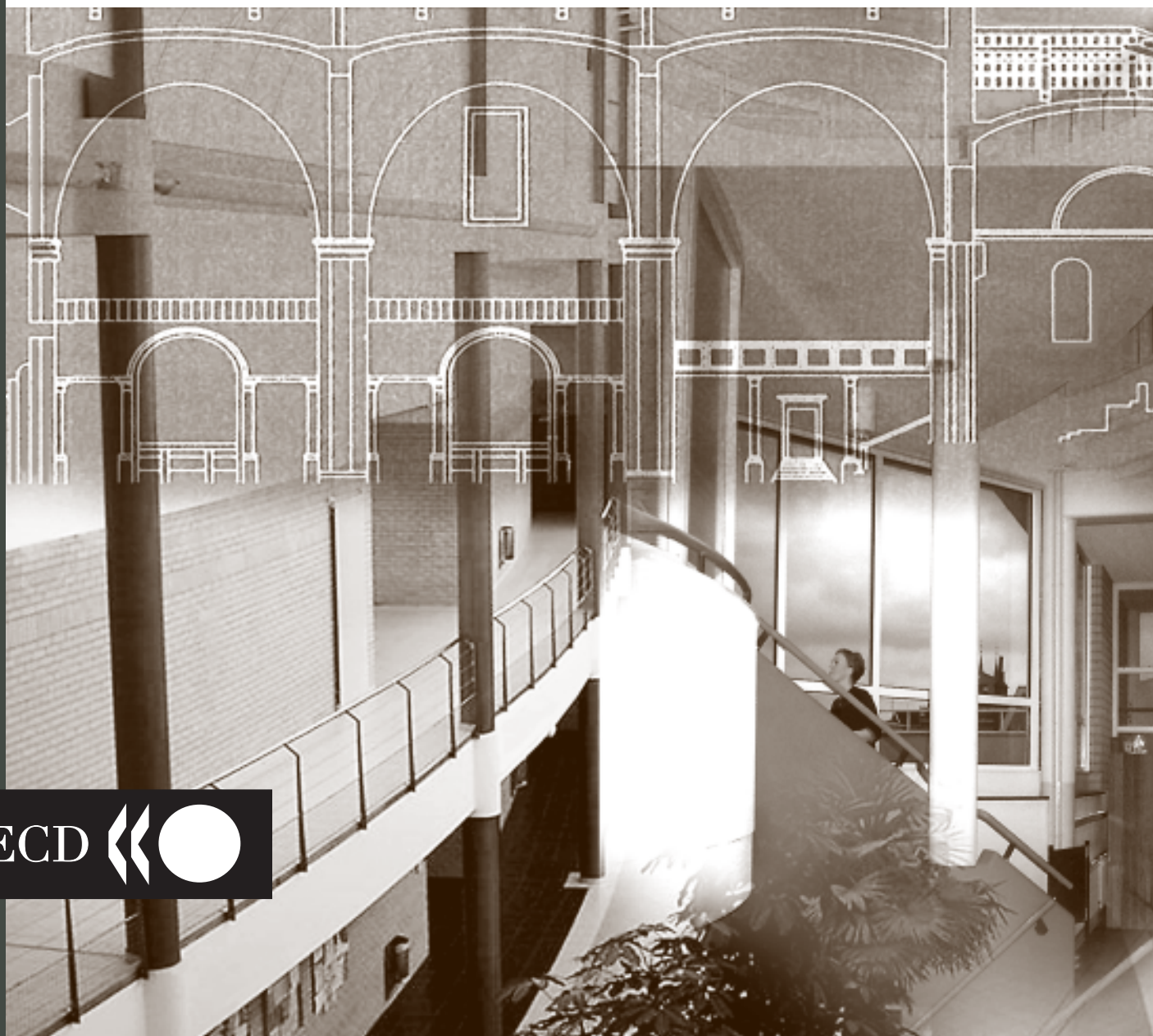


PEB *EXCHANGE*

THE JOURNAL OF THE OECD PROGRAMME ON EDUCATIONAL BUILDING

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ISSUE 43 JUNE 2001

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 ten associate members currently participate in the Programme on Educational Building. PEB's mandate from the OECD Council is to advise and report on educational facilities for students of all ages runs until the end of 2001. A steering committee of representatives from each participating country establishes the annual programme of work and budget.

PEB Members

Australia	New Zealand
Austria	Portugal
France	Slovak Republic
Greece	Spain
Iceland	Sweden
Ireland	Switzerland
Korea	Turkey
Mexico	United Kingdom
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Ministerium der Deutschsprachigen Gemeinschaft (Belgium)
Province of Quebec (Canada)
Provincia di Milano (Italy)
Provincia di Rovigo (Italy)
Regione Emilia-Romagna (Italy)
Regione Toscana (Italy)
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 (PEB) is pleased to welcome two new associate members from Italy: the provinces of Rovigo and Milan. The country is now represented in PEB by four associate memberships as the regions of Emilia-Romagna and Tuscany are already active in the Programme. An article describing the current situation with regard to school facilities in the Province of Rovigo is found on page 18.

SEMINAR ON DISASTER MANAGEMENT AND EDUCATIONAL FACILITIES

The School Building Organisation S.A., the Greek Ministry of National Education and Religious Affairs and PEB are co-organising a seminar on disaster management and educational facilities. The meeting will take place from 7 to 9 November, in the City of Thessalonika.

Throughout history, Greece like many other countries has suffered regularly from natural disasters, most particularly earthquakes. Under such circumstances, school buildings are the object of special concern for various reasons, including the need to protect young people; the large number of people often gathered in one building; the role of the school building as a safe and hospitable "island" for the population as well as a place where certain activities generated by a state of emergency are organised; and the importance of schools continuing to operate in safe buildings.

During this seminar, school buildings will be examined on various levels, from construction norms and technical requirements affecting building design to the different aspects of crisis management. Earthquakes as well as other natural disasters will be considered. For further information, please contact Isabelle Etienne (isabelle.etienne@oecd.org) at the PEB Secretariat.



QUEBEC LAUNCHES PEB COMPENDIUM

The second PEB compendium was published this spring under the title *Designs for Learning: 55 Exemplary Educational Facilities*. The *Ministère de l'Éducation du Québec* hosted the initial launch events during the week of 26 March. Richard Yelland, head of PEB, visited the four Quebec institutions featured in the publication – *École Polymécanique de Laval*, *Cégep de Saint-Hyacinthe*, *Faculté de l'aménagement de l'Université de Montréal* and the *Centre de formation du transport routier Saint-Jérôme* – and unveiled a plaque marking the distinction at each.

Designs for Learning is a compilation devoted to high-quality school and university buildings from 21 countries. Newly built or renovated facilities were selected by an international jury in recognition of their forward-looking responses to the changing environment of teaching and learning. Examples demonstrate how the design, use and management of buildings and grounds can contribute to educational effectiveness. (See page 25.)

PEB WEB SITE CHANGES

PEB invites readers to bookmark the new address of its Web site: <http://www.oecd.org/els/education/peb/>. The site has a new layout, consistent with that of all OECD pages, designed for easier navigation by theme. The site offers online documents, including certain back issues of *PEB Exchange*, information on conferences, links to the sites of Members and of online journals, as well as other resources related to education and building. The pages currently exist only in English, but a French version will be added later this year following further improvements to the OECD Web site structure.

NEW EDUCATIONAL GOAL FOR OECD

The education ministers of OECD countries met in April to review progress in developing and implementing policies to make lifelong learning a reality for all, the goal they adopted in 1996, and to set an agenda for future work. Under the new theme "Investing in Competencies for All", priorities for the coming years are:

- to explore strategies for enhancing human and social capital and their contribution to sustainable economic growth and social development;

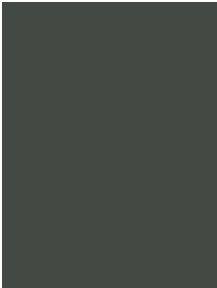
- to clarify competencies individuals need and how best to provide for their development;
- to examine ways in which education and training can enhance community life;
- to explore ways in which teachers and schools might perform differently and more effectively.

Specifically in this last priority related to reforming teaching and learning, the OECD is asked to investigate options for improving the quality of learning in both formal and information settings, including consideration of the design of physical facilities and the use of information and communications technology.

Ministers made this statement: "Our shared vision is of increased levels of competence in our populations and of a more equitable distribution of this competence. Our task is to facilitate investment in competencies for all. Investment in education and training and other learning opportunities is an investment in the futures of our countries and our peoples. We ask the OECD Secretariat to work with us in bringing an international perspective to the development and analysis of policies to achieve this goal and to the identification of what works in practice."



WINNING QUEBEC TRADE SCHOOL



Denis Farley



Denis Farley

The Saint-Hyacinthe School of Trades and Technologies, in Quebec, Canada, received the 2000 Business Week/Architectural Record Award. The annual awards, sponsored by the American Institute of Architects, recognise client/architect building teams that prove “good design is good business.” The school took the prize in the public sector category for a project costing under USD 25 million.

As part of a strategy developed by the Quebec Higher Education public services to enhance trade training, the School Board of the City of Saint-Hyacinthe contracted ABCP Architecture-Urbanisme to design an environment which would instil pride and professionalism in students choosing to become skilled in a traditional trade, as well as meet the needs of an evolving academic curriculum. The state-of-the-art trade school measures 16 228 square metres, serving over 1 500 students. It offers 27 programmes to people aged 17 to 45.

“Architectural Record” said this about the Saint-Hyacinthe project: The school succeeds in combining all trade programmes into one cohesive unit. Building on the original concept of student interaction, the architects created two lounge areas: the Rock Cafe, a student lounge along the main circulation route; and the *préau*, the elegant metal canopy that supports a curved roof and serves as a large gathering place for dining, lounge and study. The *préau* blends the public, circulation and social areas into one volume, and the Rock Cafe provides a games and relaxation area. The importance of detail and natural light are illustrated in the design, and the building itself is a teaching tool for construction-related studies.

“This project has served to turn around the social stigma of a trade school as embodiment of a ‘lesser calling’ into an awareness of training for technical careers that become the backbone of the local economy,” said jury member Robin

Ellerthorpe, “The use of materials served as an example for the building trade students and as an example of energy conservation.”



Denis Farley

For further information, contact:
Jean-François Soumis, Co-ordinator
Service des ressources matérielles
Commission scolaire de Saint-Hyacinthe
2255, avenue Sainte-Anne
Saint-Hyacinthe (Quebec) J2S 5H7, Canada
Fax: 1 450 773 6876
E-mail: jean-francois.soumis@cssh.qc.ca



François Bastin

IRELAND'S FIRST PUBLIC PRIVATE PARTNERSHIP

In March, the Irish Minister for Education and Science announced the preferred bidder for the first government pilot Public Private Partnership (PPP) projects, for the provision of five new post-primary schools and a school of music. All of the projects will be designed, built, financed and operated for 25 years by Jarvis PLC, an international facilities management group. The company will provide the schools with a range of facilities and management services including building maintenance, cleaning, security, ground maintenance and information technology support. In addition, the five post-primary schools will be provided with extensive sports facilities, which will be accessible for community or commercial use. The principle of "everything works" applies under the PPP process: classrooms, laboratories, heating and lighting all must be available every day.

The minister, Dr. Michael Woods, T.D., said, "Teachers and students can look forward to quality buildings using the most up-to-date designs and facilities that will be maintained and operated by Jarvis PLC to the highest standards. This PPP model allows school principals to concentrate on their core educational duties which is a particularly attractive feature of the process."

The capital value of the schools project is IEP 56 million with a further IEP 46 million for the Cork School of Music.

HIGH ENVIRONMENTAL QUALITY IN FRANCE

France underwent a very busy period of decentralisation between 1986 and 1992; local and regional authorities had to assume new responsibilities for school facilities with which they were unfamiliar, having never managed them before. The *départements* and regions gradually developed strategies for the technical management of the schools under their supervision.

Controlling impact on the external environment

Eco-construction targets

- 1 Harmonious relationship between buildings and their environment
- 2 Integrated choice of construction methods and materials
- 3 Environmentally friendly construction site, with little disturbance to nearby residents

Eco-management targets

- 4 Energy management
- 5 Water management
- 6 Waste management
- 7 Upkeep and maintenance

They first had to take inventory of the facilities for which they were now responsible and then take stock of the condition of the facilities in order to develop plans for their maintenance, renovation or reconstruction. At that point, they reviewed their technical policy options.

For school maintenance, it was decided that work to bring facilities up to standard should be combined whenever possible with work to create new functional possibilities and facilitate the introduction of new teaching techniques.

For heating, the renovation of equipment often provided an opportunity to consider the most appropriate choice of energies.

Regarding the remodelling of interiors, local and regional authorities made a major effort to make schools more comfortable: better temperature control was ensured by installing blinds and insulation; lighting, which had often been inadequate, was upgraded; and acoustics were improved, since classrooms built using standardised construction techniques often had poor acoustics that made them unsuitable for teaching.

On the construction side, the new authorities wanted to show that they intended to change the architectural image of schools; standardised plans and construction techniques were replaced by tailor-made designs adapted to each specific site. As a result, each school built is now different, unlike the standardised models built between 1965 and 1970, which were all virtually identical.

Lastly, for several years there has been a growing awareness on the part of the authorities of the need to reflect on the future of the schools under their supervision. Although building schools that are well designed to meet users' needs (in terms of temperature, acoustics, functional efficiency, etc.) is no longer problematic, the issue of the sustainability of buildings must now be addressed. The assessment that is currently under way is based on the 14 points of the High Environmental Quality (HEQ) label.

Creating a satisfactory internal environment

Comfort targets

- 8 Temperature and humidity
- 9 Acoustics
- 10 Lighting
- 11 Odours

Health targets

- 12 Health and safety conditions
- 13 Air quality
- 14 Water quality

In this regard the regions have experimented with a few upper secondary schools, in particular with the construction of the HEQ *lycée* in Calais.

It is hoped that this approach, which requires the contracting authority and designers to consider all the environmental aspects of their project, will lead those involved in building schools to develop their practices in this direction and will open up a new era in school construction in France.



Lycée Léonard de Vinci,
HEQ upper secondary school, Calais



Article contributed by:

Philippe Druon

President

Club des Chargés de Patrimoine des Départements et Régions

Hôtel du Département

62018 Arras Cedex

France

Fax: 33 (0)1 21 21 62 35

E-mail: Druon.Philippe@CG62.FR

ARCHITECTURAL AND POE AWARDS 2001

School Construction News and *Design Share*, in the United States, are sponsoring their second annual architectural and post occupancy evaluations awards for innovative learning environments. This year, submittals are sought from all countries. Jurors will evaluate entries on such criteria as how the design fosters and enhances learning, how the school acts as centre of the community and how the project makes use of available resources.

Categories include elementary, middle and high schools, higher education facilities and special schools such as those serving all grades from kindergarten through eighth or twelfth grade. Post occupancy evaluations and charter schools will be recognised in a special award category.

Eligible for consideration is any project completed within the last two years and designs, renovation or construction scheduled during 2001. An international jury including Richard Yelland will select the winners that will then be featured in the magazine *School Construction News* and the online library *DesignShare.com*.

The deadline for submittals is 22 June. Entry guidelines are available on www.designshare.com/awards_2001.htm

For more information, contact:

Randall Fielding, editor, Design Share

Tel.: 1 612 925 6897, fax: 1 612 922 6631

E-mail: fielding@designshare.com



INVESTMENT AND STANDARDS IN THE UNITED KINGDOM

As part of a GBP 8.5 billion three-year capital investment programme, the United Kingdom announced in January the details of a GBP 4 billion school modernisation drive:

- 650 schools will either be completely rebuilt or refurbished;
- over 7 000 more will be able to carry out major repair and improvement projects such as building new classrooms, replacing roofs or heating systems, or providing science laboratories;
- 24 000 schools will get a share of almost GBP 1 billion of direct capital grant, amounting by 2003/04 to GBP 50 000 a year for a typical secondary school.

It is the first time that schools and local education authorities in the United Kingdom have been given a firm indication of either detailed or total capital allocations over three years rather than one year, which should enable them to plan investment in their buildings confidently and with foresight.

The Department for Education and Employment (DfEE) simultaneously published research¹ which shows the importance of well-maintained and well-equipped schools to achievement. The research is intended to target the use of capital funding more effectively in the drive to raise standards. This is the first wide ranging project of its type undertaken in the United Kingdom to investigate the relationship between capital investment and performance. Commissioned by the DfEE from PricewaterhouseCoopers in 1999, the research involved three streams of work:

- a literature review of existing relevant studies;
- a qualitative examination by visits and interviews in 27 schools;
- a quantitative analysis of data on capital and pupil performance in 1 916 schools.

Education and Employment Secretary David Blunkett said of the research, "Capital investment impacts positively on pupil performance, particularly in terms of improving teacher morale and motivating pupils. The research also suggests that the greatly increased investment this government is making in school buildings will contribute to raising pupil achievements."

1. The PricewaterhouseCoopers report "Building Performance" is available for GBP 4.95 by writing to DfEE Publications, PO Box 5050, Sherwood Park, Annesley, Nottingham NG15 0DJ, United Kingdom; ref. RR242. A research brief can be found at <http://www.dfes.gov.uk/research/>

FLORENCE SYMPOSIUM ON LIFELONG LEARNING

An important symposium on "Lifelong Learning: Compulsory Education – Compulsory Training – Adult Education", organised by the local education authority of the City of Florence, Italy, was held in Florence on 23 February 2001. This forum gave participants an opportunity to take stock of the developments in education and training; these include radical changes to the Italian education system and the implementation of activities and projects backed by funds made available to Member states by the European Community between 2000-2006 with a view to promoting change.

The Council of Europe meeting in Lisbon in March 2000 assigned Member states responsibility for transforming their education and training systems which, under their new definition, are cultural and operational structures that must be able to meet the demand for learning opportunities in any field. Training in Europe does not stop when compulsory education ends but allows for re-entry into training on a regular basis.

In practical terms, this means transcending the tendency to compartmentalise the three traditional systems of formal or non-formal learning – education, vocational training and the voluntary sector – and addressing the issue of how to integrate them so that strategies for education and further training can be devised. These strategies will to some extent be determined by the rapid changes of the modern world.

For the purposes of the symposium, adult education programmes and projects relating to compulsory education were grouped together, since both basic education and further training are designed to raise attainments and enable people to find employment in a changing world.

To say that Europe is developing into a knowledge-based society and economy implies that information and knowledge needs to be made more accessible and that people are capable of using such resources to plan their own lives. This gives rise to a number of issues:

- How can radical change be controlled so as to guarantee a good basic education for all and preserve a positive attitude towards learning?
- How can further training programmes be devised to motivate every individual, especially the most underprivileged sections of the population?
- How can re-entry into training at any given time be made easier for those who have left the circuit?

Many reforms have been introduced in Italy over the last five years. Key aspects are:

- with regard to school autonomy, standards governing programme structure and the management of the formal pathways of education, which enable schools to form learning partnerships with other potential training centres;
- the law on apprentices, which has incorporated learning into the training system;
- the raising of the school leaving age and the introduction of compulsory training, which have enabled school and vocational training systems to be integrated;
- the overhaul of adult education as the last stage in the system of lifelong learning.

As regards the European Community, the European Social Funds and the new European Socrates programmes provide different ways of fostering innovation in education and training. Under the Italian system, important responsibilities are delegated to local authorities which, thanks to their institutional status, can easily assess real levels of supply and demand at local level.

The education inspector for the City of Florence, Daniela Lastri, who was aware of the difficulties involved when building up a citizen network, nevertheless successfully took advantage of the opportunities made available at European level. She did this by involving all the organisations concerned, from schools to the city's university, as well as the Tuscan Regional Institute for Educational Research, associations, vocational training institutes and other national and international bodies, in an effort to get backing for the development of programmes relating to the provision of training opportunities for citizens of all ages.

The programmes presented during the Florence symposium are designed for the following people:

- those who experience difficulty in choosing their career path during compulsory education and training and therefore may well not acquire the minimum level of basic skills (S.I.S.I.F.O. programme);
- the underprivileged, in an effort to foster citizenship and cultural and multimedia literacy (*Cittadino* online programme);
- immigrant women who find it hard to integrate into society and are in a position to help the community (*Domus anima* and *Gong* programmes);
- trainees to act as "go-between", with a view to developing intercultural exchanges (*Tante Tinte* and *Apriti Sesamo* programmes);

- young foreigners who have entered the country illegally and are drawn into delinquency, to help them develop skills enabling them to find work on the labour market in Italy or in their homeland (*Atlante* programme);
- adults who wish to learn in some depth about topics of their own choice (*La comunità che apprende: Circoli di studi* programme).

Transnational programmes on vocational guidance were presented and are being assessed by the European Community (Netguide programme), as were work placement programmes (S.T.A.G.E. programme) and programmes to develop practices needed to help adults get back into training (*Gruntvig 1* programme).

The local and national debate on lifelong learning was a passionate one in which national, regional and local officials from the Ministry of Education took part and to which school representatives, training institutes, associations and local project partners also contributed. Isabelle Etienne represented the Programme on Educational Building at the symposium.

Article contributed by:

Annie France Belmon

Comune di Firenze

Centro di Formazione Professionale

Via Pisana 148

50143 Florence

Italy

E-mail: didcfp@tiscalinet.it



PROJECTS

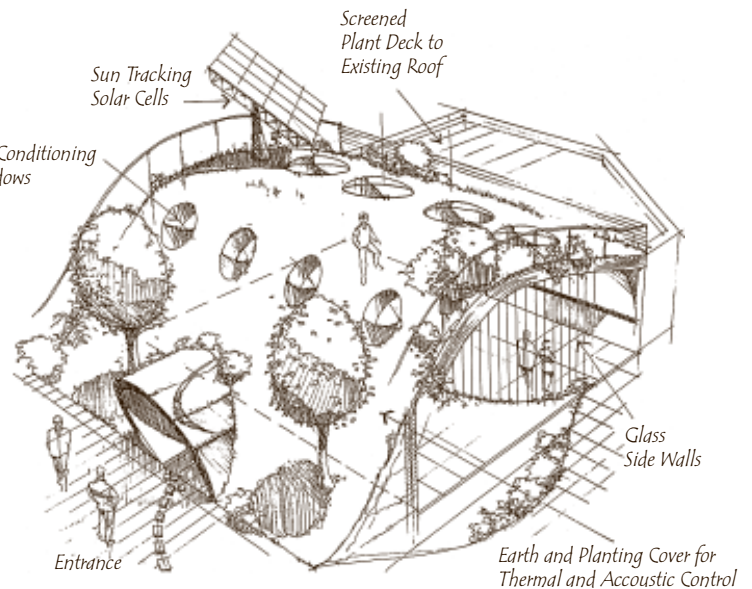
THE UNITED KINGDOM'S CLASSROOMS OF THE FUTURE

"It's lift off from mission control to boost science in the classroom as part of a GBP 10 million Classroom of the Future pilot scheme." This was reported in newspapers in the United Kingdom recently, but it does not give a full picture of what the project is all about.

Last year the UK Department for Education and Employment (DfEE) developed proposals for an initiative in school building design that became known as Classrooms of the Future. Its objective is to develop a number of pilot projects which explore different design options for the delivery of education in the 21st century. The lessons learned from the projects will help shape guidance for the future design of schools.

The DfEE started by writing a discussion paper setting out the factors they expect to be the major drivers of change in school building design. These are:

- developments in education, such as the need to spread the expertise of the most able teachers more widely, or the impact of a longer learning period: day, week, term, year and life;
- the need to stimulate children to achieve more by, for example, designing educational environments that are themselves stimulating;
- changes in the organisation of the classroom environment to enable large groups (perhaps combining several classes) and small groups to be taught effectively in a space that also facilitates individual learning;
- developments in information and communications technology (ICT) which will affect the design of both learning and teaching spaces;
- the need for flexibility and adaptability, both to prevent premature obsolescence of design and to allow spaces to be personalised by teachers and learners;
- the impact of a major increase in the community use of school buildings;
- developments in building technology affecting both permanent and temporary accommodation;



Proposal submitted by the Hounslow Education Authority

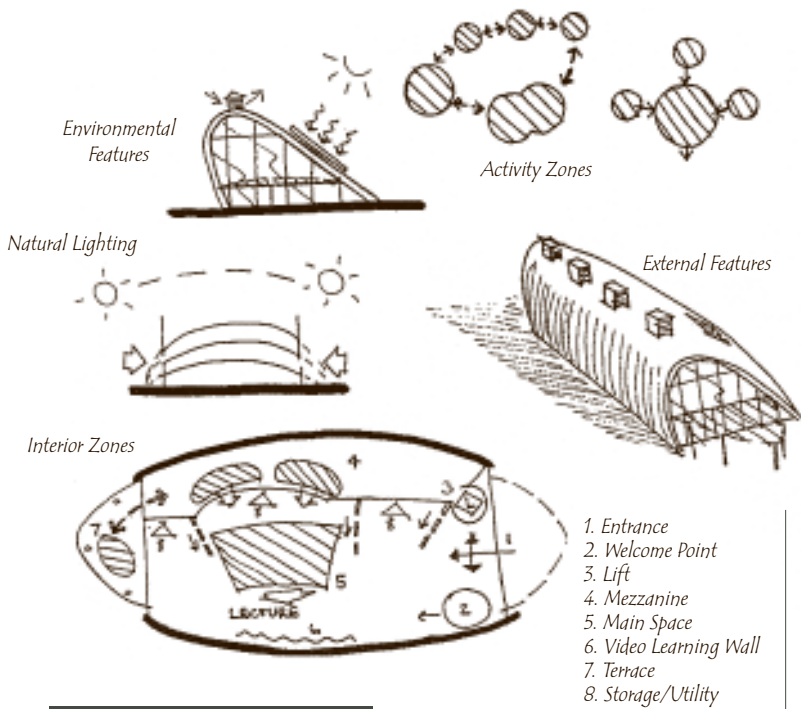
- the increasing emphasis on sustainable construction for all development, requiring buildings to have a positive impact on the environment.

The paper was then sent to local education authorities (LEAs), with the invitation to submit proposals for carrying out pilot projects. The DfEE asked them to look at the ideas, outline how they might develop them and add ideas of their own. The Department stressed that the initiative was about testing innovative new building designs rather than just exploring developments in ICT. Also, because these are to be pilot projects, they needed to be capable of being replicated in other situations, even if in modified forms. However, there was also scope for exciting and one-off designs that might stimulate other developments in educational building design.

The DfEE warned LEAs that the budget was GBP 10 million and that this was expected to fund about 30 projects in perhaps 10 authorities. Despite the limited resources, great interest was shown. Out of the 150 LEAs in England, 91 submitted proposals and the estimated cost of these exceeded GBP 75 million.

Twelve proposals, covering 32 pilot projects, were short-listed to participate in the initiative. Some of them are futuristic while others are much more down-to-earth, as can be seen from the details of some of the proposals:

1. Three projects will be developed in partnership with a science museum. The proposals combine innovative approaches to motivational learning with applications of new technologies, including renewable energy sources, and new uses of ICT. Included will be interactive learning experiences, using walls, ceilings and floors – but each project is different, being tailored to the age ranges for lower, middle and upper schools.



County Durham Learning Zones

conservation issues and an archaeological inheritance from the Stone Age to the Iron Age. The satellites will be constructed at two schools. There will be links to remote centres, from the Scottish Glens to the Galapagos Islands.

6. A prototype highly ICT resourced, demountable, "clip-on" classroom will be developed for use throughout Camden and with applications elsewhere. It will be designed to tackle the problems of adapting/extending urban schools, with limited site areas. The prototype will be designed to be clipped on to the exterior of a building or, in a simpler form, to be installed within a large internal space, such as a hall. Two projects will be constructed, each around 100 m².

2. The construction of three projects, also for different age ranges, will draw on advanced thinking in architecture and design, combined with practical educational expertise and new technologies. The classrooms will challenge the traditional roles of teacher and learner, encourage creative thinking and provide a genuinely new experience for all those involved in the learning process. Partners include Future Systems, Cap Gemini, Ultralab and the University of the First Age. The projects are likely to be modular, high technology buildings.
3. Three pilot projects to be carried out will be capable of relocation, so that they can follow population growth. These learning centres, composed of three class equivalents, will provide secondary level education in more remote areas, where population levels do not warrant provision of a whole school. One of these could form the nucleus of a new school, if population grows, or be moved elsewhere if it falls. Partners include Cranfield University.
4. One project offers a space mission control centre, real-time night astronomy during daylight hours in the UK through remote control of satellites on the dark side of the planet and international links. Collaboration is taking place with the National Space and Science Centre in Leicester. Input is also promised from the Royal Navy.
5. One proposal includes projects on three sites, a hub and two satellites, with links to all secondary schools in the Southwest Grid for Learning. The hub will be located at a Site of Special Scientific Interest (SSSI), allowing the opportunity to explore seven distinct habitats,

7. Three pilot projects will explore and develop solutions to the challenge of providing and sustaining the educational needs of pupils attending small rural schools. High technology links will be developed between the primary schools and the high school to enable pupils to interact across distances and lessons to be taught to larger groups. The high school already has links with schools in France and Germany. The needs of rural communities will also be recognised in these projects. Innovative and sustainable design is promised.
8. Facilities will be created which allow learners to explore cyberspace, outer space and the physical space in and around their school. The project, based in a primary school, will hold up to 60 pupils at a time. It will be comprised of one large space, two to four smaller rooms and a floor-to-ceiling observatory in the centre of the structure. The focal point will be a high powered telescope and there will also be a link to the Faulkes Telescope Project in Hawaii.

The DfEE will publish a review of how these pilot projects work out and, in the meantime, will post developments on the Web at www.dfes.gov.uk/schbldgs

Article contributed by:
 Chris Bissell
 Architects and Building Branch
 Department for Education and Employment
 Caxton House
 6-12 Tothill Street, Westminster
 London SW1H 9NF, United Kingdom
 Fax: 44 20 7273 6762
 E-mail: chris.bissell@dfes.gov.uk



Renovated
sugar factory
in Cukrna,
Slovenia

LIVING AS STUDENTS: BOLOGNA 2000

In November 2000, the City of Bologna, Italy, welcomed a conference entitled "Living as Students". The conference was co-organised by the City of Bologna, the Department of Architecture and Urban Planning of the University of Bologna and the Emilia-Romagna Region, with the participation of PEB. The event was part of the European Capital of Culture project which examined the major role Bologna has played and continues to play as a university city. It also looked at the role of cities that host major universities, in and outside of Europe, as centres for the development and dissemination of culture and advanced professional training.

The theme of the conference, student housing, is complex in that it addresses the use of temporary accommodation that is often used for relatively long periods of time. Student housing differs both from the permanent residences of a city's long-term inhabitants and from visitors' temporary accommodation. Students are in a unique and intermediary position, participating in university life while also contributing to the identity of the city. The organisers of the conference spoke of student housing in the context of "the relationship between a more permanent, tightly-knit and deep-rooted society, and one which is changing, open and oriented toward knowledge and innovations."

Students were compared with other types of clients such as business people who are transferred or are on long missions and tourists; student housing shares common points with guest-houses, hotels, etc.

Urban costs affect students' behaviour, forcing students to optimise spending. The relationships between accommodation and transportation (e.g. travelling to and from the city, or transportation within the city) both public and private, need to be studied. The organisers presented student behaviour and resources (personal or parental) from a sociological perspective.

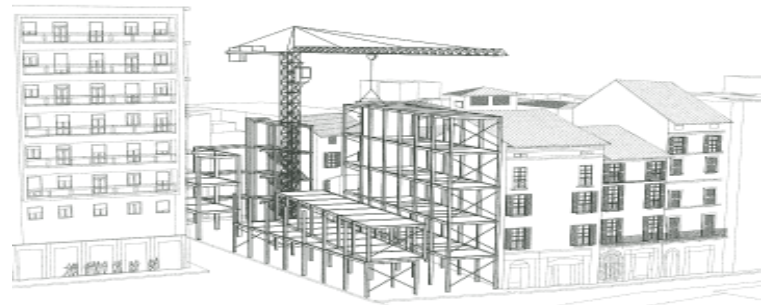
Student housing competition

In parallel with the conference, an international competition on student housing was organised by the Department of Architecture and Territorial Planning of the University of Bologna, in which 30 European universities participated. Two first prizes were awarded: one to a project called

University Block Houses in Brescia, Italy, and the other to a project for the City of Cukrna, Slovenia.

The first concerns the rehabilitation of an unoccupied, urban space in the centre of Brescia. The jury considered it to be a particularly relevant approach to the revitalisation of European historical city centres. The project combines a strong respect for the original site with the use of modern construction technologies to meet the multifunctional use of the building. The result is a balance of built volumes that respect the surroundings and features of the original site. A repetitive scheme of units is used boldly without producing a monotonous construction. The project successfully converts an interstitial urban space into a beautiful and original place to live.

The second project is the renovation of a sugar factory in the urban area of Cukrna, Slovenia. Originally an industrial area, it is now equipped with integrated services for community life. The renovation of a huge, abandoned industrial site reveals an unusual approach which the jury wished to distinguish. With a big stone wall and windows at regular intervals, the building preserves the memory of the industrial past. The inside is an empty, open space, designed to accommodate diverse uses associated with university life. The contrasting architectural style is particularly suggestive: between past and future, immobility of the stone wall and intrinsic mobility of the distribution of space inside the building. It is far from a traditional design and shows a strong integration of functions through the adaptability of space.



University Block Houses in Brescia, Italy



THE AMSTERDAM WATERSHED

How school design is changing and why the next ten years are critical

Bruce Jilk is an architect and educational planner at KKE Architects in Minneapolis, Minnesota (United States). He also is a well-known speaker, educator and planner, and one of his projects, The School of Environmental Studies in Apple Valley, Minnesota, received the 1999 New American High School Award by the US Department of Education. Jilk also was chair at the American Institute of Architects' (AIA) November 2000 conference in Amsterdam (Netherlands), where he introduced the conference on "Innovative Alternatives in Learning Environments," as a watershed event; he anticipates the period from 2000 to 2010 to be a crucial decade for educational planning. Jilk tossed out numerous "mind grenades," talked about the future of schools, presented projects and conducted tours of several schools in Amsterdam, including one located above a drug store and another built beneath residential apartments. The common theme involved schools closely integrated with the community and the sharing of spaces. Below are Jilk's answers to follow-up questions submitted by 11 conference attendees from three different countries.

Randy Fielding: Bruce, you referred to the recent conference in Amsterdam, "Innovative Alternatives in Learning Environments," as a watershed event, and the period from 2000 to 2010 as a watershed decade for educational planning. Why is this a watershed conference and decade?

Bruce Jilk: As suggested by the conference name, "Innovative Alternatives in Learning Environments," this event focused on schools that are "outside the box" and most of them did not exist ten years ago. For example, in 1990 the United States did not have one single charter school. Now we have more than 2 000. And consider that home schooling is one of the fastest growing educational industries. These changes are reflective of the larger macro-shift in civilisation – from an industrial society to a knowledge society.

The Club of Budapest¹ studies this shift, which they say began around 1860, and tells us that we are beginning the decade of the "Consequent Phase." That is to say the next ten years are critical in forming the future. I took the liberty of renaming this phase "The Watershed Decade," a term

Alpha High School, Oregon, United States



I feel says the same thing only with a more optimistic connotation. Because the event in Amsterdam disclosed the aspects of this cultural change as it effects the world of learning, it seemed appropriate to extend that title to the event itself, Amsterdam Watershed.

RF: The Heinavaara Elementary School in Finland is one of the most notable projects with which you have been involved since the School of Environmental Studies (SES)² in Minnesota. How have your ideas evolved since working on the two projects?

BJ: The School of Environmental Studies is an optional public suburban high school for 400 students and was designed seven years ago in collaboration with HGA Inc. Heinavaara is a 190-student public elementary school in Finland, north of Helsinki, near the Russian border. It was designed two years ago in collaboration with the Cuningham Group.

Heinavaara works at several levels. First of all, it is designed to be supportive of a child's learning experience. The spaces are organised to enhance both the connections amongst children as well as their cognitive, social, emotional, physical and other developmental experiences. It also works as part of the community's economic development. By developing new wood construction methods – for Finland – the local construction industry is being educated, positioning them to lead future endeavours in Finland and Russia. The project also serves as a community centre³.

Bill Brenner: What will happen to the classroom in the coming years, and what will schools look like?

BJ: Will we still have classrooms? A common place where a common group of people engage in a common way with a common subject at a common time will be justification for the classroom. However, as we embrace lifelong learning – where anybody can learn anything, anyway, at anytime and anyplace – there will be a diminished need for classrooms.

The educational philosophies of Perennialism and Essentialism⁴ are deeply imbedded in our concepts of education. They grew with our current cultural view starting about 2000 BC. However as we shift into a knowledge society, these concepts will lose their cultural grounding. My best guess is that the classroom as the primary place of learning will shift to a secondary place of learning between 2020 and 2030. This is a concern because the life expectancy of new schools is around 70 years.

In the very near future we will see the design of classrooms flourish like never before. This is driven by a basic feature of human nature. It is a form of "irrational exuberance." It is similar to the response people have knowing someone is dying; you



School of Environmental Studies,
Minnesota, United States

1. Founded in 1993, The Club of Budapest is an international association dedicated to developing a new way of thinking and a new ethics that helps tackle social, political, economic and ecological challenges of the 21st century; <http://www.club-of-budapest.org>

2. Plans for this school can be viewed at <http://www.designshare.com>

3. Heinavaara serves as a community centre functionally and symbolically in several ways. The community uses the gymnasium, central library/media area and cafeteria on evenings and weekends. The project also is located at a high point in a new residential development. The building's timber entry canopy reflects the heritage of the Karelian building style, unique to the region.

4. Perennialism is defined as: despite differing environments, human nature remains the same everywhere; hence education should be the same for everyone. Essentialism is defined as: learning that, by its very nature, involves hard work and often unwilling application.

go out of your way to show your deepest caring. This exuberance is being played out in kindergarden to 12th grade schools by pretending classrooms are the centre of the universe. This phase will retract in ten years. In higher education, campuses are desperate to survive as seen by the flourish of “signature” architecture. Think of these buildings as tombstones.

The question “what will schools look like in the future?” is probably the most common and misunderstood aspect of what I have been working on. We talk about what is the best school design, we have conferences to discuss our ideas about this, and we give awards to those that fit our preconceptions. In our effort to simplify things we begin to think as if one size fits all. Most people will say they do not think this way, however, the pattern is there. Prototype schools are an example of this pattern. In the future, the traditional school will not be replaced by a new, better design, rather we will develop options to the traditional school. These options are the innovations we focused on in Amsterdam.

In the future we will continue to have traditional schools – but fewer of them –, optional schools that are similar to traditional schools, and innovative alternatives. As to what they look like, it is safe to say that virtually any future design concept already exists today, in some form, somewhere on this earth.

Lia Burgers: As the meaning of learning is changing from passive to active, from static to dynamic, from inside-oriented to outside, to lifelong learning and to global learning, is it still necessary to create educational systems that are surrounded by institutional walls and barriers?

BJ: One of the fundamental attributes of a knowledge society is the significance of connections or relationships amongst its elements. There is evidence of the convergence between the corporate world and the education world. The same is true for the home world. Any “walls” or “barriers” need to be examined to assure they enable and not inhibit these connections.

These are extremely challenging times for traditional institutions of education. We live in a culture of choice and there are many new choices. While traditional school and college growth parallels the population growth, growth in non-traditional options is expanding at about the rate of 40% per year. In my experience, traditional institutions of education are responding to this challenge, they are collaborating. Bottom line: no more isolation.

Charles H. Boney, Jr.: The classrooms we observed in Amsterdam were 20 to 50% smaller than standard US classrooms. The elementary school under two floors of



apartments had classrooms of 55 to 65 square metres; in the US we see 85 to 100 m². Also, there are few ancillary spaces, but they made great use of corridor space for computers and storage. Do you think our American bias towards single-purpose spaces, *i.e.* corridors must always be corridors, and learning only occurs in the classroom, inhibits the educational opportunities in our buildings?

BJ: The classroom is primarily a teaching environment and, as a design, has little to do with learning; learning is a by-product. Learning environments – spaces designed with learning as the primary goal – need to be multifunctional. They need to support formal learning, informal learning and resource learning. I call these the learning threads. The learning environment is a fabric made up of these threads. Creating single purpose spaces is barrier architecture, not enabling architecture.

CHB: We saw many well-maintained schools on our tours. Is this typical of the Netherlands or did we just see the newest schools where maintenance issues have not become apparent?

BJ: I have been in new schools in Baku that badly needed maintenance and old schools in Singapore that were pristine. We can find the same variations throughout the United States. So the question is primarily a cultural one and this makes any short answer quite difficult. I will offer one observation, however. Countries, states or communities where society sees the “big picture” and takes a “long view,” such as in the Netherlands, will nurture their resources more carefully.

Prakash Nair: Do you subscribe to the traditional notion of learning as a conscious, independent activity or do you believe that learning is really a “by-product” or an accidental outcome of some other primary activity?



BJ: First, I need to adjust the question. Learning can be a conscious activity but not independent. Learning always has context. Also the learning that goes on in the traditional classroom is mostly a by-product of teaching but not necessarily accidental. So I think the question is better stated as “is learning a conscious activity or experiential?” I would clearly say it is both.

PN: If the latter is true, do you believe schools that are set up as primary learning places miss the mark altogether? In other words, have schools and school facilities, as we know them, become anachronisms in modern society or will they remain viable in the future with some periodic tweaking?

BJ: As I’ve said earlier, schools in modern society are teaching environments, and as places to teach, they hit the mark quite well. I’ve framed the discussion around the terms “Industrial Society” and “Knowledge Society.” This question also involves the terms “Modern Society” and, by implication, “Post-modern Society.” It will be constructive if we follow the latter terminology for a moment.

The Post-modern concept includes the modern within it; it does not cast it out. It is the modern world plus something more. And this is my point about schools. We still will have some traditional schools, which will be forever “tweaked,” plus something more. Traditional schools will become only one of many choices, not the only one or even the primary one.

Arnie Glassberg: What role can an architect play in helping school boards move to an understanding of the importance of school design to learning?

BJ: School boards need to understand they are in the learning business, not the teaching business. I know I’m repeating myself, but this goes to the basic problem.

Remember what happened to the railroads in the United States? They thought they were in the railroad business not the transportation business. The decisions they made came from this perspective, were self-serving, and, as a result, they ended up mostly out of business.

Likewise, school boards (and teacher unions, textbook printers, school architects, etc.) need to stop making self-serving decisions and behave in the interest of a learning society. Just as railroads did not go away, schools and school boards will not go away. However, just as railroads have competitors and a smaller market share, so will public school systems. Architects will be of no help until they consider themselves part of a learning society; I doubt this will happen before their clients, the school systems, make this shift.

Andy Simpson: Knowing that new models are difficult, at best, to implement given constraints of facilities management, staff reluctance, local politics and other issues, what is your best advice to educational leadership (superintendents, board members and instructors) for navigating the current watershed?

BJ: I would advise people to buy into and follow a comprehensive process. I typically use the “design-down” process⁵, but there are others. In addition: 1) be clear about the true purpose of the endeavour; 2) involve representatives of all stakeholders; 3) begin with the needs and expectations of the larger community; 4) agree on what is special about the project; and 5) be honest about learner expectations.

Everyone has ownership (not just the superintendent or architect) and you can never do enough communicating. Learn about other programmes by visiting them or have

5. For more information on the design-down process, visit <http://www.cefpi.org>

representatives from those programmes visit you. The effort needs leadership – that can come from anywhere but is best if it comes from the school system – and skilled facilitation. And, finally, it is essential that everyone make decisions around what is best for the child/learner.

Watch out for statements such as: “the school board won’t approve,” “the superintendent’s job is at stake” or “this is outside the union agreement.” None of these ideas are in the primary interest of the child.

Jack Lyons: Currently, the average age of our kindergarten to 12th grade schools is 42 years. We know that the tempo of changes to the learning environment is increasing and that one of the hallmarks of excellent school design is adaptability. How can we provide the flexibility necessary without compromising the classroom environment?

BJ: Consistent with the question about the maintenance of Dutch schools, we need to invest our space, time and money in areas that go beyond just the immediate goals of any project. The way to do this is to step back and look at the bigger picture.

We typically build schools so physical elements outlive the functional. This functional obsolescence can manifest itself in two ways. First, the learning processes can change, and second, population shifts may make the need for the school obsolete.

In the first case, architects have used a variety of design strategies including movable walls, non-bearing partitions, modular mechanical and electrical systems, etc. In the second case, the strategy has been to predict the future uses and design with that in mind. I feel both of these approaches will have limited success and do not really look at the bigger picture; instead of designing schools, we should step back and design communities.

James LaPosta: The question that keeps occurring to me is “what if we are wrong?” There is an unfortunate history of architectural innovation in schools that utterly failed and I worry that we may be headed down that well-intentioned road again. The idea of learning spread throughout the community is appealing and well reasoned, but not six blocks from my Hartford office is a failed experiment in community integrated learning from the 1980s that recently was replaced by a more traditional facility. The costs of failure are so high – generations of children who only go through the system once – that we need certainty that what we do is right. How do we integrate the lessons from the past with the best thinking that the educational community can offer us?



BJ: The Amsterdam Watershed is about developing alternatives, not replacing one approach with another. This is because of the “what if we are wrong” scenario. However, “what if we keep things as they are?” also is a legitimate question. Integral to these questions is the assumption that one size fits all.

This idea of “all or nothing” is carried into other aspects of the question. Ninety percent of what we learn is learned outside of school. I hope parents do not turn their children totally over to the system. A child’s learning should never be dependent upon a single approach.

We need to separate what is changing from what stays the same. How we teach is changing but how children learn is not. Learning environments need to enable learning, and therefore the real question is “what, in the past, was an environmental barrier to learning and what enabled learning?” And to further complicate things, this will vary with the mode of learning at any one time. If that is not enough, what about the individual’s learning style or appropriate group learning strategies? And I could go on.

One last point. We know we learn by failure and some people say that’s the best way. Based on that fact, our schools are not the sole conduit to learning so we should not be fearful of taking risks to improve our learning environments. The greatest risk is to take no risk at all.

Jose Freire da Silva: Based on your experiences, how important are built environments created by architects, how, and in what way, are those environments part of the models under consideration?

BJ: This is a variation on the nature verses nurture argument. It is not an either/or condition and both are fundamentally important. The environment has a significant effect on our behaviour. A basic example is the classroom. Take a roughly 80 m² space with a three metre ceiling, place a marker board to define the front, send in one adult and 30 kids who have never seen each other, and more often than not the adult will assume control. Place the same people in an



De Windroos School, Netherlands



arcade game setting, and the kids will assume control. The environment influences behaviour. However, our knowledge of this is very limited and needs more research.

Sarah Woodhead: Your concept for high schools presented in the early 1990s was an exciting break-the-mould approach to educating students. In that concept, the form and the function are mutually responsive. However, in most case studies derived from that early concept, there seems to be an overstatement of the degree to which school as centre or institution can/should/will cease to exist. Please comment on the role school as a physical place in a community carries meaning within your work.

BJ: The physical place of learning in a community should be symbolic of the meaning that learning has in that community. If the meaning of learning in a particular society is characterised as something special, unique, controlled, elite, then the school should physically reflect this. If the meaning of learning is seen as integral to all aspects in a society, then learning should have presence everywhere. Your question implies that I promote the latter, as if I know what's best. Having worked in a variety of cultures (33 countries and most states) I have learned not to advocate any preconception but only show possibilities.

SW: Bruce, at best your ideas reflect a clear and invigorating sense of what learning should be; at worst, there is sometimes more than a hint of idealist tyranny that ignores many of the subtle but important patterns of humanity. You would do away with the classroom and the school, and while that is certainly alluring and can work in limited circumstance, do you ever see a danger in promoting dramatic change? Do you see your role as provocateur? How far should architects go in adopting your approaches? How sceptical should practitioners be?

BJ: First, one assumes I am promoting dramatic change. I do not promote anything except that people think before they act when making decisions about learning environments. To help them, I share some of the possibilities. Second, do I see myself as provocateur? This is for others to

decide. I share ideas. Some people respond by giving those ideas thoughtful consideration. Others, apparently, are provoked. Third, should architects adopt my approaches? School architects ought to be knowledgeable in the numerous possibilities out there. This is also true for school planners and educators. Knowledge is not painful. Finally, how sceptical should practitioners be? Why not ask: how knowledgeable, how inquisitive, how curious, how informed, how excited or even should they be sceptical?

This article by Randall Fielding first appeared in the January/February 2001 issue of the US magazine School Construction News. The interview is posted in its entirety on <http://www.designshare.com>

Interviewers:

- **Randall Fielding**, editor, Design Share, Minneapolis, MN, USA; e-mail: fielding@designshare.com
- **William Brenner**, director, National Clearinghouse for Educational Facilities, Washington, DC, USA; e-mail: bbrenner@nibs.org
- **Lia Burgers**, B+B E-novations, Netherlands; e-mail: a.bless@chello.nl
- **Charles H. Boney, Jr.**, AIA, Boney Architects, Wilmington, DE, USA; e-mail: cb2@boneyarch.com
- **Prakash Nair**, president, Urban Educational Facilities for the 21st Century, USA; e-mail: Prakash@designshare.com
- **Arnie Glassberg**, Unified School District, San Lorenzo, CA, USA; e-mail: ARNIE@sanlorenzousd.k12.ca.us
- **F. Andy Simpson**, AIA, Pfluger Associates Architects, P.L.L.C., San Antonio, TX, USA; e-mail: andy@pflugerassociates.com
- **Jack Lyons**, US Department of Education, USA; e-mail: Jack_Lyons@ed.gov
- **James E. LaPosta**, Jeter, Cook & Jepsen Architects, Hartford, CT, USA; e-mail: laposta@jcj.com
- **Jose M. Freire da Silva**, Ministry of Education, Lisbon, Portugal; e-mail: jmsilva@degre.min-edu.pt
- **Sarah Woodhead**, SHW Group, USA; e-mail: sjwoodhead@shwgroup.com

SCHOOL REFORM AND CONSTRUCTION IN THE PROVINCE OF ROVIGO, ITALY

At a Glance

Province: **Rovigo**

Region: **Veneto**

Country: **Italy**

The Province of Rovigo has a population of approximately 243 000.

10 188 pupils (aged 14 to 19) are enrolled in secondary schools under the supervision of the province (2000/01 school year).

Rovigo has 34 secondary school buildings, with a total surface area of approximately 122 000 m². These buildings are located in seven different communes within the province.

The legislative context

The legislative framework of the Italian education system has changed radically over the past five years. After decades of announcing, discussing, proposing and experimenting with reform, the school of tomorrow is rapidly becoming a reality. Italy will at last have schools that are pluralistic, strengthened by their autonomy and by the mutual benefits that can be derived from a close relationship with their local area. They will be schools that look outward towards Europe, not only because the overall duration of schooling will be in line with European standards (reduced from the current 13 to 12 years, with pupils exiting at age 18), but because new curricula will be introduced.

After measures to make schools legally autonomous, to determine the size of the school network, to introduce compulsory schooling up to age 15 and compulsory training to 18, and to decentralise functions from central government to an autonomous local system, the last major facet of the reform is the reorganisation of school cycles. This process has already been initiated through the relevant legislation (No. 30/2000); however it has yet to be fully completed, particularly at the secondary level, by defining

curricula and by preparing an infrastructure plan for buildings and educational technologies (information technologies, telematics and the technical facilities, which most often consist of laboratories, required to teach various subjects).

Since school construction is the responsibility of the local authorities, and in particular of the provincial authorities for the secondary education sector, it is easy to understand that in a situation that has yet to be fully defined, as noted above, the construction of buildings that meet not only current needs but also the future needs of the reformed school of tomorrow is a complex task.

Prior to the reform of school cycles, there were over 100 different fields of study in Italian secondary schools. These will now be consolidated within four areas:

1) Classical/humanities area, with two branches:

- classical languages and culture;
- modern languages and culture.

2) Scientific area, with two branches:

- mathematical and experimental sciences;
- social sciences.

3) Technical and technological area, with six branches:

- management and services related to the production of goods;
- management and services related to the economy;
- management and services related to the environment and territory;
- management and services related to natural resources and agro-industrial sector;
- management and service provision in the field of personal and community services;
- management and services in the field of tourism.

4) Artistic and musical area, with at least two branches.

At present, it is still uncertain how the existing areas of study will be combined, which makes it that much more difficult to design tomorrow's schools.

New types of school buildings

Is it possible today to construct school buildings that will easily house the reformed school that is being defined? This is probably the most urgent question that the administrators, managers and experts of local authorities are now seeking to answer. It is perhaps even more urgent than the question of how to adapt existing buildings to meet the needs of the

reformed school. This can be scheduled in gradual phases staggered over time, but for new school buildings it is imperative not to miss the opportunity to experiment with new solutions and develop standards that can then be used elsewhere.

Last year the Province of Rovigo completed a school complex that was begun in the 1990s. It houses two separate schools with a total enrolment of slightly less than 900 pupils. The complex, built in the Commune of Adria, a town of approximately 20 000 inhabitants, has a total volume of over 38 000 m³ and a gross surface area of 11 310 m². It has 43 ordinary classrooms and 12 special classrooms and laboratories. It also has a large library and an auditorium with a capacity of approximately 350.

The last phase of construction aimed to meet the possible needs of the future reform of school cycles by enabling the building to play a distinctive role in the life of the town, *i.e.* to serve the community and be integrated into its public infrastructure. Specifically, an effort was made to respond concretely to four broad aims:

- 1) Flexibility of the laboratories and special classrooms – All the classrooms in the north-west corner of the building (the last segment built) are designed so that they can be equipped as laboratories, in particular computer science or language laboratories (hook-ups have been installed in floors). Each of these rooms has two entrances (one from an outer corridor and another from an outside gallery) so that they can easily be transformed into laboratories with a second external exit for safety reasons.
- 2) Flexibility of the classroom areas – Not only are there classrooms of different sizes, with a capacity ranging from 20 to 30 users, but many rooms are separated by mobile partitions that make it possible to adjust their size.
- 3) The close integration of the complex into the life of the town – The auditorium, in particular, can be used independently from the rest of the school (separate entrance, independent air conditioning, heating and air circulation systems). The existing library area has been completely redesigned and provided with an independent heating and air circulation system. Agreements will no doubt be reached with the local municipality to enable all local inhabitants to use the auditorium and library.
- 4) Flexibility in the overall use of the complex – The ordinary classrooms and multi-use special classrooms that can be converted into new laboratories make it possible to anticipate the planned reform of school cycles with confidence. The complex can be adapted flexibly to the new fields that will be introduced and to partial or comprehensive changes in the current curriculum.

Article contributed by:

Valerio Gasparetto

Provincia di Rovigo

Area gestione del patrimonio immobiliare e servizi scolastici

via Ricchieri, 10

45100 Rovigo

Italy

Fax: 39 0425 205404

E-mail: v.gasparetto@tin.it

School complex in Adria, Italy,
shared by a high school
and a technical
college



FACILITY BENCHMARKING TRENDS IN TERTIARY EDUCATION – AN AUSTRALIAN CASE STUDY

Background

Over the past decade a near doubling of the post-secondary education student population in most OECD countries has been achieved with a minimal expansion of new buildings and campuses (with exceptions such as a number of campuses in new suburban developments on the outskirts of some Australian cities). Much of this student increase was absorbed by the new information and communications technology (ICT) through flexible delivery and distance learning methods on existing campuses.

Assessment of the impact of this growth in tertiary education participation on the use of facilities was the focus of a PEB conference in Greece in 1995 (see *PEB Exchange*, no. 27, March 1996). PEB, in light of the OECD education ministers' goal of lifelong learning for all, decided to broaden its focus beyond schools to include vocational training and university education.

The growth rate in tertiary education participation occurred when much of the building stock was reaching its first cycle of renewal, around 25 to 30 years after the building expansion of the 1960's. That construction programme was implemented to accommodate the then post-secondary school age post-war "baby boomers." Thus in the late 1990's, the attention of facility managers turned towards the efficiency and effectiveness of their assets, the need for these assets to incorporate new and emerging ICT systems, and the development of asset strategies needed for renewal.

Strategic asset management

University and college facility managers began to look at the "whole of life" aspects of their assets and had to try to predict the future for their facilities. This brought a strategic focus to their task. This trend became evident in the United States where the *Facilities Planning News* (1995, p. 9) surveyed university planners and administrators and found that strategic, management and project issues were the overwhelming concern, particularly in relation to ageing facilities and to how these would be renewed and adapted to the new technologies.

Sixty-one percent of respondents rated as most important the issue of "how new learning technologies will affect facilities plans and facilities usage". Fifty-seven percent were concerned with "getting more from what you have" (facilities utilisation plans); 67% with facilities upgrades and renovations; 50% with teaching laboratories refurbishment and 40% with operating budgets and ways to lower operating costs. Subsequently PEB organised a workshop entitled "Strategic Asset Management for Tertiary Institutions" in Sydney, Australia, in 1998, at which many of these issues were discussed in-depth in working groups. Some 45 participants from Australia, Europe, the United States, Asia and New Zealand attended the workshop. A key outcome of that meeting was a determination for increased efforts at benchmarking between institutions to develop comparative means to measure the performance of facilities (see <http://www.oecd.org/els/education/peb/pubs.htm>).

Benchmarking of educational physical assets

PEB had attempted to benchmark school facilities over the past decade across its Member countries to provide additional data for the popular OECD educational statistics database. This exercise proved difficult for a variety of reasons. The most obvious problem was the differentiation in countries regarding school facilities management and, in particular, whether data was collated at the ministerial level for the country in question (such as France), at a regional or state level (such as Australia), at a local government authority level (for example Norway) or even at an individual school level.

The other major factor inhibiting progress was the categories and format of the data collected in those countries. A survey of PEB Members revealed that, whilst there was a wide range of data collected in the Member countries, there was little correspondence between countries in terms of the format and range of data elements. The survey contained 25 questions which explored five key areas: the educational system of each country, administration and property management aspects, space indicators, expenditure and environmental factors.

Around the same time performance measures were becoming important at a national level in many countries, particularly in tertiary education. For example in the United Kingdom the Higher Education Funding Council (HEFCE, 1997) published guidelines for "Strategic Plans and Financial Forecasts" which requested data on such matters as maintenance, capital expenditure and various other facility elements, followed by another framework study on asset management statistics (HECFE, 1999). In Australia there was a call for better performance measurement in tertiary education institutions (McKinnon, 1999), in which facilities were also singled out for attention.

Benchmarking in Australian post-secondary institutions

In Australia for over a decade AAPP, the Australasian Chapter of APPA (Association of Physical Plant Administrators, based in the United States), had been developing such performance indicators across more than 40 institutions (see <http://www.publications.qut.edu.au/extnl/aappa/aappahome.html>). This work has now evolved to the extent that their most recent publication, the 2000 *Benchmark Survey Report* (AAPP, 2000), had 63 respondent institutions from Australia, New Zealand and Hong Kong. The 112 separate data elements collected on an annual basis include general statistical data (e.g. gross floor area), asset replacement value, staff and student numbers, and costs for maintenance, cleaning, energy, grounds maintenance, security, telephone, water and building operations. Much of the data has been informed by the guidelines set out by the National Committee on Rationalised Building (Bromilow, 1992).

These data are now providing an excellent comparative benchmark as, over the 10 to 12 year period of the development of the statistics, irregularities, inconsistencies and misunderstandings have been gradually ironed out. APPA is publishing a Strategic Assessment Model for which AAPP is presenting its process of collecting and analysing benchmark data. AAPP's work has been carried out predominantly in the university sector which, in Australia, New Zealand and Hong Kong, is essentially funded at the federal level, which allows for some consistency between the institutions.

However, the case in the vocational training sector (called technical and further education, TAFE, in Australia) is more complex. Whilst funding is provided predominantly at the federal level, the monies are distributed through the state treasuries to projects which meet regional needs. These projects are only reported to the federal level. The Australian National Training Authority (ANTA) was established in the early 1990's in an attempt to better co-ordinate, at a national level, the state-organised individual TAFE institutions and colleges. ANTA supported many studies in facilities management and benchmarking, although they were faced with differentials between data collection systems in each of the Australian states.

A study was commissioned in 1994, by the TAFE National Physical Resources Group (NPRG), to develop a resources module for TAFE facilities (ACVETS, 1994) in an attempt to provide a more consistent data collection framework. Another study was implemented by the NPRG which proposed the development of capital management plans.

Performance indicators for capital resources were considered but not implemented (TAFE, 1995). This study attempted to match student demand with facility supply. Other related studies included a report on operating costs of TAFE facilities (1995), a national study to establish benchmarks for the use of TAFE specialist facilities (1995) and a review of the national vocational education and training system facilities' maintenance funding requirements (1997).

A later study, the *Review of the Infrastructure Program*, was undertaken for MINCO, the Ministerial Council. A major recommendation of this report was that "performance indicators and benchmarks specifically relating to infrastructure should be developed and agreed as a matter of urgency to drive greater efficiency in infrastructure and infrastructure funding" (ANTA 1999, p. 60). This has led to a new accountability framework for vocational education and training (VET) infrastructure: "Directions and Resource Allocations for 2001" which was agreed by the Ministerial Council on 17 November 2000. One of the three main components in the new accountability framework is performance measures. This includes:

- a) public expenditure per publicly funded output incorporating:
 - the recurrent component of the unit cost of VET outputs;
 - the capital component of the unit cost of VET outputs;
- b) the ratio of operating and maintenance costs to capital value incorporating:
 - the ratio of operating and maintenance expenditure to capital value;
 - the value of the maintenance backlog;
- c) utilisation of infrastructure;
- d) performance benchmarks.

Another key recommendation, which was discussed at length at the PEB "Strategic Asset Management" workshop in Sydney in 1998, was that "states/territories should move to introduce capital charging to the VET sector as a matter of urgency as a measure of the actual cost of capital and thus to assist in better decision making in the use of capital funds and asset management" (ANTA 1999, p. 61). This has now become an Australian project called "The User Cost of Capital." At the time of this writing, the Working Group was scheduled to consider a draft report and measures during March-April 2001.

Conclusions

Extensive efforts world-wide have been made to develop performance measures for the physical infrastructure of educational institutions. However, this issue is not easy to

resolve given the differences in data collection and management within individual countries and between countries. The Australasian experience demonstrates that it is possible to collaborate in the development of performance measures if the will is there. Various models are possible. At one end is the institutional driven AAPP model which was developed independently of the central bureaucracy so that individual universities could use their assets more effectively. At the other end is the top-down approach of ANTA which is driving efficiencies, with the collaboration of the state-based National Physical Resource Group, so that taxpayer funds are spent in the most efficient and effective manner.

It remains to be seen how these regional initiatives can be benchmarked internationally in an increasingly globalised, borderless and competitive tertiary education and training environment. PEB (and the OECD Programme on Institutional Management in Higher Education) is in a position to broker such comparisons, but the will of the individual countries to develop such performance measures seems to be a pre-requisite before any significant developments are possible beyond the regional level such as demonstrated in Australia.

Article contributed by:

Kenn Fisher

E-mail: rubida@camtech.net.au

The writer would like to acknowledge the advice and comments of Brian Fenn (Queensland University of Technology), Brian Frankham (New South Wales Department of Education and Training) and Kelvin Crump (Queensland Department of Education and Training), all of whom are very active in Australasia in this area.

Kenn Fisher was acting head of the Programme on Educational Building in 1997-98, is a partner with Woods Bagot Architects (Australia, Asia the Middle East and Europe) specialising in the planning, design and management of educational buildings, and is in the final stages of doctoral research (at the Flinders University of South Australia) examining the design of learning environments primarily from a pedagogical perspective.

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SCHOOL BUILDING ORGANISATION IN GREECE

The national organisation responsible for school buildings in Greece has been converted into a public limited company. The School Building Organisation (SBO) was established in 1962 to design and construct new buildings and provide educational equipment. In 1998 the SBO was transformed into an S.A. (Société Anonyme) supervised by the Greek Minister of Education with the Greek state as the sole shareholder.

The SBO S.A. carries out construction projects and studies for both the public and private sectors. It works with the government agencies that construct school buildings (*i.e.* regional, prefectural governments and local authorities) and is responsible for:

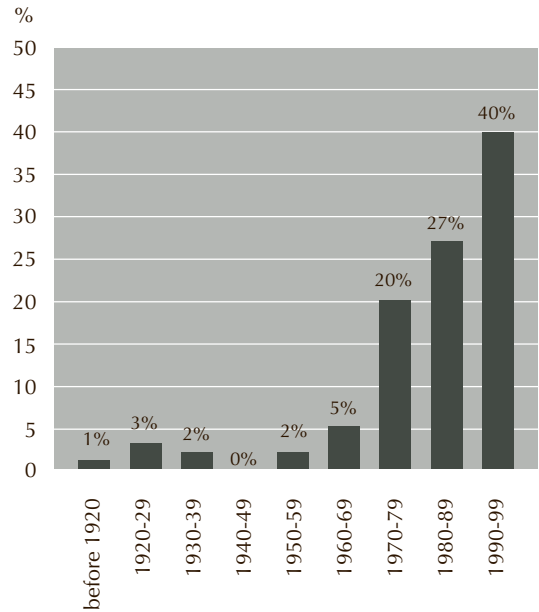
- financing the national school building programmes;
- providing technical and scientific consultation to the decentralised services of the state;
- funding or co-funding construction projects;
- purchasing or expropriating building lots;
- providing technical studies (architectural, electrical and engineering) and supervising the construction of new schools upon request;
- equipping the country's schools;
- installing prefabricated classrooms to relieve crowding or create space for laboratories, libraries, cultural events, etc.
- attending to the development of the educational systems and pedagogical needs;
- designing and studying ways to adapt the educational infrastructure as needed.

The Organisation also builds schools for Greeks living abroad, the first being in Munich, Germany.

The transformation of the SBO into a limited company resulted firstly in a decrease in bureaucracy and secondly in a by-pass of the public accounting system. The change of status has had a positive effect on the learning environment in that problems related to school facilities are solved quicker.

Between 1996 and 1999 the amount of public finances invested in educational infrastructure more than tripled, from 22 866 million drachmas to 74 970 million. From 1997 through 2000, the SBO S.A. expropriated 290 building lots with a total area of 67 hectares and a total value of

The construction of schools has been steadily increasing in Greece, with 40% of the country's lyceums (students aged 15 to 18) built between 1990 and 1999.



Source: SBO S.A.

GRD 50 billion. It is currently carrying out 218 projects involving 2 170 classrooms, with a budget of GRD 72 billion. In the year 2000, the SBO carried out a pilot project for 32 all-day primary schools. It is now undertaking a project for 200 new ones.

The SBO S.A. believes that infrastructure for culture and creativity, sports and laboratory learning are necessary elements in modern school buildings. By 2004 it plans to build 100 indoor gymnasiums throughout the country. New indoor and outdoor theatres, multi-use halls and arts education centres will be co-funded by local authorities. The Organisation is redesigning the national building



High school of Maroussi, Greece



High school of Kalamata



Primary school of Rafina

programme for comprehensive lyceums and is constructing computer rooms, physics and chemistry laboratories, technology workshops and school libraries which allow for easy supervision and facilitate the educational process for teachers and students.

The new building programme is in line with a concern expressed by the Minister of National Education and Religious Affairs, Petros Efthymiou: "Absolutely essential for the full effective operation of schools is the securing of upgraded materials and technical infrastructure, laboratories, equipment and pedagogical material, contributing to schools' better internal functioning. ... Our objective is for instructors to offer students knowledge, care and attention in modern, attractive, people-oriented classrooms."

In an effort to make schools more attractive and inspiring, and looking less like prisons, the Organisation is doing away with asphalt and making schoolyards out of natural materials (earth, stone and wood). It is building open-air theatres, arbours, wooden seating and playgrounds. In Attica, the SBO S.A. is creating parks for 20 primary schools and planting greenery around 80 schools and aims to generalise this programme.

The SBO S.A. underwent three years of restructuring: it modernised its administration and operations, developed research programmes and increased incomes and social benefits for its employees. The Organisation created new regulations which simplified procedures and shortened decision-making time. Operational management was changed to speed up financial decision-making.

At the initial stage of privatisation, the main problem encountered was the opposition of the employees to the new situation, due mainly to a feeling of insecurity; they



Polytechnic of Kalamata

feared losing their jobs and their permanent status. Relevant legislation was passed that secured their positions and thus restored their confidence.

The SBO is credited by the national budget for all expenditures related to infrastructure throughout the country. The transformation of the SBO brought about an important increase in productivity; as a result, the Organisation has absorbed more money from the national budget and the 2d CSF, a set of integrated development projects co-financed by the European Union and the Greek state.

*For more information, contact:
School Building Organisation S.A.
30 Favierou Street
Athens 10438
Greece
Fax: 30 1 52 49 676*

OECD PUBLICATIONS

Designs for Learning: 55 Exemplary Educational Facilities

High-quality school and university buildings from 21 countries are presented in this latest PEB publication through full-colour photographs, plans and descriptions. The 55 educational facilities selected by an international jury offer forward-looking responses to the changing environment of teaching and learning. Readers will also find an overview of activities of PEB.

Through examples from around the world, *Designs for Learning* demonstrates how the design, use and management of buildings and grounds can contribute to educational effectiveness. Newly built or renovated schools, tertiary institutions and facilities for adult education are presented under four themes:

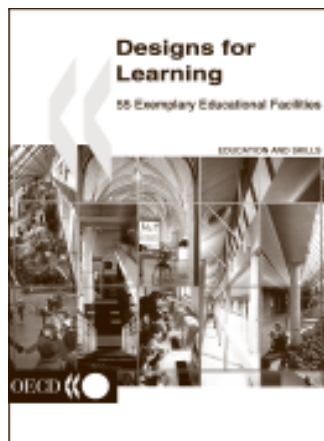
- improving effectiveness through design and management;
- the school of the future;
- tertiary education – coping with demand;
- strategies for managing the educational infrastructure.

The facilities featured in *Designs for Learning* were judged to best demonstrate quality in one or more of the areas of interest central to the work of PEB, including schools in the information society, lifelong learning in the community, educational facilities and the environment, libraries and learning resource centres, maintenance, space management and use in large institutions, financing capital expenditure, and health, safety and security.

Contact details for the institutions and architects featured are also presented.

2001, 168 pages

OECD code: 95 2001 01 1P1, ISBN: 92-64-18613-1
EUR 36, FRF 236.14, DEM 70.4, USD 30, GBP 21,
JPY 3 330, MXN 289



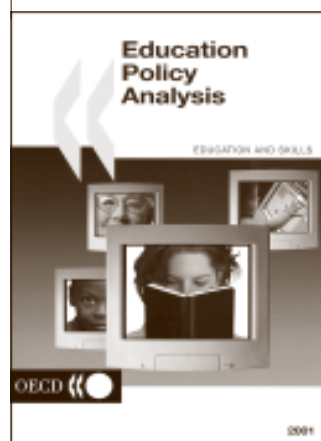
Education Policy Analysis, 2001 Edition

As pervasive technological change and growing interdependence among countries contribute to restructuring economic activity and shaping everyday life, lifelong learning's value grows. How far have countries progressed toward lifelong learning for all? Who is being left behind, and in what ways? How might schools evolve to address remaining gaps? In this special edition of *Education Policy Analysis* prepared as background for the 2001 meeting of OECD education ministers, these questions and others are explored. The analysis shows that progress and success in realising lifelong learning for all depend on clarity in framing objectives for lifelong learning and appropriate information for monitoring policy experience and examining policy options. The five chapters in this book draw upon the policy experience and trends in OECD countries to examine the following:

- promising directions for lifelong learning policies;
- country performance in realising lifelong learning outcomes;
- differences in participation in lifelong learning, including along a so-called "digital divide";
- competencies demanded in the knowledge economy;
- alternate futures for schools.

2001, 152 pages

OECD Code: 96 2001 03 1P1, ISBN: 92-64-18636-0
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JPY 2 000, MXN 184



OTHER PUBLICATIONS

Scholenbouwprijs 2000 (School Building Prize 2000)

The Netherlands have published the results of their fifth school building competition, awarding a primary and a secondary school. The School Building Prize, conceived by the Ministry of Education, Culture and Science, is intended to encourage creativity in the commissioning of buildings; the aim of this is to bring about architecturally inspiring and effectively functioning schools. The publication contains photographs and plans of the top eight institutions and a summary in English.

2000, 64 pages, ISBN 90-801913-6-1, NLG 49.50

Order by e-mail: HvanBemmelenDulk@deloitte.nl or by telephone from Deloitte & Touche ICS: 31 10 272 1780

Building Better Outcomes: The Impact of School Infrastructure on Student Outcomes and Behaviour

This six-page digest is part of a series of brief reports titled "Schooling Issues Digests" which summarise existing research material on selected topics relevant to schooling in Australia. The purpose is to provide status reports on the results of recent international and national research in an easy-to-read format. The author of this digest is Kenn Fisher, head of PEB in 1997-98. He reviews a range of studies which examine the possible causal linkages between building design and student outcomes, setting out those findings that are agreed and those areas where research to date is relatively inconclusive.

January 2001

Published by the Department of Education, Training and Youth Affairs, Australia, and available on the Internet at <http://www.detya.gov.au/schools/publications/index.htm>

For information on this series, contact Irene Kaspar, tel.: 612 6240 5444, e-mail: irene.kaspar@detya.gov.au

Guide de gestion environnementale en milieu scolaire (Guide to Environmental Management in Schools)

This is a practical guide written for Quebec school management, local education authorities and others interested in providing a healthy environment for schools. Based on successful experiences in pioneering schools, it looks at ways to integrate environmental concerns into the management of an educational institution. It also includes activity sheets on 12 topics, such as energy efficiency, dangerous materials, purchasing policy and school grounds; each sheet describes an environmental problem and proposes objectives and concrete ways to meet them.

2000, 105 pages

To order, send cheque for CAD 50 payable to Collège de Rosemont:

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Educational Facilities Digests

The National Clearinghouse for Educational Facilities in the United States has published 13 two-to-twelve-page digests providing key information and numerous references on the following school facilities issues:

- A Principal's Guide to On-Site School Construction
- Classrooms
- Creating Accessible Schools
- Early Childhood Centres
- The Educational Facilities Laboratories (EFL): A History
- Managing Indoor Air Quality in Schools
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- Planning School Grounds for Outdoor Learning
- Science Facilities
- School Health Centres
- Student Commons
- Teacher Workspaces

The publications are available online at <http://www.edfacilities.org>

Schools as Centers of Community: A Citizen's Guide for Planning and Design

This guide, published by the US Department of Education, discusses how educators, architects and facility planners can work with other citizens to plan and design new schools that address the needs of the whole learning community. It presents design principles, ten examples of innovative school designs and a facilities master planning process.

2000, 59 pages, free

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PEB DIARY

June

7 – The PEB Steering Committee will mark the 30th anniversary of its first meeting (September 1971) with a debate on future needs for educational buildings.

September

10-15 – The XV International UIA/UNESCO Seminar will take place under the theme “Learning in a Public Place” in Porto, Portugal. The seminar will address educational and social changes, continuing education, community involvement, physical limits of educational and cultural spaces, architectural theology and technological innovation. Contact: Yannis Michael, Programme Director, Cultural and Educational Spaces, International Union of Architects, Greece, tel.: 301 323 57 79, fax: 301 322 17 72; Secretariat: Maria Miguel and Isabel Cotrim, Portugal, fax: 351 21 324 11 01.

October

22-26 – The III Regional Seminar on Educational Spaces in Mexico and Latin America and the Caribbean will take place in Xalapa, Veracruz. The topic will be “*La Arquitectura y sus espacios para una educacion sin exclusiones*” (Architecture and Space for an Inclusive Education). The seminar will be sponsored by the State of Veracruz and the UNESCO Regional Office for Education for Latin America and the Caribbean. Contact: Rodolfo Almeida, e-mail: ralmeida@unesco.cl

November

1-3 – The Committee on Architecture for Education of the American Institute of Architects will organise an event entitled “Learning Environments that Sustain; A Sustainable Future” in New York. Contact: James Gaines, tel.: 1 202 626 7464, e-mail: jgaines@aia.org

7-9 – PEB, the Greek Ministry of Education and SBO S.A. will hold a seminar in Thessalonika on disaster management and educational facilities, with a particular emphasis on earthquakes. Please see page 2.

28-30 – Online Educa Berlin is organising its 7th International Conference on Technology Supported Learning & Training, supported by the European Commission. Sessions will be devoted to approaches to flexible learning, building educational resources, organisational issues, case studies and enabling technologies, products and services. The conference will take place in Berlin, Germany. Register online at <http://www.online-educa.com/>

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Richard Yelland
Head of the Programme



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