or by agreement with users;
- central timetabling of some proportion of spaces available to the institution;
- surveys of actual space use;
- the possibility to reconfigure space;
- a charging system that provides incentives for users to optimise space use;
- innovation in ways of using space;



The Student Union Building at the University of Newcastle upon Tyne

© The Audio Visual Centre, University of Newcastle

- benchmarking against comparable institutions in order to encourage improved performance;
- the development of performance indicators.

Some form of space “charging” or cost attribution is used in about one quarter of the institutions contacted during the project. The underlying principle is that the operating costs of individual buildings or parts of buildings are charged to the department, school or faculty which is occupying them. A sophisticated understanding of costs and a detailed management information system are required to attribute costs fairly. However for such a system to be fully effective it would be necessary for there to be an effective market for space in which the users would have some choice over which buildings they chose to occupy. This is rarely the case and in those circumstances the administrative costs of collecting information are usually seen as prohibitive if full benefits cannot be recouped. Nevertheless developing awareness of the relative cost of different spaces is valuable in itself, and charging is generally seen as a disincentive to requests for more space, and sometimes leads to departments giving up space they no longer need.

The report looks at each of the elements in the “toolkit” in detail and concludes with a set of guidelines intended to be used as a basis for policy across the sector. The guidelines take the form of principles and recommended decision-making structures. They do not provide detailed methodologies for calculating space requirements but are expected to raise the status of space management and to encourage managers to tackle “cultural” issues and the need to modernise systems.

The report concludes that all university staff need to be aware that space is an expensive resource. The benefits from changes in space management policy and processes can be maximised by a programme of change management designed to engage staff commitment to efficient and effective space use. A management structure led by a senior institutional manager should be responsible for developing and implementing policy, in consultation with staff at all levels.

# USEFUL WEB SITES

**National Centre for Vocational Education Research Ltd**  
<http://www.ncver.edu.au>



The National Centre for Vocational Education Research Ltd is the principal research and evaluation organisation for the vocational education and training sector in Australia. The Web site provides recent statistics and reports free of charge. The site links to the UNESCO/NCVER international database for technical and vocational education and training research.

**International Association of Universities**  
<http://www.unesco.org/iau>



IAU is the UNESCO-based world-wide association of universities. It brings together institutions and organisations from some 150 countries for reflection and action on common concerns and collaborates with various international, regional and national bodies active in higher education. Visitors to the site can consult the latest issues of the IAU Newsletter and access the International Bibliographic Database on Higher Education (HEDBIB) which includes some 25 000 references.

**Royal Institution of Chartered Surveyors**  
<http://www.rics.org.uk>



RICS represents 110 000 members in 120 countries. The site offers news and research reports on aspects of land, property, construction and the associated environmental issues. RICS is an independent, not-for-profit organisation. ....

**National Clearinghouse for Educational Facilities**  
<http://www.edfacilities.org>



The National Clearinghouse for Educational Facilities is a free public service that provides information about school planning, design, financing, construction, operations and maintenance for kindergarten through secondary education. It is an affiliated clearinghouse within the Educational Resources Information Centre (ERIC), supported by the U.S. Department of Education. The Web site offers a wealth of resources ranging from a photo gallery to reports on construction costs or on community use of schools.

**Design Share**  
<http://www.designshare.com>



Design Share is an online library and journal of facility planning. A unique method of diagramming architectural plans allows viewers to scan a large quantity of projects rapidly. Plan diagrams are linked to floor plans, site plans, photographs, construction and programme data. One can sign up on the site to receive Design Share's free E-Newsletter.

# BOOK REVIEW

## JANE'S SCHOOL SAFETY HANDBOOK

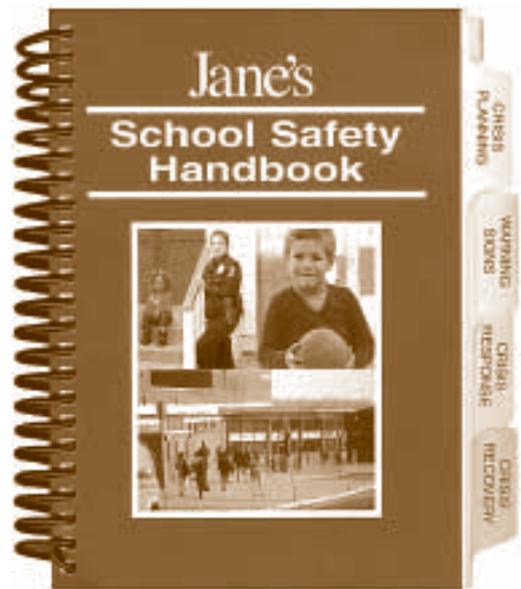
Marleen Wong, James Kelly, Ronald D. Stephens

Book review by J. Kevin Cameron

Throughout the world schools are becoming increasingly aware of the necessity to be prepared for all types of crises. While a small number of countries have experienced major incidents, for many the areas of concern have been limited to local incidents like dealing with the aftermath of suicides or accidental deaths. In the wake of the 11 September 2001 terrorist attacks against the United States and the recent high profile school shooting in Germany, many school personnel and their associated professionals (police, mental health professionals, social workers, etc.) are working in more concerted ways to plan for and respond to all types of crises. A key to planning also includes a new emphasis on prevention. Assessing violence potential in individuals is of primary concern in this area and *Jane's School Safety Handbook* does an excellent job of addressing all the major areas of safe school planning. This book review will provide an overview and analysis of the four primary areas addressed in the handbook: 1) crisis planning; 2) warning signs (violence potential); 3) crisis response, and 4) crisis recovery.

### Chapter One: Crisis Planning

This foundational chapter draws attention to the many types of crises to which schools may be exposed. The "Safety Plan Checklist" helps schools develop preparedness plans to address emergencies such as fire, flood, earthquake, chemical spill, bomb threat/explosion, armed intruder or terrorist attack. Every school and school district should have well established "policy, leadership and planning". According to the authors, school, school district and community crisis response teams and partnerships should be established. The handbook provides a good list of components and roles necessary in crisis response. They include having an incident command post, student evacuation site, media site contact, parent pick-up, perimeter site contact, staff resource contact and transportation contact. Several examples of "who, what, when, where, why and how?" are given as prompts for crisis response teams who are planning for potential crises.



### Chapter Two: Early Warning Signs

Assessing violence potential of students (and others) in the school community requires multidisciplinary collaboration among school personnel, police and mental health professionals. This chapter provides a brief overview of the work done by the United States Secret Service, FBI, Department of Education and the National School Safety Centre. Every school needs to have trained teams in place capable of determining "whether threat makers actually pose a risk to others". Understanding early warning signs has prevented school-based attacks where teams were trained and operational. This chapter is a starting point for schools not yet organised to deal with this complex issue.

### Chapter Three: Crisis Response

When all the planning is complete, it is the responsibility of every crisis response team to be "regularly practised". Crisis response, as presented in *Jane's School Safety Handbook*, is what is done to stabilise and organise the school environment and individuals related to the school setting. Crisis response is essential before "psychological first aid, comfort and emotional support" can be provided to victims. As such, lockdown procedures are presented for responding to armed intruders and further roles are clearly delineated for all members of the school system. Evacuation procedures are also included. For the growing threat of chemical-biological attack, the handbook provides good suggestions such as "stay upwind" and "stay uphill". Indicators

of possible chemical-biological weapon use are also shared along with scenarios and steps to take for dealing with a “bogus threat phoned in to media”, “bomb found in locker”, child abuse, domestic threat, national disaster, suicide and others. In a separate section of the handbook called “Sample Letters” there are excellent versions of letters that can be used as guides for communicating in writing to staff, students and parents concerning what has occurred and how to proceed in the aftermath of a crisis.

## Chapter Four: Crisis Recovery

This chapter addresses what should happen when proper planning has resulted in a good response to a crisis by the team. When a crisis situation is sufficiently stabilised, the work of the Crisis Intervention Team (CIT) begins. These teams help members of the school community deal with the trauma often associated with severe crisis situations. The CITs should be trained to understand the “phases of crisis and disaster recovery” which include the “initial impact”, “heroic period”, “honeymoon period”, “disillusionment” and “reconstruction”. A section on the physical, behavioural, emotional and cognitive effects of trauma are outlined and categorised according to pre-school and early elementary age children, older elementary and middle school students, and adolescents, as well as parents, teachers and other adults. A group intervention model developed by Psychiatric Nurse Nancy Sanford, of the Los Angeles Unified School District, is a highly useful technique and intervention model being used by many CITs throughout North America and elsewhere. Referred to as the “Sanford Model of Initial Trauma Intervention in Schools” (ITIS), the procedure allows for student groups, staff groups and others to respectfully hear and be heard about their thoughts, feelings and current needs. The chapter concludes by addressing the often difficult matter of what to do about memorials and anniversary events and how to deal with the media. The handbook also includes a chapter of high profile case studies such as the World Trade Centre attacks, Dunblane Primary School attacks in Scotland and the school shooting at Columbine High School in Littleton, Colorado. The appendix includes several comprehensive checklists that can be used as a guide for planning what needs to be done and for assessing readiness.

## Conclusion

*Jane’s School Safety Handbook* is well written and well organised. The authors are skilled and respected in their areas of expertise, which lends credibility to the handbook. Schools that have not begun the process of crisis planning

should review this publication. Those schools that are prepared can benefit from reviewing *Jane’s School Safety Handbook*, as it is a sound standard by which all schools can gauge their efforts. Living by the old belief that “it won’t happen here” has been refuted too many times by the evidence at hand. Let’s be prepared.

*Jane’s School Safety Handbook*

ISBN: 0 7106 2513 8, USD 33

To order online:

<http://www.janes.com/company/catalog/jssh.shtml>



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*Expert in Traumatic Stress*

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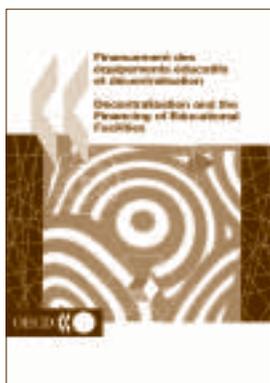
On 20 April 1999, two students, who carried out an elaborate plan to kill their classmates, terrorised Columbine High School in Littleton, Colorado. Eight days later, on 28 April 1999, Kevin Cameron led the Taber Crisis Response Team following Canada’s first high profile school shooting in Taber, Alberta, Canada. While under secondment to the Alberta Government Taber Response Project (TRP), he began consulting with other national and international sites impacted by high profile trauma and developed a comprehensive model of traumatic aftermath called the Traumatic Events Systems (TES) Model. The TES model goes beyond individual responses to trauma, to include how human systems (families, schools, communities and countries) and pre-trauma functioning also influence response and recovery from crises or traumatic events. Cameron has developed an advanced crisis response training programme and a comprehensive two-day threat assessment training programme with Superintendent Glenn Woods, the chief criminal profiler from the Royal Canadian Mounted Police, Ottawa, Canada. Cameron also trains and consults with school jurisdictions and their related professionals, nationally and internationally.

# PUBLICATIONS

## OECD PUBLICATIONS

### *Decentralisation and the Financing of Educational Facilities*

Who finances educational facilities? What are the criteria used and how are they applied? Each country has its own system; however, the general trends are towards diversification of funding sources and decentralisation of responsibility. This publication examines the links between decentralisation and new means of financing. Although local control can guarantee greater effectiveness and responsiveness to local needs, central government remains responsible for ensuring access to equity and equality of educational opportunity. The greatest challenge in education funding consists of achieving compatibility between these objectives and technological development.



July 2002, bilingual French, 208 pages  
OECD code: 952002013P1, ISBN 9264097295  
EUR 35, USD 31, GBP 22, JPY 4 000, MXN 215

### *Main Science and Technology Indicators*

This biannual publication provides a set of indicators that reflect the level and structure of the efforts undertaken by OECD member countries and seven non-member economies (including Slovenia) in the field of science and technology. These data include final or provisional results as well as forecasts established by government authorities. The indicators cover the resources devoted to research and development (R&D), patent families, technology balance of payments and international trade in highly R&D-intensive industries.



Bilingual French, Paperback + Online  
OECD code: SUB-94013P1, ISSN 1011-792X  
EUR 70, USD 75, GBP 46, JPY 8 900, MXN 560

## OTHER PUBLICATIONS

### *UIA Accord on Recommended International Standards of Professionalism in Architectural Practice*

This accord along with guidelines for its policy issues were published by the International Union of Architects (UIA). The documents intend to “define what is considered best practice for the architectural profession and the standards to which the profession aspires” and to “provide practical guidance for governments, negotiating entities or other entities entering mutual recognition negotiations on architectural services.” The accord and guidelines can be downloaded from <http://www.uia-architectes.org/texte/england/2ar2.htm>

### *Learning Buildings*

*Learning Buildings* asserts that little thought has been given to the way in which the process of schooling and the physical environment in which it takes place are connected. School Works argues that there is a need to give greater attention and priority to the role of architecture and to acknowledge within policy its importance in supporting school effectiveness. For schools to be able to deliver a different and better education to pupils and educational services to the wider community, a radically different approach to the process of building schools is needed. The failure to integrate “hard” processes of design with “soft” changes in education and the culture of learning is one of the major obstacles limiting the possibility of real change. *Learning Buildings* makes six recommendations for policy change which will facilitate this new approach to school design.



February 2002, 58 pages  
ISBN 0-9541258-1-9, GBP 9.95

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# PEB DIARY

**2002**

## November

2-7 – The OECD Programme on Institutional Management in Higher Education will hold a strategic management seminar for university leaders in co-operation with the Association of Universities of Asia and the Pacific (AUAP), in Manila, the Philippines. Contact: Jacqueline Smith, OECD/IMHE, tel.: 33 1 45 24 93 23, fax: 33 1 42 24 02 11, e-mail: jacqueline.smith@oecd.org

## December

5-6 – “The Effectiveness of ICT in Schools: Current Trends and Future Prospects” is the title of a seminar organised jointly by the OECD and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). It is designed to bring together policy makers, scholars and senior educational administrators in the field of information and communications technologies (ICT) and education from Japan and other countries to share recent research, to discuss emerging policy issues and to consider how schools and school systems can respond to the challenges that these present. The seminar will be held in Tokyo. Contact: Richard Sweet, tel.: 33 1 45 24 16 61; fax: 33 1 45 24 90 98, e-mail: richard.sweet@oecd.org

**2003**

## March

24-26 – The theme of the next PEB seminar is the interaction between technology and capital investment, with particular focus on facilities for tertiary education. See page 2. The Australian Department of Education will host the seminar which will take place in Brisbane, Australia. Contact: Richard Yelland, OECD/PEB.

## April

9-11 – CIB’s international conference on “Building Education and Research: Construction and Property Educational Research, Technology and Collaboration” will be held in Salford, United Kingdom. The conference will focus on advances in the technology of construction and property education, research into educational pedagogy and examples of leading-edge collaboration between academe and partners from industry, the professions and government. Contact: Jill Ingham, University of Salford, fax: 44 161 295 5011, e-mail: j.ingham@salford.ac.uk, http://www.scpm.salford.ac.uk/bear2003

## July

19-23 – The Society for College and University Planning will organise its 38<sup>th</sup> Annual International Conference and Expo in Miami Beach, Florida, under the title “Passports to Planning”. The event aims to help today’s planner become adept at navigating the many “cultures and customs” of higher education such as the academic environment, finance and budget, space and facilities, technology and student services. Contact: SCUP, fax: 1 734 998 6532, e-mail: info@scup.org

*The views expressed in PEB Exchange are the contributors' own and do not necessarily represent those of the OECD Secretariat.*

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