
Urban Design Studios: an Effective Method in the Education of Urban Designers*

Andrew Olszewski
Theadora Kouremenos
Zenon J. Pudlowski

*UNESCO International Centre for Engineering Education (UICEE)
Faculty of Engineering, Monash University, Clayton, Melbourne, VIC 3800, Australia*

A new educational approach, the so-called design studios, based upon problem-based learning, in the education of professionals involved in the urban design process has been developed through the Urban Design and Education Programme (UDEP). The design studio is an activity that stimulates creativity and problem solving, and is an effective technique used to resolve difficult urban design and management problems. The development of this method is one of a number of activities undertaken by the recently established UDEP. This programme is a joint enterprise established by the UNESCO International Centre for Engineering Education (UICEE) and the Department of Infrastructure within the Victorian State Government in Australia. Two case studies are presented in great detail in order to illustrate the educational features of the design studios, which have been recently carried out in Melbourne, with the third currently under development. These three cases of difficult urban design problems should provide comprehensive information as to the efficiency of this technique.

INTRODUCTION

The UNESCO International Centre for Engineering Education (UICEE) at Monash University, Melbourne, Australia, and the Department of Infrastructure of the State Government of Victoria in Australia are jointly developing the Urban Design and Education Programme (UDEP). At this stage, the programme mainly concentrates on issues of importance to the Australian state of Victoria.

The specific focus of the programme's activities is on the following:

- Education.
- Research and development of improved practices.
- Advice to government.
- Promotion and public awareness.
- Demonstration projects.

The programme is comprised of five projects that address issues of critical importance and developing tools relevant to the project's objectives. These UDEP projects are:

- Design Assessment Criteria and Methods for Performance Oriented Planning.
- Design Mediation and Community Consultation.
- Urban Design Tools.
- International Urban Design Fellowship Programme.
- Urban Design Training Courses.

It should be emphasised that each one of the projects contains some elements concerning education. However, most of the education effort is being concentrated in the Urban Design Training Courses project.

UDEP maintains a commitment to promoting best international practice in urban planning, design and sustainable development [1]. This commitment to best practice has led to the International Visiting Fellowship Programme, where recognised leaders in urban design and development are invited to

*A revised and expanded version of a keynote address presented at the 2nd Global Congress on Engineering Education, held at Hochschule Wismar, Wismar, Germany, from 2 to 7 July 2000.

work with local professionals on key Victorian projects.

Visiting Fellows undertake a number of activities during their visit, including public forums, conferences, lectures and design studios. Of these activities, it is probably the design studios that present the most exciting opportunities for the interaction of ideas and people. As the most notorious and difficult sites are selected for exploration, energy and motivation remain high and is further spurred on by a healthy level of competition among participants.

The Global Context

The establishment of the UICEE-UDEP has to be seen and considered in a global context, and is a response to the following challenges:

- Urbanisation is one of the most significant challenges that the global population must face.
- Many regions, such as South-East Asia, are undergoing a paradigm change with profound social effects on economic and social sustainability.
- Successful urbanisation can create healthy, attractive, safe and productive environments for urban populations.
- There is a need around the world for governments and private organisations to develop and apply urban management practices that achieve sustainable economies and communities.
- South-East Asia is experiencing a particularly fast and difficult urbanisation process, with the growth of mega-cities. The success or failure of this process will have major implications for the global community.
- Australia, with its widely recognised success in urban design and development, and acclaimed for its liveable cities, is in the best position to assist others in the development of urban centres [2].

Urban centres in the age of globalisation can no longer expect natural, locally based economic development and resources to drive prosperity. Globalisation is both a cause and a consequence of the information revolution. It is driven by dramatic improvements in telecommunications, exponential increases in computing power coupled with lower costs, and the development of electronic communications and information networks such as the Internet [3]. These are helping to overcome the barriers of physical distance.

The process of globalisation has a profound and often negative effect on small regional centres everywhere. The traditional ways in which economic activities were conducted in the past have changed

with globalisation. This usually leaves regional centres with greatly diminished roles, resulting in the deterioration of the employment market. This situation often forces regions to accept unsustainable economic activities and environmental deterioration.

The process of change limits locally based business opportunities, causing potential leaders and enterprising individuals to migrate to the main cities. Diminishing community services and educational facilities often exacerbate this situation further. When the economic strength of local communities is weakened, it is difficult for them to maintain or improve their urban environments.

Human settlements, and in particular urban systems such as towns and cities, are the greatest threats to ecological sustainability. Urban planning and design, therefore, offers a great potential to better coordinate various ecological initiatives such as the use of solar energy, waste minimisation and energy efficient transport, as well as social, cultural and economic aspects of urban development [4].

Fighting the combined effect of these kinds of changes is usually well beyond the capacity of most regional communities as the solution lies in fundamental structural adjustments and finding a specialist niche at the state, national or even international level (such as the production of ecological food or advanced manufacturing).

In an increasingly competitive world, it is the town, city and region that are becoming the points of comparison. The design quality of urban areas affects our ability to attract investment and to generate wealth in two ways; firstly through the efficiency of the system and the ability to avoid unnecessary waste; and secondly through the image that is projected from both the built environment and the culture that is associated with it [5].

The Re-Positioning of Urban Centres

The process of urban development involves a wide range of participants and stakeholders, who, ideally, are working towards the same agreed direction. In reality, however, this is rarely the case. Interdisciplinary friction, complex political agendas and poor coordination between the public and private sectors often lead to unsatisfactory urban environments that occasionally are dysfunctional, unsafe or unsustainable.

These poor environments could be described as *black holes* in the city. They tend to be dominated by infrastructure such as road interchanges and while they successfully meet infrastructure objectives, they are destructive in relation to other aspects of city life such as pedestrian and functional connectivity, legibility

and visual appropriateness and comfort. Such *black holes* are often considered as being beyond repair with little intrinsic value.

The usual maintenance or artificial improvements are totally inadequate in dealing with problem areas of such a nature. Places that have become largely or wholly irrelevant to the future of the city or region and are considered by the community as liabilities require *re-positioning* and not just improvement.

Re-positioning means a fundamental adjustment in which the subject urban environment is made to work for present and future community needs. The actions required may include, amongst others:

- Changing public perception.
- Re-modelling transport infrastructure.
- Repairing the system of pedestrian linkages.
- Urban environment changes and improvements.
- Changes to the functional programme.
- Improved public safety.

The combination of issues affecting these areas could include:

- Lack of perceived or actual value of land.
- Complex and often contradicting requirements of the users.
- Damaged natural environment.
- De-generated built environment.
- Environment dominated by transport related structures.
- Concerns about public safety or undesirable activities (such as places of drug use).

Training

The existing urban areas of our towns and cities experience major social change that manifests itself in decreasing household sizes. This de-population of urban centres and the combined ecological and economic costs of urban sprawl are behind the government's policy of urban consolidation and a new performance-based planning system.

The resulting re-urbanisation of our suburbs requires a new set of design-based skills from all parties involved in the process. The paramount aim of this project is to improve design assessment skills in relation to development proposals within the existing urban area.

DESIGN STUDIO CONCEPT

Apart from generating exciting design ideas, design studios also offer an effective model of education. Currently used in architectural and other design based

education, this approach has been formalised in recent years under the title of *problem-based learning* (PBL). It can be found in disciplines such as medicine, engineering and mathematics, amongst others.

The essence of problem-based learning is the setting of a problem and allowing the student to direct their own learning through seeking solution to the problem. They engage in a search for solutions, learning not only the facts of the situation and the solutions, but also the process [6].

The design studio also introduces the participant to the social roles that are represented in a typical design process. The student learns that design occurs not in a vacuum but within a broad network of participants, including professionals such as architects, engineers and consultants, as well as non-design professions, such as clients, bankers and users [6]. The design studio is an activity that stimulates creativity and problem solving. It can be a particularly effective technique when used to resolve difficult urban problems.

Generally, a design studio will be undertaken in a short period of time focusing intensely on a selected area or site. What makes this an effective effort is that the individuals participating are arranged into multi-disciplinary groups, ensuring that the knowledge and skills required to resolve the issue at hand are present around the table. It has been observed that:

...Social, technical as well as other scientific and art branches are characterised by two controversial problems in this century: a significant professional atomisation, and thrive for interdisciplinary approach to certain scientific tasks. It also stands for the development in architecture and urban planning [7].

Usually, the professional background of studio participants include:

- Transport/infrastructure engineers
- Architects and landscape designers
- Urban planners and designers
- Economists
- Social planners

Apart from their professional background, participants also tend to represent important stakeholders in the urban development process such as:

- Local and State Governments
- Infrastructure providers
- Politicians
- Private developers

URBAN DESIGN STUDIO – UDEP GENERAL PROCESS

Design studios undertaken through UDEP generally include three phases. These are:

- Pre-studio
- In-studio
- Post-studio

Pre-studio

Pre-studio activities occur in preparation for the design studio itself. A broad analysis of the selected node and its urban context is undertaken with key stakeholders. Following the analysis, a studio agenda and brief are formulated to provide information and parameters for the exercise.

In-studio

The in-studio phase is made up of a number of distinct activities. Firstly, multi-disciplinary groups are formulated and briefed. Group work commences, with each group undertaking a design analysis and developing design options. Groups will present their work to an audience consisting of state and local government representatives, stakeholders and private industry.

For the benefit of invited guests, Visiting Fellows may also present highlights from their international projects.

Post-studio

The post-studio stage usually includes the production of a report or publication of the studio results and some form of public and professional debate. The studio could also result in great community interest leading to more detailed work such as establishing a *public brief* (a functional and design expression of community aspirations for the given urban node), as well as urban marketing process preparing for the project's implementation.

The design studio allows a transfer of information and expertise at a number of important levels in the planning and development process. This transfer helps to:

- Change public perceptions about the area.
- Inform decision-makers about the possible opportunities.
- Build interdisciplinary skills amongst participants.
- Develop design skills.
- Contribute to continuing education.

The design studios are selected to address the most challenging urban nodes and ultimately to assist with their re-positioning within the urban fabric.

The design studio model developed under UDEP aims to achieve the following:

- Develop design concepts for selected urban nodes presenting opportunities for successful intervention and potential re-positioning.
- Support the development of *public briefs* (such as St Kilda Junction or Footscray Station).
- Establish a multi-disciplinary approach to urban design projects.
- Transfer skills and methods used by the leading international designers to local professionals.
- Enhance public debate about the urban design agenda.

Design studios, while stimulating creativity and ideas, also provide the grounds for hands-on experience, helping to educate participants in areas such as:

- Vision setting;
- Urban management;
- Urban design;
- Economic feasibility;
- Ecological sustainability.

CASE STUDIES

UDEP has undertaken two design studios since the programme commenced in June 1999. The first studio was titled *Reinventing St Kilda Junction*, while the second studio was titled *Young Designers Explore the Future of Melbourne's West*. These design studios provide useful case studies in highlighting their educational and problem solving potential.

The case studies provide a point of comparison. Although aiming to achieve similar objectives (re-positioning an urban area), the approach and focus of each was slightly different.

St Kilda Junction

The key elements of this design studio included:

- One international Visiting Fellow leading three design teams.
- Design teams formed by high calibre professionals and respected local design leaders.
- Three teams focusing on one hypothetical design project.
- The educational objective was to elevate the level of understanding and broaden the expectations of key stakeholders and decision-makers responsible for the St Kilda Junction area.

Melbourne's West

The key elements of this design studio included:

- Four international Visiting Fellows led four design teams.
- Design teams were formed from young designers from the most respected architecture and urban design practices.
- Teams focused on different sites with actual projects that are currently under consideration.
- Information technology was used as the key communication and design tool.
- The educational objective was to expand the knowledge and experience of young participants in urban design processes and international best practice.

CASE STUDY 1: RE-INVENTING ST KILDA JUNCTION

St Kilda Junction is an example of an urban node that holds importance for the centre of Melbourne but is dominated by a single infrastructure role: a road junction. The road works that transformed this area into its current form produced a number of impacts: separating pedestrian and visual connections to important activity nodes, creating poor accessibility to public transport and a poor entrance and image to Melbourne [8].

Traditional landscape and streetscape treatments would not be effective in resolving the problems created by the extent and type of engineering road works, and the need to maintain traffic flows.

This studio explored the development of design options beyond the traditional approach. By examining St Kilda Junction, the studio will also become relevant for other important areas, and provide an example of a design approach that effectively integrates infrastructure with other city functions.

Studio Objectives

The objectives of the studio were to:

- Develop functional and design ideas.
- Demonstrate an inter-disciplinary urban design approach.
- Integrate infrastructure with other city functions.
- Expose local leading professionals to international practice.
- Help change professional and public perceptions about difficult urban sites.

Training Methodology

The following method was adopted for this case study:

Briefing Session

The briefing session highlighted the context and issues affecting St Kilda Junction. Local and State Government representatives presented an analysis of the site.

Group Work

Three multi-disciplinary groups were formed. Each group was to focus on the same site and to work towards its resolution. Two recognised local design experts were nominated to head each group.

The responsibility for providing direction and assistance to the groups rested with Prof. Wolf Prix (Visiting Fellow), initially suggesting the design direction that each group should follow and then worked with them to refine concepts.

Presentation of Previous Work by Visiting Fellow

For the benefit of invited guests (mainly stakeholders in the project and local area) who arrived to see the studio results, Professor Prix presented highlights and explained the concepts behind his international projects.

Presentation of Concepts by Each Group

Group leaders presented their designs and concepts highlighting opportunities to stakeholders.

Design Critique by Visiting Fellow

The Visiting Fellow accented the strengths and weaknesses of each proposal and summed up the activities of the day.

General Discussion

Stakeholders were given the opportunity to provide comments and engage with Professor Prix, as well as the group leaders.

Educational Model

The educational model includes the following:

- Multi-disciplinary interaction and cooperation.
- Leadership provided by Visiting Fellow.

- Local professional headed groups.
- International exchange of ideas.
- International best practice.
- All teams work on the same project.

Proposals Developed

One of the three groups proposed a large roundabout that takes in all the streets apart from the underpass. Three quarters of the roundabout would be surrounded by a circus of buildings. The centre would be public space and have a symbolic pi-shaped building.

Another suggestion was to place a superstructure over Dandenong Road. This space would be utilised for car parking, retail, entertainment and residential developments.

The final proposal kept the primary focus on St Kilda Road and created an architectural gateway with buildings defining the junction. Figure 1 shows an example of a junction design developed during the studio.

Observations

The multi-disciplinary nature of the groups meant that much of the required expertise needed to resolve various urban issues was available around the table.

Participants were able to think beyond their own professional boundaries and consider the consequences of their proposals from new perspectives. They were also able to experience the benefits of a multi-disciplinary approach, something they may consider implementing in their own practices.

The high level of experience and local knowledge enabled the professionals participating in this studio to develop credible concepts in a short time.



Figure 1: An example of a junction design developed during the Studio.

Stakeholders were supportive of the concepts as they were able to better understand the issues having themselves participated in the process. An important component of the studio is being able to communicate proposals effectively, especially to stakeholders who may not have a background in urban design processes and concepts before. These skills need also to be available to each group.

Although nominating two design leaders for each group allowed for rapid concept production, it was difficult for them to compromise their aesthetic styles.

The presence and input from the Visiting Fellow helped to encourage higher standards, as did the competitive nature of three groups working on the same site, each hoping to produce the *best* scheme.

The studio outcomes proved that this important node could be re-modelled and re-vitalised without losing its current infrastructure capacity. The eventual redevelopment of this area would become an example for other areas of urban blight in Victoria.

CASE STUDY 2: YOUNG DESIGNERS EXPLORE THE FUTURE OF MELBOURNE'S WEST

This second design studio turned to the western part of Melbourne, and in particular three key infrastructure nodes. The studio was titled: *Young Designers Explore the Future of Melbourne's West*, and focused on the younger generation of designers and the use of digital information and graphics.

The studio participants were divided into four groups with each led by an international architect. Two groups focused on the Footscray modal interchange and the other two groups on intersections along the Western Ring Road.

The results of the studio were exciting and stimulating, and approaches varied dramatically. These ranged from using new processes and information in resolving urban challenges, re-populating and reinventing an area through architecture and design, to new applications for computer technology as well as innovative remodelling of road infrastructure [9].

The western suburbs of Melbourne have not developed to the same quality and extent as those in the south-east. This leaves metropolitan Melbourne conurbation severely uneven and presents major infrastructure, environmental and social issues.

In the past, the residential function of the western quarter of Melbourne was undermined by the environmental impact of heavy industry. The technological revolution over the past two decades is changing the character of new industries, making them more

environmentally friendly. In addition, the strategic role of the western region is increasing due to:

- The increasing importance of the airport to the Victorian economy.
- The development of the Melbourne Docklands.
- The growth in Melbourne and Geelong port activities.
- Major road infrastructure developments such as:
 - City Link
 - Western Ring Road
 - Improvements to Geelong Road.

An urban design strategy is needed to develop an appropriate urban structure and image of key urban nodes of the western quarter. As a contribution to this, the design studio focused attention on the future of the western region by developing hypothetical designs for key infrastructure related nodes:

- Footscray railway interchange.
- Western Ring Road/Geelong Road/Princess Freeway.
- Western Ring Road/Western Highway.

The studio explored issues to do with the future function and shape of these areas led by four emerging international architects working with local designers, planners and engineers.

Studio Objectives

The objectives of the studio were to:

- Explore the potential for better integration of infrastructure with the surrounding land uses.
- Develop skills in young professionals.
- Use information technology to help resolve difficult problems.
- Demonstrate an interdisciplinary urban design approach.
- Analyse the role of the selected nodes within the city structure.

Methodology

The following method was adopted for this design studio:

Site Visit

All participants in the design studio including the Visiting Fellows were required to attend a site visit and bus tour of the selected nodes for this exercise. Groups for the studio had not been disclosed so those individuals would equally consider all the information

presented. The briefing emphasised the importance of the sites as a system rather than as individual projects.

Group Work

Four multi-disciplinary groups were formed, two groups focused on the railway interchange and the other two on road interchanges. Each group was headed by a Visiting Fellow and a local professional.

The Role of Information Technology

Each group had access to electronic base material, a computer terminal and software operators. Information technology, and in particular the CADD system, played a large role in exploring ideas and communicating the complex concepts to the audience.

Presentation of Concepts by Each Group

All the groups presented their ideas, with most group members taking part in presenting to the audience. This was an opportunity to promote their achievements and was not left up to the group leaders.

General Discussion

Stakeholders in the audience were given the opportunity to provide comments and engage with the young professionals and their schemes. In some instances, private developers and local councils offered to support participants to further resolve their ideas.

Education Model

- Leadership provided by Visiting Fellows and local professionals.
- Multi-disciplinary interaction and cooperation.
- International exchange of ideas.
- All groups worked at both the macro strategic level by looking at the whole urban system of the western suburbs, and at the micro level in developing actual concepts for the site.

Value Adding

Young professionals who participated in this design studio were exposed to an integrated approach to urban development that took into account technical, functional and aesthetic considerations.

Complex urban challenges, when considered in the traditional, linear (subsequent) manner, are often seen as too difficult to resolve. But when individuals with all the relevant skills are participating in a

concentrated effort, outcomes that satisfy many contexts can be produced. Design studios can form part of young professional's continuing education programme. The concepts that were produced are being considered by local authorities, which had indicated an interest in redeveloping the selected sites.

The main objective of the International Visiting Fellowship Programme is to create access for Australian professionals to the cutting edge of international urban design practice. The secondary benefits include:

- Generating greater interest in the future of their cities for the general public.
- Initiation and delivery of an actual urban development project.

The educational values of an urban design studio include:

- Exposing leading local professionals and educators to the methods used by a Visiting Fellow in their current practice overseas.
- Dialogue between the Visiting Fellow and the local participants and critique of local practice based on best international examples. Many examples used by our recent Visiting Fellows were not yet published, giving the local participants privileged access to that information.
- A large multiplying effect stemming from the involvement of educators in the process.
- Involvement of students from planning, engineering and design fields in group activities.
- Lessons from the studio processes are being used as case studies for the training undertaken by UDEP.
- Post-studio presentations offer a wide range of professionals an opportunity to update their knowledge in the urban design field as an element of continuing education.
- All participants in the studio benefit from practical multi-disciplinary cooperation.
- Public awareness and understanding is enhanced through presentations and ultimately publication of the studio results.

Observations

In this model, group members had a greater opportunity to interact with the international visitors and develop a group dynamic that included them. Rather than advising, Visiting Fellows were active group members. Young professionals who participated in this design studio were exposed to an integrated approach

to urban development something that would be rarely experienced in their everyday work.

Participants in this studio had less experience and local knowledge but most groups were able to produce interesting concepts that could be developed further. Participants needed to quickly come to terms with the urban issues presented to them as well as understand opportunities and limitations presented by other professionals in their group.

Although approaches varied dramatically the results of the studio were exciting and stimulating. Information technology played an important role in exploring ideas and communicating complex concepts to the audience. The concepts used new processes and information to resolve urban challenges, re-population and redesigning areas through architecture, created new applications for computer technology and innovatively remodelled road infrastructure [9].

It becomes clear that design studios can form part of young professional's continuing education programme.

NEW MODEL: DEVELOPING CASE STUDY 3

UDEP is developing a third design studio model that will be tested as a case study, and is scheduled for 21-23 November 2000, with a Seminar to follow. This third design studio is intended to consider the redevelopment potential of Richmond Station, one of Melbourne's busiest train stations located adjacent to the city's Sports and Entertainment Precinct.

The strategic importance of the station relates to its role as a major transport gateway to the central area of Melbourne and Sports and Entertainment Precinct. A very large volume of visitors, in particular sports fans as well as people employed in the central area of Melbourne and the CBD use the station. While its transport role is relatively effective, it fails to announce the city and inform the traveller about the destination choices. Poor legibility and disorganised surrounding environments create confusion for users and an undesirable image for the whole city. Notorious traffic jams affect the whole Central Melbourne traffic system.

The present problems created by the narrow, 1960s' traffic engineering solution should not overshadow the opportunity for major improvement. This potential centre of activity could act as an important link between the surrounding areas.

The 2006 Commonwealth Games in Melbourne could offer a great opportunity and are a trigger for the project. The city anticipates a very large tourism

push associated with this event, which will also include a significant arts and culture component. Improved linkages with the rest of Melbourne in time for the event would benefit Melbourne in the way urban design projects have helped other cities to establish their global presence (including Sydney, Barcelona, Bilbao, etc).

Studio Objectives

The key objectives are to:

- Improve the process of design and development initiated by the Department of Infrastructure.
- Elevate public and government awareness of the benefits that may flow from the review of different options of the redevelopment of Richmond Station.
- Achieve a high level of public support, interest and expectations.
- Develop functional and design ideas.
- Demonstrate an interdisciplinary urban design approach.
- Integrate infrastructure with other city functions.
- Expose local leading professionals to international practice.

The Richmond Station project is much more advanced than the subjects of the previous studios. It is intended to be constructed for the 2006 Commonwealth Games.

This studio is intended to be integrated into the process of brief development for this precinct. An international architect and an experienced designer of similar developments will lead it. It will extend over three days of intensive work in the studio in Melbourne.

CONCLUSIONS

The development and introduction of design studios into the UDEP, and in particular the engagement of international Visiting Fellows, has proven to be an excellent vehicle for the transfer of knowledge and skills, as well as for the promotion of best practice in urban design and management.

Both of the studios received a high degree of support from Local Government, and are seen as a catalyst for further action.

The design studio technique, demonstrated in two case studies, has shown to be an efficient method in the education and training of urban designers and planners. The UDEP intends to develop this educational method further as it demonstrates several advantages.

REFERENCES

1. Olszewski, A., Kourmenos, D. and Pudlowski, Z.J., Repositioning cities for a sustainable future. *Proc 3rd Baltic Region Seminar on Engng. Educ.*, Göteborg, Sweden, 50-54 (1999).
2. Prime Minister's Urban Design Task Force, Urban Design in Australia. Canberra: Commonwealth of Australia (1994).
3. Washington, S., Globalisation: What Challenges and Opportunities for Governments. Report based on issues papers and two OECD meetings for officials from centres of government, Organisation for Economic Co-operation and Development (1996).
4. Olszewski, A., Kourmenos, D. and Pudlowski, Z.J., Re-urbanisation: a challenge for urban design education. *Proc. 2nd UICEE Asia-Pacific Forum on Engng. and Techn. Educ.*, Sydney, Sydney, Australia, 282-286 (1999).
5. Porter, M.E., *Competition of Global Industries*. Boston: Harvard Business School Press (1986).
6. Kvan, T., Studio Teaching Without Meeting: Pedagogical Aspects of a Virtual Design Studio. Department of Architecture, University of Hong Kong (1997).
7. Spacek, R. and Petransky, L., From engineering town to urban democracy. *Proc. 3rd UICEE Annual Conf. on Engng. Educ.*, Hobart, Australia, 118-122 (2000).
8. Olszewski, A., Kourmenos, D. and Pudlowski, Z.J., Re-positioning urban centres through design: lessons from recent design studios. *Proc. 3rd UICEE Annual Conf. on Engng. Educ.*, Hobart, Australia, 95-100 (2000).
9. Wegener, M. and Spiekermann, K., Efficient, equitable and ecological urban structures. *7th World Conf. on Transport Research*, Sydney, Australia (1995).

BIOGRAPHIES



Andrew Olszewski received a Diploma of Architecture and Master of Science in Urbanism from Cracow, Poland. Currently, he is the Programme Director of the Urban Design Education Programme at the UNESCO International Centre for Engineering Education (UICEE). He is also currently registered as an architect in Victoria, Australia, and has 25 years of experience in architecture, urban planning and urban design. Originally from

Poland, he honed his professional skills in cooperation with influential European architects and planners from Italy, France, Finland and Germany.

Until late 1986, Mr Olszewski worked as an architect with one of the leading Australian development companies on several major commercial projects including shopping centres, offices, private hospitals, and office and tourism developments. Following his success in 1986 in a national design competition called *Adelaide 2000*, he joined the Victorian Department of Planning and Development where he has promoted a broader European approach to urban planning and design. Projects such as *Arts Village* and *Dandenong District Centre* have helped to re-define the practice of urban design in Victoria beyond its traditional focus on environmental improvements to include issues of transport, economic activity, architectural modelling and community building.

He has played a key role in the development of urban design guidelines for Central Melbourne and made an important contribution to the *Capital City Policy*. He has continually promoted the idea of strategic coordination of land uses with infrastructure provision as one of the critical conditions of long-term development sustainability, and has contributed these ideas to projects of state significance such as *City Link*, *Habitat* and, most recently, the *Southbank Structure Plan*. His leadership in the field of urban design is best illustrated by his involvement in writing the national urban design policy for Local Government titled *Designing Competitive Places* (for the Commonwealth Government and Australian Local Government Association). In 1996, he coordinated the work of an Australian Federal Government Urban Planning Delegation to China, which developed an urban design framework for the Eastbank precinct of Tianjin's CBD.

He has several publications and has presented many papers at international conferences relating to urban design and place management.



Theodora Kouremenos completed a Bachelor of Town and Regional Planning in 1994 at Melbourne University, with her majors in environmental planning, and urban planning and design. In 1997, she finished a Postgraduate Diploma in Management from Melbourne University -

Melbourne Business School.

Ms Kouremenos joined the Department of Infrastructure of the Victorian State Government in 1994 as a strategic urban planner working on a Metropolitan Strategy for Melbourne, Australia. She joined the Urban Design Unit in 1997 and helped establish the *Pride of Place* Programme that has distributed \$12 million across Victoria over four years for urban design projects. She was also involved in the *Urban Design Frameworks* policy and in research for the *Urban Design Values Project*. She was seconded to the UICEE in 1999/2000 to help in the Urban Design and Education Programme (UDEP), which explores innovative ways of involving and educating professionals in the field and has co-authored a number of research papers related to UDEP.

She is currently responsible for coordinating the urban design discussion paper and input into the new Melbourne Metropolitan Strategy, and is also in the process of developing a new urban design program for the Department.



Zenon Jan Pudlowski graduated Master of Electrical Engineering from the Academy of Mining and Metallurgy (Cracow, Poland), and Doctor of Philosophy from Jagiellonian University (Cracow), in 1968 and 1979 respectively. From 1969 to 1976, he was a lecturer in the Institute of Technology within the University of Pedagogy (Cracow). Between 1976 and 1979, he was a researcher at the Institute of Vocational Education (Warsaw), and from 1979 to 1981, was an Adjunct Professor at the Institute of Pedagogy within Jagiellonian University. From 1981 to 1993, he was with the Department of Electrical Engineering at The University of Sydney where, in recent years, he was a Senior Lecturer.

He is presently Professor and Director of the UNESCO International Centre for Engineering Education (UICEE) in the Faculty of Engineering at Monash University, Clayton, Melbourne, Australia. He was Associate Dean (Engineering Education) of the Faculty of Engineering between 1994 and 1998. His achievements to date have been published in books and manuals and in over 250 scientific papers, in refereed journals and conference proceedings.

In 1992, he was instrumental in establishing an International Faculty of Engineering at the Technical University of Lodz, Poland, of which he is the Foundation Dean and Professor (in absentia) (1992-1999).

He was also appointed Honorary Dean of the English Engineering Faculty at the Donetsk State Technical University (DonSTU) in the Ukraine in 1995.

Professor Pudlowski is a Fellow of the Institution of Engineers, Australia. He is a member of the editorial advisory boards of many international journals. He was the 1st Vice-President and Executive Director of the AAEE and the Editor-in-Chief of the AJEE since its inception in 1989 until 1997. Currently he is the Editor-in-Chief of the *Global Journal of Engineering Education*, and is the Foundation Secretary of the International Liaison Group for Engineering Education (ILG-EE).

Professor Pudlowski has chaired and organised several international conferences and meetings. He

received the inaugural AAEE Medal for Distinguished Contributions to Engineering Education (Australasia) in 1991 and was awarded the Order of the Egyptian Syndicate of Engineers *for Contributions to the Development of Engineering Education on both National and International Levels* in 1994.

In June 1996, Professor Pudlowski received an honorary doctorate from the Donetsk State Technical University in the Ukraine in recognition of his contributions to international engineering education, and in July 1998 he was awarded an honorary Doctorate of Technology from Glasgow Caledonian University, Glasgow, Scotland, United Kingdom. In 1997, he was elected a member of the Ukrainian Academy of Engineering Sciences.

**Conference Proceedings of the
3rd UICEE Annual Conference on Engineering Education
under the theme: *Collaboration in Engineering Education***

edited by Zenon J. Pudlowski

Published by the UNESCO International Centre for Engineering Education (UICEE), this volume of Proceedings comprises papers delivered at the 3rd UICEE Annual Conference on Engineering Education. The 15 keynote addresses, 14 lead papers, and 60 regular papers demonstrate the international nature of UICEE meetings and provide readers with valuable insights and experience in engineering education contributed by academics from almost 30 countries worldwide in the global community.

The papers tackle topics of vital importance to engineering education. The Conference's theme of *Collaboration in Engineering Education* seeks to discuss internationalisation, and the opportunities it brings for regional and global networks. Papers have been placed into various groups, with each chapter headed by a lead paper that is felt to be most representative of the topic under discussion:

- Opening and keynote addresses
- Social and philosophical aspects of engineering
- Innovation in engineering and technology education
- Effective methods in engineering education
- The impact of new technology on the effective training of engineers and technologists
- International collaborative programs and systems
- Case studies
- Engineering and technology education and training in other countries
- Multimedia in engineering education
- Promotions of continuing engineering education, distance education and open learning
- Academia/industry interaction programs
- Development of new curricula
- Management of academic engineering institutions

All papers have undergone assessment by independent international peer referees. This ensures their high quality and the value of the Proceedings for some time to come.

To purchase a copy of the Proceedings, a cheque for \$A100 (+ \$A10 for postage within Australia, and \$A20 for overseas postage) should be made payable to Monash University - UICEE, and sent to: Administrative Officer, UICEE, Faculty of Engineering, Monash University, Clayton, Victoria 3800, Australia. Tel: +61 3 990-54977 Fax: +61 3 990-51547