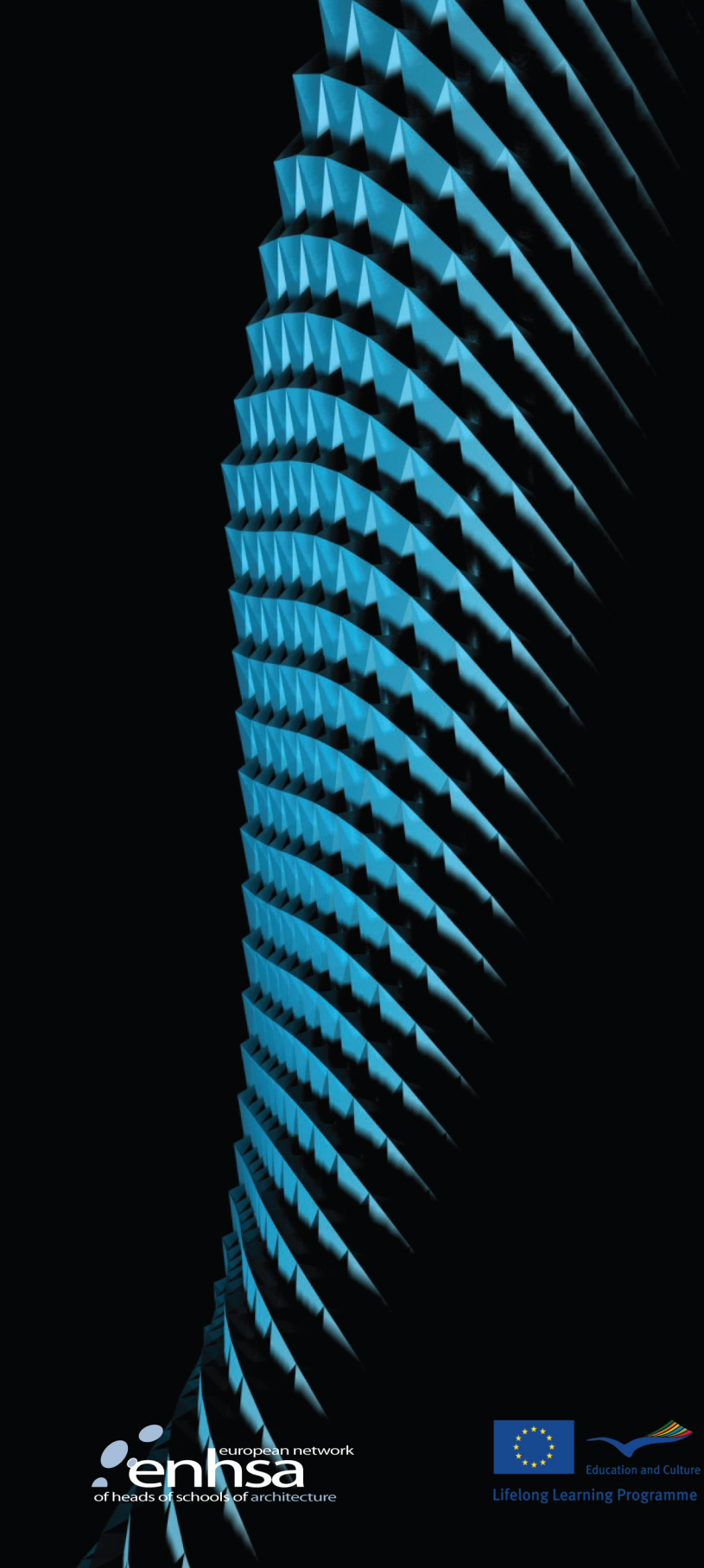


Learning for the Future

New Priorities of Schools of Architecture in the Era of Uncertainty

Editors

Constantin Spiridonidis

Maria Voyatzaki

european network enhsa of heads of schools of architecture

Education and Culture DG

Lifelong Learning Programme

EUROPEAN ASSOCIATION FOR ARCHITECTURAL EDUCATION

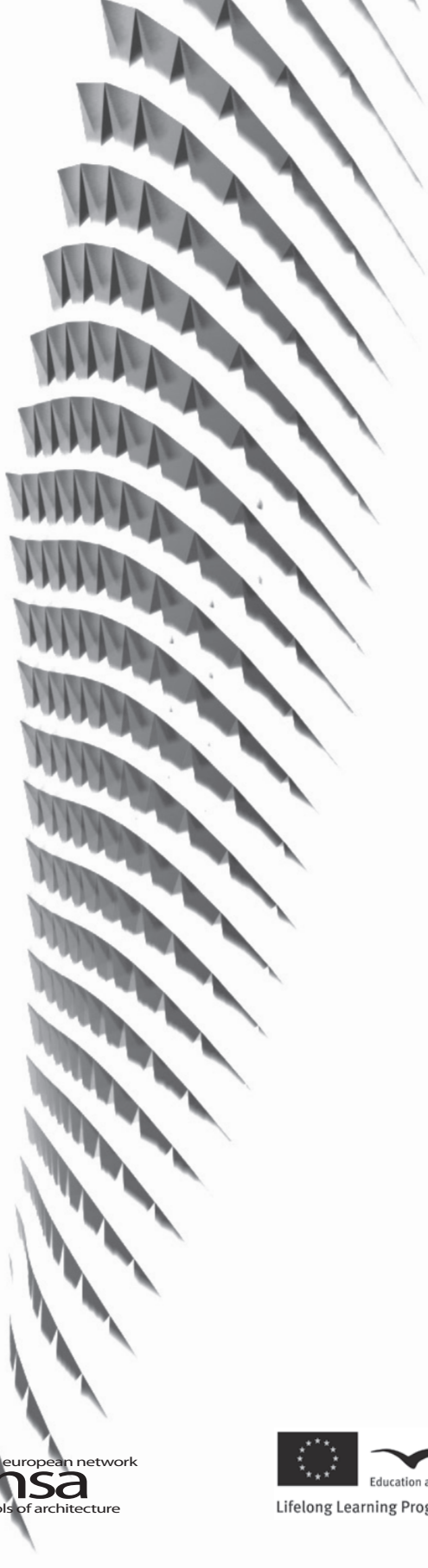
13th Meeting of Heads of European Schools of Architecture

Learning for the Future:
New priorities of Schools of Architecture in the era of uncertainty

Host: Center for Mediterranean Architecture

This project has been carried out with the support of the European Community
and in the framework of the Socrates Programme.

The Meeting of Heads of European Schools of Architecture
was under the auspicies of the School of Architecture, Aristotle University of Thessaloniki



Learning for the Future

New Priorities of Schools of Architecture in the Era of Uncertainty

Editors
Constantin Spiridonidis
Maria Voyatzaki

european network enhsa of heads of schools of architecture

Education and Culture DG
Lifelong Learning Programme

EUROPEAN ASSOCIATION FOR ARCHITECTURAL EDUCATION

13th Meeting of Heads of European Schools of Architecture

Learning for the Future:
New priorities of Schools of Architecture in the era of uncertainty

Transactions on Architectural Education No 54

Editors
Constantin Spiridonidis
Maria Voyatzaki

Transcription and speech adaptation: Sara Young

Cover design: Emmanouil Zaroukas

Layout design: Dimitris Apostolidis

Printed by: Charis Ltd, Thessaloniki, Greece

ISBN 978-2-930301-52-5

Despite the attempt to transcribe with accuracy the debates from the workshop, the editors wish to apologise in advance for any inaccuracies of the interventions of individuals that could be attributed to the quality of recording.

List of contents

Acknowledgements 11

Introduction

Learning for the Future:
New priorities of Schools of Architecture in the Era of Uncertainty
Constantin Spiridonidis and Maria Voyatzaki 12

Reflections

Reflections on the Chania Experience
Marvin J. Malecha 18

Reflections and deflections on Chania 2010
Pierre von Meiss 23

Session 1

New priorities, new values

Introductory panel
Chris Younès, **Stephano Musso,**
Johannes Kaeferstein, Mujdem Vural 31

Debate
Coordination by **Per Olaf Fjeld** 43

Reflections
Per Olaf Fjeld 58

Session 2

New priorities, new context

Introductory panel
Oya Atalay Franck, **Karl Otto Ellefsen, Leif Brodersen, Hansjörg Hilti, David Porter, Christian van Langen, Koen van de Vreken** 63

Debate
Coordination by **James Horan** 83

Reflections
James Horan 87

Session 3

New priorities, new competences

Introductory panel
Richard Foque, Loughlin Kealy, Lorraine Farrelly, Herman Neuckermans, Stephanie Eickelmann, Lucyna Nyka, Torben Nielsen, Georgios Panetsos 91

Debate
Coordinated by **Loughlin Kealy** 131

Reflections
Loughlin Kealy 143

Session 4

New priorities, new subject areas

Introductory panel
Urs Hirschberg, Maire Henry, Dag Boutsen, Pieter Versteegh, Aart Oxenaar, Peter Kjaer, Michael Eden 149

Debate
Coordinated by **Stefano Musso** 181

Reflections
Stefano Musso 195

Session 5

Conclusions and Future Perspectives

Introductory panel
Per Olaf Fjeld, James Horan, Loughlin Kealy, Stefano Musso

Debate
Coordinated by **Constantin Spiridonidis** 201

List of Participants 206

The contributions included in the present volume are fewer than the presentations made during the 13th Meeting of Heads. The majority of authors and respective panel members sent us their edited texts but some of them did not.

Acknowledgements

We would like to take the opportunity to express our thanks to the Council of the EAAE that once more has trusted us to carry out this mission. More specifically, we would to thank the EAAE President, Francis Nordemann for his kind support and constructive cooperation.

We would also like to express once again our sincere thanks to the President of the Centre for Mediterranean Architecture Aris Papadoyannis, Vice-Mayor of Chania and its Art Director Dimitris Antonakakis, who have kept our moral high with their understanding and warmth throughout the event.

Sincere thanks also go to the EAAE Secretary, Lou Scholl and to the ENHSA Secretaries Laura Koniordou and Maria Grammatikopoulou for all their help on the preparation for the event.

We would like to thank all participants contributing to the panels the pertinent input and remarks to the themes of the Meeting of whome gave it the value and gravitas of an interesting academic event.

The organization of this event would be a much more difficult task without the moral and financial support of our School of Architecture, Aristotle University of Thessaloniki and its Head George Papakostas, whom we deeply thank.

Special thanks go to Mrs Sara Young for her hard work in transcribing and transforming the spoken content into a formal and comprehensive text.

Special thanks also go to the architect Manos Zaroukas for his work on the graphic design of the cover of the volume and to the graphic designer Dimitris Apostolidis for the page layout of the volume.

Last but not least, we thank all the participants of this event not only for their faith in our efforts but also for their lively presence, constructive comments, participation in fruitful debates, and determination without which the materialization of our effort would be impossible.

Constantin Spiridonidis and Maria Voyatzaki

Learning for the Future:

New priorities of Schools of Architecture in the Era of Uncertainty

Constantin Spiridonidis and Maria Voyatzaki

To educate an architect is a project. If this analogy is valid, then the project of 'creating' an architect, as in every project, should be driven by a conception of the ideal outcome of the design process of this project. This ideal is analyzed, decomposed, cut, deconstructed in a set of objectives, emerging from values, which generate priorities giving to these objectives a certain hierarchy. The history of architectural education could be defined as the history of changes occurring over a certain period of time in the definition of the ideal profile of the architect accompanied by the priorities accepted, established and implemented in the process of educating this architect.

The quest for rationality in the sixties, revolved architectural education around the concern of the development of rational thinking, supported by the definition of scientifically defined quality standards for the spaces to be designed and the design methods to be implemented. We can observe a radical shift of this attitude in the seventies and the eighties when the social and cultural dimension of architecture became the dominant value of architectural thinking. Over this period architectural education re-oriented progressively its priorities towards a more contextual conception of architectural qualities, promoting the critical thinking as a necessary competence of an architect to recognise these qualities in different socio-cultural contexts. Under these circumstances, humanities dominated architectural education influencing architectural design to be addressed to a human being defined no more on the basis of its common natural characteristics, but on the respect of its culturally defined differences. In the nineties, we experience a progressive shift from an architecture addressed to a human conceived as a cultural being into an architecture addressed to the human as an individual. This attitude affected educational programs by introducing more options to the orientation of architectural studies and by directing teaching towards the development of the personal architectural language of each graduate.

In all the above cases, the design of architectural curricula was based upon different conceptions of the ideal profile of graduates the common characteristic of which was the belief that, since it would be created, this profile could preserve its efficiency over the entire career of the graduate. In the last few years from the debates in the framework of our Meetings of Heads of European Schools of Architecture

it became apparent that we are entering an era in which our capacity to envisage and define the profile of the future architect becomes increasingly difficult.

We are experiencing a world that is changing extremely fast. Structured upon an increasingly internationalized knowledge-based economy, facilitated by the already powerful media and the extended applications of digital technology in all sectors of production, administration, education and consumption, this world is conditioned to be rapidly transformed. The mental and operational landscape of our life is constantly affected by unexpected modifications of possibilities, capacities and conditions influencing our social, financial, cultural and built environment directly. All the activities are profoundly influenced by these new conditions of instability, fluidity and interdependence of various, very often unpredictable parameters and factors, which rapidly transform our vision of things and of the world.

In this unconventional and fluid environment of an internationalized economy and an information society, architecture, as a cultural statement and manifestation of our life in space, seeks its new consideration. It is constantly elaborating a redefinition or restructuring of a new framework of values and principles, of knowledge, skills and competences, of tools and means, of priorities and preferences, as a new paradigm. In a fast changing society architecture is experimenting; an architecture of change.

In this new social project of architecture, creative thinking is, more than ever, a fundamental condition. To be at the forefront of this new world, architecture needs to become more innovative. There is an urge for a more ambitious and broad-based innovation tendency. One of the most significant shifts of the contemporary architectural thinking in our fast changing world is our strong inclination towards an innovative experimentation adaptable to the speed of changes occurring in our mind, soul and body. Nowadays creativity and innovation appears as a quality of architectural creation introducing a new aesthetic aspect of spatial forms. It is presented as a process relocating architectural practice to new forms of expression and creative paths. It is often introduced as a means-tool to escape from the established and to formulate the expected. It is conceived as a window of opportunities introducing new ideas about experiencing space. In the end it is a value transgressing the requested 'other' capable of assuring new architectural forms for a new social demand.

This condition has direct consequences on the way we have to structure the future of architectural education. Educating architects for an unstable, transformable, changing, adapting, fluid, sometimes hybrid, and more or less unpredictable profile, urges schools of architecture to redefine their educational strategies, to reformulate their curricula and to re-establish their principles and values related to their social role and mission. In this new educational environment new priorities for schools of architecture emerge. Which is the way that European schools of architecture

nowadays anticipate the future of their graduates and create the conditions assuring them a sustainable architectural career?

The 13th Meeting of Heads of European Schools of Architecture focused on this question. The main concept of the organization of the agenda of this event was based upon the (hypo)thesis that to detect, examine and define the priorities of our contemporary architectural education system, we must detect: 1. The new values from which the new priorities emerged, 2. The impact of the context in which architectural education is offered to the formulation of these priorities, 3. The way that these priorities influence the competences of the graduates of architectural education institutions, 4. The new subject areas that these new priorities and objectives introduce in architectural curricula in order to assure the expected ideal architectural profiles. This is why the Meeting was organised in four sessions each one of which was based upon a number of issues proposed to an extended panel composed by Heads from schools belonging to different geographical areas and architectural education cultures. In this volume the reader can find the texts of the introductory panels followed by the extended debates of each session.

The chapters of the book correspond to the sessions of the Meeting. However, this year we made a new effort to change the format of the book in order to make it more useful to all participants. All authors have edited their panel presentations after the event. Each chapter is framed by a synthesis attempted by the chairperson of each session after reading these edited contributions. These texts could be read as a post reflection on the presentations and the debates developed during the event. The usual debates that follow each panel presentation have been transcribed and edited to illustrate the points raised. Last but not least, participants that have a long history with the Heads' Meeting were invited to offer their insights in the overall endeavor in written form as introductory texts to the present volume.

The first chapter is entitled 'New Priorities, new Values. Schools of architecture are increasingly dealing with a new set of values emerging from the contemporary debate on architecture, the architectural avant-garde, the broader cultural framework, the state of the art of the profession, the national and international political and institutional environment. Transparency, flexibility, adaptability, quality, openness, creativity, innovation, mobility, experimentation, diversity, compatibility, comparability, parametricism, employability appear to be already established values which demand new strategies, new actions and new approaches to the structure of school curricula in order to respect the contemporary definitions of quality in architectural education.

As priorities emerge from values, which are the new values that affect the education offered by our institutions and which is the way they are defining quality in

architectural education? How different is this definition compared to those given some years ago? Which are the main strategies our schools implement in order to reach it? How easy is it to move towards this new version of quality in the existing institutional framework? Do some schools consider that their reforms adapted their curricula in a way to achieve a high quality education? These are some of the issues that this chapter deals with and approaches through the presentations and the dialogues they stimulated.

The second chapter is entitled 'New Priorities, New Context'. This session inspects the new expectations and demands imposed on European Schools of Architecture and more generally on higher education institutions in the beginning of the 21st century. As social and economic development are geared around the concept of a Europe of Knowledge, European policies appear to ask for strong, autonomous, responsive and inclusive institutions providing research-based education and learning in order to meet the many challenges ahead. The increasing speed of globalization, the demographic transformation of Europe into ageing societies and the rapid pace of technological change generate these social and economic challenges. In this context of an unpredictable future, it appears as a necessary condition for schools of architecture to become more open and collaborative and to establish strong partnerships with public authorities, professional bodies, graduates' associations, and of course partnerships and consortia with other schools of architecture at local, regional, national and international level to provide attractive and relevant curricula.

Our schools of architecture are asked to embed concepts of initiating access to lifelong learning in their institutional strategies; to provide education and learning to a diversified student population; to adapt their curricula in a way to ensure that they are designed to broaden participation and attract the return of adult learners; to provide appropriate guidance and counseling services; To strengthen the relationship between research, teaching and innovation in a perspective of lifelong learning; to consolidate reforms, to promote a flexible and creative learning environment for all students. The contents and the debate presented in this session can be summarized in the following questions: How ready are our schools to implement actions toward the fulfillment of the above objectives? Which are their priorities in view of this new situation? How difficult is it to implement all these necessary changes? What is the 'cost' of these priorities? Are there interesting paradigms of good practice to share with the participants of the meeting?

The third chapter is entitled 'New Priorities, New Competences'. The rationale of this chapter is based upon the fact that the architects we are educating nowadays will arrive at their professional establishment at least ten years later. Is it possible

to preview their necessary profile now? More and more such a prediction becomes difficult taking into account the fact that two years ago it was not possible to predict that one out of four architects would be unemployed nowadays. This is why schools of architecture are actually rethinking the, more or less, fixed profile they tended to create over the past years. If there is a question of a new, unpredictable, profile of the future architect what has to be our strategy for the learner of today? Which are the most significant competences that this architect has to fulfill in order to be able to adapt in the fast-evolving society? What is the fundamental knowledge and skills she or he has to acquire from education in order to become a competitive and successful architect? Which are the strategies of our schools of Architecture regarding this major issue?

The fourth chapter of this volume focuses on the content of studies and is entitled 'New Priorities, New Areas'. The structure of this chapter is based upon the following rationale: In the fast changing world we are experiencing significant transformations in all the cycles of production of the built environment, which affect the structure of the content of our studies. The strong specialization tendencies in the professional practice have significantly transformed the curricula of our schools. For the specialized curricula existing subject areas of architectural education obtain gravity or completely disappear, while in the general education curricula architectural design is under tremendous pressure to assure time for a big number of other subject areas, which will in turn assure the generalist character of the offered degree.

We can detect a progressive reduction from the contemporary architectural curricula of the urban studies, humanities, sciences, to which one could include mathematics, structures etc. On the other hand we can easily recognize a progressive increase of the gravity of subject areas related to the environment and sustainability, and the emergence of new subject areas like scripting, computation, biology, construction management etc. To what extent do these changes affect the profile of our graduates? How easy is it to be updated on the new trends and directions of the local and international dynamics? To what extent are our schools affected, influenced or depended upon the existing centers of (the so called) excellence in the contemporary extremely competitive environment of mobility and quality?

As in all previous publications of the Heads' Meetings debates, the aim of the editors has been to offer material for further examination, reading and consultancy. We really hope that this volume also reflects the constructive atmosphere, the positive spirit, the collaborative attitude and the friendly mood in which the Meeting developed; necessary elements for its sustainability and for the impact of its work to the future of architectural education.

Reflections

Reflections on the Chania Experience

Marvin J. Malecha

Any retrospective analysis of the Chania meetings must begin with the effect of the place. The location of this meeting in any other large urban center would have certainly diffused the intense feeling of a shared experience. The search for the most essential characteristics of teaching and the relationship to societal and professional need has continually reminded the participants of the essential calling of the architectural educator. Equally influential on the discourse among the participants has been the necessity of transformation in the academy and the profession and the related expectations for the contributions of the architect in society. Influencing all of the discussion underway has been the cold water of the economic reality that must be addressed. Resources are dwindling at a time of great expectations. In the midst of this are the rising tide of governmental regulation and the increasing importance of EU declarations establishing expectations for education outcomes and professional preparation. Among the myriad of issues to be addressed are accreditation of programs, the transferability of academic units taken across national boarders and of course the ever-fragile relationship to the architecture profession. It is upon such issues as these that the Chania meetings have solidified the continual discourse that is necessary in a time of reconfiguration.

The Play and the Stage SetThe place is a critical aspect of the possibilities for success. Chania provides a place that supports the intense participation of meeting attendees in every aspect of the discourse. Focused discussions followed by lunch and dinner conversations combine to foster the kind of relationship building that is necessary to address the complex nature of the topics raised in the sessions. Even for those who have taken a break from the sessions they are sure to be drawn into related conversations in more informal settings. This aspect of the Chania meetings has been at the core of its success. It is a place of voluntary capture in a beautiful place of intense human scale. With the stage set, the program has been carefully orchestrated by the capable direction of Maria Voyatzki and Constantin Spiridonidis. Dinos sets the action with his continued assessment of the state of the teaching context and the profession with his persistent research, analysis and sometimes-provocative findings. Clearly Maria is involved with identifying the protagonists giving substance to the script and provoking the choir to engage the audience. Some conferences have been more intense than others but every conference has its memorable moments of discourse.

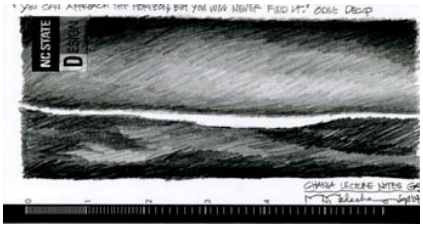
Essence A constant among the meetings has been the commitment to the most essential aspects of an architectural education. There is more than a tangible

sense that to prepare architects, even for the most unpredictable future, there must be a sense of materiality and beauty that underlies all of our speculation. The very notion expressed best by Per Olaf Fjeld that our charge is not to educate with the goal of fame but with the aspiration for excellence in architecture has charged every meeting. This deep understanding of what it means to be an educator and what it means to be an architect of dignity and responsibility has resonated in every meeting. Architecture remains about the irresistible urge to make and do. It is a discipline often drawn into obscure debates but it is always tested by the reality that results from the hand of the architect. New technologies aside it is what we touch and feel that guides our interaction with an ancient discipline. Architecture is across generations, no matter how it is conceptualized and produced, no matter what the tools are to accomplish it, the test of a culture. This has been the sub-theme for every meeting.

"You can approach the horizon but you can never find it"

Odile Decq

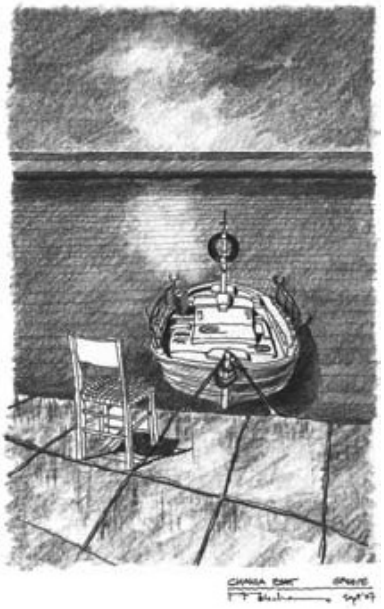
Expectation Each meeting has been filled with discussions of the rising expectations of our time. Lecturers of considerable stature have been invited to provoke discussion on subjects as varied as the impact of new forms of technology and social media to perspectives on theory and criticism. These visitors have at times excited passionate debate and reminded me of an expression my mother used to share, "When everyone is thinking alike, no one is thinking very much." Certainly it can be said that those who have come to Chania have done so with the intention to engage in considerable thought on the practice and teaching of archi-

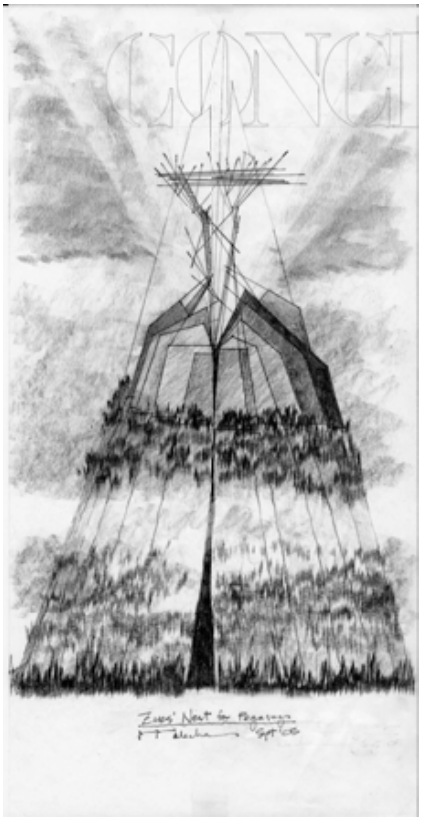


tecture. There is considerable awareness of the forces impacting our discipline and profession. Environmental pressures, technology and social media, a rapidly transforming international culture and the need to address the most basic human needs, and the impact of the changing economic situation on the work load of architects all together place enormous pressure on the preparation of the next generation of architects. This combination of forces enters an academic context where the demand for faculty scholarship and research productivity has never been greater. The horizon line is changing as Odile Decq observed, and it has become clear that we will never reach it. How individuals are prepared to engage this world as practitioners and educators will determine if we will lead or follow.

RealitySince the fourth quarter of 2008 most of the nations of the world have been compelled to address the reality of a severe recession. As architectural educators the participants of the Chania meetings have had to address this reality on two fronts, in the context of an educational institution and in the professional setting as architects. The economic reality has meant reduced resources for all things in education from faculty lines to facilities. Among the most poignant of the questions raised in the reflection on reduced resources is the price associated with values and ideas. How do educators assert the value of an architectural education to society as well as to the economic well being of a region? How do architects export design intelligence asserting the value of their knowledge? These questions raise a new aspect of design education. Perhaps most importantly it is these questions that challenge the notion of the architectural program disconnected from its context. Planning for architectural education in the future will have to meet expectations for delivery of course materials in the most cost effective and relevant fashion. The reality of cost benefit analysis has entered the curricular planning metric.

RegulationPractitioners and educators alike have come under increasing scrutiny and regulation by governmental offices from the nation state to the European Union directives. This increasing scrutiny represented by program accreditation as well as the governmental licensing of architects has been another recurring theme of the Chania sessions. These discussions, particularly on the subject of program accreditation, have been passionate demonstrating that there is a significant diversity of opinion regarding these matters. Who can ever forget the mental image when accreditation processes were compared to the government





tanks surrounding a campus with the guns pointed in! Bringing a cooler perspective is the analysis of Professor Spiridonidis and the working groups of the EAAE that have attempted to bring context to these discussions and demonstrating that there is much to learn in the face of such movements from each other. There have been times in the meeting when the divide among schools and regions of Europe have seemed great particularly on the subjects of accreditation and licensure. Other times when cooperation and collaboration moved the discussions of EU directives such as the Bologna Accord along with considerable energy the vitality of the academy was clearly on display.

Reflection Perhaps what this meeting has reminded me most of over the span of now so many years is that architecture begins with the most human of experiences. I am drawn to the Greek light, the always tantalizing smells and tastes that accompany the meals, the ouzo to accompany the sunset, the texture of street patterns, the sound of the sea and the two cycle motors of the small boats headed out to early morning fishing. It is the time of the lunch in the most ordinary of places made extraordinary by the people with whom lunch is shared. It is a place of the distraction of blue chairs over conference room chairs in the hot afternoon

suffered through with jet lag and ventilation that can never overcome either two much wine at lunch or the most joyful distractions that comes with the curiosity that fuels us as architects and designers. Yet even in the midst of distraction it is the meeting that has brought this incredible group together. It is the meeting that fuels debate and discourse, sometimes passionate in either agreement or disagreement as a kind of stage play with protagonists, choir and audience members. It is the rich diversity of human experiences that has made this meeting continue to live. Over the years it has been possible to follow the development of ideas from accreditation to the relationship between the architecture profession and the academy. Year after year meeting themes have focused the reflections of a diverse group of individuals representing an incredibly diverse academic community. The diversity of ideas flowing from an incredibly diversity of people and approaches to architectural education and practice has made this meeting stimulating. Just as it is the most human of experiences that makes a building more than a structure, that gives it the right to be called architecture, so it is that it has been the most human experiences of touch and interaction that has made this meeting special.

Perhaps it is this that reminds us that it is not fame we seek but the muse of beautiful architecture we all pursue without concern for personal recognition but rather as a mission to share with others through our passion to teach, the most human mission.

An Olympian Perspective I remain convinced, buoyed by the many presentations and discussions I have enjoyed in the context of the Chania meetings that the true power in what we are doing is our commitment to teach people to think differently. Design thinking has become among the most important strategies among businesses of all sizes to survive in a most difficult period. Our ability in the schools of architecture to not only think differently but also to become centers of influence will invigorate the profession and provide a light of hope to those becoming increasingly discouraged about the future of a life in architecture. It is design thinking that accentuates the value of architecture and architects in addressing the most pressing problems facing the world. This is the Olympian perspective possessed by the designer. It is this faith in our profession and discipline that makes us as architects and teachers able to act in the face of the wicked problems of our time. This is the most sustained spirit of the Chania meetings.

Save me a place among the blue chairs!

Special Note

All drawings in this text have been produced by Marvin J. Malecha during the course of the Chain Meetings.

Reflections and Deflections on Chania 2010

Pierre von Meiss

New values, new priorities

Value changes are of course linked to time and major events altering the human condition, the society at large. They instruct ethics; they may evolve, but values are tenacious beyond expectation. Basic values only change after cataclysms, missionary campaigns or tremendous pressure from real life.

Today such pressure comes from the globe's population growth and its quest for a generalised consumer society – most probably an impossible combination. Only political integration and a very careful management of our recently acquired scientific and technological capacity offer some hope for cultural and physical survival. In this context most schools of architecture and planning appear to have understood their role to play. The keyword is "sustainability" and nobody argues about that. Few learnt how to deal with it at the design education stage.

If you look at it, architecture, landscape and urban planning are directly concerned. Yet we sometimes behave as if this was a minor issue compared to more "conceptual" ideas. How many great Master-Thesis projects did we see criticized in a sustainability-perspective? – Very few, unless it was a theme of the particular design.

Basic values in architecture (with the exception of sustainability) did not change substantially. Of course you always find some freaks who believe in overthrowing the established values by producing their "artistic" or computerized opposite (which may be quite healthy to make people think). On the other hand we have to admit that the Western set of governing architectural values did not change so much. Our history may be their secret guard.

It is thus no wonder that the panel presentations and discussions questions the idea of "*new*" (values) across the board.

To become more specific in our field we might agree with Stefano Musso saying:

> *"We are full of specific and segmented (or fragmented) specialist values, or goals, and we are losing the sense, the significance or the meaning of a complete system of human values; we are sometimes getting confused between tools, means and goals as the contemporary philosophic reflections shows."*
>
> *(S. Musso, Chania-debates 2010)*

New context, new priorities

"Education is not the filling of a pail); it is the lighting of a fire."*

**) pail > "bucket", > in French "seau"*

(James Horan citing W.B. Yates, On Education – Chania 2010)

For heads of schools this issue implies an argument for questioning the philosophical basis involving new curricula, Bachelor and Master degree graduates performances and so forth.

To reflect on the subject, I chose this time to operate a personal selection of key-quotes from the panel and floor discussions. Thinking about them in a critical perspective may stimulate the "quick reader" to return to the entire texts. The order is not completely random; I somehow tried to install them going from the general towards the particular or practical.

"Humanity, is at war. At war with itself. Even when one casts only a shallow glance at the world and the current situation, one cannot but admit that we are facing a stacking of crises of the systems we have devised for the world: an economical and financial crisis, an ecological crisis, a cultural crisis, a political and institutional crisis and a social crisis."

(Chr. Van Langen)

Fortunately A.Oxennar reversed the disaster in citing Hillary Clinton saying

"Never waste a good crisis".

"We have survived because our way of thinking that brings together spatial intelligence with the metaphor of making, predates and survived scientific analysis and the subsequent instrumental rationalism ... Thus our educational system may become an "exporter" towards other disciplines."

(D.Porter on Exporting Design Experience)

The role of the schools was and is to instruct its students to "think architecture" in a way that later leads to the meaningful "making of architecture" in professional practice.

(O. Atalay Franck)

"We deal with a change of the paradigm of the architect as builder to the architect as transformer. This leads to a shift of the understanding of architectural practice from "building" to "caring".

(P. Versteegh, session 4)

"It might be a wise idea if at least part of the budgets were set aside for risk taking. By this I mean that in view of some of the challenges and the complexities that are coming up some of which we do not even know about, I think we have to be prepared to push the boat out a bit further and not always play safe with architectural education, especially at Master's level." And further:*"the Directive itself is already an outline of learning outcomes. If we fragment that even further, there is a certain point where you lose a sense of being an architect educating an architect: it becomes a box-ticking exercise*

(T. Harris)

"We think that the first three years that comprise the Bachelor's degree should be very focused on skills and knowledge. The entire curriculum coming from the demands of society, of the European Union, the Eleven Points and of the national requirements should be covered in these three years, in a very concentrated and active way ... we put too many experimental activities too early on in their education."

(L. Brodersen)

And to finish with a word of James Horan:

"When I realised that I would be chairing this session this afternoon, I felt that it might be very difficult to try and draw a strand out of the conversation that might somehow bring the session to a conclusion."

New priorities, new competences

"What is the fundamental knowledge and skills she or he has to acquire from the education in order to acquire a position of leadership in architecture?"

(Georgios Panetsos, rephrasing one of the pertinent questions put to the audience at Chania 2010)

Here we address the issue of restructuring curricula, opening ways to deal with uncertainties of the future, questioning established professional images and values, inventing adequate "university landscapes" and developing appropriate teaching methods to enable our graduates to confront unexpected settings and problems, rather than merely comply with society's immediate demand for a well performing competent professional.

"Learning how to learn" is a matching aphorism on which we all agree, but I have to admit that I still do not know too well *how to teach* that. Hardly anyone could help me in this respect at this conference.

Reflecting on this session is a difficult endeavour, because the speakers presented many interesting general intentions and attempts, most of the participants would agree with, but at the same time there are plenty of contradictions, sometimes within the same presentation.

On one hand, everybody wants (or has to) comply with the 11 points. We are producing architectural designers-managers specifically trained in organizing space with a critical attitude in the back of their mind, the ultimate realm of architectural expertise (*Maeder*).

On the other hand, many think simultaneously that architectural education for the future should be more open, diversified, offering plenty of optional courses (*Nyka*) or fewer courses of broader scope (*Panetsos*).

The question is whether all students can do *both* within a 3 or 5 years time. My answer is negative. Time and experience are missing. Therefore most schools turn towards some sort of "hybridising", which may not be the very best thing to do.

Today's international competitive environment requires excellence of various natures. I sometimes wonder why at least some schools don't dare taking a clearer stand for one or the other of these two honourable approaches. Simplifying and putting it bluntly: good critical professional design managers versus, perhaps more academic, managers of change and future outlooks.

We may not quite know yet how to achieve this, but possibilities do exist. We may guide a few of our most performing students to expand their qualification in doing both. We may take advantage of the Bachelor/Master structure to achieve one or the other in either one of them. We may recruit Bachelors with a different degree for our Master as long as their CV and portfolio demonstrate a perfect profile for what will be discussed, taught and researched. We also may have new critical look at what could or should become continuing and rewarding education.

You may see this as a plea for elitism; in fact it is. If Europe wants to confirm its position as a leading place for learning, it has to continue offering an exceptionally good primary and high school education. At the same time some of its uni-

versities somehow should get rid of their recently acquired mission to produce "immediately useful/autonomous graduates".

New priorities, new subject areas

> *" The best profile a school can have is an extremely motivated staff and enthusiastic students, keen to teach and learn and who are not afraid to express what and who they are as architects."*
>
> *(H. Hilti, session 3)*

Environmental sustainability makes up the bulk of a package of new and renewed subjects areas, knowledge to transmit, research programs and design practices introduced in our curricula. It hardly even existed twenty years ago. The scope is wide; it reaches from energy efficiency to biology and landscape issues. Thanks to computer technology our students are at the benefit of a certain increase in "productivity" (in terms of learning). So are we as teachers. There is nevertheless just so much and not more that you can learn, discover and train in a limited time-space. Therefore some subject areas must have been reduced or have disappeared from the curriculum. Which are they? Was it the right decision? Nobody talks about it.

In some cases it is maths and structure, elsewhere it is social sciences, often it is Arts, sometimes it even comes down to a cosmetic reduction of design-studio hours, without reducing the workload of course. In addition, existing schools have to handle the inertia resulting from established staff (personalities and "power groups"). A lot of this inertia is linked to the European context in which the lacking *mobility of staff* to move and regroup interests and competences in another university remains rather sparse for cultural and social reasons. New staff appointments foster real renewal, which most often means that they come from another academic institution. New schools have a definite advantage, but, unless they are at the benefit of a strong "founder-figure", their democratic structure may quite quickly lead to new clumsiness.

Parametrics is a second new subject area which some participants believe anticipating. Nevertheless, as long as parametrics is understood as a means for generating form, precisely the domain where architects are already performing best, its usefulness remains to be seen. Furthermore we teach our students that the city does neither need nor want to become a collection of beautiful and fancy disconnected objects. There are only very few sites and programs for isolated computer-generated complex amalgams of warped veils. To state it bluntly: it may be enough to train one architect per million inhabitants to master these exceptions...

Session 1

New priorities, new values

Priorities emerge from values. Schools of architecture are increasingly dealing with a new set of values emerging from the contemporary debate on architecture, the architectural avant-garde, the broader cultural framework, the state of the art of the profession, the national and international political and institutional environment.

Transparency, flexibility, adaptability, quality, openness, creativity, innovation, mobility, experimentation, diversity, compatibility, comparability, parametricism, employability appear to be already established values which demand new strategies, new actions and new approaches to the structure of school curricula in order to respect the contemporary definitions of the quality in architectural education.

How do schools of architecture define what is in our days quality in architectural education?

How different is this definition compared to those given some years ago?

Which are the main strategies our schools implement in order to reach it?

How easy is to move towards this new version of quality in the existing institutional framework?

Do some schools consider that their reforms adapted their curricula in a way to achieve a high quality education?

Chair:
Per Olaf Fjeld, Oslo, Norway

Introductory panel:
Chris Younès, Paris, France
Stephano Musso, Genoa, Italy
Johannes Kaeferstein, Lucerne, Switzerland
Mujdem Vural, Istanbul, Turkey

Introductory Panel

Chris YOUNÈS

Professor, School of Architecture Paris - La Villette, Paris, FRANCE

Nature and artifice: towards other architectures of urban *milieus*

Urban ecologies issues trigger thoughts of *milieus* and of the city-nature that are not necessarily connected but refer to the dynamics of inter-generating and regeneration. *"There is not 'the' milieu but the middle 'of'"*, explains Canguilhem as he points out the links which intrinsically bind the living with the *milieu: "Take out the milieu and you take out the living. If you take a fish out of the water, it will die"*.

Ecology which is the science that studies the environments of the different living beings, showcases both how environments determine their lives, and how these beings interact with environments[1]. We are thus invited to think in terms of interdependence, evolutivity, composite totalities, and interactions. Concomitantly, the idea is that everything is already here and that at the same time everything occurs here without us being aware of a beginning or an end, as in the rhizomatic pattern. *"We always begin in the middle"*, Deleuze used to say. Augustin Berque stresses the eco-techno-symbolic nature[2] of the ecumene concept, which designates the inhabited terrestrial *milieu* as both encompassing the living and the human, but also concerning issues linked to regenerations which blossom again with generating powers[3].

Births, growths and cycles

Everything is born and continues to be in birth. The word "nature" firstly refers to a living nature and a repeated genesis as indicated by its Latin etymology *natura* (from the future participle of *nascere*) which signifies that which gives birth, the act of being born, that which presages the thing and which corresponds in part to the ancient Greek word *physis* (of which the root *phù* signifies growth, growing, blooming and is related to vegetation). Aristotle makes a distinction between natural beings and manufactured beings in that natural beings are endowed with a principle of self-movement and rest, bearing within themselves the possibility of becom-

1 Uexküll analyzed how the world of an animal brings into play perception and behaviour, and creates a series of events opening the spatiotemporal filed. J. von Uexküll, Mondes animaux, monde humain (Animal worlds, human word), Gonthier, 1956

2 A. Berque, *Ecoumène. Introduction à l'étude des milieux humains (Ecumene. Introduction to the study of human environments)*, Belin, 2000

3 Bergson describes how duration is a generative growth. The being which lasts is the being which finds in itself the principle of its development by a movement which is inner to itself. Bergson, *L'évolution créatrice (The creative evolution)* (1907) in *Œuvres*, Presses universitaires de France, Paris, 2001

ing other, growing or diminishing[4]. They proceed by a continually renewed genesis and by metamorphosis.

This deeply biological paradigm was substituted by a mechanical paradigm of nature. The Western modernity of the Modern Times thus arose to oppose man to nature, following the dualist representation initiated in the 17th century by Galileo, Bacon and Descartes, of a nature external to man, which he could govern from the moment he knew its laws. But the irreducibility of nature, which haunts urban dwellers today, is more than just nostalgia for country life or a rejection of cities or towns. It is linked to the vital natural cycles the impact and desire of which develop at the same time as the urban world spreads itself, as if the forces of culture should cooperate themselves with those of nature for the world to remain inhabitable. An imaginary technicism, which orientated a certain modernism was superimposed by that of a resourcing by the *"natural of nature"*, according to an expression by Heidegger[5]. Nature cannot be reduced simply to metaphors, to green issues, to plants, to the invocation of the countryside or to silk-screened signs. This word designates the water, the earth, the fire, the fauna, the flora, the rhythm of the seasons, of the days and the nights, of the heart and the breathing, of the wakefulness and the sleep, of birth and death, but also the cycles of transformations. *"It is in us and it bears us in it"* explains Merleau-Ponty[6] about nature, whose polysemy hatches the real, the imaginary and the symbolic.

Generating and regenerating

The anxiety linked to the devastation of ecosystems and the growing awareness of the finiteness of planet Earth, of its vulnerability and that of humans, insistently leads to questions concerning the sustainable relationships to be established between nature, *techne* and society. The art of human settlements has always established relationships with the natural *milieu* which are both interior and exterior ones, whether it is by controlling it to better use it to the point of blindly exploiting it, by keeping it at a distance due to fear or respect, or by attempting a symbiosis[7]. The current debate concerning the regenerating capacities of urban *milieus*, their resilience, reveals most particularly the crucial issues of reconfiguring these territories. If being modern, as deemed by the Athens Charter, was to favour the 'tabula rasa' and to free oneself from the context, the challenge from now on is to understand and to imagine other possibilities from the resistances and resources of the *milieus*: different types of alliances aiming to capture, to reveal, to treat with care and to revive whilst at the same time taking into account the geographic, tectonic, atmospheric, biological, cultural elements. By notably reflecting on the place of the fundamental biophysic elements which are water, air, earth as well as that of artefacts. In *Les trois écologies*[8] Félix Guattari insists on the need for an ecosophy, in other words

4 Aristotle, *Physics* II, 1-192

5 M. Heidegger, *Hebel, l'ami de la maison (Hebel - friend of the house)* [1958], *Questions IV*, trad. Julien Hervier, Paris, Gallimard, 1966, p.58

6 Merleau-Ponty, *La nature. Notes de cours du Collège de France (Nature. Notes from lessons at the Collège de France)*, Paris, Seuil, 1995

7 These different positions were clarified in *Médiation architecturale entre l'homme et la nature (Architectural mediation between man and nature)*, by C. Younès and M. Mangematin in *Ville contre-nature (Unnatural Cities)*(ed. C. Younès), Paris, la Découverte, 1999

8 F. Guattari, *Les trois écologies, l'espace critique (The three ecologies, the critical space)* Galilée, 1989

"the environmental ecology which is an integral part of the social and mental ecology via an ethical and politically-based ecosphere", given the irreversible nature of technoscientific creations.

Thinking about inhabited *milieus*, is thinking about the balance between nature and artifice, agricultural and urban cultures, ecosystems and anthropization. In fact, there are paradigmatic changes in the ways of apprehending the relationships of humans in life environments, which we are committed to, or whether it is by Hans Jonas with the *Principe Responsabilité*[9], Michel Serres with *Le Contrat Naturel*[10], Augustin Berque with the ecumene[11], Peter Sloterdijk with biosophy[12] or Henri Maldiney who thinks that only the existential dimension is to be able to open the world[13]: *"When I talk about an animal, it's simple; its nature is its life. And nature is its vital space. This is not the case for humans. It is more than the biologic and the historic dimensions. Man arises by existing…the entrance in the presence of art and of man in art results in man recognizing himself in the moment when, truly in the presence of the oeuvre, he goes beyond his biological dimension without alienating himself historically".*[14]

Time in relation to *physis* and time in relation to *tekne* are not the same, but the common principle to both these modes of production which are nature and *tekne* (of which the Indo-European root 'tik' signifies generating) is the principle of generation. But what are these generations? What cycles and recycling are at stake? Doesn't production in the technical sense have its possibility in nature first? Aristotle explains that there is an initial power in Nature. But there is also a becoming other than what comes from nature. It is the law of becoming (*metabole*[15]). Heidegger wrote that technique does not have the privilege of adding a human world, but that modern technique restricts nature to its impossible, in other words that which it could never do itself, because it is its destiny to settle as the master of the land. Thus, artificial *milieus* act as a substitute or become competitors of the natural *milieus*. In the artificial, which means *"made by art"* (*arte facere),* designating skill, know-how, craftiness, there is the possibility of an excessiveness, a violence, a violation, a promethean desire which steals something from the gods.

But there are possible choices. Beyond representations which consider nature as a lost paradise or a hostile environment, and humans as disturbers or masters of the world, the quest for appropriate natural-artificial rhythms constitutes an aesthetic *oeuvre* and a critical ethic: establishing a lively relationship between nature and culture, life and *tekne* by exploring different paths of regenerating synergies.

9 H. Jonas, *The responsibility principle* [*Das Prinzip Verantwortung*, 1979], trad. J. Greisch, Editions du Cerf, 1990

10 M. Serres, *Le contrat naturel (The natural contract)*, Champs Flammarion, 1992

11 A. Berque, *Ecoumène. Introduction à l'étude des milieux humains (Ecumene, Introduction to the study of human milieus)*, Belin, 2000

12 P. Sloterdijk, *Sphères* I. *Bulles,* trad. O. Mannoni, Pauvert, 2002, *Sphères* II. *Globes* (yet to be published) and *Sphères* III. *Ecumes*, trad. O. Mannoni, Maren Sell Editeurs, 2005

13 H. Maldiney, *Ouvrir le rien. L'art nu (Opening nothing. The naked art),* Encre Marine, 2000

14 H. Maldiney, *Unnatural cities,* op.cit., p.28

15 Heidegger, "Ce qu'est et comment se détermine la Physique" (What is and how is Physics determined) (translation in French of the German text: "La physique d'Aristote" (The physics of Aristotle), "Qu'est-ce que la technique" (What is the technique) [1953], *Essais et conferences (Essays and conferences)*, Gallimard, 1958

Stephano MUSSO

Dean, University of Genoa, School of Architecture, Genoa, ITALY

It is increasingly difficult to speak about values and especially about new values while we are not sure of possessing or expressing old ones or even values in general. Everything could have a value, on different levels, for various goals, meanings or interests. This does not mean, on the other hand, that everything is, or can be, a value, in the real and broader sense of the term.

Let me begin this brief public reflection facing a more general field in which the word "value" and its possible meanings and consequences should be analysed. Carlo Olmo, in a recent book published in Italy and devoted to the existing relationships, in his opinion, between "Architecture" and "Democracy", proposes to us, in a very clear way, a general and crucial question: "is there any value, or system of values, that can not be "negotiated" or treated? That is: are we agreeing that some "values", in our present societies, should not be, let's say, "exchanged, sold, avoided, denied, ignored, forgotten …" and so on?

I think that, if we want to speak about priorities and values, we cannot escape from this very basilar question. In my opinion, the answer is or should be "yes", these values or systems of values exist and must exist for our own safety. Some of them are of a very general, ethic and civil nature: the rights related to the health, that of a free expression and mobility, the right to be educated and informed. Another one is the right to speak about the future of our students, the right to have a job. We, as educators, cannot forget or ignore the previous ones and this last in particular. That is to say: the destiny of those we are now educating in our schools, their professional future lives.

Nevertheless, we must be very careful: we have in fact to avoid or to avoid the risk, that several times emerged in our recent and ancient history, that a system of values can give life to very cruel and selective processes affecting human beings. "Blond heads and blue eyes", "the capability to gain money or to make things", in any way and independent from their characters or consequences, there have already been "values" for someone, sometime and somewhere. It was not a good thing!

Do not misinterpret me. By arguing in this way, I would only like to invite everyone to be conscious that this is a very delicate topic and that, perhaps, we are here neither to "select" nor to "impose" values, rather to discuss about the role of the different values that exist in our societies can have in the construction and management of our schools.

Going back, at this point, to the brief description of the arguments proposed for this panel, I can say that among the various words used to identify capabilities, competences, abilities or intentions some could be, perhaps, values but others can not, at least in my opinion. "Flexibility" is, above all, an attitude that we certainly must reinforce or enhance in our students. In a very wide sense of the term it could also be interpreted as a "value". On the contrary, "parametricism" appears to me as a word that recalls an instrument or a tool that can be adopted/used within the design process: not the only or exclusive one to be adopted to build the future we desire. Of course it can be argue that "the word" is often used within the didactic programs or the presentations of several Schools in a positive way, with regard to its connotative aspect that overpasses its simple denotative content. But, in this way, everything could be interpreted as a

"value" and, if everything is "a value" at the end nothing will really be "a value". On the contrary, we can all agree that "honesty" and "seriousness" are values that can help and must support our didactic activity and our students' future work. How difficult is it to pursue these values is very well known and tested for each of us: in fact, they cannot be "taught", but only proposed through our daily action.

As for what regards the other question posed to the panel I must say that, to be sincere, my school never explicitly discussed about "values", whichever they could be, old or new. Is it a mistake, a lack of consistency or of awareness of our role and goals? It could be, but it happened and I really do not know how to face this argument without falling in a reductive and formalistic discussion. We have in fact to avoid, as a dangerous risk, any rhetoric attitude or behaviour in this delicate and fragile field. "Fault, convenient or instrumental" values are lurking always around the corner, ready to be proposed or imposed for several reasons that, usually, have nothing to do with our goals, provided that they are sincere, of course. On the other hand, I think that we are not the ones in charge to define, select or impose any value. Rather, we can and we should "propose" and "respect", first of all anyone else, with our behaviour and work, some general and "human values" that cannot be declined or misidentified as simple "technical" abilities, competences or pragmatic priorities.

Architecture is made "by man" and "for men": we can no forget this very banal but true circumstance! It can help us facing the crucial topics proposed by this thematic section of the meeting.

Johannes KAEFERSTEIN

Head of Department of Architecture, Lucerne University of Applied Sciences and Arts, Lucerne, SWITZERLAND

The seat of the soul is where the inner world and the outer world touch each other." Unfortunately, it was not I who said this; it was the German Romantic writer and philosopher Novalis in the eighteenth century. The soul of architecture actually lies in this picture. There is structure, materiality, tectonics, space, light and shadow, a certain comfort, or discomfort. I feel there is an emotion in there and that there is something very human: it is man-made. I think that in this space, this in-between or window space, the inside and the outside touch each other.

The question is: is this an old value, or are we talking about searching for new values? Are we in a world with completely different values and insights from those of our counterparts five hundred years ago? I myself am not quite sure. There are certain values in architecture which are just there and that we recognise. I therefore think that it is important as a school - and I am just coming to my school - that, when we think about quality and values, we set goals and that we are very precise about the context in which we are acting and teaching. Let me just explain the context. The School of Lucerne is a very small school, with a small Architecture Department, but with other departments linked to technology. Under the same roof we have engineers, building technicians, architects and those dealing with electronics. The school has had, we believe, a tradition of construction for fifty years now, and this is something I am trying to carry on as a value, not trying to change everything, but to work with this heritage. I think that the matter of goals is extremely important and to me, one of the relevant goals within the context we have set is the whole question about energy and in Switzerland we have this concept towards a 2000 onwards society.

Thus, as an overall framework this is already enough with which to go forward and to set the perimeters of teaching in these directions. I totally agree that we have to have an open system, in which we have to open up the minds of students and to educate them to think. We need, however, to have students with skills, not only in drawing and thinking, but also in making. So we are very much oriented towards the making of things, working with the hands and with crafts. We therefore put a lot of emphasis on our workshops and the work space which we will have from next year where we will be able to do one-to-one structures. At the same time, we are co-founders of the material library, which is part of the material archive, where we are partners with different schools and institutions in Switzerland. We are trying to establish a few focal points where the students and also the teachers can connect and come back to. Inter-disciplinarity is one of the main issues, a key goal to reach, one of the goals of contemporary society. As architects, we cannot reach this alone; we have to work with engineers and technicians. We have to work with historians; we have to do research; we are trying to bind the research back to education as was explained earlier. It is extremely important that we have this two-way situation: that knowledge from the research goes back into education and vice-versa. We have students who are working on research projects but who had already started these projects during their studies. It is therefore also extremely important to work with the industry because on the one hand we need the money to do these research projects; on the other hand we are not working alone. We are building these products that go on the market

and I feel that we can influence these products from a very early stage if we start talking and working with these people in the industry.

Last but not least, we have to take care of and profit from this kind of network. There is so much knowledge here. As a small school, we focus on construction and on energy and the other subjects are not that strong in our school. I think that is fine. We send our students abroad; we send them to new schools. They get a basic education in urbanism, but we are not specialists in this; there are other schools that can do this. The students also have a choice of which school they want to go to. So we try to focus on our strengths. The five questions I have more or less answered. What we have had to do in the last five or so years is to come up with a redefinition of our academic approach, of the didactic approach, asking the question: how do we teach? I think this is something everyone is now doing. We have started to make smaller groups, to interlink the modules and so forth. For us, this change of curricula has been very positive. This is because our school has in its fifty years progressed but this change was good for the school in terms of redefining itself and of restructuring itself, so I am quite optimistic and positive about this. To finish, I believe we have to educate students to become thinkers, people with skills but who can think and who are open to the idea of knowing and of searching.

Mujdem VURAL

Vice Chair, Yildiz Technical University, School of Architecture, Istanbul, TURKEY

What is new for us may not be new for you, because our priorities are to integrate our 4 years of bachelor program to 5 years and the accreditation of our program (national and international). The presentation wishes to share the studies* we have done in this context.

Yildiz Technical University (YTU) is one of the well-known, top universities with 100 years of history in Turkey. YTU Department of Architecture has started its bachelor program in the academic year 1942-43 and graduate program in the academic year 1959-60. Each year 120-150 students who pass the central university exam have the opportunity to be a student of the department. The education is carried out by 113 staff for the total 945 bachelor students and 369 graduate students.

As YTU Department of Architecture we are mainly dealing with the reforms for the Bologna Process. In Turkey with the higher education law, the duration of university education is set to be 4 years except medicine. Graduate programs of 2 years are arbitrary. In the present case our first priority is to have 5 years of architectural education since Turkey is in the Bologna Process and the law will be changing in the near future. As architecture schools we are preparing ourselves to 5 years of education while waiting for the prospective legislation. Turkish architecture schools are discussing 5 years of architecture education in the meetings of Architecture and Education Assemblies of Chamber of Turkish Architects, MOBBIG (Communication Group of Heads of National Architecture Schools), MIDEKON (Deans of Architecture School Council).

Studies of YTU for 5 years program

While preparing the 5 years program the existing program called USIS was first overviewed. During the restructuring of the educational program of YTU Architectural Department at 2003, with EKSIP (Project of Continuous Development in the Education Quality) USIS program had put forward with 180 credit-224 hours -240 ECTS. USIS is consisting of 1 year of mandatory English prep and 4 years of undergraduate degree. The distribution of courses is;

- 18% of general issues,
- 12% of history, human behaviors and environment issues,
- 32% of design,

* Unver, R., (2008), YTU Mimarlık Fakültesi Eğitim Semineri 2, 15 Şubat 2008, İstanbul, ISBN: 978 975 461 443 5, s.46-59 (Panel). (in Turkish)

YTU Mimarlık Fakültesi Mimarlık Bölümü Akreditasyon hazırlık Komisyonu Raporu (Report of Preparatory Commission for MIAK- Accreditation), February 2009, İstanbul (Commission Members: Rengin Unver, Çiğdem Polatoğlu, S.MUjdem Vural, Ayşen Ciravoğlu, Ebru Erdönmez, Almula Köksal, Uzay Yergün, Dilek Ekşi Akbulut, Esra Sakınç, Alev Erkmen Özhekim). (in Turkish)

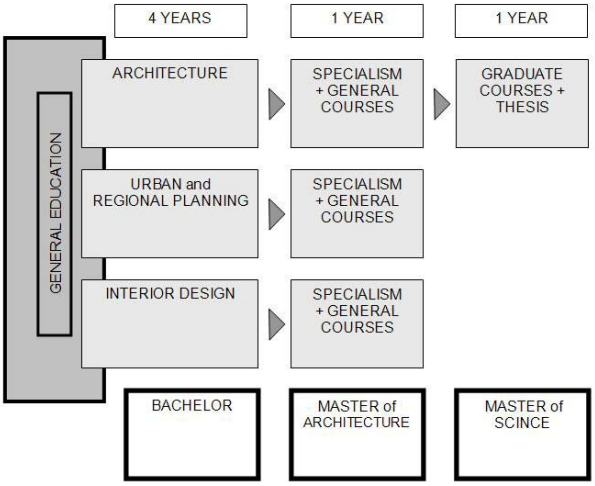
Ünver, R., Polatoğlu, Ç., Vural, S.M., "Architectural Education In The Globalizing World; The Experiences In YTÜ", Mimed Architectural Education Forum IV, Erciyes University, Faculty of Architecture, 26-29 May 2009, Kayseri. (Abstract book & CD book)

- 20% of technical systems,
- 3% of application issues,
- 15% of elective courses.

Outcomes of the program USIS with the above distribution are aiming to fulfill the student performance set in 27 criteria (integration of NAAB and RIBA criteria). Each and every course was explained / edited / composed in this context. The program USIS was organized as to fulfill the increase of quality and efficiency in education and the preparation for national or international accreditation process. As a matter of fact YTU Department of Architecture applied to National Board of Architecture Accreditation (MIAK) with the four-year program of USIS and started the process of accreditation laboring by January 2009. By March 2010 our department was established the first and only department that got the full accreditation for 6 years in Turkey.

YTU Department of Architecture has started working on an education program for 5 years in 2 cycles in light of the foregoing European models on November 2008.

The 4+1 model developed and was presented by Prof. Dr. Rengin Unver (head of Architectural Dept.) during the studies of 2nd Education Seminar at YTU (2008).



The proposed model is as follows;

At least 5 years education,

- Two steps,
- Full time,
- First 4 years of continuous education (Bachelors)
- 1 year graduated education (Master of Architecture)
- 1 year graduated education, arbitrary (Master of Science)
- at least 52 weeks of professional practice
- lifelong professional improvement

The Bachelor and Graduate Education Commissions continue working on the new 4+1 education program of YTU Department of Architecture. The two commissions are benefiting from the data of the Preparatory Commission for MIAK- Accreditation. During the studies of the new proposed program, institutional memory, steps and development studies of USIS were helpful.

The main topics to accomplish the purpose of studies are given below.

1. **Over viewing vision and mission of the Department together with the institutional and educational aims of the Department**

   Institutional Aims;

   - To make a merit of contemporary education concepts where individuals learn how to access knowledge, develop themselves continuously, adjust to the dynamics of the era, sensitive to the changing needs of the public and environmental conditions, have an intellectual point of view
   - To create a platform where faculty and students can develop themselves in accordance with their interests and abilities by conferences, exhibitions, workshops and excursions in collaboration with institutions that are in various fields of architecture

   Educational Aims;

   To educate global, prospective architects who can;

   - Solve architectural details at analytic, conceptual and practical levels, develop individual approaches to different architectural context, reflect ideas to practice and reach an independent decision within the professional ethics
   - Contribute to the production of architecture practice in social, cultural, economical, scientific and technological fields, using their knowledge for the furtherance of public welfare
   - Be involved in decisions such as education, researches and practice on an equal footings internationally, share experiences with younger generation and be pioneers when graduated.

2. **Explicating USIS program with other equivalent programs of Architecture Schools (itemization of the existing state)**

   In quantity and quality, 6 equivalent programs of Architecture Schools in Turkey explicated. Overlapping and decomposing sides of existing programs are determined. In the determination step each program was taken in groups of design, presentation techniques / design courses, structure / technology / professional knowledge, history / theory, general education and elective courses.

   This evaluation shows that YTU Department of Architecture has an equivalent program to the other departments of architecture in terms of credit and hours. Differences between the same courses in different universities compose the richness among the programs.

3. **Evaluation of USIS program by internal and external shareholders**

   Evaluation of USİS program is made in 5 stages.

- Evaluation of courses and teaching staff done by students (questionnaires for evaluation of courses are handed out at the end of each semester and the results of these questionnaires are circulated in the department),
- Evaluation of all education programs done by the students that attend the graduation studio (Report of Preparatory Commission for MIAK- Accreditation, February 2009),
- Evaluations of University, Faculty, Department and the program done by the graduates (first graduates of the program),
- Evaluations of the program done by the teaching staff,
- Evaluation of University, Faculty, Department done by the teaching staff (Report of Preparatory Commission for MIAK- Accreditation, February 2009).

Together with the data from these studies, criteria of MIAK and aim of a five-year education were helpful for the draft program of YTU Department of Architecture. In this program 35 criteria of MİAK that a graduate has to gain are classified in 5 subject/course groups as design / history / technology / professional studies / general.

In the draft program of YTU Department of Architecture five-year education is held in 3 modules of criteria and presented in Table 1.

In our department, in its 70th upcoming year in education, formal education has always been supported by informal studies. Our students and professors that take part in national and international activities with success have always thrilled us. While working on accreditation and five-year education for the past 3 years, the department wanted to highlight the strength / potency of our students. The students started a design week where many studios are offered for a free design stage, no ECTS, no grading or so during the midterm break for the past 3 years. This week is called “off the record”. Professors were voluntary for opening a design studio in this week organized by our students. Students decide on the theme for each year and open the registrations for design studios about the theme and students choose from those design studios in which are the full interactions. Our “off the record” week is quite popular in Turkey, taking place in architectural press and the event is known not only among the architecture schools but also in all universities. In the early years it was vise versa; students were voluntary for the studios organized by professors. With the rise of Erasmus exchange program international workshops take the leading role for informal studies. Because of the department education program, there is no possibility of giving grades and ECTS for these workshops, which entails voluntary work again both for the students and the professors. For the past 3 years we are having workshops that are programmed for long-term series and intensive programs with institutions in Europe and the United States. By these activities, students are not only gaining professional knowledge and skills while they interact socially.

An integrated program is needed to fulfill dynamics of architecture. As a result, we accept that in realization of our five-year conceptual program informal studies should strengthen formal education.

TABLE 1

Three Modules of YTU Draft Program

1st MODULE / 1st and 2nd years	2nd MODULE / 2nd and 3rd years	3rd MODULE / 5th year
Gaining knowledge and skill	**Using the gained knowledge and skill**	**Producing new knowledge and skill from the gained ones**
[1] Communication Skills [2] Critical Thinking Skills [3] Graphical Presentation Skills [4] Research Skills [5] Formal Composition Systems [6] Design Skills [7] Teamwork Skills [12] Use Of Precedents [13] Human Behaviors [14] Cultural Diversities [15] Accessibility [16] Sustainable Design [17] Ability To Prepare A Comprehensive Program [18] Site Conditions [28] The Role Of Client (User) In Architecture	[6] Design Skills [7] Teamwork Skills [8] History Of Western Architecture [9] History Of Entire World (Excluding Western Architecture) [11] Preservation Of Historical Environment And Restoration [14] Cultural Diversities [16] Sustainable Design [17] Ability To Prepare A Comprehensive Program [19] Structural Systems [20] Environmental Systems [21] Safety [22] Building Envelope Systems [23] Building Service Systems [24] Building Systems Integration [26] Control Of Building Costs [27] Technical Documentation [28] The Role Of Client In Architecture [29] Comprehensive Design [30] Architectural Practice & Project Management [31] Practice Management	[29] Comprehensive Design [30] Architectural Practice & Project Management [31] Practice Management [32] Professional Development [33] Leadership [34] Legal Responsibilities [35] Ethics And Professional Judgment

Debate

Maria Voyatzaki, Thessaloniki, Greece

I would like to open up the debate as a way of responding to the points made in the three interventions that preceeded in relation to the themes Constantin Spiridonidis and I had in mind when were setting up the agenda of this meeting. It is undoubtedly true that there are some values that are eternal, perpetual and ever-lasting. Therefore, to talk about values, would at first glance appear irrelevant and pointless. However, what is intersting to observe is that some values have always been acknowledged as such but the way they are perceived in the history of the humanities is not the same. Flexibility, no matter how adamant we would be today about its importance, has at times contrasted rigidity that was in turn synonymous to consistency and loyalty to certain ethics. That leads me to my second point which is, in fact, connected with the first one; stability has been historically associated with morality. Nowadays, instability, change or transformation the linguistically opposite terms to stability govern contemporary philisophy and architecture. While taxonomy was a way of grouping things based on their similarities, nowadays things are distinguished on the basis of their differences. The building industry strove to achieve mass production and it has been in the last ten years that construction researches efficient ways to achive mass customised products that are similar and yet different and unique. The third point I would wish to make is on the discussion on precision regarding the context in which we operate. However, when on the other hand the context itself is not precise by nature and on the other hand each of us individuals perceives it differently, what is a precise attitude to context, I wonder. Last but not least, there seems to be a distinction between research and design and often no intention of seeing design as a research activitiy and vice versa, the so called research-by-design activity.

Stefano Musso, Genoa, Italy

Of course, I agree with Maria because the problem she proposed is quite important and it is, in some way, a trace of the history of humankind, dealing with how man enacted the word of values and some of those values are still there, but much of it has changed the perception that we have of them, that is true. I was only suggesting that before we start thinking about particular values that are based on some framework we have to keep in mind that some values for specific areas of architecture are only part of a more general and complex set of human general values. If there is a lack of something in our present world, and there might be, it is about this second family of values. We are full of specific and segmented (or fragmented) specialist values, or goals, and we are losing the sense, the significance or the meaning of a complete system of human values; we are sometimes getting confused between tools, means and goals as the contemporary philosophic reflections shows.

If I have the chance to look briefly at what kind of general values I try to adopt and also to imagine the curriculum for our students I must recognize that, of course, it is important because it is the box of how we organize their time, and time is important for the life of students for the resources that they have are limited as are ours. So, how we deal with their curriculum is quite important. Yet before trying to solve the problem of finding or proposing "new values",

inventing in the meantime new courses with new titles, which are only the boxes for the contents we think as important for their future professional life, or a simple formal solution, there is a whole set of values, let's say "eternal" we have to take in mind and consideration. Values, in fact, are not simply or exclusively mine. Howard Gardner, in one of his more recent books entitled "*Five Minds for the Future*", says that, for the future, we need a different kind of intelligences in respect of what was intended even in the recent past. In my opinion, as educators, we must cultivate the intelligence of our students and we must help them in learning, more than simply teaching them what we already know and consider important or essential. There is not only one general or absolute intelligence, in fact. We have, according to Gardner, at least five different intelligences. The first one is "disciplinary": to know the things, to be consistent, to be serious, to be rigorous, to know the rules of anatomy (if you are a physician), the rules of technology of architecture or of structural design. All that is quite important: it is the basis for their education as architects. You cannot do anything useful if you are not a disciplined person, but it is not sufficient. For discipline must reproduce itself, dig inside itself and enclose the known world of knowledge we already possess. So, another kind of intelligence is needed, the kind that Gardner called "synthetic": the capacity to put together things belonging to different disciplines, and then we can use the word inter or multi disciplinarity. Nevertheless, the problem is that we cannot be only analytical, even if we have to be rigorous. We also have to be able to be synthetic which, again, is not enough, because if you only put together things that have already been developed, in different fields of human knowledge and behavior, then you can go on, but not very far. We also have to be "creative". But creativity does not come from nowhere; creativity is not an invention in itself: it is always the result of something more that you have while you are able to synthesize things that someone achieved in those different fields. This is, again, not enough for our future needs. Gardner thus invited us to look for a "respectful intelligence". This means that each man, or each scholar, teacher, student or future architect must be respectful of the age, the capacities or the competences of the others, because only with respect does this enable you to build a better world. Even then this is still not sufficient. The last, but for me, very important intelligence, is what Gardner called the "ethic" one: our action must, indeed, be profoundly ethical. That does not mean any new proposal of an ethical state, but the dimension that brings us to conceive our creativity, to see our aesthetic intelligence, our capability to do what we are thinking about, to think about what we are doing, in a collective and shared context. So these five words - and we could deeply analyze them even if not in this occasion - for me are crucial. Not only in building a new study curriculum, choosing the amount of hours for each subject or teaching matter and so forth, but in the way in which I consider my hours of teaching, in my room or in my class, the discussion that can be developed in our environment, even if it not so easy, because we are killed by quantitative parameters, rules, laws, every day new directives from our Ministry for University and so forth. Yet, I think that each of these five words that describe five kinds of intelligences can be translated into actions, into the didactic activity, into the pedagogy of our teaching action and can be formed and give substance to each content of it, in each framework we can imagine to develop it trough.

These, in my opinion, are some sort of "lighthouse in the night" that can offer us a direction, or better, several directions to follow. But if you like, if you do not want to choose Gardner, you can choose other cultural or intellectual references for the mental knowledge for the future. You could, for example, read a very interesting book by François Julien, the French philosopher, in touch with the Chinese culture, who discusses the difference between efficiency and efficacy.

He makes a comparison between the Western world and culture and the Eastern one, not to decide which one is the best or worst, but trying to add to the results of centuries of development of Western culture that has its basis here, in the Greek ancient thought upon which the contribution by the Jewish culture was added and also the Arab one joined to arrive at the present state of the facts; and we can notice the different results achieved in the Eastern world, in the world of the Far East. He says that the savant, the wise man has no idea; yet this seems a very contradictory sentence. It does not mean that the wise man has no ideas; he has several ideas, but not one alone, because he has no - not the prejudice because prejudice exists, prejudice is now in our everyday life, prejudice is not wrong in itself, it can be wrong in the consequences that we have using the prejudice in the relationship with others. The idea that the real wise man has no idea presents the risk that we choose every time changing under the pressure of external work our values system, choosing only one direction, because this leads to ideology, to fundamentalism, closure of openness and capability to accept the stimulus coming from outside. The capability to build a new world using these five crucial kinds of intelligences is, in my opinion, extremely important if you want to preserve something of our civilization, hoping it will evolve in a positive way and not repeating things only in a very technocratic way, a start for a search for a real peaceful coexistence in between ourselves.

Chris Younès, Paris, France

I think the question about values in time is very important because it is a question of time, which puts things in context. We have to interpret it in different ways. I think it is a big challenge because science has to have universal results and that is the power of science: to go through the borders with a universal language and it is possible to solve it. That is the value of science. Yet at the same time, for sustainability we know that we must work with politics, with ethics, with aesthetics and so on, so it needs to have diversity of culture. What I find very interesting today is that in the beginning a sustainable context required us to be more scientific, more technical on the environment, but today it requires us to have diversity of culture and it is very interesting because what we can see is that with architecture - what we love in architecture - it is always local and universal; it is not only one. It interlinks with the milieu and it is something extremely vital. I think that it is very interesting to try to stress this question of diversity and universality. It is very interesting to see that universality: we are now trying to be universal, seeing diversity as a new value because of the diversity of culture. I would like to insist on this, because if we want to take care we need to preserve the diversity because this is not so easy to do. It needs a lot of power to coordinate it. That is my first point.

My second point - I think it is a huge challenge for research in architecture, it goes for a teacher as much as for someone practising architecture, is to develop a collective culture and not an individualistic one. I think this is very new because we know it is important to have discussion, to have a dialogue. The question of value requires a dialogue; we need to exchange different points of view. I think it is of paramount importance to humanity. The sustainability context is so different, even in philosophy because we can see that the question is about humanity. It is not only about one culture; it is about the different cultures of all of humanity. The big question is to stay in touch with intimacy, individual questions and at the same time operate in the global world. This is a new challenge and it is very important to have a good education in order to have this new way of looking at education, but at the same time it is not enough.

We need to have what we have today, this possibility to have a dialogue between diversity and diverse cultures. It is a way we must cultivate because it is an extremely important way to invent the future world and I hope it will be a sustainable world.

Hilde Heynen, Leuven, Belgium

I just wanted to react to Stefano Musso's observation about putting things in boxes versus interlinking them. I think the observation is very correct, but I want to point out - and that was one of the points of my presentation this morning - that accountability is also a value. Accountability, transparency, we are asked for these. In a school like ours where we operate on public funding, I think it is quite correct and fair that they ask us to account for what we do. So accountability is I think a value that we have to respect. I could not go to my university superiors and tell them, we do not want to be accountable. We *want* to be accountable. But that translates into this thinking in boxes, because how can they impose a system on us that accounts for what we do by specifying you have to do this and that? So I cannot, as a Head of School, say I do not want to be accountable: I have to accept this value. But in fact, the way that this value is translated into requirements which are imposed on us, this thinking in boxes, goes against the grain and you are absolutely right about where we have to go. The way we try to struggle with this is that on the one hand, we to try to work in accordance with the performance indicators that are required of us - we have to or we do not survive - and on the other hand, always insisting that this is not enough, we need to interlink, we need to go with synthesis, the direction of these values is very important. But it is something of an uphill struggle, so you can say on the one hand, the contemporary situation is this asking for interlinking, a new value system, but the accountability that we have inherited from the first modernity is still a value that you cannot do away with. As long as administrations and bureaucracies continue to put forward this accountability in the way they are doing right now, I think we will be faced with this challenge of answering to both the thinking in boxes and the thinking in terms of quantities and measurements and the thinking in terms of quality. I think that is where we are.

Constantin Spiridonidis, Thessaloniki, Greece

I would like to make some clarifications about the concept which was behind the description of the content of the first session. I would like to start from something which is very simple. If we have a look on the Internet at the presentations of the Schools of Architecture or at the school brochures circulated, we will notice that one of the typical phrases that appears almost at the beginning of the description is that *this institution offers a high quality architectural education*, without exception. The question is, what does this phrase mean exactly? What is the content of this? You cannot easily find a clear description of what this quality is about. So, if a researcher of education is interested in continuing to look for that, you will find in the different descriptions some hints about it. The idea behind this session is to investigate what we mean by *quality* nowadays in an educational system and to share amongst us our concepts, conceptions, understandings and views about what quality of architectural education is. That was the idea. Coming back to the question of values, I would like to make two comments. The one is that, in the description about the educational activities of the schools, someone cannot find them explicitly recognised as values, some notions appear there. On the contrary, you can find words with connotations. What we describe here was not words defined as values, but words which

appeared with a positive connotation, not just the notations like, for example, that Stefano Musso's reading offered on parametricism, because of course it is a tool if you read it as a tool, but if you read it with the connotation that appears there, saying that our school is following parametricism and so forth, then it means something more. So there is a value, a positive indication of that. What we tried to map here was this kind of connotation. On the basis of that, I think that there is an interesting question that we have to tackle, which is the following: Is the education system that we apply in our schools a simple reflection of the value system of architecture or does the educational system have its own value systems? These are probably a little bit different from the value system that exist in architectural practice, architectural debate or architectural theory. I personally believe that the educational system as such has its own worth. Of course, the main values that many of the panellists introduced are reflected in the system, but this system generates its own values. For example, there is transparency: an old value in the modern movement. It was a value for architecture, but it was not a value for the educational system in the era of Modernism. However, transparency has become a value in the educational system in recent years, which is not necessarily the dominant value in architectural debate or in architectural theory. So it seems that there is a kind of autonomy in the educational system and because in this millieu we are speaking about architectural education, I think that it would be very interesting to define the values, or, let us say, the connotations of our job, which is to educate architects. All that was to give you the background of this description articulated in the general title. We are living in an era which is changing very fast, so the question is, which connotations do we have to incorporate in our educational practices? And at the same time, how could these connotations be translated into strategies and precise actions in order to assure our graduates that these connotations are conscious values?

Alexandros Tripodakis, Chania, Greece

I would like to go back to some of the comments made by Stefano Musso and Johannes Kaeferstein about assessing the intelligence of students, a respectful intelligence and an ethical intelligence; Johannes mentioned the problems of educating students as thinkers. I think these are very important points. Firstly, because we are dealing with the human material we have in our hands. We want to transform or help them become architects, that is, creative, imaginative with a strong initiative, originality and so forth. But the question is, what material do we have in our hands when our students enter our schools? In Greece, we have a very serious problem. We are dealing with a second-rate secondary education and a family value system that produces children and teenagers who think uniformly, act uniformly and dress uniformly. This is not only apparent in our own country. Our school is only five years old, but quite soon it became clear to us that if you do not deal with the human material as early as possible, then it is very difficult later on to expect high goals to be reached and high quality results to be achieved. The question on the way to deal with this was focused on how to enhance the initiative and the critical mind of the student; how to make him or her participate in discussions and debates; how to test their own judgement, how to be aware of what is around them, to examine the meaning of sustainability from the political, social, human point of view and so on. For we found that our students were lacking fundamental information and sensibility in respect to these areas. They were also lacking a cultural background, which may not be the same in other countries, a contact with drama, music or literature. What was happening here last night could have been of educational value. We decided to inaugurate

a course for the first year entitled "Introduction to Architectural Thought". With this course, we are trying to provoke students into open discussions, to challenge them, to take a stance, to state their ideas, fight their agoraphobia, develop their skills in speech and expression. All these things are very important because, after all, we are trying to build human beings, beings of thinking potential. The second thing is to strengthen these connections between architecture and other arts, and not only arts. So we expose them to a piece of music and try to ask them to translate the composing principles of music, drama or dance into architecture, in an attempt to try and break down these walls. So far, it has been satisfactory, if I may say so. I think it is going well and we will try to continue with it. My question is, are there similar concerns in other schools? I believe we have done similar things; I am very anxious to share similar experiences.

Johannes Kaeferstein, Lucerne, Switzerland

I do think that we face the same problems in other countries. In my experience, over ten years, when they stopped education on this level, some go far, some not so far, but at the end of the day, it is quite similar and everybody has his own individual qualities. I think it has been said. What we try to do is to find these qualities, to address the students personally - we have the luxury of being able to do this in our school, it being small. However, I think the most important thing is to give responsibility to the students very early and to show them that for instance, in a project design, the building as a result is maybe not that important, but rather the process of building, how to get there. If you can engage in a task like this, I think it is possible to activate the students, to help them grow. They have to grow. But I do not think you are alone in this problem.

Pierre von Meiss, Lausanne, Switzerland

I would like to come back to what Constantin Spiridonidis introduced into the discussion. The question was, what does the school really mean when it talks about "high quality education"? I would suggest that we may be attacking a very, very difficult question here because maybe it is not even possible to be precise on that issue. The quality of the school is made by the quality of the people who are in that school. It is not a matter of declaration, it is a matter of what these teachers and students really are. In this respect, I have to say I have tried in several European schools to define what the profile is of *this* school, as opposed to the profile of another one. It is an extremely difficult undertaking. Now you are posing an even more difficult question, what lies below the expression of quality? When the school talks about a certain quality it is even more difficult than to define the profile of the school. If I think back over my experience, not just as a teacher but also as a teacher among other teachers, it is more that which is important. I notice that one can answer many of the questions that are the basis of this panel discussion for a single person, but to answer it for the school is another question. Perhaps it is not really possible.

Trevor Harris, Helsinki, Finland

There are a couple of things I would like to bring up that were mentioned by the panel. I think that in an age of uncertainty, we need a little bit more clarity of direction all round.

That is irregardless of whether our schools are in art colleges or universities or in some other institutions. I think we have to ask ourselves the question, regarding the values that are propagating or generating within schools, how far do they actually contribute to the eventual creation of inspiring, sympathetic and sustainable places, both in architecture and in cities? At the moment I think that a lot of our schools are encapsulated within themselves and seeing themselves as ends in their own right. I think one indicator of this is the "publish or perish" syndrome which has, to put it mildly, got a little bit out of control. I think we need other performance indicators. The biggest indicator is perhaps to follow what is happening to our graduates after they leave the schools: what kind of jobs, what kind of activities are they engaged in? To this end, I think each school should have some sort of alumni set up to follow up what former students are actually doing. The other thing I am finding that I have a lot of difficulty with is this over-emphasis on research and design. To my mind, I cannot really put them into two camps, because I think they are part of one and the same activity. It is rather like talking about science and art as two entirely distinct and separate activities: they are both creative in their own right. As far as schools of architecture are concerned, we have to move away from trying to force ourselves into a pseudo-academic and pseudo-scientific approach to education and to get more in tune with the way that architects actually think about problems, how they analyse them. More importantly, what is the level of synthesis? We seem to be very good at producing people who are very good at defining problems, analysing them and even conceptualising them, but in this world at the moment we have a great lack of people who can actually make great cities, great places and great buildings. I think that is the direction we need to get back into, irregardless of what the Rectors of our universities are telling us they want us to do. I believe we have to stand firm on this one, because I think architectural education is very much losing its grip. To that end, I would ask the panel, do you see it as a possibility that schools of architecture should make it clear whether these architectural studies an end in themselves, an academic subject or whether they are indeed the preview to practice?

Hilde Heynen, Leuven, Belgium

As far as the situation in Belgium is concerned, up to a couple of years ago, the answer to that last question, whether we are offering an academic education or whether we are preparing graduates for practice, was rather clear because we had university qualifications that were supposedly academic and then we had more professionally-oriented schools that prepared students for professional life. Now, however, the picture has become much more blurred because all these schools formerly defined as professional are turning themselves into academies, upgrading themselves to become part of the university system, so they are also becoming academically-oriented, or expected to be so. This, indeed, poses the question to all of us as to whether there is still a difference between them. My own answer for my own school as it came out of the process of preparing for the self-assessment report - our answer to this would be that we do not educate future architects, but we do educate students in the field of architecture, which is a much broader concept than just preparing graduates to become architects. We also want them, if they want to orient themselves in other directions, if they want to become urban planners, administrators, researchers, engineers or such like, to be prepared for that too, so we define it as an academic education in a broad field and not just as a professionally-oriented education.

Johannes Kaeferstein, Lucerne, Switzerland

I think both have a place alongside each other; we educate our students for the profession very clearly to work as architects but still try to introduce academic culture, so I do not really see where all the tension lies, all this difference that you are perhaps seeing.

Mujdem Vural, Istanbul, Turkey

During the four years of the Bachelor degree, we prepare graduates for professional life but if we want them to be academics, they have to have two years further postgraduate study. This does not mean that four years of education in architecture will not let a student or graduate devote him or herself to research, but we try to give the fundamentals of architecture in our education. I think that more or less all of the schools are dealing with the same curriculum. We have 240 credits that we have to give the values to, the existing values which are not changing; the challenge, I think, is that the new values are actually not connecting with the people who are working as lecturers and professors. So I feel that we have the boxes, as Maria said, in our curriculum and we also have some boxes in our lecturers, so we are trying to be flexible in both cases, regarding students and regarding lecturers.

David Porter, Glasgow, Scotland

I would like to return to Consatntin Spiridonidis's question about defining quality, particularly in terms of accountability, which was mentioned. I'll approach it sideways. How many people have an i-Phone? When you buy an i-Phone, it simply tells you how to turn it on. From then on, you are on your own, you find your own way. You talk to your friends who have got an i-Phone and you say, "that's really cool, how do you do *that*?" I'll take this a little closer to architectural education. I have been told that Google, when they take on a new member of staff, do not give them a big handbook on how to be a Google employee. What the new employee does is that he starts, he opens the door and he enters. Then he sees around him lots of people, working, interacting and talking; he sees the furniture they have got. This is called "Googlisation": you learn by watching all the people around you and what they do. What someone is aware of when he goes into those Google offices is of just how bright those people are. How do you know about how bright they are? You pick it up. Now onto accountability and definitions of quality. The money we get comes from the Scottish Funding Council. Every time there is a new chairman or director of the Scottish Funding Council, within three months they are in my office. We stand and talk about quality of education and research, but within five minutes we take them to the studio. We have a very active studio; when that particular person comes sees some very bright students and some very bright staff talking to each other, they have drawings, computers, models around them. These funding people do not know what is on those computers, they do not understand architecture, but immediately the discussion about quality stops. You know it when you see it. You can come close to it with numbers, you can come close to it with words, but if you think you can define it, you cannot with numbers and words. That is why we have other senses and other ways of understanding. We just have to hope that the revolution comes through us and will eventually get through to the bureaucrats so that they can then make a judgement just like the director of the Funding Council when he says, "This is really great! More people ought to know about this." What he is talking about is lots of students

clearly working together on projects, talking to each other, sometimes talking to staff, doing things, intelligibly and creatively. It was palpable: they could see it.

Deniz Incedayi, Istanbul, Turkey

It has been summarised very strongly and emphatically that now we are facing a new identity in architecture and a new role for architects. In this context, we are defining more social responsibility in the role of the architect and also a more ethical context. What I would like to ask the heads of schools is whether there are some changes in the curriculum regarding the new architectural identity, which is increasingly facing human rights problems, issues and ethical responsibilities? It has also been suggested that architectural criticism is very important. However, this not only aesthetic or environmental criticism, it is also to be trans or interdisciplinary, as well as having a philosophical, social or cultural level of criticism. In that case, perhaps we need some more experts from other disciplines involved in architectural criticism. So what I would like to ask is whether you have new courses dealing with human rights, the public rights of architecture and with multi-dimensional analysis of architectural work, such as environmental or social issues, not only the tangible, but the intangible world of the environment. In this new changing era, are there some new additions in this context?

Stefano Musso, Genoa, Italy

It is very difficult to answer in a general way to this question; I can say something about my school and the schools in Italy I directly know. I would like to say first of all that in the discussion about the curricula, as I said before, it is not sufficient, but it is important. We should start with the idea that this aspect or content could be interesting, or this other one could be necessary, or useful; we could feel obliged to fill the curriculum with studies in architecture or in anything because if there is something, among the human expressions, that is a synthesis of a lot of other things, this is exactly Architecture. We know it, starting at least from Vitruvius. There is a difference between knowing and recognizing that some arguments, some contents are important, that they are changing the responsibilities of our profile, our value, its role in society, and yet within that new house of teaching independently those hours must be put in the curriculum. Also because we know that there is a big difference between "teaching ethics" and "being ethical". In some schools, of course, there have been for several years courses on philosophy, on aesthetics or on ethics, taught in Venice IUAV by Massimo Cacciari, for example. But that does not mean that all the students studying these arguments or topics are as clever as he is, or that they are cleverer than those studying in a school where there is no specific course with the same title and content, but where there are a lot of other professors that put these same contents into their teaching in a sympathetic way, yet in a non-organized or explicit way. I think that we have to avoid any wrong idea that before we get the system, we must have all the boxes already prepared and checked, all the courses titles fixed and only afterward there will be the final result of our efforts. Education, in reality, is a long, complex and interactive process that must, in some way, be kept free in its premises, development and objects. What we have to do is to give explicit meaning to the words we use, to the limits to which they have meaning, the reason why, because, of course, on the levels of the schools those phrases are written.

Unfortunately, sometimes we behave as if we are selling merchandise, attracting students to *our* school instead of the others and we are always inventing some new instruments to do this. This attitude could be, nevertheless, very dangerous. Let me give another example. You said you are beginning to realize that there is now much more social responsibility in any architect's job and that this circumstance could mean that we need to activate in our schools some specific courses such as sociology, for example, but sociology, at least in Italy, was already the result of a big student revolution in the sixties and seventies of the last century. In all our schools a course on sociology actually exist for that period. We can of course add other hours of teaching this subject but, perhaps, this is not in itself so important. I think that the educational process and the curricula must be perceived like instruments, flexible, to be changed, to be adapted to the students personality and because it is true that students are now coming from the secondary school in a different way and with different preparation from before. Yet we cannot reduce ourselves to the level of those who complain because the students are coming to our faculties less prepared and less advanced.

We have to react, because, at least in Italy we have no chance to continue without taking care of these new conditions or simply complaining about them. Those students, these are our principle reasons of existence, our main resource and we have to be aware of the situation in Italy now, with all its lights and shadows. Sincerely, I think that the quality of what we are doing will only be judged "in" and "by" the future, by the students that will go out of our schools and after some years will remember or not, be happy or not, and by society in its wholeness, of course. Always taking into account, of course, the big problems that the speaker put on the table: the stupidity of bureaucracy, the difficulty of dealing with some arguments that, to be sincere, nobody in the world seems to care apart ourselves as teachers. Architecture is a crucial question for developers, it is state property or a vehicle to transfer other contents and will. But, as was said before, if we limit ourselves to listing the mistakes, the errors, the risks, what is not there and lose the love for architecture, we lose the hope and with it we lose also the capacity to adapt and to change what we are doing in a flexible way in order to contribute to build a better world and society. In this sense, flexibility is always there. I would just lastly like to make two very brief points. I agree with the need to separate, to cross the mountain between science and art, but we must also have in mind that these definitions are also profoundly historical that also means relative and certainly not absolute. They are the result of the thought of the nineteenth century that divided the "sciences of nature" from the "sciences of spirit". But, art is exactly a creative way of showing man and to enhance his own potentialities and this means that we have to move on and to pass over these traditional definitions and categories with their historical and philosophical limits.

Katerina Dyrssen, Goeteborg, Sweden

I would like to comment on the previous remark which I think is extremely interesting. I would say it does fundamentally challenge the educational system. It is not a question of adding philosophy or adding sociology but I think over the last years we, at Chalmers, have started; we are still struggling with this. But as I see it, it needs a fundamental change of perspective from an individual, sort of heroic architect road to us stressing engagement in society, communication and cooperation. In Chalmers our experience is that where we previously had art sessions as independent ones, we are now bringing them into the project work as explorative artistic experiments, instead of adding art. It means we define project issues in a much more

complex way than just designing beautiful buildings. So there is this fundamental change in perspectives in the sense of turning architectural issues into problems for students. We try to do this from the first day. I think the trigger for this was sustainability so we are passing on, as both Chris Younes and Hilde Heynen said, these real changes, the attitude in architecture and as I see it, this makes it much more fun.

Gunnar Parelius, Trondheim, Norway

I would like to make one comment on the fundamental values of being in an academic institution, the reason why we need people to come to the university and why we protect people in the university. It is because they have a very important mission which is to discover about the world; we do not control the people here because it is necessary to take the risks of going out to transcend our preconceptions of the world and to discover things. The first thing is the scientific approach to find the truth. This is a fundamental value of all universities and we need to take care of that, to find the truth.Then there is the artistic point which is to find singularity, simple expression, transcending everything that has been done before in order to understand the specifics of the situation and really put culture in and see the singularity of a new thing that has not been seen before. For this is what can connect things and this makes it really fundamental in pulling the world together for us. This artistic singular expression is what anchors the world. This is the only way to do it. The third point is to transcend your own culture, to be able to talk to the people around you, to understand what they are trying and what you need to do is the aesthetic aspect, to transcend your own country, which is the third academic value. These values are what makes us academic institutions. We need to take care of this.

Chris Younès, Paris, France

I would just like to speak about this and about all the comments made. The question of quality is a very big question for every school today. What we can see is that most of the time - and we have done research into this - what is accredited as quality is a question of quantity. This is a problem. I understand that accreditation is important, it is a value to develop, but how do we keep the question of quality and not transform it into quantity, because everywhere we are not speaking about quality in a way but about quantity. This is something very important. Aristotle made a big difference between quantity and quality as two aspects and the way they make a kind of schema. I would also like to insist on and to emphasise the issue of the fragility of art. I think the power of art is its fragility. This power of art, which it has because it is fragile, has a power to interlink. I see this also as very important in architecture, especially sustainable architecture because what we can see is that a lot of knowledge about the environment, biology, physics, geography is very important to understand the present context. We need this and we need new tools to represent all this complexity, but today all scientists agree that nobody is able to deal with this complexity, so we must trust the power of humanity which has existed since the beginning of creation. It is very fragile, but it is something that has the power to give emotion and to interlink people of different cultures. I think, as well as being very important, that it is our tradition in architectural education to deal with this; we have to be extremely careful not to give this up because the wonderful thing about creation is that it is a way of resisting. We have to resist when we create. I think we resist against technocracy, we resist again all we want to devise things. Art is a way of

speaking to our spirit and to our heart; it is able to go through the ages, to be diachronic. I do agree that it is fun and that it is exciting now in schools to have the challenge of interlinking science to other things and of learning about the environment. It is important and it is in the curriculum in our schools which resists, but we must be very aware of it and to take care of this fragile thing with the art of humanity.

Hansjoerg Hilti, Vaduz, Liechtenstein

After this discussion, I tried to recall what I remember from six years studying in Berlin - that was after 1968, to give a sense of the time period. What I can really remember is that most of the professors stayed at home and we worked on our own. We also had very few very authentic people or professors who coached us: they did not teach, they coached because nobody would accept teaching any more at that time. So I can say, after forty years - maybe I am getting old! - but after forty years I can remember people, not the subjects. That is one thing. What then made me really suspicious was when you remarked about youngsters who come in uniform clothes. May one ask how many people have an iPhone? I believe most architects have an iPhone. So I believe that the "stuff" in architecture is much more uniform than the youngsters who come into the schools. Just to sum up, I believe the most important thing is that staff appreciate the students who come in. Whatever they are like, they are at least as good now as they were twenty or fifty years ago.

Adrian Joyce, Architects' Council of Europe

I am here on behalf of the profession. There is a lot that I would like to say, but since Trevor Harris made his intervention a while ago, I have been thinking about what I could say that relates to this session. The first thing I wanted to say is to Per Olaf Fjeld. I was struck when you read the short introduction from the programme that you left out in the list of values such as transparency, flexibility and so forth, the word "employability". In a certain sense, for a student going into a School of Architecture, one of the key values that he wishes to leave the school with is employability. As a spokesperson for the profession, I feel this is a key aspect which has been absent from the debate so far. I would also say that the question Trevor Harris asked about whether the schools teach the discipline of architecture or whether the studies are a prelude to practice is a very keen question. I would posit that architecture exists through built works and that we cannot afford to drift into an academia that trains people to intellectualise or philosophise architecture and which does not train students to build architecture. One might say that that is a natural thing for a spokesperson for the profession to say, but I think that it is a keen issue. At the same time, and maybe in a contradictory way, I fully agree that Schools of Architecture should explore what are in fact moral, philosophical, ethical and academic values and to have an intellectual approach because it is true that when we end up in the real world, we get submerged by realities, generally economic realities or regulatory realities and we no longer have the time to consider these very important aspects. We totally agree in the Architects' Council of Europe that architecture has lot more value for society than just the monetary value that constructing new buildings brings so we do have to have ways and means of not only instilling those values in the students but also of maintaining those values throughout the career of the architect. What the profession would like to explore more is whether continu-

ing professional development can contribute to maintaining those values, an academic or an ethical value, for example, throughout the career of an architect.

My last point, which was also mentioned by Chris Younes, is the question of accreditation. This links back to what Constantin Spiridonidis asked about quality, the question of what quality is in relation to a course in architecture. One measure of quality in architecture is obviously that it is listed in the professional qualifications Directive of the European Union. At the present time, ACE has been undertaking a study of how many countries across Europe have accreditation systems that accredit qualifications for listing in the Directive. It is remarkable how few there actually are who are doing this in a structured way. I know that ten years ago there was a theme of accreditation, but I think that accreditation is coming back and it is something we should look at more closely again.

Manuel Nikolau, Brandão, Porto, Portugal

First of all, regarding the question that Constantin Spiridonidis posed about values in the educational system, when we say that we offer better architectural education, what is the general concept of architecture that is behind this? I think the problem is about the concept, not about the architecture, but about what architects are. This is quite different because this has something to do with ethics, with professional training and so forth. I think that schools nowadays, after Bologna, should be concerned about architectural training because now in almost every country in Europe we have Bologna, we have five years of school and at least two years of professional training. So the professionals take care of it: two years is more than enough. Of course, I know that the two years are general work and there is not necessarily any kind of professional training done there, at least not in Portugal. It is two years of exploitation, a new system of slavery that the professionals, the architects use to exploit the ignorant and those absolutely blind in terms of the profession. This is what has resulted from Bologna in Portugal. This is of course done on the quiet, because the architects are very clever and they use the system as efficiently as they can. In the old system in our school for instance, and I do not want to dwell on this too much, we have a year of training, supervised by the school, with real problems. We have real clients and we have simulation of the professional exercise but controlled by the school. At the end of that, we evaluate the students. Just to finish, I was also in the battles in the sixties and I am not ashamed of it. I know that in our school nowadays we put sociology and anthropology and so on because of that but also because we do not trust the teachers. In the past, we had teachers who submerged us into the exercises in a project, they put the real problems on the street in the exercise but nowadays we do not have this.

Marvin Malecha, Raleigh, USA

Regarding the discussion of employability and whether it is a discipline we teach or a profession, to me - in my experience as President of the American School of Architects in the last couple of years, I spent a great deal of time with professionals in offices and because they knew I was an educator they spent a lot of time either trying to lecture me or engage me in this discussion - I think it is a false argument. I think what we teach in the schools certainly cannot be practised because practice is something that you *do* and the nuances of what you do and how you do it with new technologies and new forms of contracts and just the rapid

pace of change in the profession makes teaching it literally impossible. You simply cannot. So you have to rely on the very mature relationship between those who practise and those who teach and frequently they are the same people. What we are really talking about, however, is the culture of practice that we *can* teach in the schools, a way of inquiry, a way of appreciating design thinking as a way of not just some abstract concept, but thinking as making, thinking as doing, reflection in action: these are all things that we can teach in schools that can prepare people. We can open domains of knowledge. The two biggest single issues that principals of large firm practitioners in the United States told me they needed from education was the ability to do solid research because of the number of new materials that are coming into the field. They themselves cannot read the literature and tell whether or not they can put these new materials into buildings for which they will be legally responsible if they fail, so they need people who know how to do and read research before they put these materials into use. This is something we could teach very well in schools.

There is another thing I hear from a lot of practitioners in the United States, particularly right now. In San Francisco very nearly 90% of the commissions of the large firms in San Francisco are not within the boundaries of the United States so they want their employees to understand comparative religion, comparative culture; they want them to have studied abroad, they want them to speak more than one language. This we can also do very well in our schools. But the notion that somehow schools are in this theoretical place and the profession is in another place is entirely wrong. Firms are doing serious hypothesis-based research and they want people who know how to do it. On the other hand, we need to be able to teach people in the schools about the culture of practice to give them the perspective of why they are coming to our place to begin with. There is a last point I would like to make. There was a group of about thirty people that I commissioned during my term as President. They represented the accreditors, the licensing people, practitioners, educators and I commissioned them to come together and do a culture of practice study. You can find that on the AIA website. I encourage you to go to it because it makes some very specific recommendations about what the schools can do to teach culture of practice. One of the things we do not teach in the schools, at least in the United States, and I have wondered about it, is the history of the profession. It is an incredibly interesting evolution of how the services architects provided have come to be the way they are and have come to be like this in our various countries. Yet we do not teach it. It seems to me that we are not being responsible for that teaching; we are being irresponsible. I think the schools that do should become the case study for how to do it. Those are my comments, but I really think it is an old argument that leads us down - what I call in my southern operation - too many bunny trails; it seems to me we are running down a bunny trail looking for a conflict that does not exit.

Constantin Spiridonidis, Thessaloniki, Greece

I would just like to make a very brief remark concerning the question of similarities. When we count the number of iPhones in this room and we create the group of people who have iPhones, I think that it is not correct to stay there. We have to go a little further to the fact that each one of those iPhones, even if there are only two colours, black and white, have completely different ring tones, completely different wallpapers, completely different applications. That is to say that they are being personalised from the very moment of being purchased. So there is a personalisation process alongside the common, that is, the different and the common

co-exist nowadays. If one would like to relate this to the question of the schools, one could say that during the 1950s and 60s, the schools advertised their similarities, the fact that they belonged to an international version of architectural education. In the 1970s and 80s, the schools advertised their localities, their specialities. Nowadays, what we are seeking is to define our European and international version together with the particular local culture and so forth. This is the difficult task that we have: to be internationalised and at the same time to be local. This is what we are trying to formulate in this kind of discussion.

Reflections

Per Olaf FJELD

Almost a year has passed since the last meeting in Chania, and having the opportunity to reflect and digest the discussions presented at that time has allowed for some interesting perspectives and distance. The material produced has a complexity and a variety of subjects that requires time in order to fully comprehend its content and context, and as so often before, the sentences or phrases that gained the most applause at the time are not necessarily those that seem the most interesting or challenging now. Yet, if one takes time to study the material, one is struck by the breadth of the work the event produced. Having participated in the Meeting of Heads for many years and well aware that it is difficult to escape repetition, I would argue that each meeting has a mood and an identity of its own which makes each event unique and as such important for European Architectural Education.

Since we are not dealing essentially with facts, but rather an understanding and an awareness of our present day platforms and their capacity to take on change, the way we treat this material and in particular our ability to also read between the lines is of importance. Our thoughts seldom reach concrete conclusions, but rather suggest or initiate a response to a given topic. To discover traces of innovation or freshness of approach in each meeting is a form of creativity we should strive to encourage and appreciate. To return and review past material and initiatives is part of this process.

Not just in the session I had the honour to chair, but in most of the discussions at the last meeting, there was a stronger focus on human issues, social behaviour, and an effort to comprehend how we adapt and take on change. This was rather new as the human aspect, the way we act and live, has been treated with respect but almost always as a separate issue, but not in this last meeting where it seemed to have filtered into all the other issues and subjects. How our body reacts towards environmental changes, to war, immigration and economical downturn, we can only make assumptions. In relation to this "human aspect", the need or desire to find new content with a capacity to revitalize or redirect architecture's focus seems to be critical. At the same time, despite the growing complexity within architecture profession and its educational institutions, the forum was more open for discussion and eager to address the content of this complexity.

The notions of values both inside and outside architectural education were debated with vigour, and it was a discussion that was not able to escape the human aspect, rather this became a focal point. Chris Younés argued that "we must trust the power of humanity" as this more than any other power has the capacity to connect and communicate. It is a strong force, but also fragile. It is important for architectural education to include human aspects and their contexts as a core discussion area in the establishment of new content. To some degree this is occurring, but the platforms for discussion are not only broad, but multi-layered, thus it is often difficult to penetrate and comprehend not just the greater picture, but also where and how one has entered the discussion. To mix values with qualities as occurred in these sessions added another layer of complexity to the discussion.

Over the past few years some directions related to architectural education in general have gained more clarity. The notion of competences is one of them. In other areas of education a

common agreement or understanding is less apparent. The question that still pops up is what are the roles of the architect and the education of an architect. What is the link between our new content and its space, and the physical spatial result as related to context? How do we understand the connections between content and the inspiration and creative act that will form the new spatial situations?

Taking into account the challenges mentioned above, each school's pedagogical approach is still a vital instrument. Now with a somewhat clearer picture of content the focus should return to how do we teach. If we do not take the "do it yourself direction" the capacity of the teacher and his/her ability to act as a mediator will have more impact on the success of a school's pedagogic. In this scenario, the direction of a school and the manner in which new content is understood and treated will be very dependent upon the teaching staff. It is so simple and so brutal, and reflects what Kahn said 40 years ago "you can only teach what is already within yourself". A pedagogical approach must have the capacity as an instrument to revitalize content spatially. This is a challenge that architectural education is still facing.

Today, most of our schools offer an education that has an academic base rather than purely preparing the student to enter an office situation and be an efficient member of the work force from day one. The relationship between education and profession continues to pull in different directions, but our discussions are more open, or as Johannes Kaeferstein remarked, "I do not really see where all the tension lies." The relationship between academic curriculum and professional needs or skills is not a black and white situation, and each school will have to find its own path in balancing the qualities of its available teaching staff to meeting the short and long term needs of its students.

My last remark goes back to the discussions we had a few years ago dealing with educational institutions and their profile. It is imperative to go back and review our notes, as we now have a stronger background material and understanding of what we mean by a school and its profile. It is clear that this profile can not be discussed independent of the staff's ability to use the content in an inspirational and creative way. Therefore, it is important for each school to identify the strengths of its competencies as well as its weaknesses, and through this process gain as true a picture of the school as possible, and from here form an academic profile.

Chris Younés quoted Deleuze, "we always begin in the middle". In present situation I would argue that our information society, strangely enough, has a tendency to begin at the top, lacking both the middle and the bottom, as we are in many ways losing a layered access to the relationship between past and present. We tend to simplify complexity rather than embrace it for what it has to offer. In a world of immediate, ongoing change, flexibility, and diversity, it will be increasingly difficult for schools to be á jour in all areas within architecture education and equally important meet the needs of a very diverse student population. If a school is able to understand its specific potential and set a direction, it is giving itself a focal point from which to project, to actively meet, use and transform new content spatially.

Session 2

New priorities, new context

In the twenty first century new expectations and demands are imposed on European Schools of Architecture and more generally higher education institutions are mounting rapidly, as social and economic development are geared around the concept of a Europe of Knowledge. European policies appear to ask for strong, autonomous, responsive and inclusive institutions providing research-based education and learning in order to meet the many challenges ahead. These social, and economic challenges are generated in particular by the increasing speed of globalization, the demographic transformation of Europe into ageing societies and the rapid pace of technological change. In this context of an unpredictable future, it appears as necessary condition for schools of architecture to become more open and collaborative and to establish strong partnerships with public authorities, professional bodies, graduates' associations, and of course partnerships and consortia with other schools of architecture at local, regional, national and international level to provide attractive and relevant curricula. Our schools are asked to embed concepts of widening access and lifelong learning in their institutional strategies; to provide education and learning to a diversified student population; to adapt they curricula in a way to ensure that they are designed to widen participation and attract returning adult learners; to provide appropriate guidance and counseling services; To strengthen the relationship between research, teaching and innovation in a perspective of lifelong learning; to consolidate reforms to promote a flexible and creative learning environment for all students.

How ready are our schools to implement actions toward the fulfillment of the above objectives?

Which are their priorities in view of this new situation?

How difficult is to implement all these necessary changes?

What is the 'cost' of these priorities?

Are there interesting paradigms of good practice to share with the participants of the meeting?

Chair:
James Horan, Dublin, Ireland

Introductory panel:

Oya Atalay Franck, Zurich, Switzerland
Karl Otto Ellefsen, Oslo, Norway
Leif Brodersen, Stockholm, Sweden
Hansjörg Hilti, Vaduz, Liechtenstein
David Porter, Glasgow, United Kingdom
Christian van Langen, Rotterdam, The Netherlands
Koen van de Vreken, Antwerp, Belgium

Introductory Panel

Oya ATALAY FRANCK

Head, Faculty of Architecture, Zurich University of Applied Sciences, Zurich, SWITZERLAND

How ready is your school to implement actions toward the fulfilment of the objectives set by the agenda of session 2?

The answer to the first question depends not primarily on the qualities listed as necessary to meet the challenges of today and tomorrow. These qualities are indeed hard to dispute, because they are self-evident. They describe what every school – implicitly or explicitly – will always want to achieve. Every school wants to be strong, autonomous, responsive, open and collaborative; every school wants to establish strong relations with public authorities, professional bodies, alumni organizations; every school wants to have partnerships with relevant schools nationally and internationally. Every school wants to offer attractive and relevant curricula, widen the participation and attract highly qualified students. And of course we need to promote flexible and creative learning environments – after all, who would want to provide for an inflexible and uncreative environment?

The challenges of globalization and of an increased international competition amongst nations and businesses are well known, and they are valid – at least in principle – for architecture and building as well. There are certainly many architectural firms and building companies who act internationally, even globally. The largest part of a nation's building production, however, still serves local or regional purposes. In this sense, architecture – and building culture as a whole – are not really global goods such as consumer electronics or IT services. Building economy and building culture of the different countries of Europe still show strong differences and peculiarities. These differences, it must be assumed, will stay with us for a while. A Swiss architect will face here unknown difficulties when building in, say, Greece – and not just because of problems of language or of admittance to the market, but because the legal, economic, and technical differences between these countries in the building sector are still remarkable.

We should not neglect these differences when we discuss strategies for matching teaching and research to the – changing – needs of the professional environment. The realms of our architectural profession – the organization of the planning and building activities amongst the different players and stakeholders, the role of the architect in the building process, the structures of the building economy, the legal framework – is not homogeneous.

In Switzerland, we pride ourselves on an outstanding culture of building and an architectural production of international renown. This may be particularly astonishing when considering the fact, that architect is not a protected professional title in Switzerland. To work as an architect, you do not need to have a matching university degree, nor do you have to be member of a chamber of architects or of a similar professional institution. As a matter of facts, there may be a strong argument that precisely this lack of regulation may have strengthened the particular

qualities of architecture in Switzerland, because this has led to a constant critical dialogue and a fruitful competition of sorts between what may be called „practitioner architects" and „conceptual or theoretical architects". But conditions of production change in Switzerland, too. The work of the architect in the comprehensive, integrated form it once had –the unshared responsibility from the first phases of the conception of a building to the supervision of its realization – has become more and more compartmentalised, specialized for each phase. This has an impact on quality, and not always for the best.

The Bologna Process was – and still is – of considerable relevance especially for the schools of applied science in Switzerland. On one hand, the Bologna reform provided these schools with an opportunity to match up to the large architecture schools at the universities and the polytechnic institutes – in Switzerland the two Federal Institutes of Technology. This, however, put the schools of applied sciences at the risk of losing their traditional professional basis, such as the draftsmen, for example, who were always of particular importance to the architecture schools at the Swiss schools of applied sciences. As you may know, Switzerland is amongst the countries relying strongly on a dual education system for many areas of basic professional education. "Dual" means that professional education is a joint task of vocational schools and of commercial companies. Up to now, the schools of applied sciences recruited a considerable share of their students from the technical and crafts-related trades. Most of our students come from the building sector and return to it after successful completion of their education. This is still visible in our programs and our recruiting strategies, in that our main aim is to educate high-potential persons of different background to become practice-oriented architects.

Key to all this is our common belief that the architect still is ideally a „generalist" and not a „specialist". It is our understanding that generalists were, are, and will be needed to solve all kinds of problems in increasingly diverse and complex environments. We think that a person well trained in a generalist way will most likely better prepared for the "unknown" and "surprising", and for solving complex, up-to-then not encountered problems. Also, we think that the foundation for a lasting architecture is quality – in all aspects of building. Richard Sennett, the well-known sociologist, pointed out that every thing only finds meaning in itself, in its well-thought-out conception and its careful execution. In order to produce such an object, thereby contributing in a sustainable way to society and to the culture of building, imagination is a prerequisite. The role of the schools was and is to instruct its students to „think architecture" in a way that later leads to the meaningful „making of architecture" in professional practice.

Which are your school's priorities in view of this new situation?

There definitely is economic pressure on the universities: resources are more and more tight, competition increases, controlling is increasing, and academic liberties are more and more reduced.

On the other hand there still is a social and cultural responsibility tied to the work of the architect as designer of our built environment. This responsibility must also influence our academic strategies. So we ask ourselves: What are the competences that our graduates ought to have both to succeed in an increasingly competitive environment and to contribute in a meaningful way to building culture and to society?

At ZHAW we try to keep and strengthen our core competences, which, we think, are design and construction as inseparable entities. We provide for a practice-oriented education with a teaching staff strongly rooted in professional practice. Basically all our lecturers in the architectural and urban design studios are successfully working as independent architects. One of their key tasks as teachers is to relay their professional experience one-on-one to the students.

This in itself, however, is not enough. What we need additionally – and where we currently put our focus specifically at the master level – are new models of collaboration between architectural practice on one hand and theoretical conceptual aspects of architecture including academic research on the other.

How difficult is to implement all these necessary changes?

Switzerland has a population of about 7.5 Million and 10 schools of architecture (3 university/technical universities and 7 university of applied sciences) with a total of ca 4500 students.

In order to succeed in this competitive environment, we cannot rest on our laurels but must continuously question our strategies and our operative processes. Resources and funding are – of course – central problems. At our schools there is still a lack of experience in organizing third-party funding, especially where industrial sponsoring is concerned. Collaborations with partners in the industry are not always easy, especially if you want to keep such partnerships "at eye level" and not let the terms of collaboration be dictated to you by your partner.

Challenges also lie in the need for increased efforts in academic architectural research. This is first of all a definite problem: What is architectural research, especially in an academic – scientific – environment? What is for example – to pick a „hot topic" – research by design? If we have clear, comprehensible, and communicable answers to these questions, it will be much easier to increase our efforts and define research programmes plausible both to our students and researchers as well as to our sponsors.

In all this: Keeping administration and controlling at bay is a necessity – and a difficult task in its own.

What is the 'cost' of these priorities?

All these changes come quite necessarily at some cost. These are:

- Loss of autonomy: By becoming more and more dependent on third-party funding, we lose a considerable part of what was a cornerstone of academia for many decades: The autonomy to pursue our activities – teaching and researching – according to our own priorities, "selbstbestimmt", with little or no necessity for Rechenschaft vis-à-vis Dritten.
- Loss of diversity of education providers: Size matters more and more; the numbers of students count for resource allocation etc. Especially small schools may find it increasingly difficult to finance their programs.
- Loss of diversity of content: The loss of autonomy of actions may – on one hand – lead to a homogenization in our behaviours and a unification of the educational landscape. Stronger control and controlling by others of our activities may – on the other hand – increase the quality of the work we do.

Are there any interesting paradigms [examples?] of good practice you could make reference to?

I hope this doesn't sound to immodest, but – as a matter of fact – we try to establish our own paradigm of good practice with the dual focus on urbanism (GUL) and construction-integrated design (GKE). And we have not given up on the idea of a „cross-fertilization" between architecture and civil engineering by providing joint basic modules for both disciplines.

Karl Otto ELLEFSEN

Chair, Oslo School of Architecture and Design, Oslo, NORWAY

It is perhaps hard to find what is meaningful to say right now to a learned audience. What I had thought about doing was to talk a little about my interpretation of important factors in the so-called context and maybe talk a little about how our own school is trying to adapt to this question of context. But there is something I would like to mention first. Sometime ago, I talked to some leading Dutch figure and he told me that the production within the Dutch sector of architecture had dropped 44% in the last year, which is an enormous amount. Sitting in a Greek context right now, it is hard not to think about it. It is really strange that nobody mentioned it during the morning. The economy changes and times could be better, however I think a very important thing that has changed and which is important to Schools of Architecture is that the production of the environment, the process of production, the system of production of the built environment has changed. This is a fact, and the role of the architect in the process of production in the environment has also changed profoundly. We, the schools, have to adapt to this. I am in no way saying that everything has changed in the building industries. When I landed in Chania yesterday, I saw workers wheeling a wheelbarrow with bricks in it. Probably they were going to put these bricks on top of each other, in the old way, making a piece of architecture. It is not that everything has changed; we deal with timber in the same way that we have always done, up in the north, but as a industry for production these things have changed greatly and the architect's role within it has changed. These facts have some impact on the way we teach our students. In my opinion til leads to a situation where we must put a lot more effort into the students' ability to carry out investigations; and a lot more emphasis on their ability to look into other disciplines. We need to teach them how to validate their proposals and how to put an argument across for their proposals or for architecture as a whole and the scholls need to put a great deal of knowledge into the basic education. In our school, however, our attitude is that the new situation does not change the fundamental way we teach architecture. It changes our curriculum a lot, it might change our emphasis on different parts of the curriculum, but our studio work basically follows the lines that it has always done, and our plans are to continue in this way.

The second thing regarding the changes in context that I would like to mention, is very relevant to governmental procedcures and the aspects of documentation and accreditation. At the moment, I think we have to treat these things as facts: they are hard to dispute, we have to deal with them and get to know how they work in reality. This does really not present a particular problem: we have to do it and we do it, and have even learned how to do it. But there is another aspect of government policy, which is very interesting and might even be promising. For some time now quite a few governments and municipal government in cities, working more through "agendas" and drawing up "policies" for different parts of societies, have established policy documents or agendas for architecture. This is an interesting development in the relationship between politics and architecture. Firstly this indicates - and which I think is under-communicated - that there is a vast interest in architecture out there, a vast political interest and a vast public interest. The interesgoes together with and combines with the current environmental interest of the public. Architecture is much more on the agenda for

policy makers today than it used to be ten years ago. This important fact means that we are not engagned in a fringe activity, we are at the core!

These agendas - at least in our school - influence the way we are working. As the leader of an institution, I find my work to a great extent influenced by governemental programs. Quite a lot of my work is related to trying to interfere with and influence the setting of political agendas, whether in Norwegian architectural policies, the tailoring of Norwegian large scale and infrastructural projects, the use of architects in Norwegian building industries, the way the Foreign Ministry presents Norwegian architecture abroad, or even how the Defense Ministry uses architecture in their development.I am stressing and exemplifying this point to illustrate that the role of the school in a political setting has changed. We have to be politically active, as this has been going on for nearly a decade. We cannot sit back and simply be academics; we have to take part in political discussion.

The changes in the industry or production of the environment and the changes in policies are the two factors that mostly influence the policies or strategies of the school. We have tried to adapt to the situation in two different ways. Firstly we try to adapt by sticking to what we are good at. We like to look upon ourselves as caretakers of a tradition of a Norwegian architecture that has some value and try to look after that tradition and to keep it gloving. It is a tradition of working with wood, a tradition of working with the relationship between architecture and landscape; a tradition of looking at architecture as mainly a spatial phenomenon and so forth. This is what we believe is a very important part of our heritage and it is our job to develop and keep it. Then - and these are the most difficult strategic decisions in our school - we also have to make choices as to which other parts of the discipline of architecture we are going deeply into. We have made som clear strategic selections as to which part of the area of knowledge we are putting our efforts into. For example we are developing a centre for hstory and theory, which we have been doing successfully for a number of years, called OCCAS, the Oslo Centre for Creative Architectural Studies. We are working with urbanism, very much in relation to landscape urbanism, and we are working in construction and tectonics through our Center og Architecture and Techtonics - CAT . These are selections that we have partly decided upon because they both tend to support a Norwegian agenda for architectural policies while at the same time being within our capabilities. I do not think that these changing contexts really change the core of architectural education at all, but they change the way in which we work. They change our priorities and makes it necessary for us to do pedagogical changes. In, our Bachelor's education as an example, we put much more effort into quality assurance than we used to a few years ago. This is because we know that after three years, people might do something else and start to choose their own specialty. I really feel things have not changed basically in our school, we are however adapting to the new contexts based both on a discussion of social relevance and of course on a discussion of economic potentials.

Leif BRODERSEN

Head, KTH School of Architecture, Stockholm, SWEDEN

This year we have had a lot of discussion about how to prepare for the future context. Since we started re-writing the curriculum for the first three years, we have been discussing what future challenges we will need to adapt to. To begin with, we had this discussion about the future role of architects. We realised that there is a kind of delay in the culture of architecture. The students we get in our schools are still very highly qualified; there are ten applicants for each place. When they are admitted they have very high self-confidence. But at the end of the five years, they question this self-confidence and we think that one of the reasons is that we still have this old modernistic-artistic image of the architect that everyone wants to become. At the same time, our society asks for the skills that we have such as the intellectual skills that are characteristic of the architectural discipline and profession; skills such as communicating, criticising, analysing and synthesising. So in reality, the things we learn at school are something that society is suddenly asking for, much more than previously. This means that when we re-write our curriculum, we want to address this. We also feel that there are around ten percent of top students who will become excellent architects and maybe fifty percent who will be very good architects; there will still be however students who have a Master's degree who could work in society as leaders or new directors of companies, and this is a new role for architects becoming leaders, furthering society. There is also a demand for this. Hopefully we will change and adapt to this. We started to discuss how we could do this. To start with, we think that the first three years that comprise the Bachelor's degree should be very focused on skills and knowledge. The entire curriculum coming from the demands of society, of the European Union, the Eleven Points and of the national requirements should be covered in these three years, in a very concentrated and active way. Moreover, students should have theses abilities. One criticism that we make of ourselves is that we put too many experimental activities too early on in their education. At Master's level, there will then be plenty of time to focus on interdisciplinarity, looking at other subjects and the time for students to choose their own path going off into society and into the marketplace. Moving onto new priorities, we need to examine the following questions: how can a school become more open to society? How can we create strong partnerships with authorities as well as with the market? How can we enhance and improve the lifelong learning process?

We have not been very successful as yet, but we are acting in order to improve in these areas. We have set up some academic platforms in the field of urban design and also building material industries. These platforms comprise meetings with the students, practitioners, teachers, as well as with people from the authorities and the building industry. We meet about six times a term where hundreds of people attend these meetings. It also starts to become something of an activity whereby students might also meet people for the future and start projects. We are also trying to improve digital tools, working with industries and having industry-specific PhD students whose studies some architectural offices would sponsor. This also means that the market and the profession are getting more academic research and knowledge from the school, which is beneficial. This is also a new requirement: many of the architectural offices, especially in Stockholm, are suddenly asking for PhD students. Another change regards the fact that they want this higher qualification because commissions often ask for such a require-

ment. Additionally, the students in the fourth and fifth year are becoming more and more inter-disciplinary in their studies, working with engineers, sociologists and such like.

We also think that the studios in the fourth and fifth year could be a foundation for research projects where we put in more academic research as well as more design-oriented research. This is a good way to use what is produced in the studios, to be more sustainable. Finally, we have also talked about lifelong learning and with it some kind of profession voluntary certification in Sweden because we are an unprotected profession. We think that we would adapt to this proposal to have two years of practice and that the schools could meanwhile provide students with the courses to get this certification, possibly in cooperation with the professional bodies.

Finally, I would just say that at the school, we also made a statement when we were working with this question of future challenges to make it clear that the school is of course both academic and professional at the same time. There is no use in making a distinction between these two aspects and I think most schools share our thoughts on this. The other things related to pluralism that we want to provide is a wide range of opinions and in relation to architecture, aspects in terms of methodologies and tools, diversity, inter-disciplinarity and also that architecture is an adductive science, which is something many other sciences are interested in.

Hansjörg HILTI

Dean, Technical University of Liechtenstein, Vaduz, LIECHTENSTEIN

I will try to outline how the University of Liechtenstein acts upon the following key points mentioned in the agenda of session 2:

1. Europe of knowledge
2. Unpredictable future
3. Become more open and collaborative
4. Diversify the student population
5. Build strong partnerships
6. Create a relevant curriculum
7. Strengthen the relation between research and teaching
8. Promote a flexible creative learning environment

1. Europe of knowledge

The media make us believe that Europe's future is the *society of knowledge* and that production will be outsourced to Asia or elsewhere. To convince our politicians to give us more funds, this argumentation plays into Universities' hands. However, my personal experience of China, India and Brazil as economically rising states tells another story.

2. Unpredictable future

I am sure that the so-called developing countries are going to play a role in a society of knowledge in the future. They will not simply remain places of production, as we seem to perceive them today. These societies are very pragmatic and incredibly eager to join the round table of today's industrialized countries. They do not care about ideological, moral or even esoteric debates, as we often do in Europe. We have to look very carefully at what is going on outside Europe to understand what our profession has become outside our comfort zone. How does this affect our education? We should be prepared to do not only the fancy projects as certainly not all of our graduates will have a place in the design heaven. We have to teach them all steps of the architectural production. In our opinion it will remain as important to know the production and craftsmanship of architecture as well as lovely object-based design processes. As a reference to craftsmanship in education I recommend you our recent yearbook entitled *Architecture Liechtenstein 2010.*

3. Being more open and cooperative

Nearly everybody is convinced by the advantages of interdisciplinary approaches in architecture, but where are the schools that really implemented it throughout the curriculum? Maybe we can look at international or trans-national companies and learn from them. During one

of our University board meeting, a banker said to the faculty members of economics: "What we need in our banks are people who have an intercultural education and language skills. If necessary, we can teach them all the business administration skills they need on the job". I ask myself, what does this mean for architecture? What is the real market in architecture? As far as I can tell, architecture becomes more and more an international service industry.

I believe that among other skills, intercultural training is key. Our response to it was to open up our school to the world. This means that every one of our students has to study or practice a semester in a language and cultural distinct society that is foreign to him. That way, we believe our students adapt more easily to any future international working environment.

4. Diversify the student population

A second result of this process was the influx of an international student population, first in exchange and later as regular students. Students in the bachelor studies originate from all German-speaking countries, the ones in the English spoken master studies come from all over the world. At the moment we have between 5-10% national students compared to ten years ago, when nearby 100% of students attending were from the region. Today, the student population is almost entirely international. The schools values and priorities are also changing very fast: academic staff is challenged by the variety of educational backgrounds and architectural training the students bring with them. Yet on the other hand these people bring completely different cultures into our school. This teaches us not to concentrate only on the European way of thinking. The experience for students to work and learn with and next to others from different cultural backgrounds will be treasured for a lifetime.

I believe we should look at the challenges facing us in a very non-ideological way, as we are not the only ones in this situation. All it takes is a look across the street to the building tool company "Hilti" from Liechtenstein; at their main plant and headquarters the 1500 strong workforce is made up from about forty to fifty nationalities. We, in our University, are close to this: among the 1000 students you will find between thirty and forty nationalities. In a way in terms of cultural mixture we are representing a globalized economy.

5. Build strong partnerships

EAAE has provided a great deal of genuine cooperation between our European Universities. The Erasmus Program has helped us with student and staff exchanges across Europe. Erasmus Mundus offers the same across the world. Thanks to all the bilateral agreements, contacts between Universities are being intensified step by step to build a fruitful partnership for the future. But is this enough? Do we need to extend our collaborations and partnerships to authorities and private enterprises? In our institution we have a long-standing tradition, an educational model we call "knowledge and technology transfer". Public and private institutions often approach our school and ask us for feasibility studies and design proposals for a very real problem such as local planning or architectural projects they need solutions for. These tasks will then be explored in our design studios and a fee will be charged for the outcomes. This has provoked a great deal of discussion amongst our staff as to whether this is a good practice or not. From a didactic point of view, I believe students learn quite a lot by having direct contact with a real client. Our politicians oblige us to become more financially self-sufficient. So this is how we

take on the challenge. The productive exchanges with local authorities and private enterprises prepare us for our professional future and thus I believe are to be encouraged and intensified.

6. Create a relevant curriculum

We have all been – or are - going through an accreditation process. This results in our curricula getting more and more similar. However, it is our task to widen the horizon within the academic framework. At the moment, it is imperative to develop answers to a lot of questions regarding socio-ecological sustainability. Thus, we teach students right from the beginning of their career that the future is not a low-energy building but an energy-gaining building. On a master level we concentrate on sustainable building design, on sustainable urban design and in architectural design theory in three study specifications. Research in ecological sustainability is complemented by the reflection about our critical position within architectural theory. With this we hope our graduates know who they are, what they are doing and why, as well as what their role in history and society is. Through assessed internships consisting of 10% of the required workload we train graduates for practice. In addition, we open up the ordinary curricula through yearly workshops: for an entire week students are able to explore all different kinds of other disciplines like dance, film, industrial design, poetry, theatre, music, cooking, literature and many others through socially engaged themes,

Over the last ten years we had many discussions about how schools should have a unique selling proposition (USP). I am not so sure about this issue. I believe the best profile a school can have is extremely motivated staff and enthusiastic students, keen to teach and learn and who are not afraid to express what and who they are as architects.

7. Strengthen the relation between research and teaching

Here are a few research examples from our Institute:

a) Our sustainable building chair is trying to combine a heating radiator with a window. We are very close to resolving the problem and to producing a window prototype, which can gain energy from the sun, can heat and cool the buildings when required. This is a technological approach.

b) The sustainable urban design chair together with 5 other Universities pose the question if and how we can live regionally without imported energy as well as developing ideas for the consequences to the built environment and transport systems.

c) Another group researched a very real parking problem in residential areas. At our University we have the common problem of too many cars on our campus during busy events. Adopting systems from airport facility management and learning from airlines like Swiss, Lufthansa or Olympic Air we could increase the prices for parking at peak times and have drivers informed by SMS about availability. We have developed the technology in collaboration with a specialized company and we now promote the system in the region. This means that if we can manage parking through "dynamic park-pricing", we could save about ten million Swiss Francs for 200 planned covered parking places and could even earn money with this system.

These three examples show the sort of research we work on. Unfortunately, the knowledge gained is not yet being successfully communicated and applied in society as well as our teaching. This challenge still lies ahead of us.

8. Promote a flexible creative learning environment

Sometimes images say more than many words...

David PORTER

Head, Mackintosh School of Architecture, Glasgow School of Art, Glasgow, UNITED KINGDOM

Exporting Design Intelligence

Can architecture become a net exporter of ideas and ways of thinking rather than an importer? Or, put another way, can we reverse our balance of (intellectual) trade?

We architects have imported from philosophy, linguistics, critical theory, science… the list goes on. People from other disciplines are often interested in architecture and how we do it, but we don't export our way of thinking to them, despite their interest in us and in what we do. In fact, we are really bad at explaining what we do.

My proposal is this: that we can export architectural thinking and do it as a form of design intelligence. But I want to firstly explain what I think Design Intelligence might be and then, why there might be a market for it.

To set the scene for talking about Design Intelligence I want to go back 6.5 million years and look briefly at the evolution of human intelligence in general. This was the moment when chimpanzees and humans split as species from the same ancestor. We then evolved as human beings and were, in almost all respects, what we are now when we emerged from the last ice age about 11,000 years ago. At this point we were one species among many – interesting but not a dominant one. For a visitor to Earth at that moment there was little to indicate that we were about to inherit the world. Our population explosion was yet to come, let alone the increasing dominance of our species above all others and we were yet to start of the adventure we call "civilization".

Our ancestors in the new (post-ice) age of relative climate stability had, to all intense and purposes, the same limbs and sense organs that we have now. Despite the exhortations of unfettered modernism that each new technological invention from the wheel to the mobile phone would radically transform us, we have, in biological terms, remained pretty much the same. Our relationship with the world has been mediated through organs that have, in evolutionary terms, changed very little since the "dawn of civilization".

In physiological terms, our ancestors who set about creating civilization – writing, domesticating animals, inventing agriculture and increasingly sophisticated tools – worked pretty much with the same brains that we have now. But since then, we have learned to use them very differently, progressively exploring and utilising the huge brain capacity that we inherited.

The brain we had 11,000 years ago (and have now) is, however, very different to the one we had when we split from the chimps. It is four times bigger. It is so big that it absorbs 20% of the calorific value of our food intake although it makes up only 2% of body weight and it consumes energy at 10 times the rate of the rest of the body.

We know how this radical increase in brain-power took place – evolution through natural selection – but we can only guess at why. What is sure is that the evolutionary advantage of our brains placed us in a position where we could take the process of evolution into our own hands (or hemispheres). For the consequence of evolution's gift to us of hugely increased brain-power was the ability not just to learn, which many organisms can do, but to learn how to learn, indeed, to learn how to learn how to learn. Not just to think, but to think about thinking, and think about thinking about thinking. We grew the means to evolve without biological change, and to evolve much more quickly. I will make the case that we developed what I will call design intelligence: the means to anticipate changes in the world through making new things in it and for it.

Two hundred years ago we began to develop our analytical skills with increasing speed predominantly through the use of written and printed words and numbers, our most important analytical tools. The ideas of a small number of what we began to call scientists spread beyond boundaries. We interbred one analytical skill with another as we evolved. We invented science and the speed of our evolution grew massively shifting our whole relationship to the world. We started the industrial revolution. Again, it spread and proved impossible to stop.

Our ability to analyse far outstripped our ability to synthasise for which we still relied on art, magic and religion and architecture too which, in its essence, predates the enlightenment and still, like the other arts of synthesis, maintains a hold on our imaginations through our relatively unchanged senses. Our response to ancient buildings remains, at a deep emotional level, intact even if our interpretation or rationalization of the emotion is new.

Our ability to analyse the world far outstripped our ability to organize ourselves socially within it – the American Constitution comes at the beginning of the scientific revolution and has been amended but not fundamentally reconsidered. The means to organize our civil society and body politic come from the Enlightenment, which provided the fertile ground for an increasingly voracious bureaucracy. The tools for social synthesis were developed for the past and are struggling to cope with the present, let alone the future.

Then, sixty years ago we invented computers – another evolutionary step – and massively increased our ability to store, exchange and organize complex data, and communicate it. As we invented artificial intelligence, our own natural gifts came under the spotlight - we invented Intelligence testing – we started studying our own thinking and measuring it – our IQ or Intelligence Quotient. It was first thought that intelligence was a single measurable characteristic but Howard Gardiner at the Harvard Graduate School of Education proposed there are in fact multiple intelligences[1] that we all have in varying degrees and with varying degrees of overlap. Each of these "multiple intelligences" conforms to a single definition but in different ways. Gardiner's definition of an intelligence is this: *the ability to solve problems or create problems or create products that are valued within one or more cultural setting.*

Gardiner has identified seven types of intelligence: Linguistic; Logical-mathematical; Musical; Bodily-kinesthetic; Spatial; Inter-personal and Intrapersonal. The first two were, in the early days of IQ testing, seen as one. They comprised the major analytical tools that came to dominate the 18th, 19th and 20th century, so it is unsurprising that they were seen as the singular measure of what a brain should be able to do in that era.

1 Howard Gardner: Intelligence Reframed, Basic Books, New York, 1999.

The final two have been popularly considered together as "emotional intelligence". But where does this leave the three in the middle? As designers we can feel a little envious of musicians for being able to claim an intelligence of their own. Clearly the bodily-kinesthetic intelligence of a ballet dancer or soccer player would seem to have little transferability into the realms of day-to-day designing. That leaves Spatial Intelligence that Gardiner defines as follows:

> *"features the potential to recognize and manipulate the patterns of wide space (those used, for instance, by navigators and pilots) as well as the patterns of more confined areas (such of those of importance to sculptors, surgeons, chess players, graphic artists, or architects). The wide-ranging ways in which spatial intelligence is deployed in different cultures clearly show how a biopsychological potential can be harnessed by domains that have evolved for a variety of purposes."*

Leon van Schaik, professor of innovation at the RMIT, suggests that architects skills reside within Spatial Intelligence[2]. A good argument, but it suggests reducing our interests and our claims, including claims made through our emotional reaction to the physical nature of architecture, not just the spatial. It seems to me that spatial intelligence would down-play the importance of making, as a physical activity that, like a ballet dancer's understanding of the world, is partly through muscle and movement. *The experience of making* leaves a residue of things experienced through the hands in particular and the body in general – it is embodied and helps us make sense of our world. The fact of making is the fact of adding something to the world – however small and seemingly trivial. Making something in the world adds something to the world – it makes a difference. If this is the case, then spatial intelligence may contribute to design thinking but does not fully encompass it.

What I therefore suggest is that there is an 8th Intelligence – *design intelligence* – that includes within its scope architectural design. It is a form of intelligence that combines the spatial with the lingering sense of physical making that is capable of reconciling an otherwise irreconcilable set of human activities. It does so creatively, where the metaphor of making encompasses the aesthetic dimension of physical engagement with the notion of adding to the world.

In suggesting design thinking as a species of intelligence I want to make a point about the boundaries of this intelligence. Within this boundary lies the extraordinarily diverse range of activities that comprise normal architectural practice such as the range of competencies demanded by EU Professional Qualifications Directive. This is what we normally talk about here in Chania, but we do so without recognizing what a really strange and incongruous list this really is. To remind us, the list includes knowledge of the following: *the history and theories of architecture and the related arts, technologies and human sciences; of fine art; of urban design, planning and the planning process; the relationship between people and buildings and buildings … and so it goes on, through to structural design and environmental science; economics; management and law.*

We have grown used to this list. We take for granted that the list makes sense. We have grown so used to the idea that these very diverse areas of knowledge and expertise somehow belong together "naturally". But looked at more closely, we have to ask: "What does management and law have to say to fine art, or fine art to management and law?" Outside the world of architecture I suggest there is little or no discourse between fine art, management and law. "What

2 Leon van Schaik: Spatial Intelligence: New Futures for Architecture, John Willey, New York, 2008.

does structural design have to say about the relationship of people to buildings and buildings to their environment?" Again, for most of the rest of the world, I would suggest they are simply incompatible. Studied analytically, I would suggest that the only common link between the things listed in the Directive to say that *architects do them*. We have developed, over a long period of time, a form of intelligence that can reconcile areas of knowledge and practice that are, at any level of deep thought, simply irreconcilable.

It is as if all that makes architecture – it's alchemy – is the part of our intelligence that predates and has survived the scientific and bureaucratic revolutions – it is the "magic" that makes reconciliation possible. It has only survived into the modern age because, like magic, religion and the other arts, there seemed to be a need for it and so it has remained, albeit in a state of increasing marginalization. We have survived because our way of thinking that brings together spatial intelligence with the metaphor of making, predates and survived scientific analysis and the subsequent instrumental rationalism.

It is this design intelligence that allows us to perform magic. Working with us, our students develop this intelligence too, so they too can find a creative reconciliation between these barely understood parts and, more than that, they master this list well enough to *"create architectural designs that satisfy both aesthetic and technical requirements",* and do so in around five years. It's a miracle - we would say that such a thing is surely impossible, except our students somehow do it! I call this an intelligence because it does what Gardiner asks of an intelligence, it shows *the ability to solve problems or create problems or create products that are valued within one or more cultural setting*. If we do not call it an intelligence then we perhaps should call it magic or alchemy?

The evidence that we can perform this alchemy resides in the evidence of practice. If considered as magic then it cannot be advanced let alone transferred into other areas of human activity where it could be useful: social organization, environmental policy and politics for example. But if we consider it as an intelligence, then we have the tools, for example through cognitive science, to understand better what we do, what our intelligence is capable of, and do so in the terms of our own practice. And do so in a way that helps us explain to others what we mean by designing, what we can achieve with it and its potential, not to answer all the problems of the world, but to contribute to a better understanding of them, and to suggest modes of action.

We have something to tell the world and sell the world beyond wonderful buildings.

Postscript:

On the flight back from the session, I read Marvin Malecha's contribution to last years conference where he said this : *"I think the true power in what we are doing is to teach people to think differently… you cannot pick up a business magazine today in America without understanding that it is design that is important, that it is the creative process that separates one project from another. The Harvard Business School is writing more about the creative design process now than any other educator in the United States".*

As we used to say in the 1960s – Right on Brother!

Christian VAN LANGEN

Head, Rotterdam Academy of Architecture and Urban Design, Rotterdam,
The NETHERLANDS

The subtitle of this meeting points at a very true fact: we are living in an era of uncertainty. Of course, the current situation asks for lifelong learning and creating space in our curricula for a diversified student population and adult learners that return, as is put forward in the discussion paper. But before we even start to discuss those rather easily achievable matters, we really have to widen our perspective.

In fact, stating that this is an era of uncertainty is just putting it mildly. In fact one could claim that the world, or better still: humanity, is at war. At war with itself. Even when one casts only a shallow glance at the world and the current situation, one cannot but admit that we are facing a stacking of crises of the systems we have devised for the world: an economical and financial crisis, an ecological crisis, a cultural crisis, a political and institutional crisis and a social crisis.

All these crises together, and their effects on each other, form the most relevant new context of architecture, urbanism and landscape architecture, thus for architectural education. To hint at just a few aspects, one could think of the fact that the economical crisis will result in less architecture and thus less architects. But also in the need for interventions in existing building. The ecological crisis also hints at re-use, but at the same time asks for smart buildings and cities. This smartness demands a stronger focus on process, which at the same time is needed in regards to the institutional crisis. I could go on like this, defining effects of the crises, for hours.

In short, the stacking of crises demands an intelligent response from mankind. As I firmly believe in the power of architectural landscape, architectural and urban design, I really do think that designers, making use of the creative and fuzzy intelligence of design, can and have to contribute to facing the current crises. At the same time I am convinced that the contribution of designers, no matter how relevant it may be, only forms a small part of the possible solutions. Besides being proud of the power of design, the acknowledgment of the enormous width of the crises leads to the necessity of modesty among architects, urbanists and landscape architects. The new contexts defined by the crises of the systems indeed urge, as is stated in the discussion paper, schools of architecture to become open and collaborative.

Architecture, urbanism and landscape architecture, and thus schools of architecture, have to become open to the mechanisms and consequences of the economical, ecological, cultural, political, institutional and social turmoil. Open in a very instrumental sense: we have to invite the knowledge of these mechanism and consequences, or better still: reality, into our curricula.

This is crucial for two reasons. On the one hand it will help our students to develop a firm awareness of and sensitivity for the societal crises, the mechanisms underlying them and their consequences. From there on, and from there on only, they as future architects, urbanists and landscape architects, will be able to define the true impact of reality on their work and to operate fruitfully and effectively within this new context. On the other hand it is crucial to be able to develop new architectural tools, instruments, strategies and ways of thinking to deal with the (spatial) tasks arising from these crises. At the centre of this openness, which will have to

go beyond a preconceived idea or judgment of good and evil, lies the concept of design as a tool for thinking the possible through reality.

First and foremost it is, or should be, totally clear that within the current complex situation, where the different crises are interrelated in manifold ways, just as the underlying mechanisms and the consequences are, and understanding the modest, but relevant role architectural landscape, architectural and urban design can and must play in dealing with those crises, it is crucial for our disciplines, and thus for schools of architecture, to collaborate with a wide range of others: professional practitioners in our own fields - because nowadays a large part of disciplinary inventions are made hands on within reality -, representatives of other disciplines - like economists, sociologists, ecologists etc. etc. -, representatives of public and private bodies and, of course, the daily users of buildings, cities and the landscape.

Together with them, we have to work on redefining and constantly testing our curricula, in order to soak them in reality. But during this process we must never forget that the only way architecture, urbanism and landscape architecture can contribute to facing the current crises is through and by making use of the tools of the disciplines. So, the starting and final point in defining our response to these new and ever changing contexts should be the design craftsmanship within the domains of architecture, urbanism and landscape architecture. But the current crises make clear that the content of this design craftsmanship has to be enriched. My hypothesis would be that we, within our curricula should strive for what could be called embedded design craftsmanship.

Koen van de VREKEN

Dean of Department of Architectural Design, Artesis University, College of Antwerp, Antwerp, BELGIUM

Trying to answer the question how the school delivers the education programmes and the demands of what architecture has to do, I would like to draw your attention to the question that has been posed: "what are you doing in your school?". This evolution in Belgium is the consequence of three important decisions made by the authorities. The first is that education in architecture is henceforth classified as an academic discipline, which means research-based education, whereas in former years it was seen as a professional education. The graduates obtain the diploma of Master of Architecture and at the same time we have seen the professional degree start to disappear. In fact, the Diploma in Architecture that was intended for the profession of architect has now disappeared. A decision taken a month ago by the authorities was that all Schools of Architecture formerly known as the Higher Institutes have to integrate with the universities. This means that due to this new policy, Schools of Architecture will be able to focus on their core business; for us that means design of the built environment and architectural research. This also means that there is no longer a focus on the profession of architect. On the other hand, there is a trend towards greater diversification in the profile of the graduates. When we look at the ratio of professional architects to Master's architects, then we can see that there is a decreasing ratio in the former and an increasing in the latter. This means that more graduates are interested in working as civil servants, as contractors, business people and so on.

Another trend is that over the last years we have seen a huge increase in the number of independent architects who drop out after five or ten years' professional practice. So we have the assignment to look at these types of future positions for our graduates. At the moment we are negotiating between the Schools of Architecture and our Order of Architects. The Order of Architects has three assignments. The first of these is the registration of all professional architects, but not those with a Master's in Architecture. The second, which is the control of ethics, is not so important in this discussion. The third is very important and considers the organisation and control of apprenticeship in professional experience, which lasts for at least two years.

The subject of negotiation that we now have to agree on is the division of tasks between architecture and business; this means the task of education for the schools and the task of formation, which is a task for the Order of Architects. The basis for this agreement is a list of competences made by ACE and also other professional bodies such as the British and Irish. This list forms the basis of these negotiations. First, we translated it and then adapted it to a Belgium context. The list consists of a number of competences found in different fields of knowledge, such as culture and human sciences. Next is the level of competences, of which there are seven levels. The level of competences is now directed by the negotiations: we have levels from A to F. When there is no difference between the levels, clearly the knowledge has to be given by the schools. For the professional practice, when we looked at the field of business and professional practice, we saw there was a large difference between the competences graduates have to fulfill and the competences after two years of professional experience. So this data showing the difference between the school and the experience programmes

now becomes the programme and the task for the Order of Architects. This is very important because specialised courses can now be delivered by professional bodies, management schools, engineering schools and research institutes but now, at last, the Schools of Architecture can apply for some parts of the formation, but now on the basis of free choice. This will probably be in collaboration with others.

In this collaboration, experience and research output will be gathered while the institutes can manage the cost of lifelong learning. The value of lifelong learning is, in my opinion, underestimated. What are the possible results of this new evolution? Schools of Architecture are able to make more priorities in the development of the nexus between research and design education, which is for our school a very important priority. The second result is the relaxation of the curricula due to the omission of occupational training: we will no longer be responsible for occupational training. The third and perhaps most important result may be the increase in student motivation because there are many students who are not interested in a future as professional architects. These students will no longer be judged on formation in professional practice. A fourth result will be that the professional practice changes, now using a framework not only by the school where authorities or clients use teamwork and so on. The system is also adaptable to lifelong learning, which is an important advantage. Finally, the schools is not obliged to offer the two years from professional training to PhD programmes. I think that they concluded that it is not possible either for the schools or the graduates themselves to take this on.

Debate

James Horan, Dublin, Ireland

We can see that the area of this context is complex. The impact on the work that we do as educators in architecture is growing in this level of complexity.

Jorgen Hauberg, Copenhagen, Denmark

There has been variety in this complex situation and I really enjoyed the fact that they have been exploring this in different ways. We are, like many of you, in the process of looking into the crystal ball and thinking about what our challenges may be and how we should deliver education in architecture for the next ten years and even a hundred years. I would like to raise a couple of issues. I would like to go back to the context of global challenges. My previous rector at Imperial College in London claimed that a third of all the students we are educating today will have to work with global challenges: energy, natural environment, water, housing and habitation. I am not sure if we are truly focusing enough on this area, if we are preparing our students for this. Another of the issues a number of people have mentioned is that we need an interdisciplinary approach. As part of a large university, we feel that we can claim to have an interdisciplinary approach in the field of architecture. We see that we have to cooperate with other specialists and with other fields of knowledge where we can have a fully interdisciplinary approach across the disciplines. There is a number of issues.

We see that we really have to develop this understanding, this interdisciplinary approach both to education and research. Normally you need a thorough and solid basis with a specialist in this in order to do research with a lot of dedication to a multi-disciplinary approach. I think we should focus more on this issue. One of the challenges for those of you who are Head of a School is to recruit the correct people. People have also spoken about the fact that the quality of a school is based on the students and not least the staff, the professors and those teaching, based on their knowledge and their enthusiasm and their attitudes. I think that as for staff and recruiting, I see from the department and the faculty that it is very important how we build up a basis of competences for the staff who might be staying for ten, twenty, thirty, forty or even fifty years. They belong to the faculty. We must be very active in this area. The dynamics we see within the changes in society are not really reflected when we come to choosing the staff, so I think that is something which should be added to this discussion.

Trevor Harris, Helsinki, Finland

What I wanted to say, especially to Rogier van den Berg, the speaker from Rotterdam, is that there is another ingredient that we should put onto the agenda and that is the idea of risk assessment. All too often, both our research programmes and architectural programmes are all the time making the fairly sweeping assumption that they should be aimed at making the perfect course, the perfect agenda, the perfect curriculum. I think that it might be a wise idea if at least part of the budgets were set aside for risk taking. By this I mean that in view of some of the challenges and the complexities that are coming up some of which we do not even know about, I think we have to be prepared to push the boat out a bit further and not

always play safe with architectural education, especially at Master's level. This idea of treating educational processes in the same way that maybe the business world treats risks is something worth considering because I do not think we have all the answers and I do not think we ever will have. Our search for some ill-defined and very hazy idea of what the truth is, is I think something of an illusion. That is why today's education needs to tackle and incorporate risk as a factor in our educational system.

Alexandros Tripodakis, Chania, Greece

I would like to go back to the point made by Christian van Langen concerning reality. I also tend to think that architecture and architects have been away from reality for quite a long time and that their contact with society and the public and with people at large has not been the warmest one in the last decades. In some countries, like in my country for example, people know very little about architecture in the world: they have not been moved or they have only been moved to a very small degree by architecture and what architects think, plan or design. But things have changed so drastically now. To this economic crisis one can add a couple of other things: the price of values, the price of ideas and so forth. We no longer have the luxury of abstaining from or of acting like mere spectators to what is happening around us, secluded in our academic worlds. It is a matter of moral and social responsibility to participate, to be critical, to be active. Of course we plan and design for the future, but before the future comes the present. There are things happening in our countries, in my country, every day. Tremendous decisions are being taken every day, every week and the Association of Greek Architects reacts only up to some point. The Schools of Architecture react only up to some point and society wonders more and more: what is an architect? What are they doing? Where are they? All that affects the curricula, it affects the role of architects and their future. The way we are going to treat our students is to make them firstly aware of this crisis and how strongly they affect architectural education because there is also this fallacy that we design buildings, but we do not have anything to do with the ideas, the values, and corruption and morals and ethics. But it is the other way around: we cannot be architects if we are not humans, if we are not ethical! We cannot design for people if we do not feel what is right and wrong for people and for society. So I believe that we have to turn from an architecture of the isolated object, the self-centred narcissistic building, to an architecture for the community. That leads to a series of other repercussions like, for example, the fact that urban design and architecture could get closer and not be separate fields. They belong together, one is directly related to the other. You cannot design a good building if you do not have a sense of the common context. That is only one example concerning architectural design. More importantly I think the general framework of how a student thinks about architecture should be broadened and made more sensitive to society, its priorities, values and concerns.

Juri Soolep, Tallinn, Estonia

My complaint is about learning outcomes. This is a personal experience that I had to go through: over the last year we all went through writing, re-writing our curriculum into learning outcomes. I suddenly felt that I had been doing a full year of work that is very scholastic. Of course we can do it but the Directive itself is already an outline of learning outcomes. If we fragment that even further, there is a certain point where you lose a sense of being an architect educating

an architect: it becomes a box-ticking exercise. This is my complaint and I would like to warn you about it that we cannot fragment it. The other thing about it is that it is trying to turn us towards consumerism: instead of old-fashioned teaching and learning, we are coming closer to providing and consuming. This is right, of course, if we think of knowledge and skills, but it also takes us away from that essence of being an architect, of being educated into becoming an architect.

Karl Otto Ellefsen, Oslo, Norway

Talking about crises, I think it is quite right to say that there are lots of crises and we could talk about them in different ways. Yet what is important is - and here I come back to these policy documents that different kinds of governments, cities and organisations develop in most countries - that these policy documents do not talk about what architecture means, which we used to talk about quite a lot, but they talk about what architecture can do. I find a much more optimistic attitude towards the potential of architecture than I find talking to architects or to Heads of Schools who are very pessimistic at the moment. I feel that this is the way you view the world, the way you make your choices. Yet you could even say that we are currently in a position which may be compared to the situation after the Second World War in Europe where the tasks were enormous and money very scarce. But there was a huge demand for the knowledge in architecture: that is the situation right now as I see it. We can call it "design intelligence", we can call it whatever we want, the word "intelligence" is fine, but I would add to that our ability to read society; but "design intelligence" is a very good phrase. Architecture can do many things for society, we may not always be paid, but we have a potential here which is enormous in the situation in which we find ourselves right now. The environmental crisis creates a situation where there is an enormous need for architects with the right kinds of skills and knowledge. This is the situation and this is another way of looking at it. Perhaps it is because I come from a country flowing with money, perhaps that is why I have this optimistic attitude, but I think this should be the general European attitude at the moment.

James Horan, Dublin, Ireland

We have heard a series of comments from many people, both this morning and this afternoon. To me it is clear that the complexity of what we are dealing with is increasing. It is increasing both in terms of impositions from the outside and also the rigour that we ourselves bring to the job. When you add those two together, we are dealing with an exceptionally complex environment. When I realised that I would be chairing this session this afternoon, I felt that it might be very difficult to try and draw a strand out of the conversation that might somehow bring the session to a conclusion. Yet I am going to try to do that. Before that, however, I want to explain a word in the English language which has fallen into disuse and which is one we do not come across very much any more. This is the word "pail", which is in fact a bucket. It is a word you do not hear very much. In the last century you might hear about the milkmaid going down with her pail to milk the cows. The reason I am explaining this is because I want to use a quotation to finish off in which that word occurs.

Before that, having heard a very broad spectrum of comment and having realised the depth and richness of the subject we are exploring, there seems to be a single strand that I can just

about grasp in the middle of all this. I believe it is the strand that will be true, irrespective of the context and how complex it becomes and how much it changes. This morning, I referred to the comments from Hansjoerg Hilti that he remembered people, not the lesson. I think that we remember our colleagues and students of architecture remember their teachers. In some ways, the message may change slightly from time to time, the context in which the message is delivered changes all the time, but the people who are delivering it can very much be the same. The impact that they make on others can be just as significant, irrespective of the complexity of the message. With that in mind, I think that as educators, we have this extraordinary responsibility to interact with those we are assisting in the educational process. I even hesitate to use the word "teaching", because teaching implies that somebody knows something and they tell it to somebody else. However, that is not what is really happening. What is really happening is that there is a dialogue going on between those who think they are teaching and those who think they are learning. Out of this teaching and learning interaction, it is a two-way street. The quotation that I would like to finish on relates to the importance of the people delivering this task. I refer to W.B. Yeats's comment on what education is. Earlier I said that education is what is left over when you have forgotten everything else that you have learnt. Yet Yeats was much more specific because he was talking about the enthusiasm, the intensity and the commitment of the people who are involved in being educators. He said: "Education is not the filling of a pail; it is the lighting of a fire."

Reflections

James F. HORAN

Looking back on the Chania meeting of 2010, and in particular on the Second Session dealing with New Priorities, New Context. It is quite clear that this is a multifaceted topic which can be perceived from many different positions, and the opinions presented at the Chania meeting reflect this.

There can be no doubt whatsoever, that decisions which may be made regarding the context, the priorities and the future of architectural education will be complex and will involve changes in both how we think and how we implement those thoughts. It should be borne in mind however, that there is always a danger of confusing forward thinking with trying to second-guess the future. We need to retain mental agility around this subject.

The various speakers during the Second Session provided gems of wisdom and words of advice, and a variety of indications of what might be appropriate for the future. They were cautious not to attempt to make a type of homogenous architectural education across the European Higher Education area, and to cherish the differences and the richness that currently exists. They asked us to consider developing a greater sense of social responsibility and interaction with wider communities, addressing real problems in the studios of the Schools, thereby preparing our graduates for a life in the real world. We were reminded of the importance of the political aspect of education and the need to be aware that "Ivory Towered" Academics, while interesting from an academic viewpoint, are perhaps not the best placed educators to engage with the type of problems that the world, and by extension architectural education is currently encountering.

While being conscious of, and appreciating this changing landscape, it is also necessary for educators to remain continuously aware of what they are good at - teaching in a unique way - and to continue to do this albeit in a changing context. We must not lose sight of the aspects of our educational programmes that have stood the test of time and old ideas should not be merely abandoned because new ones have come along.

The way we think and the way we teach is of prime importance. The mental processes associated with designing allow conclusions to be reached in areas where the influencing factors are both numerous and complicated. There is a real opportunity for the thought processes which have been traditionally associated with architecture and architectural education to be communicated more widely to other disciplines, thereby sharing these unique ways of thinking with the larger community. Architects and Designers have always thought in a way which is different from many other disciplines and that thinking process is being continuously refreshed through dialogue, and the sharing of ideas within the architectural community. It is important that these ideas go beyond that small community of individuals into the wider society.

The academic can no longer regard themselves as stand alone entities that do not need to engage with others outside of their immediate community. Society is almost demanding of those involved in design to communicate and share their thinking and their working methodologies. Architecture should become an exporter of ideas rather than producing thoughts intended only to be consumed by the 'home market'.

The architectural community should develop synergies and strong partnerships. The interaction with other groups can only serve to strengthen and reinforce the thinking processes.

The Canadian Philosopher, Bernard Lonergan, refers to the thought processes with which humans engage as "second order reflection". This is what David Porter refers to when he speaks about "thinking about thinking". I would go further and say that the lateral thought processes that are so commonly found in the work of Architects and Designers is a further development in how to deal with multifaceted and complex situations and concepts. The problems that face society today are numerous and extremely complex, and these problems appear to interact with each other to make them more complicated still. The thought processes and the taught processes within architectural education can be of significant benefit if we were prepared to share them with a wider community. Perhaps we are guilty of believing that we must keep our ideas to ourselves if we wish to preserve our position. This is like the architectural student who does not wish to share his project with others for fear that his ideas may be stolen. This can be a type of stagnant thinking. Invariably the discussion about those ideas and the sharing of them with others will result in improving, strengthening, and bringing more clarity to the original thought. Our best bet for the future lies in partnerships, partnerships in thinking, partnerships in teaching, partnerships in practice, partnerships between teaching and research, partnerships between practice and innovation, local partnerships, national partnerships, international partnerships, multicultural interdisciplinary partnerships. Let's celebrate what we have and share it.

Session 3

New priorities, new competences

The architects we are educating today will arrive at their professional establishment at least after ten years. Is it possible to preview their necessary profile now? More and more such a prediction becomes difficult taking into account the fact two years ago it was not possible to predict that one out of four architects will be unemployed today. This is why schools of architecture are actually rethinking the more or less fixed profile they tended to create during the past years.

If there is a question of a new, unpredictable, profile of the future architect what has to be our strategy for the learner of today?

Which are the most significant competences that this architect has to fulfill in order to be able to adapt in the fast evolving society?

What is the fundamental knowledge and skills she or he has to acquire from the education in order to become a competitive and successful architect?

Which are the strategies of our schools of Architecture regarding this major issue?

Chair:
Loughlin Kealy, Dublin, Ireland

Introductory panel:

Richard Foque, Antwerp, Belgium
Loughlin Kealy, Dublin, Ireland
Lorraine Farrelly, Portsmouth, United Kingdom
Herman Neuckermans, Leuven, Belgium
Stephanie Eickelmann, Münster, Germany
Lucyna Nyka, Gdansk, Poland
Torben Nielsen, Aarhus, Denmark
Georgios Panetsos, Patras, Greece

Introductory Panel

Richard FOQUE

Professor Emeritus and Honorary Dean, Chairman University Press Antwerp Antwerp, BELGIUM

Introduction

Over the last decades the profile of the future architect has changed dramatically and will continue to do so at an increasing pace during the years to come. There are several reasons for that. They all have to do with fundamental shifts on the socio-cultural and economical level, which occur simultaneously, having a synergetic effect on a global scale. There is the accelerating technological innovation and the growing ecological and environmental consciousness, which goes hand in hand with the internationalization and globalization together with irreversible political and economical power shifts. There is the popularization of information via internet and their direct socio-cultural implications.

It calls for a changing view on the architectural profession: from a micro level to a global macro level. It necessitates an evolution towards integrated practices and integrated design processes based on an interdependence of research and practice. As a consequence new competences will be necessary. The schools of architecture must be aware of this and have a great responsibility to produce graduates, who are mastering those new competences.

New competences for the next decades

I can see five domains in which new competences are needed to fit the changing profile of the future architect. These domains are:

- The domain of professional attitude
- The domain of transdisciplinarity
- The domain of global awareness and contextual thinking
- The domain of research based design and research by design
- The domain of Leadership

Professional Attitude

It is fundamental that the future architects must have an increasing awareness of professional knowledge, which is at the same time case-based, evidence-based, and performance-based. It involves continuous learning and research to build an adequate knowledge-base.

It is important to learn to think as an architect: contextual, inductive, intuitive, pragmatic, analytical, and synthetic, and to know that architectural design is at the same time problem seeking and problem solving.

A professional attitude demands at the same time for a strong ethical conduct.

Transdisciplinary Approach

A transdisciplinary approach should be based on a collaborative culture and intellectual attitude: the ability to rise above one's own profession and engage with the global issues.

It calls for a systematic Interaction of knowledge and understanding of approaches and methods of the several disciplines involved. But at the same time it needs the competences to incorporate specialized knowledge into a comprehensive body of integrated knowledge, thus creating synergy.

Moreover, a transdisciplinary approach can only be successful if it relies on a global system of values and choices and is driven by critical and reflective thinking.

Global Awareness and Contextual Thinking

Integrated design thinking is based on integrated design knowledge. It involves awareness of economical, environmental and social sustainability. It involves the competence to evaluate and judge the design impact, and the capability by the architect to search for maximum added value for all stakeholders. At the same time the architect should be aware of all the relevant relationships and responsibilities and be able to put one's own position into perspective.

Research-based Design + Research by Design

The architectural discipline distinguishes between different modes of research: Basic research, applied research and use-inspired research.

This research can be technical: research for design; can be social: research into design; and can be embedded: research through design. At the same time it can be fore-grounding as project based research, back-grounding as practice based research and a combination of both, profession based research. Current ongoing research belongs to four domains:

- *Domain of architecture*: such as architecture theory, urban planning, user needs, building occupancy.
- *Domain of the humanities*: such as history, psychology, social and environmental sciences.
- *Domain of building technology*: such as building performance, energy, new materials, construction methods, product development.
- *Domain of information technology*: such as BIM, digital fabrication, simulation and virtual reality, gaming, integrated project delivery.

But new domains of research are emerging. They have a much more interdisciplinary character, a growing complexity of changing variables, and a global perspective.

Examples are: Adaptive re-use, bio-inspired architecture, interactive skins, self-organizing systems, temporary structures, off site fabrication, urban ecology, building automation processes, data-enabled technology, design of social space, and parametrics.

Leadership

True leadership is based on both IQ and EQ. It needs courage, imagination, and ethical conduct. It involves the capability to envision the future, think strategically, frame opportunities, create possibilities, and define directions.

A true leader teaches by example: he is a mentor and role model for a future generation.

Changing Architectural Education

If architectural education wants to grant that its graduates have the competences needed to face the changing profession, it must be research based and professionally anchored. Moreover it should be sensitive to the changing value systems in a global world. This means that it should provide for competences enabling the understanding of individual and societal value systems and to understand cultural differences, underpinned by a strong ethical conduct.

With respect to the discipline related knowledge and skills, the graduates must know that this knowledge is multilayered and they should have the competence to understand and build own expert knowledge on the one hand and on the other hand to understand the relevance of knowledge belonging to other disciplines and the ability to Integrate and apply these knowledges in a design situation. This means that they should have the ability of Interdisciplinary and transdisciplinary thinking and be aware at the same time that architectural knowledge is not universal but subject to individual interpretation.

With respect to the design process the future graduate should understand the systemic character of a design problem and have the ability to operate within it. He/she should understand the relevance of the design context and ability to integrate it, be aware of the pragmatic and contextual character of the architectural design process and have the skills to use the proper methods of design communication and the ability to apply them in changing environments.

Designing is alternating between analytical exploration and synthetic problem solving, it is innovative, heuristic and experimental, and at the same time it is problem seeking, problem transforming and problem solving. Therefore architectural education should provide for the understanding of the transformational character of architectural knowledge, its value sensitivity and its bipolar character. It must train the graduate to be able during the design process to alternate between internal reflection and external validation as a prerogative for critical design thinking.

Finally the young graduate should have the competence to understand the methodology of both science and art and have the ability to integrate these into design thinking in parallel processes.

Loughlin KEALY

Emeritus Professor, School of Architecture, Landscape & Civil Engineering, University College Dublin, Dublin, IRELAND

This session is inevitably focused on learning, and by way of that, on the activity of teaching. It is well recognized that the focus on learning is something of a challenge for many educational institutions. Curricula are most often defined and understood in terms of their subject matter and the presumption is that the curriculum describes what is on offer – that a student will learn what is described in the syllabus. It is also "natural" that teachers want their students demonstrate learning in areas that the teacher knows – what the teacher has processed from their own studies, their research and their experience. When the focus moves towards to what a student learns, the ground becomes more uncertain. And when we introduce the uncertainty that characterizes our time - the uncertainty concerning what knowledge will be useful in the unknown future - then another imperative emerges: that the learning process has to be such that students can move beyond what they have learned and are able to address situations that, at the time they are learning, cannot (or perhaps only vaguely) be anticipated. This is not a new dilemma, nor is it confined to architecture. We know all this already.

In thinking about learning (as a way of thinking about kinds of teaching) I find myself reflecting on the nature of knowledge in architecture at present, even as I try to imagine whether it might apply to the future. Even before it became commonplace to discuss the existential uncertainty underlying education, there was a developed awareness among educators that knowledge gained today would be out of date tomorrow. That one had to continue to learn throughout life is a truism that derives from that realization. And that truism is accepted (at least in theory) across all disciplines today. So our discussion is not just about the ability to continue learning throughout life.

In this assembly we think about a future we do not know, although it has already cast its shadow. As soon as one goes beyond what one knows one is inevitably talking about what one believes or hopes.

So let me state my belief: the core competences of architects for the practice of architecture in the foreseeable future will not be radically different from what they are today – what will change and is already changing is how they can be exercised. Some commonly accepted core skills: literacy in the craft and culture of architecture; ability to discern necessities underlying a brief; to translate requirements into built form; to use appropriate tools for thinking and acting; to ensure that the intervention respects the social, cultural and environmental contexts – these are fundamentals that endure because they are an integral part of the kinds of qualitative judgments that architects are required to make. However, how they are to be given expression - whether or in what way the future situations of students will allow them to exercise these skills - these questions bring our attention back to the question of underlying competences in a more profound way.

One of the interesting aspects of the writings of the English Franciscan scholar Roger Bacon (1214-1294) is that he wrote about the utility of branches of knowledge, not so much in terms of their content, but rather in terms of the capacities that particular areas of knowledge fostered

in those that mastered them[1]. It is a perspective that was echoed in the concept of "deutero-learning" articulated by Gregory Bateson (1904-1980, one of my personal gurus), cyberneticist and author of the books *Steps to an Ecology of Mind* and *Mind and Nature*. Bateson drew attention to the fact that, when one learns something, at the same time one is also learning a way of learning - an abstract ability to conjugate concepts and associations[2]. He instances the way one learns how to do crossword puzzles generally, as distinct from solving this or that puzzle. It is a way of thinking about learning that has clear echoes with learning in architecture.

I am trying to see if I can express in what way learning in architecture is recognizable as having a character of its own. Does it? Perhaps the key characteristic of learning in our field is that its purpose is to enable the learner to act – to enable the learner to develop the capacity to act, and to act appropriately. At present, the primary focus in architectural education is on the quality of the end result (and with a limited set of criteria for the assessment of quality) rather than on how the ability to act appropriately is developed. This characteristic of learning in architecture is one shared with other creative disciplines. In architecture however, we have learned that it means more that the exercise of creativity within the sphere of action as described by the competences listed in the Directive. We have learned that the future requires that we work with others, and that fact means that we need to have more than one way to understand the world. Acting appropriately means being able to integrate and draw from diverse perceptions and formulations when exercising judgment. This is not just a question of incorporating the inputs of disciplines, although it does include that. It means bringing the essential "metaphoricity" (to use Dalibor Vesely's word) of architectural thinking to bear on disorderly problems. So in responding to the invitation to consider what "competences are likely to be most significant, given the uncertainty of the future" – this is what I believe to be the core competence – a type of transformative thinking that embraces environmental provision.

I am not sure whether this sets learning in architecture apart from learning in other fields – that question does not trouble me. If pedagogical strategy is directed towards enabling students to act appropriately in the sphere of architecture, the subject matter that forms the core of a particular curriculum is potentially variable. So when we come to the idea of competences we have to look below the obvious skill sets to see the basic characteristics of what constitutes the "know-how" of the architect. I have suggested one description.

Beyond that, the invitation today is to consider the position of the school as it tries to address this challenge. Are there implications to be drawn for the character of the school, the way it engages the learning experience of the student with the inheritance of the culture of architecture, its practices, its position in society and its role in the management of social change?

I believe that the most important factor is the culture, the ethos, of the school – the learning environment as a whole. Many years ago I worked with second level schools in an environmental education programme, encouraging the development of project-based learning in the context of a curriculum dominated by discrete subjects taught in rigidly timed teaching sessions. In time I could recognize, within five minutes of entering the door of a school,

1 Bacon wrote extensively about methods of teaching and learning and the importance of the environment for learning: see references to Bacon's writings (eg. *Summulae Dialectices*) in works on medieval thought and the philosophy of science.

2 Bateson, G. (1972) *Steps to an Ecology of Mind*. Chicago, and (1979) *Mind and Nature: a Necessary Unity*. Hampton.

whether the teachers were likely to take up the challenge. One could sense the atmosphere in the demeanor of students and staff – the presence or absence of a sense of purpose, engagement and adventure. At the centre of that atmosphere was the head of the school – always.

The responsibility of the head of a school is to create a culture within the school that fosters the development of the core competence I described. I would describe this task as the creation of a culture:

- of enquiry and reflection
- of exploration
- of respect
- of production/ realization

and a culture that embraces the challenge of collectivity in the context of competition.

Every head of school understands the particular context of their own school – as a laboratory for the exploration of change, and as the specific context within which this agenda could be explored and given reality. After all, the uncertain future is already present.

Lorraine FARRELLY

Associate Head, Research Director, University of Portsmouth, School of Architecture, Portsmouth, UNITED KINGDOM

What is the fundamental knowledge and skills a student has to acquire from education in order to become a competitive and successful architect?

For contemporary education, learning is not just confined to being in the University, it is about an attitude. It is important to ensure that the student takes responsibility for their own education and learning. The new digital environment learning has become a much more fluid experience. The term 'net generation' refers to the notion that students are part of a new way of engaging with information, but also with their education. Don Tapscott in his book 'Net Generation' recognizes that there is a new generation who think and behave differently as they have been shaped by their experience of information and knowledge on the web.

This is an important consideration for all educators, to understand the dynamic nature of knowledge and information. Our students need to be able to adapt quickly to information and knowledge and take responsibility for their education and direction. Our students need to be able to continually update skills, to be adaptable. This requires an education that promotes problem solving skills and also 'critical thinking 'skills. We are educating architects of the future and their education needs to cope with the unpredictable social, cultural and economic aspects of contemporary society.

If there is a question of a new, unpredictable, profile of the future architect what has to be our strategy for the learner of today?

We need to teach attitudes and skills. The most significant competences that this architect has to fulfill in order to be able to adapt in the fast evolving society are :

to Think …. Innovate… Create.

What is the fundamental knowledge and skills she or he has to acquire from education in order to become a competitive and successful architect?

The most important consideration is that students need to take responsibility for themselves, to constantly challenge their knowledge base and to continually update their skills. In today's society students need to be adaptable to all external conditions around them, it may be their client, the environment, both physical and conceptual and they must respond to these changing conditions.

We are educating architects of the future and their education needs to prepare them to cope with the unpredictable social, cultural and economic aspects of contemporary society.

They need to think creatively, to analyse and understand what exists.

To model and make, to have specific skills such as creating CAD drawings and more generalized analytical skills.

To understand the Process of design

To communicate complex ideas

To work in teams

To present ideas

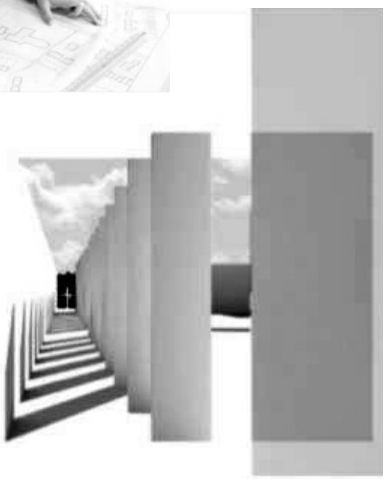
These are all transferable skills. They are relevant for students if they become architects or if they have other career paths. Critical thinking in particular is important for an architect, but for many other professions.

Strategies of our School of Architecture regarding this

In our School relationship to the practice of architecture professionally has always been a key strength. We have decided to develop possibilities for employment and to focus on aspects of employability as a key consideration for our students. Over the last year we have developed a Project Office: http://www.port.ac.uk/departments/academic/architecture/projectoffice/

This office is an Architect's Practice with RIBA chartered status which is part of our School of Architecture. It is staffed by an Architect who has some teaching duties, but primarily manages the Practice. The office is supported by the framework of the University in terms of administration. To implement projects, members of academic staff are brought out of teaching to deliver projects. In addition practitioners from outside are contracted in, to deliver projects as well. Its purpose is to connect our teaching and learning with research possibilities that emerge through the practice of Architecture. The benefits are there for the students, as they are working on real projects and are paid to deliver presentation work through the academic year. We are working to ensure that the projects carried out with this office develop into research areas as well as income generation for the School of Architecture.

The office uses the connections the University has to the city and regional development agencies. Projects completed so far have been with local community organizations such as St Francis Church, Portsmouth Diocese. This project included some community participation work which was a very useful experience for our students and formed part of the core curricula for our post graduate architecture students.



We have run on site design charrette with the community , client and other stakeholders to find some solutions for redeveloping some local churches, this involved an Exhibition of student ideas. Subsequently Students were employed to develop ideas and visuals for the client through the project office.

We have also run a summer Interns project for two years now. We have had design projects in the community, which were funded by an external client,and we employed students over the summer period to do the work, managed by academic staff.

This was funded by South East Coastal Community.

Another project was for Hilsea Lido "Pool for the People".

A lido (open air pool) project which is in need of investment and regeneration with no funds. The project office worked with them and instigated a student project competition to start local interest and ideas that provided support for funding for a feasibility study.

Host Practice Scheme

The RIBA has launched a scheme to help students and graduates who are unable to find suitable work placements in the current economic climate. Graduates can gain access to an online network of practices and universities interested in hosting students in their offices.

These students will have the opportunity to use the practice's facilities to work on competition entries, private commissions and research, as well as being offered an overview of practice activities.

What next ….?

The future for us in higher education and particularly in architecture is to recognize that our education is not just for architects. In the UK architecture is a very popular degree subject of study, however not all undergraduates can or should become architects. We are teaching transferable skills, which will support other careers or directions. This is also important in a time of recession, the building industry will take time to recover and architects need to diversify and ally themselves to other professions. So far we have been trying to track our students from their first degrees to see what careers they are involved with, this is the list so far:

Web designer

Games software designer

CAD modeling

Physical modeling

Urban designer

Project manager

Photographer

Teacher

Entrepreneur

Building developer

Architectural journalist

Product designer…

The future for our students is uncertain, it is for all students of all disciplines, if we can teach them to take responsibility for their learning and adapt to external conditions, hopefully this attitude will help them through the current period of change.

Herman NEUCKERMANS

Professor, Catholic University of Leuven, School of Architecture, Leuven, BELGIUM

Competent in competences

Quality assurance and quality control pervades almost all activities of our world ruled by (the myth of) economy. What quality do I get for what money, is a question first asked in industry and later on also in education independent of its mode of financing, public or private.

Due to increasing mobility of students (Erasmus) and professionals, and also due to the growing cross-border services, most countries had or still have to position themselves on this global world. Focusing on Europe and more in particular on the EU, the DIRECTIVE 2005/36/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications[1] (Directive 2005/36/EC) regulating the mutual recognition of professional qualifications is referring, as far as concerning the profession of a self-employed architect, in Art.46 to the famous 11 points reiterated from the 1985 Architects' Directive[2]. These points specify the awareness and abilities in several domains acquired by graduates. These refer only to the academic qualifications i.e. those resulting from a higher education in architecture; in one of the European education institutions listed in annex V.

Access to the profession differs throughout Europe: some countries require no post-diploma apprenticeship/internship, others 6 months, 2 years, or even 3 years before being eligible for registration as an independent architect. The way it is formulated in the directive reads as follows:

"Principle of automatic recognition: 1. Each Member State shall recognise evidence of formal qualifications as …… and as architect, listed in Annex V, points …… 5.7.1 respectively, which satisfy the minimum training conditions referred to in Articles ……..46 respectively, and shall, for the purposes of access to and pursuit of the professional activities, give such evidence the same effect on its territory as the evidence of formal qualifications which it itself issues. Such evidence of formal qualifications must be issued by the competent bodies in the Member States."

These changes have given rise to the regular assessment and accreditation of study programs almost worldwide: national systems(e.g. Estonia,..), international consortia (e.g. VNSU for the Netherlands and Flanders), RIBA (UK and Commonwealth, plus on demand), NAAB (USA) and also China embraces such a system.

Focusing on EU, the Bologna process has introduced the notion of ECTS[3] as a means of regulating student mobility. An **ECTS credit** represents between 25 and 30 hours student workload. A bachelor program counts 180 ECTS credits and a master 60 to 120 credits. But duration of time

1 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:255:0022:0142:en:PDF

2 The Qualifications Directive 2005/36/EC of 7 Sept 2005 - section 8, Architect / Article 46, pp.47,48 reiterated from the "Architects' Directive 85/384/EEC art.3

3 http://ec.europa.eu/education/programmes/socrates/ects/index_en.html

spent to a subject does not tell much about the quality of that effort neither of the learning outcomes of that effort. The quality of an ECTS today depends on the quality of the institution granting the credit. Good schools network with good schools.

In the meantime we see more and more efforts (tenCOMPETENCES[4], TUNING[5],…in general EU projects) devoted to the formulation of qualifications in terms of competences and learning outcomes[6] acquired via learning contents. In the long run study programs will be expressed in competences rather than in percentages and/or time devoted to a given subject.

For the sake of clarity let's assume that competences represent **"knowledge, awareness, skills and attitudes"** resulting from an education and training. It is evident that education is not only focusing on cognitive capabilities but also has great influence on other mental capacities according to the taxonomy of Bloom: psycho-motoric skills (dexterity, computer literacy, model making,..) and dynamic-affective attitudes and skills(capability to work independently, working in group, showing leadership, managerial skills,..). One first distinguishes generic from domain specific competences.

Generic competences are basically linked to the level of education: bachelor, master,.. In the context of the EHEA (European Higher Education Area) 8 EQF levels[7] (European Qualifications framework) have been defined. For our purpose of higher education in architecture we suffice to know that:

EQF level 6 = Bachelor

EQF level 7 = Master

EQF level 8 = PhD.

Domain specific competences pertain to a given domain of expertise: architecture, medicine, law, economy,… For architecture the famous 11 points (Appendix 1) are the only solid basis for program evaluation within EU. It is interesting to compare this to the checklist used by NAAB in the USA (Appendix 2). This list is at least much closer to today's practice and much more tangible than the 11 points.

It is not my purpose here to run into a political and legal action, the aim is to explore amongst peers and 'in silence' if, how, what and where could be improved in the legal frameworks.

4 www.tencompetence.org/

5 tuning.unideusto.org/tuningeu/

6 According to the TUNING project learning outcomes (LO) are what an educational system expects to achieve, whereas competences stand for the acquired result of the graduates (proven by validation).

The ECTS User's Guide (2009) says: "A learning outcome is a statement of what a learner is expected to know, understand and be able to do after successful completion of a process of learning".

The EU parliament states: "learning outcomes means statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence."

7 http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm

In order to distinguish between these EQF levels one distinguishes several levels of achievement and links these to a specific EQF level. The so-called Dublin descriptors[8] are used for that purpose.

They are in sequence of increasing achievement (appendix 3):

knowing / awareness,

understanding,

applying,

judgment

communicating,

learning to learn.

Take an example: when somebody is *competent in structures* it means complete different things according to different *levels of achievement*:

- knowing that a building has a structure
- understanding the structural behavior of a construction
- being able to compute a structure
- being able to design a structure….

It is the ambition – and in some visitations preparing accreditation it is already fully elaborated – to express all educational activities (courses, seminars, design studio, exercises,..) in terms of which competences they are aiming at. It is definitely a tedious job, but once it is done, it is reusable and it can be simply adapted when study programs change. It primarily remains a strong tool to articulate curricula/study programs. As an example we include in appendix 4 an overarching matrix that should facilitate the identification /notation of competences course by course. One can just tick the boxes or insert a code for the level of achievement No (novice), advanced (Ad), proficient (Pr), expert (Ex).[9]

The approach via competences also allows quite easily identifying which competences in which schools are taught in school and which will be acquired by professional apprenticeship. And that is differing quite a lot today amongst the different countries in Europe. Which competences are primarily academic and which are professional ones and who is doing what in school or afterwards, is a political choice merely ruled by financing arguments. Looking at the union of all competences independently of who is providing these (the school or the profession) creates room for the different and differences in national systems. It will also clarify whether a program prepares to the profession of an architect or to another professional activity in architecture.

8 http://www.uni-due.de/imperia/md/content/bologna/dublin_descriptors.pdf

Shared 'Dublin' descriptors for Short Cycle, First Cycle, Second Cycle and Third Cycle Awards

A report from a Joint Quality Initiative informal group (contributors to the document are provided in the Annex) – 10 October 2004

9 A. Meijers – Academic Competences and quality assurance- Leuven, Jun 27, 2006

Concerning future/new competences, we identify 3 major domains to be fully integrated i.e. not as isolated subjects or courses - in education:

- sustainability, as a layered concept ranging from technical and
- economics to ethical and social dimension.
- universal design, inclusive design, access for all…
- global design and thinking globally.

Researchers in these domains should in their schools organize seminars for the design teachers, in order to promote integration. Because the future is unknown, the best option to choose is to teach students the highest levels of achievement i.e. learning to learn.

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:255:0022:0142:en:PDF

The Qualifications Directive 2005/36/EC of 7 Sept 2005 - section 8, Architect / Article 46, pp.47,48 reiterated from the "Architects' Directive 85/384/EEC art.3

http://ec.europa.eu/education/programmes/socrates/ects/index_en.html

www.tencompetence.org/

tuning.unideusto.org/tuningeu/

http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm

http://www.uni-due.de/imperia/md/content/bologna/dublin_descriptors.pdf Shared 'Dublin' descriptors for Short Cycle, First Cycle, Second Cycle and Third Cycle Awards A report from a Joint Quality Initiative informal group (contributors to the document are provided in the Annex) – 10 October 2004

A. Meijers – Academic Competences and quality assurance- Leuven, Jun 27, 2006

arch.ou.edu/naab

Appendix 1

The Architects' Directive (85/384/CEE art.3):

- Ability to create architectural designs that satisfy both aesthetic and technical requirements, and which aim to be environmentally sustainable;
- Adequate knowledge of the history and theories of architecture and related arts, technologies, and human sciences;
- Knowledge of the fine arts as an influence on the quality of architectural design;
- Adequate knowledge of urban design, planning, and the skills involved in the planning process;
- Understanding of the relationship between people and buildings and between buildings and their environments, and of the need to relate buildings and the spaces between them to human needs and scale;
- An adequate knowledge of the means of achieving environmentally sustainable design;
- Understanding of the profession of architecture and the role of architects in society, in particular in preparing briefs that account for social factors;
- Understanding of the methods of investigation and preparation of the brief for a design project;
- Understanding of the structural design, construction, and engineering problems associated with building design;
- Adequate knowledge of physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against climate;
- Necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations;
- Adequate knowledge of the industries, organizations, regulations, and procedures involved in translating design concepts into buildings and integrating plans into overall planning;
- Adequate knowledge of project financing, project management, and cost control.

Appendix 2

Student performance criteria[10]

NAAB (national architecture accreditation board – USA)

For the purpose of accreditation (by NAAB), graduating students must demonstrate awareness (Aw) , understanding (U), or ability (Ab) in the following areas:

1. verbal and writing skills (Ab)	19. life safety (U)
2. graphic skills (Ab)	20. building envelope systems (U)
3. research skills (Ab)	21. building service systems (U)
4. critical thinking skills (Ab)	22. building systems integration (Ab)
5. fundamental design skills (Ab)	23. legal responsibilities (U)
6. collaborative skills (Ab)	24. building code compliance (U)
7. human behaviour (Aw)	25. building materials and assemblies (U)
8. human diversity (Aw)	26. building economics and cost control (U)
9. use of precedents (Ab)	27. detailed design development (Ab)
10. western tradition (U)	28. technical documentation (Ab)
11. non-western traditions (Aw)	29. comprehensive design (Ab)
12. national and regional traditions (U)	30. program preparation (Ab)
13. environmental conservation (U)	31. legal context of architectural practice (U)
14. accessibility (Ab)	32. practice organisation management (Aw)
15. site conditions (Ab)	33. contracts and documentation (Aw)
16. formal ordering systems (U)	34. professional internship (U)
17. structural systems (U)	35. Architects' leadership roles (Aw)
18. environmental systems (U)	36. the context of architecture (U)
	37. ethics and professional judgment (U)

10 arch.ou.edu/naab

Appendix 3

Levels of achievement

ARB (UK)

Awareness acquaintance with general concepts, topics, rules methods or procedures, without necessarily being able to paraphrase or summarize information. Students should be able to identify the limits of their awareness and be able to refer to source material for more in depth knowledge.

Knowledge familiarity with specific information, including facts, definitions, rules, methods, process or settings, without necessarily being able to see its fullest implication or application.

Understanding identification, assimilation and comprehension of information. Students can correctly paraphrase or summarize information and can relate it to other material, including its practical application.

Ability skill in relating specific information to the accomplishment of tasks. Students can correctly select information that is appropriate to a situation and apply it to the solution of specific problems.

NAAB (USA):

Understanding—The capacity to classify, compare, summarize, explain and/or

interpret information.

Ability—Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.

Appendix 4

Competence matrix

COURSE identification																													HN/ version 20 04 2009
competences	EQF 1 - 8 Ba/ Ma/Ph D	cognitive abilities and attitudes											psycho-motoric abilities				dynamic-affective abilities and attitudes				design and research							
generic academic generic for engineers Dublin descriptoren	EHEA PhD = EQF niveau 8	knowing Ba	Knowing Ma	Rational thinking	understanding	analysing	Critical scientific thinking	synthesize/perceiving relationships	Evaluating / judging	applying	Communicating	Mastering computer tools	Learning to learn	Making physical models	Drawing / drafting	Drafting with computer	Verbal expression	Executing work	leadership	Working individually	Working in group	Thinking and working methodologically	Working efficiently	design	Designerly way of thinking (attitude)	Problem Solving	entrepreneurship	Finding and consulting sources	researching	Scientific thinking
Qualifications Directive 2005/36/EC																													
Domain specific for architecture																													
Relation art and archi (c)																													
digital media																													
structure																													
shapes																													
functions																													
shaping																													
History of arch																													
Building technology																													
Theory of architecture																													
Social sciences																													
urban design																													
planning																													
arch-man interaction																													
Arch-environment interactie																													
Building programme (g)																													
Man environment interactio																													
Role of an architect																													
construction																													
Engineering problems in archit																													
Building physics																													
Comfort and interior climate																													
Equipment of buildings																													
Building costs																													
Building law																													
Building industry																													
partners in the building process																													
Building process																													
projectmanagement																													
buildings																													
Furniture / interior																													
Built environment																													
landscape																													
Urban scale																													

Stephanie EICKELMANN

B.A. MSA Münster School of Architecture, Student Vice Dean, Münster School of Architecture, Münster, GERMANY

I am the student Vice Dean at the MSA | Münster School of Architecture. Last year Prof. Julia Bolles-Wilson – our Dean – gave a lecture here in this conference and already talked about our very specific system of student participation across-the-board in the structure of our school. Prof. Julia Bolles-Wilson, Prof. Martin Weischer and I are democratically in charge of the Deans's office in Münster.

As I am still quite at the beginning of my career, I'm not really in the position to give a precise and definitive answer to the question of the profile of the future architect, (*because this is what I ask myself at the moment anyhow)*. By the way, if I would know about the THAT profile – that would be perfect, because I could still do it on my own like that. But I can guess, it will become important talking about skills and competences in the education and in the future in the field of being an architect.

New topics

As we already discussed, we are in a time of rapid changes and different developments in architecture. New topics and fields have evolved, like "the digital and parametric design", "sustainability" and "green building" as quite modern (*and for a lot of students nearly redundant*) words, the field of building certifications like DGNB and LEED, the topic of life cycle costs and management, and so on.

Our philosophy is to maintain the teaching and training of the generalist architect and to give the students from this range the possibilities to enlarge upon specific topics. Thus at the moment we are discussing and working on a system of several focus areas, which are still integrated in the generalistic master studies.

Our school offers the students a framework and a multi-optional curriculum, so that one can tend in different directions from the 1. genereralist to the 2. specialist. In Münster the heterogenous teaching staff consists of many different personalities - teaching specific "philosophies" and aspects of architecture - and the students can get to know all of them and decide on their own, which way they want to go.

It is very important to give students the possibilities and the freedom to select from the range of topics, which architecture offers today. We, the students, have to check and test our own interests to decide, whether to end up as an generalist or to concentrate on a specific part in architecture or even to skip the architectural studies (e.g. after the bachelor degree) to go into a related field like, for example, facility management. But at first a school of architecture has to show its students as many facets as possible within their studies. The schools cannot give its students one recipe like a "service provider". It is more important to be trained in independence and self-sufficiency, in decision-making, in gaining an overview than to focus too much. We, the students, have to be encouraged in developing our own profile and attitude towards architecture, our own personality, because then one will be able to adapt self-assured and self-confidently to new conditions and changes.

Today for a lot of students it is really hard, not to lose track and not to be overextended by the possibilities and "trends": in using "tools", in creating forms and images, in getting information, perhaps even in imitating impressive pictures of avant-garde architecture in the media. Teachers have to give their students advice to get a critical distance of what makes sense, what their decisions evoke and imply and how to generate real additional value, with what they are creating. There's a difference between (using) tools and (developing) strategies.

An education in our times of rapid changes has to help to filter and rate in the complexity of possibilities. So that students do not create "self fulfilling prophecies" by giving some self-invented parameters to the computer and think, that what comes out is architecture.

That brings me to the role of the students at our school and how to educate personalities.

Student responsibility

As the student Vice Dean, I do nothing different than my professorial colleagues in the Dean's office.

We work together in a relation of partnership and close cooperation and I am not the "revolutionist" delegate of the students. But as a big advantage, I'm pretty close to the concerns of the students. To give you some examples I am also responsible for the management, politics and the quality management system of the faculty; I am significantly in charge of the accreditation and evaluation field of work. I take an active part in the organization of the teaching starting with new topics and ending up in acquiring and selecting new professors and lecturers. Finally, I undertake representational functions for our school in different bodies like I do today. To sum up, it is all about decision making, about solving problems in relation with a lot of participating persons and pointing out your specific point of view.

We, the students, are asked to co-design and co-organize our faculty, the MSA. We are asked to get involved in a lot of different fields, e.g. as tutors like assistants for the professors in the different departments or as members in various councils.

To illustrate this, I want to give you some examples: As I am the Vice Dean for Public Relations, I am part of our Team for PR, which consists only of four students. We are independently in charge of the website of the faculty, of the correspondence with the press, information sessions for pupils (e.g. this year we travelled to Milan to a German school), the organization of events like the annual exhibition of the school or interventions in the public space. The trust, which the students receive while being engaged at the MSA became physically in 2010 in form of the extension of the library, which was planned and realized by a group of three students called "zaubersco(e)n" accompanied by the former Dean Prof. Bühler. They were in charge for the whole process starting with the design and ending up in the supervision of the construction site.

All in all, the student participation in our system leads to the fact, that students most of the time do not complain about their school, but they feel responsible for changes and improvements. They come up with new suggestions and with ideas for new topics in the teaching. For example the whole department for digital design has evolved from student suggestions, applications and efforts.

The students are full of ambition, full of curiosity and they have a high degree of motivation. The faculty has taken advantage of this identification and this is one important factor for the first place of the MSA in the German ranking of all architecture faculties.

International network

In times of an increasing internationalization and thus a global assimilation of architectural knowledge and availability of information, the MSA has built up and is pushing its international network of universities and partners from the practice. For students it is important to learn to act in an international context and to adapt to foreign conditions and cultural diversities.

One very specific part in this respect is the so called "impromptu design program". The students in the 1st semester of the master's degree are doing four short design projects abroad: at other universities or with the supervision of famous practising architects. Only to mention a few of them, the MSA has collaborations with the universities in Barcelona, in Venice, in Oslo, in Aarhus, in Dublin, in Brno, in Cracow, in Basel with global acting architects like Roman Delugan or Frank Barkow and also with our host here in Chania, with Prof. Spiridonidis and the Aristotle University of Thessaloniki. This exchange - including the journey, the final review in Münster and so on – is organised by the students. In addition the MSA has cooperation with the University of Havana (Cuba) for the annual "Caribbean Winterschool" accompanied by further exchange contracts all over the world.

Conclusion

All in all, the future architect has to be able to work with a lot of people and a lot of information. He doesn't have to do and to know everything on his own but he has to be trained in his "soft skills" to deal with complexity, to solve problems and come up with reasonable solutions.

The role of the architect can become even more important in the future than today, when he is able to stay on top of the things, when he keeps track of the developments in a social, architectural and technical sense. The architect's role has to be like a "maestro" and a centre point of all things happening in the complex process. This has to do with a lot of communication, team-working, networking and maintaining the initial goals. In the first session of this discussion somebody said, that the quality of a school of architecture is as good as its staff and its students and I would like to end up with this thought, that it's worth while to push the ambition, motivation and curiosity of the students in all parts of a faculty.

Lucyna NYKA

Vice Dean of Research, Gdansk University of Technology, Faculty of Architecture, Gdansk, POLAND

Five strategies for the uncertain future

In an era of rapid changes accompanied by a prevailing tone of uncertainty concerning future development of cities, alternative energy solutions, increasing mobility, new cultural and social processes – new questions appear concerning strategies of architectural education. What should the new priorities of schools of architecture be, how should architects be trained so that they can operate successfully in the uncertain future? Is it possible to preview their necessary profile and competences now?

While standing at the edge of the unknown it is worthwhile to reconcile with the fact that the question of unpredictable future has always been present. So, what has been decisive for architects understanding the responsibility of their profession and successfully operating today? Often it is well-structured curriculum, but also continuing education, meeting masters, visiting places, encounters with art, going deeper into something that was not noticed by others. The divergence of the above-mentioned factors confirms how hard it is to prepare students for the uncertain future within the framework of Bachelor and Master programmes.

Built on the awareness that we cannot define precisely for tomorrow, the general policy of the Faculty of Architecture, Gdansk University of Technology (GUT) focuses on offering many diversified approaches, enabling students to acquire sound intellectual background and expert professional skills, by exposing them to a variety of situations they may experience in their professional career *. The overall scheme could be depicted by five distinctive strategies.

Intellectual Base

One of the most important objectives of the educational programme is to give students a sound intellectual base. It is a part of the school's pursuit towards promotion of deep understanding of each architectural intervention in spatial, social, ethical and artistic terms. This attitude is highly fostered for each step of architectural education. It starts with questioning architecture in relation to broader cultural issues, spatial concepts, abstract notions, films, and works of art or literature. Then a new scope of issues emerges naturally – to what degree are architectural solutions related to phenomena specified in other disciplines like social anthropology or urban geography? How much are they embedded in philosophical thinking, in ethics or esthetics? What is the role of architectural or urban intervention, who loses and who benefits in the process of changes?

* In recent years the educational programme at the Faculty of Architecture GUT has been thoroughly scrutinized with regard to requirements and standards set by national and international bodies. All the adjustments and modification has been made so that curriculum fully complies with the EU directive, recommendations of UNESCO, RIBA, UIA, ISOCARP and many European schools of architecture.

Fig. 1-2

Architectural design studio.

The basic objective is to encourage creative thinking and promote apprehension that, starting from a conceptual layer and culminating in the built reality, architecture may convey messages, generate emotions and most of all, be a powerful means of negotiating the environment. Consequently, the task of the architect is not only to design nice looking buildings but also to participate consciously in the constantly ongoing process of changing the environment, in defining and re-defining its spatial, social and cultural characteristics.

Acknowledging this responsibility requires confronting students with different approaches, situations and problems, so that challenges appear one after another, such as: how to identify the problem, how the outlined problem could be addressed in architectural terms, what new appears unexpectedly while looking from the perspectives of other disciplines. Then, how the task could be translated into topics of architectural experiments, and finally – solutions. While being involved in providing architectural responses, students, at the same time, acquire basic tools to carry out research, including research by design that in fact, recently has extended noticeably from the doctoral level to the master, and even to the bachelor level.

Realization of such ambitious tasks requires a whole set of implementation methods. The most important ones are focused on motivating and expanding students' knowledge and design skills that will ultimately provide arguments for discussion on architecture. For this reason design tasks are supported by the study and discussion of critical texts. In detail, each design studio is complemented by a selection of theoretical writings, both mandatory and optional provided by a studio leader. They refer to the most vital aspects of contemporary architectural discourse, embedded in contemporary concepts of culture or nature, advert to motion, mobility, temporality, virtual spaces, or even purely abstract concepts, following the conviction expressed by Alberto Perez Gomez, that not all theoretical thinking can be immediate, if at all, applicable in practice. Different approaches of studio leaders with a substantial number of elective courses create an opportunity for students to go deeper into matters of their own interest, while acquiring the basic awareness of main profiles of critical thinking in architecture.

So the outlined strategy refers unavoidably to the primary question, too rarely verbalized – what is the aim of studies: to produce an architect – practitioner, or is the goal much broader – to educate people at the master level in the discipline of architecture? Strategy implemented in the process of architectural education at Gdansk University of Technology clearly assumes the advantages of the second approach. While producing skillful architects, which is undoubtedly important, the most ambitious task is, as Stefano Musso expressed during the ENHSA meeting in Chania in 2010 – to educate students as thinkers. Standing at the edge of uncertain future requires knowledge and sensitivity towards different cultures of practice, even those yet unknown. For this reason graduates are expected to represent much more than dexterity in designing – they are expected to identify problems, solve them on an architectural level, express opinions, as well as participate consciously and responsibly in the constantly ongoing process redefining and rethinking the relationship between tradition and innovation, knowledge and imagination.

Integration

The second strategy could be depicted as integration, which refers to the whole set of efforts towards going beyond positivistic routines of teaching architecture in a manner where curriculum is strictly confined to divisions between traditionally pre-defined subjects. Instead,

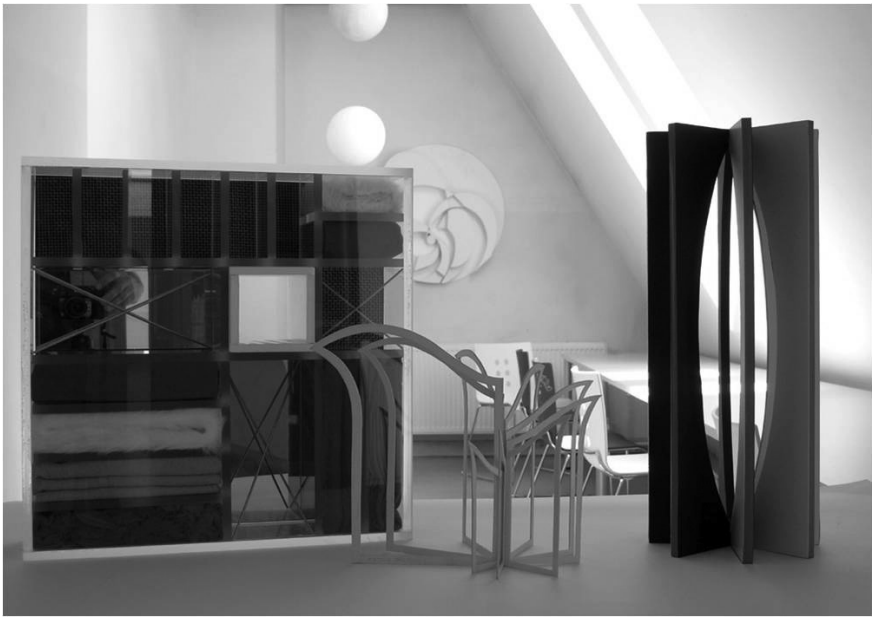


Fig. 3

Space and textures composition – art and design studio.

Fig. 4

Floating architecture – the H_2O House. Author: M. Treder.

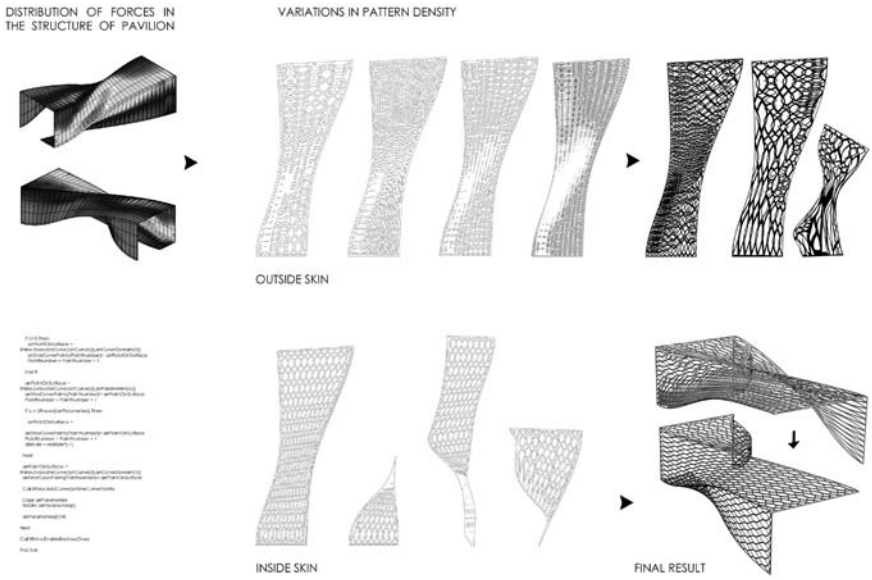


Fig. 5

Fig. 5. Inside an outside skin calculations for an exhibition pavilion. Author: K. Bedra.

there is a noticeable pursuit toward establishing connections between subjects and creating new educational courses along their blurring borders. This strategy could be identified as a response to currently emerging phenomena, like the noticeable shift from structures to landscapes in the critical interpretation of architectural and urban concepts. Buildings' interiors resemble active environments; their outsides unfold into inside offering voids and passages for the flow of people. Architectural projects gain the power of urban intervention, and public space design evokes landscape art concepts. Landscape architecture merges with landscape urbanism and new ecologies appear where natural and artificial interweave and one supports another. Bridging the gaps between subjects seems to be of critical importance in setting up concepts for the uncertain future.

Within the strategy of creating integrative approaches, art is widely introduced into architectural and urban design studios. With the relatively high percent of artists teaching at the faculty there is a wide scope of newly proposed courses. Students are involved in experiments on textural and spatial compositions, media art and sculpture programmes are integrated into urban course objectives. Film – a powerful means of discovering experiential qualities of urban spaces has proved to be an effective tool for verifying and enriching architectural and urban concepts. Thus, this technique of investigating and documenting the reality has been integrated into several design courses.

The whole scope of new subjects is an effect of close cooperation between the Faculty of Architecture and other faculties of the Gdansk University of Technology. Floating architecture, a strong specialization in the Faculty's educational offer, thrives on both tradition of

Fig. 6-8

Art in interior – art and design studio. Students' proposals implemented by the students themselves. Studio leader: J. Buczkowski.

naval architecture and technological competences of the Faculty of Shipbuilding. Recently, a new course has been established focused on responsive environments, sensitive surfaces and spaces. This educational offer was created as a joint project between two faculties of GUT (the Faculty of Electronics, Telecommunication and Informatics and the Faculty of Architecture) as well as the Academy of Fine Arts in Gdansk. Such a wide composition of partners results from the complex nature of the problem, which involves insights into art concepts, knowledge of technological schemes and basic elements like sensors, actuators and controlling software. Finally, students are involved in defining objects and their reactions as well as in creating diversified connections between virtual and physical spaces.

The choice of available subjects will be much broader with every year beginning in 2010 at four main universities in the region, among others: Gdańsk University of Technology, University of Gdańsk, and Gdańsk Academy of Art, all of which have signed an agreement "Study in Pomerania". The agreement opens plenty of possibilities of choosing the elective courses offered by the associated partners. This contributes significantly to the Faculty of Architecture strategies built on emphasizing the necessity of interdisciplinary and complex approaches to the design process, concerning aesthetic issues, adequate knowledge of technologies and human sciences.

Reality: The Art of Dealing with the Real

After obtaining the basic experience in developing architectural concepts students are confronted with more advanced problems of dealing with existing structures or pre-defined awkward urban situations – expanding in such way the art of coping with the real. In its simplest terms it means working on extensions, reductions, additions and different kinds of architectural and urban transformations. The new scope of questions appears immediately, concerning the feasibility of the project, social issues, implemented technologies, legal basis, time and cost of the project.

The most important objective of this strategy is to teach students how to find the coherent architectural solutions while working on forms, materials and spatial arrangement, which are already existing and therefore highly pre-defined. Presumably, dealing with this kind of reality will constitute a major part of graduates' professional experiences in the future. In this case, the accent is shifted from the individually defined concepts to enveloping, enhancing and transforming existing qualities. New problems have to be confronted: how to look at the existing, how to appreciate and select its features, how to liberate oneself from pre-conceived images and work on unique, peculiar realities.

Most often students operate on post-industrial areas and structures, trying to reconnect them with the outside and activate them through new programmes. Buildings from the 1970s or 80s, seemingly devoid of any values, constitute an even more substantial challenge. The goal is to find architectural solutions for cumbersome spaces, to re-define them, architecturally re-cycle and propose new values. Foldable solutions are worked out allowing for flexibility of interior and exterior divisions. Additionally, new vivid insights into the quality of detail of the project are emerging along with better understanding of its role in the final product.

Another important objective is to let students acquire the necessary knowledge for operating in a sensitive historical context. Therefore getting acquainted with protection and conserva-

Fig. 9

The Floating Gallery – part of the programme Gdańsk: the European Capital of Culture 2016 – a candidate. Author: Ewa Morawska.

tion strategies along with supporting regulations and legal requirements is a very important part of architectural education. References to such issues as authenticity of materials and structures are developed in the process of working on the project, which allows for creative transformations while protecting the most significant historical values.

Another side of the pursued strategy is to let students see the impact of their projects on reality. For the last several years, students have been involved in developing concepts for the faculty building interiors and campus public spaces. The task has been to find the abandoned space and transform it by means of art, architecture or landscape. The most interesting proposals that bring about spectacular results are those implemented by the students themselves. Not only is the faculty building enriched with adventurous, highly identified and interesting works, but from an educational point of view – students are witnessing and participating in the process in which projects trespass the conceptual level and find their materialization in reality.

Outside Academia

Another important step in preparing graduates for the uncertain future is based on the strategy of broadening students' experiences by confronting them with the practices outside the walls of academia. Such an objective is realized in many different manners, mainly through cooperation with municipalities, chambers of architects, cultural institutions and many other organizations. The joint workshops with school pupils that focus on interventions in their

Fig.10

International *Intensive Programme* Sensing the City – Designating Urban Experience. Gdańsk 2009. Coordinating institution: Gdańsk University of Technology.

Fig.11

Students of the Faculty of Architecture working in international teams. European Workshops for Tourism and Architecture. Ayvalik, Turkey, 2009. Coordinating institution: Gazi University, Ankara.

immediate environment have become a valuable on-going programme offered by the Faculty. It forms a precious laboratory in which students gain experience in how to talk to clients, how to work in a team, to negotiate, and how to satisfy other peoples' expectations. Designing with the school environment, answering the needs and visions of pupils, creating places, paths, landscapes and other small interventions in constraints of limited budgets, gives another insight into possible types of practice.

Cooperation, especially with local non-governmental organizations associated with the Faculty, is considered equally important. Enrolling for particular courses students have a chance to work on the water landscapes of the Vistula River polder, to document the wooden details on the Mennonites' houses that still remain in the area, as well as develop ideas for activating the latent region and stimulate its economy. There are plenty of other examples, where projects developed at the Faculty support local communities and organizations and students are involved in the process of re-negotiating the neighborhoods, the boroughs of the cities in the context of appearing changes.

Working together with cultural institutions forms a significant part of students' activities, particularly in recent years, since Gdansk was selected as a candidate for the European Capital of Culture. Several cultural projects implemented in the city are based on urban strategies of re-connecting the isolated areas, improving continuities of public spaces and regaining their identity. Consequently, students are involved in finding solutions, working out concepts for public space by defining its temporal and every-day uses, they design venues for open space exhibitions, concerts and learn how to take care of the sustainability of cultural projects. Additionally, cooperation with cultural institutions gives an important impetus for understanding art and media projects in public spaces as a catalyst of sustainable development.

Contacts of the Faculty with the municipality of Gdansk contribute to the most significant joint programmes and consequently enrich students' imagination of what they may meet in their future. Students' solutions selected in the competition-based procedures offer a good starting point for a discussion about troublesome areas in the city. On the other hand, it is not unusual to participate in the project focused on questioning and arguing about municipal proposals. Both approaches are beneficial for students, since they gain important insight into the whole process of managing the city and become aware of the consequences of narrow-minded decisions.

On the other hand *outside* strategy refers also to the policy of opening the Faculty for numerous offers of life-learning programmes and courses. The Faculty proposes several post-graduate programmes and well-structured 4-year doctoral studies, offered to graduates of the Master Programme, including cultural operators, municipality employees and architects involved in different types of practice. In the era of rapid changes the acceptance for continuing education as an attitude adopted by students seems to be one of the most powerful tools for preparing them for the uncertain future.

Beyond Borders

Travelling has always been an important stage in the process of education, exemplifying so well even in historical *grand tours* taken after years of regular studies. Nowadays, students have the opportunity to learn more and be exposed to different teaching approaches as they participate in various kinds of international programmes.

Undoubtedly, the LLP Erasmus exchange programme exerts the strongest influence on the process of internationalization of studies. With more than 50 Erasmus agreements with schools all over Europe the possibilities to study abroad are open. At the same time, the Faculty is deeply involved in organizing Erasmus *Intensive Programmes* – an initiative which allows for integrating competences of several partner universities and working out new educational approaches. Subsequently, a joint workshop is offered as a pilot project, before integrating the worked-out schemes into university curricula. In the framework of the Intensive Programmes initiative, several international workshops have been organized in Poland and abroad including Bridging the City – Water in Architecture, Urban Spaces and Planning or Sensing the City – Designing Urban Experience.

Being active in applying for international programmes and taking all the duties and responsibilities of a coordinating institution, Gdańsk University of Technology is a welcome partner in many other international workshops, summer schools, intensive programmes and other joint projects that take place at many universities all over Europe and beyond. Facing different situations such as in post-earthquake L'Aquila, Bratislava, Ankara, Kaliningrad, Lisbon, or in the plains of Siberia, enriches the students' imagination of what they may encounter in their future. Some of the programmes are highly interdisciplinary, like TACE (Theater Architecture in Central Europe) where cooperation with urban planners, actors and dancers helped significantly in questioning the design routines and enriched the methods of working out architectural solutions. Additionally, there are many attempts to integrate students into research programmes that are established on the belief that confrontation with a new scope of tasks and questions builds up different spheres of experience and awakens architectural imagination.

Faculty of Architecture GUT acknowledging the fact of rapid changes and consequently, unpredictable profiles of future architectural practices, is involved, like many other schools of architecture, in devising strategies for better education. All the above-mentioned strategies are mutually interconnected and each one supports another. All of them are based on the assumption that the profession of architect will sustain its potential and still develop based on knowledge, ethics and aesthetic, and that the architect of the future will not be limited to one final tool for implementing ideas that have already been decided by others.

Torben NIELSEN

Rector, Aarhus School of Architecture, Aarhus, DENMARK

Aarhus School of Architecture as I represent is an independent school of architecture, which is not part of a university and under the Ministry of Culture. If we must develop ourselves and adapt to the situation as it stands today, and maybe in the future, it is necessary to create a structure for our education, which can adapt to the requirements and conditions as they are right now and in the future. We must be adaptable to a future we do not know.

It requires an education system, which is not closed and introverted in its construction. But connected to the outside world and creates networks for solving the challenges.

Architectural education must be characterized by being an education in ongoing development: where development is characterized as an activity in which participants in the process is working with tasks that are loosely defined, which often require new solutions. The working methods will bee adapted in progress and, it is difficult in advance to describe what results you end up with at the end of the process.

When we here in Chania are talking about architectural education we from my point of view often speaks from a perspective desiring similarities and common rules. It is obviously sensible to do so, but it is also a direction in which it is very easy to create limitations. And I think that we should avoid that.

When we here in Chania are talking about architectural education, we mostly talk about it as an international phenomenon. And from this perspective, we often forget the cultural parameters that separates architects educated in various countries and practicing in different cultures. All of the cultural understanding of architecture is very easily forgotten in a modern architectural education.

We talk about the limitations, we are talking about crises - instead we should talk about the opportunities.

We have the chance to create great work and education together if we want - instead of discussing how difficult it is to train and educate architects to the new challenges, we should talk about how amazing it is that our students can travel and meet across cultural differences.

We are in a situation where the complexity is big and it becomes more massive - fortunately, because it allows us to challenge ourselves and our education.

Our meeting these days is a paradox - we are looking for answers and sometimes the truth. But I think we should ask questions instead. We should find opportunities instead of limitations. We seek answers through morality, instead of acceptance and genuine openness.

Instead of being the wise guy, with the raised finger pointing at you, with the moralizing message and all the right answers, I would rather be the one who is helping to create the questions.

Innovation and change require new ways to collaborate - how could that be done? - It requires rethinking and an alternative form of sessions than what we are doing right now.

I think that it is a misconception to think that we can define quality and what a good architect is. We can of course discuss what we think the architect must be able to do, so we can exchange internationally – or what should be the minimum of competence.

I think that experimentation and daring to take risks is an important skill and competence of both the student, the architect but also the education that trains our architects.

Georgios PANETSOS

Head of School, University of Patras, School of Architecture, Patras, GREECE

I was quite pleased but also somehow frustrated to see the word '*uncertainty*' figuring so prominently on the theme of this year's meeting. My pleasure was due to the fact that I feel very much at home with it. My frustration was caused by the need to at least partly re-structure this talk. I will therefore touch briefly upon the notion of uncertainty and its pertinence to architectural education and innovative practice, and then hint on issues of ethics and architectural design curricula.

From the early days of our School, founded in 1999, based on academic intuition of some sort, we decided to explicitly put '*uncertainty*' as central to our curriculum and teaching. Uncertainty was then an attitude, a pre-disposition, welcoming internal doubt, mutual criticism (mostly from within the discipline), research and new learning. In the advent of an increasingly unified world, we took as a given that our graduates would not practice in Greece only, as was the prevalent attitude thirty years ago, when I entered the School of Architecture myself. This involved uncertainty not as academic ground, but as a condition imposed by real life. We have therefore tried to not just expose, but actually infuse our students and junior faculty with uncertainty as a privileged standing point and continuous motivation for knowledge and operation.

Uncertainty can often be disquieting or even paralyzing. However, when accompanied by persistence and openness, in the sense of relative freedom from pre-conceptions and independence from currents of thought, it can even be intellectually pleasurable. Beyond pleasure though, I should admit that current predicaments call for very measured and concrete responses, not intellectual wanderings.

Uncertainty is an attribute of times of crisis and crises surface mostly as conflicts. In conflicts it may be wise but definitely not useful to remain *au-dessus de le melée* or to withdraw. Crises allow the re-evaluation of most things that could have previously gone without criticism. In times of crisis identities are blurred, new opportunities are opened, new establishments are being consolidated. What was natural or progressive before, may appear obsolete or redundant afterwards. The average intellectualistic individual tends to tag most of the active and revisionist stances followed in periods of crisis as conservative or even reactionary. In any case, the extent of radicalism and the disparity of means and ends remain to be seen and criticized. I prefer to think that crises and uncertainty provide chances to ponder the essentials and get rid of excess of any kind. In education and art this approach may acquire the form of revisiting older achievements and lead to re-evaluating of recent preferences or trends. Let me now attempt to respond to the four question that the organizers addressed to us, and also comment on them.

If there is a question of a new, unpredictable, profile of the future architect, what should our strategy for the learner of today be?

This is obviously a question addressed to educators.

My answer is precisely an imperative to make uncertainty central to the curriculum, to let students and ourselves doubt, ask, propose/design, challenge… We should also realise that

research in architecture should be seen as a way to reach beyond widespread positivistic scientificism in an effort to reach things in their multiplicity.

Which are the most significant competences that this architect has to fulfill in order to be able to adapt in the fast evolving society?

Let us be reminded of the competences that have had some significance over the last few decades, or of the changing significance of competences, actually of the changing frames of mind in architecture and architectural education: From intuition to science, from the 'Architecture vs. Urbanism/City Planning' dilemma to their synthesis in Urban Design, from CAD competence to Multimedia competence, from Solar to Bioclimatic to Sustainable, and so on.

It should be stressed that the question asks about the ability of the architect to adapt in the fast evolving society. But is it a question of adapting to or a question of leading society? If architects are experts on space, form, etc., then they have to lead society and not just adapt, unless of course to adapt means to respond.

Then the question of ethics emerges. We usually tend to acknowledge problems and conflicts in architecture as both a discipline and a profession as coming from without. This is particularly the case with the current crisis. The challenge that recent architecture of excess is facing is easily charged to the economic crisis.

It might be helpful to invert charges though.

We might ask the question: Is the profession of architecture corrupt, in decay? By corrupt I mean that is does have tragic structural flaws that undermine its own purpose for being and prevent it from performing its duties.

The profession's purpose for being is to create architecture – that is, to make art out of the science of building.

We no longer talk about architecture as art even in schools. The purpose of this art, if there is one, is often debated but most agree it should engage the individual mind and body as well as human culture as a whole. What kinds of structural features might be holding back the profession from consistently achieving these results?

Here are some possibilities.

Though the situation varies from school to school, design academia tends to admit individuals that in other disciplines would be described as "narrowly educated technicians" and proceeds to advance that narrow focus. This may be a distant residue of an ancient need for draftsmen and labourers, which is rapidly being expelled by computer technology. It often prevents architects from understanding and engaging their work in the larger social questions and from collaborating with their more broadly educated peers in law, medicine, and also engineering.

Professional examinations, moreover, do not test for architectural acumen. These are primarily engineering exams that do not capture qualitative aspects of humane design. The legal title 'architect', on which laypeople rely to find qualified assistance, therefore does not actually ensure any architectural ability.

The ethical codes that the profession enforces have been diluted over the years to minimal standards of basic citizenship. They no longer require, and often don't even describe, the

actions that would produce architecture. Neither laypeople nor architects could easily discern from these codes what distinct values architects are meant to uphold and what purposes they are meant to serve.

Architects' professional organizations too often promote architects rather than architecture. Lay people can therefore be excused for thinking about architects as business people first and professionals or artists second, if at all.

The building industry has detected, enhanced, and leveraged the public's confusion over what architects do. As architects surrender their leadership positions, the odds that buildings might serve interests beyond those of their developers worsen. Many architects now sit in the back offices of developers and are dependent upon them – a circumstance that was ethically prohibited a century ago.

But even without the influences of the building industry, architects are faced with the same ethical conundrums of 'agency' that all professionals are. Architects may be charged with representing the needs of their paying clients as well as the often contradictory needs of the non-paying users and the non-paying public.

These features may indeed be corrupting, that is undermining the profession's ability to serve its defining ethical goals. Furthermore, many even stickier ethical conundrums are posed by the very existence of an artistic pursuit structured as a professional and commercial enterprise.

What is the fundamental knowledge and skills she or he has to acquire from the education in order to become a competitive and successful architect?

I would rephrase the question as follows:

What is the fundamental knowledge and skills she or he has to acquire from the education in order to acquire a position of leadership in architecture?

Le Corbusier is said to have inverted the dictum "Don't look for roses when the wood is burning !" into "Look only for roses when the wood is burning !" (communication by Jerzy Soltan to the author, Cambridge, Mass., 1985)

This is about the art of architecture again….

Which are the strategies of our schools of Architecture regarding this major issue?

This leads us back to the beginning of this talk: We have to '*make uncertainty central to the curriculum. Doubt, ask, propose/design, challenge*…

At the Department of Architecture of the University of Patras we have decided to adhere to the concept of the flexible curriculum that is open to pertinent revisions. The major premise is that architectural schools are schools of higher education, not of technical competence, where primacy is given to design on all scales. We consider our task to produce architects, not design technicians, and promote critical knowledge without arrogance, pessimism or nihilism.

The major change in our school consists of squeezing of the core curriculum into practically 3 years of study and reducing the number of courses. In Greece we have a rather obsolete tradition of a unitary 5-year study programme, consisting of too many courses and leading singularly to a professional degree in architecture. Therefore, effecting change did require effort.

The new curriculum allows for better integration of knowledge through reflection and training. During the final period of their study we ideally expect students to develop a research approach to things (through their Diploma Research Thesis Project, 14 ECTS units) and to formulate a position on the current state of architecture (through their Diploma Design Thesis Project, 30 ECTS units)

The new curriculum consists of fewer courses of broader scope, a maximum of 6 per semester, including the design studio and elective courses.

We put particular emphasis on electives so that each student may concentrate on aspects that interest him/her. We pay attention so as to provide electives from all areas. These constitute 46% of the ECTS unit total (including Advanced Option Studios, the Diploma Research Thesis Project and the Diploma Design Thesis Project). We also encourage students to enroll in free electives in the humanities. In balance, we have weakened areas of mere technical competence that can be acquired with little assistance on the side of the courses or even out of school.

In the History and Theory sequence we have switched from lecture courses to a mix of lectures and seminars so that students learn how to identify issues, ask questions and methodically search for answers. We have transposed Theory courses from the 2nd to the 3rd year of studies, so as to draw on students' history knowledge and ampler design experience. Theory ECTSs were doubled. So were those of Art History.

The Art sequence switched from a general 'visual arts' approach to a more traditional mix of 'free-hand drawing' , 'colour' and 'painting' that may also be enriched with 'sculpture', 'nude', etc. in the future. More advanced Visual Arts classes also switched from quasi-conceptual approaches rendered in rough execution to precisely executed artwork, video and multimedia.

1st- year Architectural Design Studios were re-structured from an Introduction to Design through visual exercises into three intertwined modules focusing on Architectural Design proper, 2D and 3D architectural representation (architectural surveying, linear drawing, analogic modelling, etc.) and Digital Design respectively.

2nd- year Architectural Design Studios focus on small- and medium-scale residential, office and retail buildings and also provide elements of Ergonomics, Interior Design, Building Construction and even Gender Studies.

3rd-year Architectural Design Studios focus on medium- and large-scale public, office and retail buildings and also provide elements of Interior Design, Furniture and/or Product Design and Building Technology

The Urban Design sequence consists mainly of Design Studio work on small- and medium-scale urban spaces and also provides elements of Planning and Urban Theory.

Advanced Option Studios are involved with the design of large-scale public buildings and urban spaces in critical response to the current state of architecture and society.

The Building Technology sequence was enriched by two new 4th-year courses on Sustainable Design at both the architectural and the urban scale of 6 ECTS units each.

Last but not least, a new Professional Practice course has been introduced, so that students acquire some knowledge of business and office administration, marketing, legal principles and professional ethics. I am confident that innovative or even alternative architecture can

still be more effectively promoted through mainstream corridors. Alternative practices tend to be looked at as almost decorative or intellectualistic endeavours, not pertinent to building. Academics often tend to somehow disregard or overlook the business part of the profession. In a time of uncertainty, and despite my belief that the architect's work ends with the completion of the design, this should not last long.

Debate

Loughlin Kealy, Dublin, Ireland

Introduction to the panel session

The key characteristic of this session is the focus on learning, and by way of that concept, on the activity of teaching – so that the focus is on the learning experience of the student. Furthermore, we are invited to explore the intended outcome of the learning/teaching experience – what are called "competences". We are invited to consider what "competences are likely to be most significant, given the uncertainty of the future". Beyond that, the invitation is to consider the position of the school as it tries to address this challenge. Are there implications to be drawn for the character of the school, the way it engages the learning experience of the student with the inheritance of the culture of architecture, its practices, its position in society and its role in the management of change?

Introduction to the discussion

To begin our discussion, let me set out some reflections about the role of the school. As we reflect on this morning's presentations, I am struck by the fact that all of us here are in positions where we affect the learning of students. I would characterize the challenge that faces each individual head as that of creating a culture within the school:

- of enquiry and reflection
- of exploration
- of respect
- of production/ realization

and a culture that embraces the challenge of collectivity in the context of competition.

Maria Voyatzaki, Thessaloniki, Greece

I would not wish to dwell on the term "diachronic" again; it being something which is eternally correct or existing. Regarding priorities, or values, it is competences which is the subject today. I would like to draw your attention to the adjective, which is the word "new". Many of the things we have discussed have always been there, but from having listened to people - Herman Neuckermans,in particular, I think touched on the new issues such as sustainability, globalisation and so on which are relatively recent issues - I would like to put on the table three different issues or points of view. The first one is that there is a lot of discussion about learning to learn as a competence. This has not really been discussed, but this is an ongoing discussion on how you teach people to learn by themselves. To my mind, this suggests new teaching methods. That in turn takes us to the discussion of new competences for teachers, which is a very important subject for us to tackle. We have been discussing how we develop new competences for our students but for you as heads of schools or as people that recruit your new members of staff, it is important to look at what the new competences necessary for teachers you recruit to your schools are in order to respond to this new teaching methods that allow people to learn by themselves.

My second premise is that we operate depending on the context and our background. If you talk to Adrian Joyce or to people from ACE, they talk about employability and people working as practitioners. I would like to broach the subject of what educators are about and what the profession requires by saying that we are educating people to a certain extent to design buildings and we cannot but accept that as an accurate statement. However, a new competence I find is trying to develop a new understanding in our students of the social, political, geographical and any other context that gives new perceptions of the human being; this is something we have not discussed. Who are the people, the men and women we are designing for in the 21st century? This brings to the fore the need for making students aware of the social, political and economic context that formulates the human being we are building for.

Last but not least, a very contradictory concept, which is time; this is not something new. Time has always been there as an issue, from the theory of relativity to contemporary architecture, digital architecture and the time issue of building is changing in time and so forth. Yet I feel we have to calculate a competence that is related to perceptions of time because time can be catastrophic as well as important in the creation of the built environment. Back in 1997, Milan Kundera wrote the book 'Slowness' in times when media and informatics were overpowering everyday life. Suddenly what used to be brilliant, which was fast food, became something derogatory: attitudes changed and everyone was looking for slow food restaurants because we felt this was where quality stood. I think we really have to make our students aware in a time of globalisation and financial crisis around the Globe how to be trouble shooters, how to be responsive - something mentioned by Georgios Panetsos at some point - and how to appreciate the fact that there is so much information going on so rapidly that we have to learn how to manage it, how to select it and how to distinguish the good from the bad.

Alexander Tripodakis, Chania, Greece

We have talked a lot about sustainability and it is natural to do so but I would like to stress something that we all know, which is that sustainability is a moral attitude, one that could affect all our thoughts, actions and behaviour within and outside the school, when we are students, when we are practising architecture and so forth. It implies a series of priorities and values, it implies a lifestyle. It naturally implies the incorporating of active, passive, systems and so on, the reduction of energy consumption, but not just this. It also implies an economy of means, as opposed to the architecture of glamour; it implies modesty as opposed to arrogance; it implies a respect for nature as opposed to hostility; but at the same time it implies a concern for human and social sustainability. This means that, as Maria Voyatzaki just said, a concern for people and for knowledge of the profile of different users and of the different groups that it is going to serve, people of different ages or origins. This includes a concern for society, that is, a concern for the enhancement of social ties and social relationships against the phenomena of our time which affects most of us, aspects such as individualism, alienation, consumerism and so forth.

Touching on the point about going outside, I also believe that going outside is very important and that in reality maybe we can end up having two schools, one intramural and the other extramural. Going outside can be a learning process and also a means of connecting students to reality to what could be expected when they go outside and also to make them better equipped to help in the actual, real world, with the true needs of society first and the individual human being second.

Adrian Joyce, Architects' Council of Europe

There are two points that I wanted to make. The first one is in relation to Georgios Panetsos's speech, where he said that professional organisations promote architects and not architecture. I have to point out that in my view and in our experience throughout Europe as a whole that is not generally the case. Many organisations that we represent, particularly in Scandinavian countries, going as far south as Portugal and up through France, all of them promote architecture and by implication, the architect. Our view is that it is not correct to plead in a corporate way for architects but if we promote architecture, then in the minds of those to whom we promote architecture, they realise themselves that to have architecture, you must have architects. So certainly across Europe, the earlier statement made is untrue. If however it is the case in Greece that the professional organisation bluntly promotes architects, then it must be a difficult situation that you face here.

My second comment is addressed to Herman Neuckermans, regarding the Eleven Points. In the Architects' Council of Europe, we have carefully considered whether or not it would be prudent to call for a revision of the Eleven Points now that an evaluation of that directive is underway. After much debate, it has been decided by the Executive Board and agreed by the General Assembly that the Architects' Council of Europe will not call for a change to the Eleven Points for a very specific reason, at least not officially. The reason being is that, if we do, it could threaten the entire directive, the entire system of automatic recognition that we benefit so much from. On the other hand, his view that there is a need to review or to assess the Eleven Points is indeed a very valid position. If the EAE decides to take that on, we will obviously watch that with great interest.

Pierre von Meiss, Lausanne, Switzerland

We all talk about adaptability of the person to new situations; we talk about teamwork, group work, interdisciplinary teamwork. I think that the schools - now that I am no longer in the school, I can be critical! - should be a little more courageous. For example, I do not understand why we keep so narrowly to recruiting only potential designers into architecture. At Master's level, for example, I do not see why we do not take in geographers, sociologists and so forth. Maybe such a person will not become a professional architect but I think the system they have at Harvard Graduate School, at Philadelphia Graduate School, at Penn and at many other universities is not so stupid. Their attitude is that if they have a student body which is half non-architects and half with an architectural background, there is a much greater and richer relationship inside the school. This, in turn, benefits the student, especially a Master's student who is learning about fifty percent by himself anyway and twenty five percent from the other students and only twenty five percent from the few professors that are around. I think that here in Europe we are too closed, still thinking in this ancient professional, polytechnic way; we are training people to become professional architects and that is all. With all these ideas, not just in this session, I think there are things we can do. It has been noted that one out of four architects seems to be unemployed and this is also something to take into consideration. I think, therefore, that if we really want to do what we are saying, it is not just a question of nice words, we have to change something in the recruitment of the students.

Lorraine Farrelly, Portsmouth, United Kingdom

I would like to go back to what Maria Voyatzaki mentioned about the way we might teach our students. In the UK, and I am sure it is the same across Europe, the idea of self-directed learning has become a key issue. One interpretation of this is that we teach our students less, with the idea of encouraging students to learn from each other, to learn from their environment and not to wait for the professor or tutor to give them the answer, but rather to develop their own initiative to know where to start to look for the answer. If they do not know where to look for the answer to something, how do they know how to solve the problem? One mechanism we have in universities now is personal development planning, whereby all our students develop an approach to their education. They have discussions with their tutors not about their subject per se, but about their future, about how they intend to develop their skills. The idea of this is that students need to be self-critical, and to start to take responsibility for their education. They start to think from their first year about what they may want to do and how they may want to do that. We also have a range of students that come in at our first year, but they all have different skills and they need to start to understand how to develop these skills and use the university as a resource. I think putting mechanisms like that in place is very helpful to start to get the student to take responsibility. If students are too dependent on us as the tutors then it is very difficult for them to take their own responsibilities and make their own decisions.

Georgios Panetsos, Patras, Greece

I would like to respond to Adrian Joyce's and Pierre von Meiss's interventions. I will do that only indirectly.

I want to observe that we take pleasure in being architects; we have a very particular self-image and a very particular way of self-appreciation which is quite different to those of other disciplines and professions. I am critical of this, because although there are definitely many differences amongst disciplines and professions, it is only in architecture that we need to see architectural creativity, architectural capital personified, to have a person in which we will acknowledge the great architect. This is not the case with medicine, for example. If you read a press release from a medical congress, you will read about concrete results: *this* has been announced, *this* is new and so forth. If you read a press release from an architects' congress, in most cases you will only get to know who has been present there. This is more general and wide-spread than we might want to accept and, also, has consequences. It also relates to what has been said before. Harvard and the like are elite universities and have a very particular modus operandi. We do not have this kind of university in Europe. Most students there are practically compensated to study and perform: those universities have enormous endowments. If I am correct, Harvard's endowment is twice as large as Greece's annual state budget! So, firstly, they can afford things; secondly, their students are good from the very beginning because they have gone through a very strict selection process. Even if you taught them nothing, they would get to learn something! These initial conditions already make a huge difference. In our schools there is no elite process of selection, we just admit students most of whom simply want to study architecture and then go out and work. There is no aspiration to excellence, we try to infuse them with this notion, but when they go out and have difficulty in finding a job, or have a petty client asking them to do ridiculous things they either have a very strong ethical personality and refuse and then go hungry or succumb. It is complicated.

Lucyna Nyka, Gdansk, Poland

I would like to refer to what Maria Voyatzaki said in her second question: Do we think about the people? Who are the people we are designing for? I would like to come back to the second voice in our discussion. Once again, one needs to stress the importance of going outside. I remember as a student studying in the eighties, I was taught about regions and regional architecture but I really did not understand what the teachers meant; I found it very dull until I got a ticket and went south to Hungary where I saw people building differently. This kind of understanding comes even in terms of people, it comes with encounters, meeting other things. We should expose our students to this outside situation. They may visit some regions where for example people are so poor that our European notion of poverty does not apply because these people simply have nothing, including no perspective. For them, it becomes quite a different discussion. Next Sunday, we are going to help people after the earthquake; this again will mean something different. It is after this kind of experience that students begin to understand that they are doing something for people.

Secondly, to answer Pierre von Meiss's point that we do not accept geographers or sociologists or so on, I would also like to relate this to Constantin Spiridonidis's questions yesterday, to what degree a general philosophy can be transferred into research and education. When we think of the general theoretical situation, we are in an era of uncertainty, which is why we are looking to Kafka, to Leibniz, and so on to look at such theories, the notion of time, the fact that everything is changing. It appears that we need not only to change the concept of subjects, but also the structure of studies into less rigid, more uncertain notions: it is more like a cloud-like structure, out of which we then try to make sense. That is how we could accept geographers, sociologists and the like more easily. Yet there is a problem. We cannot really do this in Europe because after my experiences of writing this application for the notification of diplomas, I see we cannot accept such students for the Master's studies, because they will not comply with the demands of Article 46 which asks for at least four years of architectural education. Therefore, we cannot award them our Master's degrees. However, in Gdansk, we have a lot of students who, after having studied geography or sociology, are invited onto our doctoral studies.

Stephan Maeder, Zurich, Switzerland

Thank you for the comments of the panel. They show what we know already, which is that architects have to have many competences in many fields. In most cases, they work together with experts and architects know less than these experts. This makes it very difficult. The question is then to solve these unstructured problems. On the other hand, it makes it very easy for the schools because the time needed to learn all these things is far too great, there are too many things to learn, so the schools are allowed to have holes in the curriculum and they are not forced to run after every fashion. But there is one competence every architect must have and I am slightly shocked it was not mentioned in the last hour: the competence of organising space. No-one else can do this on the building site or in the architectural field, except for the architect. So I wonder if this may be the one backbone of education. All the rest can be learnt throughout your life, but I think an architect should have this one competence.

Marc Fischer, Maastricht University

I am programme director of the post-graduate programme in architecture at Maastricht University. I have a question regarding the new competences. Do you think it is possible to acquire professional experience in an academic setting? Allow me also to explain something about the background to this question. This may be news: in the Netherlands there is a new architect's title act, which now also prescribes that before you become a registered architect, you need two years' professional experience in the Netherlands. Finally, we have this act. I am one of the task force responsible for formulating the criteria that a candidate should meet. This brings me back to my original question about the ability to acquire professional experience in an academic setting. I would specifically like an answer from Lorraine Farrelly since she told us that the students work more or less professionally in a project office. I was wondering whether this work that they do counted as credits for part three of the exam.

Lorraine Farrelly, Portsmouth, United Kingdom

The reason that we created these opportunities for our students was because in the UK we have the same requirement that states before you can become qualified, you need two years' professional practice. Much of that practice, however, can happen at any point in your career before you take the final qualification. What we have done, therefore, is to create these opportunities for our students to work. For your practice to be accredited, you have to have been working alongside a supervisor who is a qualified architect. All this we have in place: we have architects who are running our project office. There is also however a limitation in terms of time. This means that certain practice, unless it is over a particular period, does not necessarily count. Yet we are trying to put opportunities in place for our students whereby if they can work more than few months on a project, then that can still be accredited as part of their practice experience. We started that this year as a way of trying to give some of our students that possibility; the scale of this is however quite limited. It is only going to be a handful of students across the whole course because otherwise we would effectively be running a practice.

Loughlin Kealy, Dublin, Ireland

There is just one aspect to your question for clarification. In the UK system, it is possible to do a year out within your academic programme which is then accredited in terms of your Part III.

Richard Foque, Antwerp, Belgium

From previous interventions an emerging question is how can one work within an interdisciplinary team? I think you can only work in an interdisciplinary team when you bring to the table your own knowledge and your own expertise. Otherwise, it is useless. Secondly, it also poses the question of what has been mentioned a couple of times previously, that of the generalist or the specialist architect. It is a tricky point to talk about because as a generalist, an architect should still have his own particular knowledge. If you refer to other disciplines, you see that in law, in business, in medicine, in business administration, everyone talks about interdisciplinary work, but at the same time they bring to the table their professional knowledge. What is our knowledge base is important for us. As Werner Oechslin pointed out yesterday, it is modernity I

think lost that knowledge base which has always been there. It was always there and we lost it. I think it is important to bring that back and to work on it. I personally see a possibility in it also, which maybe partly answers some of Marc Fisher's questions, that using case study research is a good point. This is done in law and medicine, as well as in business administration, with the students researching and trying to see what comes out of that experience trying to put into the knowledge base. This is what I said in my earlier contribution: we have to start to thinking like an architect, as doctors in medicine learn to think like a doctor, or a lawyer thinks like a lawyer, and a businessman like a businessman. We too have to start thinking as an architect. This is crucial and we should try to define what that means.

Suzanne Komossa, Delft, The Netherlands

In relation to all these components of global and local, formal and informal which have changed so much over the years, we also need new methods, that could be integrated into the research process. We keep talking about competences and we can be very idealistic about this, but we also have to find the means to make sure that future architects are able to do this. I think it is essential that we have an idea of what our methods are. Our students are for example very idealistic: they want to improve the world. We need to ask if we can offer them methods that help them with designing and with researching these kinds of problems and incorporating them into the design process. Yet they must learn to do this without being naive, because that is the other problem. It is of course nice to study poverty somewhere, this is good experience for the student, but looking from the other side: are you helping people by doing this? As we know, architecture often fails in this area, so I think that to make sure that we are not naive, we need competences. At the same time, we need methods that are related to design because that is our job and we need to discuss them correctly, to ask what we are doing. That is also my question to the panel members. Maybe we can be a little more specific regarding what these methods are. By examining the methods of each of us, maybe we can find some alignment.

Loughlin Kealy, Dublin, Ireland

I think that is a fair point. I would just say that in my own limited experience, where people go and work in different cultures, if the programme for the work is going to be successful, it has to arise from the culture which the people are entering, not from where they originate. That is the major pedagogic shift that needs to take place when one goes into these new contexts.

Ramon Sastre, Vallés, Spain

I would like to make a reflection that we may apply not only to this matter of competences but also of values. To start with, we are having this meeting where we are many people and so we can treat competences and make declarations about them, stating what competences we want an architect to have. Then there are the heads of school who come here and have the opportunity to deal with the curriculum of the school and they can try and put these competence into the curriculum. There is another level: the teachers, some of whom are here, many of whom are of course not. They receive the curriculum and they may agree with the competences and values in that curriculum or they may not, but they still deal with it in a pedagogical way. We may even talk about the next level: that of the students. They are going

to be on the receiving end of that curriculum, will try to apply it and try and get out of it in a pedagogical way the declarations made by the higher level of their society. But when all this is mixed together, there is a danger that at the end of the day, nothing of what has been said here appears in the end result, so maybe we have to be careful not to break this chain.

Deniz Mazlum, Istanbul, Turkey

The concept of quality and education has also been discussed, the question of what the quality standards in education are. We talked about competences and content of the curriculum but this quality of education should be very much parallel to or in accordance with the quality of life concept on which ACE or UIA are also working very hard. This is because the quality of life has a lot to do with the building environment area which is in architecture a professional responsibility; it is moreover a multi dimensional area which cannot be measured because it can only be "lived". So it is more than merely just technical, it is more than this, it is spiritual, connected to memory or to something emotional. I feel that education should highlight this quality of life but with its own spiritual, emotional and heritage values as well. In that sense, the idea of the spiritual values of the building environment are missing from our educational programmes; these are actually a public responsibility and mostly we use concepts very wrongly, such as development. I was also inspired by Lucyna because we build so many buildings the same way and have uniform cities, we think this is good and we call it contemporary architecture. Globalisation we also sometimes interpret in a very wrong way. We ignore the local values and the flavour of them and also the value of them for us in our quality of life. That is why in education, I believe, we should be as architects, we should acquire this ability for critical thinking; we should feel like a partner of the public and of a team. That is why this interdisciplinary work is very important as well as collaboration and discussions like this. I also believe that it is very important to share these discussions with other international networks or efforts. We should support this way of critical thinking with its other values which cannot be measured easily in architecture.

Herman Neuckermans, Leuven, Belgium

I wanted to react to several interventions and I will start with the one about sustainability. I think that the first thing we have to do is to layer the concept of sustainability. First we have to know what it is, what it means, we do not have to invent it, it has already been set in black and white, in print, in the definition at the meeting in Copenhagen. We have to create a world so that the next generation can still survive in. But then we have to layer the concept of sustainability, to layer it on intellectual or societal levels, ethical levels, and scales. Sustainability on the level of cities is different from the level of the building and that is a different level from the one of materials. I think that if we really want to deal with this, for those of us acting in the built environment, we have to know this in different lights, depending on what we are aiming for. To give one example: it is well known that using tropical wood is ecologically not the best thing to do, but I do not know how many of you are aware that if you use rubber wood, this is a tropical wood. The tree grows for thirty years; after those thirty years it no longer produces rubber and you cannot use it again for rubber. So there are plenty of things that we should know in order to direct our choices when it comes to materials. It is the same if you choose copper. Many kilowatts are needed to produce copper and if you have the choice between

this material and another one, you should know this fact. I am not saying that copper should not be used, but you should be aware of what you are using.

The second point is what Pierre von Meiss said about different intakes, taking in students from different origins. I think that matches what I said about the profile. The school has to come up with a profile and I think some schools already do this. This is necessary because I do not think that you can take a lawyer and then in two years' time transform him into an architect. There are so many things to do. Although I would also say, we are the ones that did not copy it from you, we are the ones that think and act in space so that is the core. It is all related to this activity. We stay within our sphere of capabilities. Another point was regarding the Eleven Points. I know that from a political, tactical and strategic point of view, it is not desirable to start changing the Eleven Points, but that should not prevent us as a community from thinking about how to start to think about it. Seeing that it will be a good ten years before we reach something reasonable, if we do not at least start discussing it, in those ten years' time, it will be completely out of date.

Marc Fischer's about whether you can provide professional experience in an academic setting, my answer would be yes and no. The first question is, what does it mean? If it means making quality buildings, I think we can do this in the school. I think schools should and can do it, if they want to. If it involves writing specifications, we do not normally do it in schools, but we can do it. If it is supervision on site, then we cannot do it in schools: a school is not a site and you do not have the power to act on a site. This cannot be replicated in a school. Does it concern running an office? Students may be in an office, but being in an office is different from running an office. This is not what a student learns when he does the apprenticeship, he does not *run* the office, he is *in* the office. Therefore, I do not think the schools can do this. As for negotiating with clients, there are plenty of things we could do. This is why I say we need a list of work areas, or themes that says this is what we do in the school, specifically in my school, and here is what we do not do. Then you can start to discuss what things need to be and can be moved a little and adjusted accordingly.

Constantin Spiridonidis, Thessaloniki, Greece

I would like to make a remark concerning the distinction between generic and subject or domain-specific competences, as Herman Neuckermans mentioned previously and as we have broadly discussed from 2006, 2007 and 2008 in this room. My feeling is that this distinction appears in our discussions about architectural education after 2000. Before that, all the debates we had were more or less focused on subject or domain-specific competences. The proof is that the European directive made reference to subject-specific competences. To the best of my knowledge, this appears after 2000. Of course, we were not ignorant of generic competences but they were incorporated only vaguely into the subject specific competences which defined the way that the curricula in schools of architecture had to be organised. These curricula were organised on the basis of the teaching material. We had to teach some history from a certain period or mathematics or sociology and so forth.

Now we are facing something new and my feeling is that the more the conditions of the future become uncertain, the more we turn towards generic competences. We discuss generic competences more, leaving the subject or domain-specific competences not exactly in a secondary position, but somewhat overlooked. There were, however, some significant things

which happened. For example, one of the things that has happened during the last years is the disappearance of a humanistic culture from our curricula. We are losing more and more teaching hours from subject areas like history, theory, contemplation, something which is related to this aspect of architecture. It was very interesting and significant that yesterday the entire discussion focused on the fact that we cannot think about architecture without the human being to which it is addressed and this is the condition of architecture which tends to be lost from our curricula. I think that this is something which we have to take into account very seriously.

The other problem that we are facing is that, the more we concentrate on generic competences, the more we appear to be incompetent to teach them. We are talking about critical thinking but we do not know how to do this. I am sure that I am not the only one unable to do this, but I would like to tell you that for three years in the Latin America ENHSA project - and I would also like to invite the views of people participating in this - we have tried to see if we are able to propose any kind of method to ensure, for example, critical thinking, or the capacity to collaborate with other people in inter-disciplinary thinking, trusting in trans-disciplinary understanding and in all these generic competences. I have to assure you that it was really very difficult in a very empirical way to try to give some ideas suggesting how it would come about. I think I am right in this. So it is not evident that we are able to teach generic competences without the support of specialists or without an exchange of ideas about how we do it. What happens after that is that we are balancing between wishes and old practices and in the end I feel that the quality of education that we offer is not compatible with the expectations that we have from the result that we were expecting.

The last consequence of this condition is that the newly recruited staff coming from this condition arrive in schools of architecture having high quality competences in using new technologies. While this appears to be a very important competence for their recruitment nowadays, in most cases, those people are ignorant in the history of architecture, they have no capability to structure a discourse on architecture about the nature and the human aspect of architecture. The only thing they are able to do is to write scripts and deal with parameters; the humanistic aspect of architecture is completely absent. I think that we are facing the danger of having schools of architecture being in a few years directed by people who do not have a culture of architecture based upon a conception of the contemporary nature of the human being. I think this is something worth reflecting upon and discussing.

Manuel Nikolau Brandãu, Porto, Portugal

First of all, we must all be aware that all schools and all countries have different backgrounds, different professional organisations with different powers and different responsibilities; they have different employment situations and so forth. So it is very dangerous to apply the same kinds of laws and general principles everywhere, otherwise something like what has been done in the Netherlands will be created in other countries. In Portugal, for instance, we talk about the new priorities, but we have reduced the time of the studies. It is difficult for me to understand that in general: it has always been difficult. This means that some of the new points and new priorities, for instance, I took a note of were not in the directive. Sustainability, for example, we began teaching through ecological principles in architecture in 1982, so it is not such a new issue. Universal design you can put in exercises, you do not have to have a special discipline for this. Global thinking we begin in the first year of the school. Finally, the question of computers,

this is something new that we only began to teach in the school in 1996. Thus we have more competences to teach in fewer years, we are linking to the profession in some way; in some schools in Portugal we have reduced the time from six years to five years, but we ask for two more years of preparation to accede to full responsibility in the professional exercise.

It is quite strange though because we do not know what the offices actually do, what they do with these two years that we have in Portugal. Usually, the apprentices make good coffee for Mr. So and So, they bring the baker's to the municipality because of Portuguese organisation which is not like that in Spain! Thus graduates spend two years doing this, during which time they do not and cannot earn a great deal of money, and the only positive aspect is in regard to the computers because the students work on some software, not the software we teach in school that help the process of architectural thinking, but the programmes the offices need to enter international competition and to win. That is what the new market amounts to. One hears that in Portugal everything is all right, but this is not true: the professional organisation has knowledge of this system of slavery and do absolutely nothing. They protect only the star system, including in the national and international competitions. They promote the same architects in international exhibitions; it is always the same architects doing the Portuguese representation. I was part of the national organisation for six years and I know exactly what they do *not* do.

Loughlin Kealy, Dublin, Ireland

I know that I am speaking to you as the heads of schools or of teams or directors of programmes and in some cases teachers as well. I would simply say that you know the fields that you plough yourselves, so in terms of specifics, in terms of how to achieve certain goals, how to face uncertainties as they apply in your own context, you should be the best judges of that. What will work well in one context may not work so well in another. However, if we leave aside the question of specifics and specific contexts, there are generalities that apply universally. One of those generalities is that creativity and innovation flourish best in environments that are open, supportive and orientated to the world around them. This is a matter of the climate of the workplace and the ethos that determines how the task is undertaken. And that is our responsibility as heads: to create an ethos within the school, an ethos which actually takes seriously this question of uncertainty and how we are to face it. Even within an individual school, you cannot determine the exact contents of every programme or every speciality which you conscript in order to deliver an education programme. But you can create a climate, a system and a method with which a school can address this in a sympathetic and reactive and responsive way. Innovation can begin anywhere in that context – with a teacher, a student or even a head. So it is our responsibility to create a culture of inquiry in our schools, a culture of reflection in our schools, a culture of exploration within our schools, a culture of respect and a culture of production and realisation within our schools. How do we do that? You are the experts in your own educational environment. You know where there is movement and a capacity for change; you are teachers of the experts. We should not lose sight of the overall theme of this session, which is that we are uncertain about the future and we cannot pretend otherwise. We can certainly ignore it, but if we do ignore it, then I think we are neglecting our fundamental ethical responsibility to exercise leadership in the education process. The challenge for leaders is to know and to develop the capacity of their organisation for change – to

create the conditions and to set the agenda. Leadership in educational change is as much about relationships as it is about curricula – as much about ways of teaching and learning, of philosophy and pedagogy as it is about specific areas of knowledge and skill.

I will conclude the session by thanking the contributors for their insights.

Reflections

Loughlin KEALY

The shape and sense of the session now seem sharper, in a way that augments a first reading of the edited papers of the contributors. That quality emerges when the underlying bedrock of the various papers is considered with the perspective of time. The papers were indeed diverse, focused on differing understandings of how the theme of the session "New Priorities: New Competences" might be explored. This reflection is in two parts: the first is a paraphrase of my notes (corrected at times by reference to the edited papers that were presented) and which finds those threads that seem to connect; while the second is an attempt to articulate my own thoughts as they have been shaped by this process.

The presentations

The first presentation (RF) sketched the context for his contribution – providing a comprehensive overview in an attempt to "conceptualise the field". Five areas of competences were identified – five domains: a professional orientation characterised by continuous learning, promotion of architectural thinking and ethical engagement; trans-disciplinarity; the interpenetration of global awareness and contextual design; the inter-penetration of design and research and the assumption of leadership. These domains were to reappear throughout the session.

From there the focus changed to that of the experience of a school in the UK (LF) where a conscious and sustained effort was under way to engage with the profession. The concept of "employability", using the device of a Project Office, was at the core of the endeavor, but the initiative was conducted in the knowledge that perhaps only 30% of students would become professional architects. The Office undertook research and consultancy, providing a context for curriculum studies and for student engagement with issues in the community. Proficiencies in the use of digital tools, particular abilities in team working and development of analytical capacities, allied with other familiar elements of architectural education, were key components. As part of this approach, the school also operated an intern programme. The focus on the outside world as mediator of architectural learning shone through.

The session witnessed a direct challenge to the hegemony exercised by the "eleven points" (HN). The concern here was to address systems of describing competences, taking into account the changing parameters within which architectural education now functions. As well as a sketch of the institutional parameters for the evaluation of "competences", the presentation set out the potentials of a competence-based education system and proposed specific "domains" of competence for the future: sustainability as a layered concept, economics taking into account ethical and social dimensions; universal design otherwise known as inclusive design and global design and thinking globally.

A fresh perspective and distinct vision emerged from the presentation of a participatory model of school governance (SE). The educational climate and ethos of the school in question was shaped by the sharing of key responsibilities with students. Key words were "choice" and "freedom" allowing for personal development within a framework that provided for guidance and

connection. The development of "soft skills" enabled students to navigate amidst the complexities, creating a personal foundation in the face of uncertainties ahead.

A contrasting presentation of a five-fold Faculty strategy towards the preparation of students for the future (LN) involved comprehensive description of aims and topics of each element: forming an intellectual base; integration between areas of the curriculum, both within the Faculty and drawing on the capacities of other Faculties; the art of dealing with the real in which students worked within existing contexts; going beyond the academy to engage with communities, cultural and other institutions, and the active engagement with international opportunities through ERASMUS and student competitions.

There followed a reflection on the challenge facing the gathering (TN) – an international forum considering how change was mediated through the specific circumstances of particular schools, as well as cultural, professional and institutional frameworks. The key ingredient contribution of such events should be to help participants frame the questions rather than to try to devise answers. Within the school, a key ingredient in relation to the future was that the ability to take risks – itself a competence demanded alike from teachers and students.

The concluding presentation recommended that uncertainty be embraced rather than be seen as a crisis that could not be avoided (GP). Uncertainty should be at the core of the curriculum. At the same time it was possible to identify certain significant areas of concentration: mastery of digital media, bio-climatic and urban design, ethical clarity and critique of professional structures – incorporating such themes meant adopting a position of leadership amidst change, rather than simply adopting a posture of adaptation.

The discussion that followed touched on a range of related themes: "learning to learn" as a competency and the implications for pedagogy if such an outcome were to be a serious endeavor within a school; the significance of self-directed learning in this context, and how the learning opportunities provided by team working could be exploited. It was asserted that schools needed more courage in recruitment in order to establish the diversity within their staff structure that could expose students to divergent ways of thinking. And yet, given the desirability of such a broader learning agenda, the question was raised as how much was possible within an academic context - could a school inculcate competences which achieved their realization within professional engagement? The question was also seen as one of responsibility and leadership: the school must be intensely conscious of the world outside its walls, the social and economic context within which the built environment was structured. In this regard, sustainability was as much a moral attitude as a goal of the "techne": access to appropriate ways of teaching here brought forward the need to layer the concept of sustainability to make it amenable to pedagogic initiatives. Reflecting further, the discussion returned to the question of generic as opposed to specific competences, considering that, in the face of uncertainty, generic competences necessarily become more salient. And in conclusion, a provocative question: who is competent to teach critical thinking?

On further reflection

Some years ago, when considering the almost chaotic state of studies of the man/environment relationship, Amos Rapaport observed that the field was simply at a "pre-paradigmatic" stage.

It was a truism then, and it displayed an optimism that somehow a more intellectually cogent structure for academic research would emerge in time.

What emerged from the diverse contributions in this session was the "ecological" relationship between educational action (in the form of curriculum and pedagogy) and the milieux in which education and learning take place. There was a consciousness of the essentially tentative nature of our understandings and interventions, given the uncertainties in which we find ourselves – and yet one sensed a confidence that more developed understandings would emerge through sharing local initiatives, partial, imperfect and temporary "solutions" and the questions that they raised. I believe this to be significant – and not just an expression of the cautionary observation that the perfect is often the enemy of the good.

Most of us that are involved in teaching at this time have been shaped by modernism, not necessarily directly, but by the enduring tradition that saw architecture as having a role and responsibility to shape culture and society. To an extent we learned to believe in proclamation, in the over-arching and coherent vision. In his acceptance speech for the Pullitzer Prize, Rem Koolhas maintained that such visionary scope was nowadays abandoned, and was not even within the sphere of ambition. One can see why he would say that. But one has to go beyond it.

The question was asked as to how one was to teach "critical thinking". If by that term we mean something different from the business of philosophy, we have to consider for a moment what kinds of thinking in architecture we need for the future and what stands in the way of ensuring that we cultivate it. In my paper, I suggested that the core competence lay in a type of transformative thinking that embraces environmental provision. What might that mean?

The philosopher/historian Dalibor Vesely has much to say about the limitations inherent in ways of understanding architecture, and remarks on the narrow contemporary view of architecture as a discipline that can be treated as an instrument: describing this viewpoint as deriving from a professional perspective that is dominated by technical considerations. He believes that it is difficult to reconcile a discipline that is about harnessing specialisms with the unity that is needed for creative thought. He speaks about the relationship between the instrumental and the communicative role of architecture expressed through representation, and of its relationship to the aesthetic and poetic nature of architecture.

At this stage in our intellectual lives, we know that thinking is a function of the person and not just of the intellect. Within architecture we know that it needs to be informed and formed by all the senses, and not just by sight. The challenge that we, as teachers, face is to ensure that such understanding is captured in the actions and expectations of our teaching. We need to investigate conscientiously how we might do it and be prepared to try and to fail. We must accept that only part of this is going to be available through an instrumental orientation towards the architectural profession. Vasely refers to the contribution of new fields such as phenomenology and hermeneutics to the understanding of the culture we form and live in. It is a culture where, fundamentally, there is need for understanding based on dialogue and communication. It is essential not to confuse the communicative with the instrumental, although they are intrinsically linked together. It is an ecological view of the world, and at variance with the purely instrumental view.

It seems to me that an awareness of this challenge and the potentials of partial solutions emerged through the papers and discussions in this session.

Teaching thinking is not at all straightforward - one essential ingredient – one core competence - for the teacher at least, is to be aware of the kind of thinking she/he is using – it structures our language (in certain respects, our language structures our thought) and our communication. Within architecture the goal of critical thought is thoughtful action. Our understanding of the world has to include our awareness of how we understand the world, and that there are alternatives that could be useful. If we are to extend design to the complexities of cities, we need to actively cultivate the intellectual dialogue with distinct and divergent ways of understanding and to explore how we can work with them. Ecology and planetary survival demand that we understand our instrumental thinking, the need for systemic thinking, and how the designer's instrumental thinking can be part of that. This needs to be one of the factors at the core of curriculum design.

If it is possible to help the emergence of creative thinking in individuals through teaching, then it will be through creative teaching that opens as well as directs towards specific ends. It is not possible to achieve some goal without the goal being already present in what one is doing.

Notes and references

Rapoport, A. (1970) *"Observations on Man-Environment Studies"*. Unpublished discussion paper. MIT. Rapoport was writing at almost the same time as Alvin Toffler's Future Shock was published, predicting social disintegration in the face of "information overload".

Vesely, D. (2005) *Architecture in the Age of Divided Representation: the Question of Creativity in the Shadow of Production*. MIT Press.

Session 4

New priorities, new subject areas

In the fast changing world we are experiencing significant transformations in all the cycle of production of the built environment, which affect the structure of the content of our studies. The strong specialization tendencies in the professional practice have significantly transformed the curricula of our schools. For the specialized curricula existing subject areas of architectural education obtain gravity or completely disappear, while in the general education curricula architectural design is under serious pressure to assure time for a big number of other subject areas, which will in turn assure the generalist character of the offered degree. In a broader view we can detect a progressive reduction from the contemporary architectural curricula of the urban studies, social sciences, basic natural sciences, mathematics, structures etc. On the other hand we can easily recognize a progressive raise of the gravity of subject areas related to the environment and sustainability, an the emergence of new subject areas like scripting, computing, biology, construction management etc.

To what extent do these changes affect the profile of our graduates?

How easy is it to be updated on the new trends and directions of the local and international dynamics?

To what extent are our schools affected, influenced or depended upon the existing centers of (so called) excellence in the contemporary extremely competitive environment of mobility and quality?

Chair:
Stefano Musso, Genoa, Italy

Introductory panel:
Urs Hirschberg, Graz, Austria
Maire Henry, Waterford, Ireland
Dag Boutsen, Gent, Belgium
Pieter Versteegh, Fribourg, Switzerland
Aart Oxenaar, Amsterdam, The Netherlands
Peter Kjaer, Umea, Sweden
Michael Edén, Goeteborg, Sweden

Introductory Panel

Urs HIRSCHBERG

Dean, Graz University of Technology, Faculty of Architecture, Graz, AUSTRIA

New Priorities, new subject areas: recent examples from TU Graz

A couple of years ago the wavy brick walls in the Swiss pavilion at the Venice Biennale made headlines. The walls, built by a mobile robot on site, were the work of the DFAB lab of Fabio Gramazio and Matthias Kohler, professors at the Architecture department of ETH Zurich. As ETH is such a renowned and influential school, their work and their use of robots in construction has set a new trend in digital fabrication. Similar robots can now be found in several architecture schools around the world. Which begs the question: Should architecture schools nowadays have such a robot? Even though they are so expensive? Even though their impact on the building industry at this point is marginal at best? Aren't schools that follow the ETH example rather making fools of themselves? – Well, the architecture faculty at TU Graz, which I represent, is among these followers. We just made a very large investment in a new robot design laboratory. I say we are followers, but in fact, as I will show, our rationale and our plans for using the facility are very different from ETH. Whether the new facility will pay off for us still remains to be seen, but already I certainly would not suggest that this is an investment that makes sense at all architecture schools.

Which brings me to the topic of this panel. The question we are supposed to address is: how do we deal with new topics? When do we make them a new priority? When do we introduce them as new subject areas into our curricula? When – as in the case of the robot – do we make an investment in a new technology in order to be able to expose our students to it, to let them learn about it first hand?

Digital Fabrication and Energy Efficiency

The robot I used as an example may stand for the larger issue of digital fabrication that currently is a hot topic in many architecture schools. There is general agreement that indeed this is a relevant new subject area, but this does not mean that there is one best way to deal with it. The other topic that generally comes up as one that should be a new priority is energy efficiency. Again: most would probably agree that this topic should be high on our agenda. The building sector is one of the most energy-relevant industries, as so much energy is spent (or wasted) in homes. Given the political and societal importance of resource efficiency, it is very clear that we as architects have an obligation to include it into our teaching. Yet, just as with digital fabrication, there are many different ways to take on this subject. They depend as much on the local building traditions and laws as on the structures of the curricula or of the architecture schools. And there is not one solution that would work equally well in all places.

Every ENHSA meeting makes one aware of the large variety and vast differences that exist in the European architectural education arena. Exchanging notes about our approaches to new topics only makes sense if we're mindful of these different contexts. Therefore I believe that the attitude towards new subject areas should not be discussed in the abstract, but with respect to the context of the institution that wants to take them on, including the local discourse and the people in charge. In other words, the discussion needs to be not only about 'What', but equally about 'Where', 'Why' and 'Who'.

In this brief text I shall address these questions by way of example: by showing how we dealt with some new challenges over the last couple of years at TU Graz. The two topics I mentioned will be the ones I focus on, but I thereby in no way want to suggest that these are the only relevant new subject areas that architecture schools may need to address.

Who? – new topics must be driven by people

It was well before the current sustainability and energy-efficiency hype that the architecture faculty at TU Graz decided to establish a new institute for building and energy. Of course building physics had been part of the curriculum before this new institute was created. But by dedicating a professorship to the topic it was very much strengthened and now carries much more weight in our curriculum. We were lucky to get Brian Cody, the leading building energy specialist of Ove Arup and someone with vast international experience doing cutting edge research in this field for the position. His energy concept for the European Central Bank in Frankfurt certainly helped Coop Himmelb(l)au win the competition for this prestigious building. And this is just one particularly prominent example of his work. The institute of building and energy led by him has created a new dynamic also among the students and in the research discourse at the faculty.

Why? – on establishing a broader discourse around a new topic

As important as individual people are, they depend on a broader discourse in order to flourish in their research. Lecture series, conferences, workshops and symposia are common ways to provide a broader view of any topic. They are common at most architecture schools and TU Graz is no exception. What is probably more unusual is the peer-reviewed Graz Architecture Magazine GAM that our faculty has founded some years back and which is meant to also contribute to the international discourse about research topics we as a faculty are interested in. GAM is a bilingual (German/English) book-like publication that appears once a year. The faculty chooses a theme for every new issue, but the call for papers is open internationally. Most authors published in GAM are actually not members of the faculty, but selected based on the content of their contribution to the theme. While the topics are usually quite interdisciplinary in nature they also tend to pick up a specific research interest among our faculty. This again contributes to the broadening of the research discourse. Thus, GAM is a powerful instrument in feeding the discourse, not only but also when new subject areas are to be established at the faculty. The topic of GAM.05 was "Urbanity, not Energy": an urbanist perspective on the energy questions that are often treated as problems of individual buildings. The institute of building and energy mentioned above had a special stake in this issue, as did our institute of urbanism.

GAM.06 was about "Nonstandard Structures" and discussed the implications and potentials of the current trend towards nonstandard construction, asking whether nonstandard was actually on its way to becoming the standard. This topic was closely linked to a research infrastructure initiative titled "Resource Efficient Nonstandard Structure" that our faculty launched together with the faculty of civil engineering. The above-mentioned robot was purchased as part of it. When establishing a new interdisciplinary research topic such as this one, which requires large investments and funding from external sources, not only people and discourse, but also the context of the institution, the history and special make-up of the place as well as the actual physical space matter. Which brings us to the third question.

Where ? – on space, place and context

Nonstandard structures was not only the title of GAM.06 and of our research initiative. Nonstandard structures can also be found in the city of Graz. The Graz Kunsthaus by Peter Cook and Colin Fournier has quickly become the city's signature building that is shown on tourist guides and maps. Strongly disliked by some, proudly presented to visitors by others, it definitely is not your usual building. Not many cities would allow such a structure to be put up in their center, which is also telling about Graz's self-image. Nick-named the friendly alien, the truth is that the Kunsthaus really isn't so alien to Graz. Buildings by local architects such as Domenig, Huth, Giencke and Kada can be said to have established a building culture that values expressive forms and experimental construction and that would eventually allow even the oddly-shaped alien to land.

This recent architectural history of Graz is relevant to our discussion, because it is part of the context of the infrastructure initiative. One of the main figures behind the proposal, my former colleague Prof. Harald Kloft, had worked on the Kunsthaus as a structural engineer. He had developed his special expertise for nonstandard construction as well as his conviction that there must be more efficient and more elegant ways to construct such buildings from this and other subsequent experiences. Thus the local tradition contributed to the credibility of our research proposal. The acquisition of the robot was only in part inspired by the ETH example. It also reflected the desire to move beyond current standards of precision in construction in order to enable new ways of jointing. The robot's specifications reflect this research agenda. It is laid out to provide a level of precision not found in other industrial robots and thus enables a very distinct direction of research.

In the end a rather difficult part of the implementation of the proposal was to find the proper physical space for it. It is now housed in a space at the building construction center of the civil engineering faculty, a rather sophisticated facility of our university that the architecture faculty unfortunately had little contact with. The robot facility thus also has a symbolic value in that it shows that architects and civil engineers not only should, but are also able to work and conduct research together.

Summary

The goal of this brief presentation about some recent changes at the architecture faculty of TU Graz was to show how the discussion about new topics and new subject areas must take local conditions into account. The place, its history and present discourse and above all the people

all have a part when a school wants to move into a new direction. To illustrate this, I shed some light on the thinking and the motives behind some of our recent initiatives. The topics of energy efficiency and digital fabrication I used as examples are not the only ones we have taken into focus recently. We have also strengthened our curriculum with respect to building history, architectural theory and landscape architecture. Thus, I am not claiming that the decisions and the strategic initiatives I talked about are currently the only relevant ones, nor that we are unique in making them. A detailed discussion of the process would also reveal more bumps and wrong turns than I have included here. Still I would maintain that the initiatives I portrayed are very successful and appropriate to our situation. And I believe that they are because we set them up not just in a top-down fashion, deciding 'What' needed to be done, but because, as I tried to show, we made these decisions mindful of the other questions: 'Who', 'Why' and 'Where'. Thus, we were not just following fashionable trends, but making clear and sustained efforts to firmly establish the new subject areas within our existing academic environment.

Maire HENRY

Head of Department of Architecture, Waterford Institute of Technology, Waterford, IRELAND

New priorities are conditioned by the context in which each School finds itself. The Department of Architecture at Waterford Institute of Technology in Ireland is only 5 years old. Its key priority since commencing has been the developing and nurturing of a newly accredited 5 year programme in Architecture and sustaining an existing programme in Architectural Technology. Waterford is a small port town with a population in the region of 50,000. It was founded by the Vikings in 912AD and grew to become a 'Gateway to Europe'. The Department of Architecture was founded during the economic boom – 'the Celtic Tiger'. Now with the current economic downturn our key priority is survival.

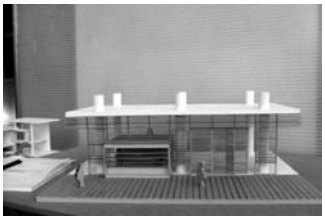
Inspiration for the content of our architectural programme came from many sources including Vitruvius and the UNESCO/UIA Charter on Architectural Education. *Architecture involves everything that influences the way in which the built environment is planned, designed, made, used, furnished, landscaped and maintained.....'* 2005 UNESCO/UIA Charter on Architectural Education". *Let him be educated, skilful with the pencil, instructed in geometry, know much about history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists and be acquainted with astronomy and with the theory of the heavens....'* 100 AD Vitruvius....

Our programme respects national and international criteria on Architectural Education. However we have adopted a thematic approach. Where possible, themes that are being explored in studio projects are simultaneously being studied in history and theory and in the other theoretical subjects. This paves the way for better integration of all subjects into studio work. A sample of our module selection under generic headings is shown below.

Design Studio	**Communication /Research & Professional Practice**	**Technology & the Environment**	**Cultural Context**	**Electives**
The concept	Graphics	Construction	History of Architecture	Int. Language
Everything but the building	Computers	Structures	Analytical	Life Drawing
The house and I	Model making	Environmental Sciences	Design studies	Introduction to trades
Housing and Collectivity	Academic writing and critical thinking		History of the house	Care of the Irish Architectural Heritage
The old and the new	Architectural Research		History of Collective living	Publications
The building in context	Leadership & Project mgt.		Conservation	Advanced Computer Studies
Rural complexities	Professional practice		History of Public Buildings	
Urban Complexities			Landscape Design	
Architectural Quest			Urban Design	
Architectural Synthesis				
Structures				
Environmental Sciences				

Some of the new challenges facing us as educations and the drivers of change in subject area include: Protecting mother earth ; Interdisciplinary activities /educating other disciplines, communities and decision makers; Design Leadership; Research agenda ;Working with existing building stock.

We also need to look at how we teach and more importantly what we want our graduates to become. We all agree on the importance of the design conscience in society. More effort needs to be made to empower our graduates to go into areas other than the practice of architecture where design thinking can influence decision makers.



Dag BOUTSEN

Professor, Saint Lucas School of Architecture, Gent, BELGIUM

New priorities, new subject area's

And how do these changes effect the profile of our graduates

Labeling a term a "buzzword" pejoratively implies that it is now used pretentiously and inappropriately by individuals with little understanding of its actual meaning who are most interested in impressing others by making their discourse sound more esoteric, obscure, and technical than it otherwise would be.

Buzzwords differ from jargon in that jargon is esoteric but precisely defined terminology used for ease of communication between specialists in a given field, whereas a buzzword (which often develops from the appropriation of technical jargon) is often used imprecisely among non-specialists.

Nobody is surprised to find *'Sustainability'* in Wikipedia's list of buzzwords.

"We have to layer the concept of sustainability. We have to position it as an attitude, rather than a topic that can be educated" Herman Neuckermans in the beginning of the conference.

"And it requires a diversity of cultures …" Chris Younes

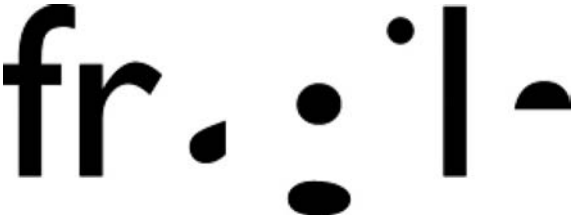
Assuming that these statements are related to human values, rather than to technical competences, and assuming that architectural education is mainly situated in the social sphere, 'sustainability' can hardly be added as such as another block in a curriculum.

James Horan stated that ethics are indeed on top of the lift and we all consider sensitivity as the basis of our architectural education. Destabilizing architectural students is a kind of responsibility!

Sustainable thinking or designing tends to escape from curricula, it is more of a generic competence.

*****

On the morning of September, 7th, 2010, I presented in Chania



As an ultimate alternative for the buzzword 'sustainability', I launched the notion of 'Fragile' as an intriguing logo with an intentional vagueness. Presenting it as a major theme and concept 'above' all the design courses in the different educations within the Department of Architecture,

Sint-Lucas Ghent and Brussels, and explaining the making ready for use of the theme, resulted in a welcome of 'Fragile' by the audience as an *Aha-erlebnis*.

Through the creation of a renewed climate of reflection, 'Fragile' manifests itself intuitively.

Fragile WHAT

'Fragile' tackles design attitudes and approaches beyond classic designerly capacities and shaping.

'Fragile' deals with all kinds of interactions with society.

'Fragile' is in search for civil or social engagement.

'Fragile' incorporates evolving themes, topics and concerns such as:

- 'general human ecology'.
- Human ecology is but an extension of animal ethology. For the purpose of design, the field of human ecology should be extended to the cultural and spiritual dimensions of human experience, consequently of the human-environment interactions, without for that matter neglecting the other dimensions. This is why I prefer to speak of a general human ecology." A. Findeli)
- About 'the way we look at the human-environment interactions'.
- ideas about the complex social reality.
- Alive Architecture: "Alive Architecture is about design on the borderline between built and lived space. The idea is to develop a methodology that enhances the making and using in the design process for the connection of space and society. How can we construct use in contemporary architecture to provide for a notion of vitality?"
- "le don d'écouter"
- comment aménager une ville pour qu'il y fasse "bon vivre"
- 'comprendre le besoin'
- «HQH» pour «haute qualité humaine»
- Deliberately fragile theories.
- The concept of 'Care'
- Complexity
- 'Le souci des destinataires dans notre travail'
- Consensuality
- Soft Spaces in the cities

As such, Fragile becomes something like:

A central concern that underpins and drives all (theoretical and design) production.

A lens through which to look at all the different issues and problematics presented and elaborated upon in the school.

A general, overarching quality/question to check studio and theoretical answers against.

****

http://www.sintlucasfragile.be/

Fragile HOW

Approaches for development and communication

How to operationalise the theme and how to keep momentum?

Before starting the appointment of a guest curator for 2010-2011 was decided. Alain Findeli inspires.

Instrumental events

Organised in-between a bottom-up and a top-down (student vice dean) approach

Based on students' cultures

Using website, Facebook, twitter, etc..

The official launch is the *academic opening*.

The Fragile student team presents the first issue of a new opposition magazine, announces the website, and moves into their cool designed workplace. The guest curator has a dream. A miracle movie and a staged photoshoot confront the public.

A careful selection of international guest lecturers sharing in a way similar thoughts, broaden the scope while guiding or confusing the audience, stimulating interest, challenging their own thinking, achieving different outcomes.

On our confirmation list is Patrick Bouchain, Otto Von Busch, Veronica Valk, Ismael Farouk, Olivier Bastin, Bow-Wow, Edouard François,…

More intimate are the in-house evening **debates**, providing a forum for unanswered questions to be turned into knowledge and firmer opinions and bringing potential new members to the Fragile way of thinking.

Notable professionals who are former students, defending different sides of the topic, lead the discussion.

Participating debaters: bOb Van Reeth, Geert Beullens, Bart Hollanders, Sylvie Bruyninckx, Barbara Van Der Wee, An Fonteyn, Charlotte Geldof, Johan Vandessel, Johny Eyers, Peter Swinnen, Luc Binst, Paul Lievevrouw, Michel De Bièvre.

Searching for more ways to involve people, the small scale local initiative baptized "**the Evenings**" (De Avonden) was born. These projects (2 each week) are sometimes relaxing, sometimes exciting, sometimes daring – always connecting to the bigger picture. It is a relationship

way that enables the student team to get a better grasp of what people want and to support students' passions.

The internal Fragile **student competition** provides an opportunity to challenge Fragile approaches to design. All current students are free to participate. Winning entries will be awarded monetary prizes and will be recognized during the conference. The contest rules, registration process, submission and jury are organized by the Fragile student team. The competition keeps the debate going.

The aim of the Fragile **international student conference** in April is to bring together students and young academics who will be our future influential thinkers and who will reflect on how space and architecture are putting the people back in the centre of their disciplines. The conference is about how the urban reality can be not only about the built up environment but about how it can be a space that is able to absorb the differences between people, how it can transform the hard built environment in a "people-centered" soft space. It is about how architecture is no longer about city branding or nation branding but about putting people first, it is about creating Alive Architecture.

We encourage a broad range of formats from project presentations or papers to videos, installations or performances. Philippe Corcuff is our guest for the opening lecture and Dag Boutsen closes the conference the second day. Members of the review committee are Lianne Verstrate, Orna Rosenfeld, Wouter Bervoets, Burak Pak, Nel Janssens, Aurélie De Smet en Caroline Newton. On day 3 we plan study visits.

The conference takes place during the **Fragile week** promoting a Fragile environment**,** with lots of possibilities for exchange of information and ideas on the Fragile subject through workshops, lectures, exhibitions. Equally important is the opportunity to create friendships and social networks, inspiring future cooperation between different people from different countries. Some examples of workshops are about warm and artisanal architecture (e.g. Mette Ramsgard, www.cita.karch.dk), a workshop with children, a workshop on recycled material.

Master students are free to participate the "Pressroom" **elective**, think-tanking on Fragile and preparing critical articles and professional publications.

As weeks pass by, the quality of the opposition magazine improves and Fragile is picked up by our research groups, by our libraries' purchasing policy, by our quality control division, by our long-term investment service deciding on buildings and infrastructure. Academic staff organize more lectures and more workshops struck by the Fragile virus. In the meantime the international character of the activities and different types of online communication help us to leave traces across borders.

Operational teams and structure

One student team per campus is responsible for taking, steering and coordinating the initiatives as well as for budget control. The student teams operate from their own workplace, which they develop when starting. Teams change every semester. Key to success is teamwork. They work together with our communication staff.

The student teams meet on a regular basis with strong involved teachers and one administrative staff responsible for agenda setting and process coaching. The international conference is steered by academic staff. The inspirational leader is Alain Findeli.

Fragile CONCLUSION

Can we consider architecture as a fragile art?

Or are we training architectural students to become porcelain tigers?

In Sint-Lucas, Fragile turns 'sustainability' into *another* priority.

Not a *new* priority, neither an existing one.

Veronika Valk 17 11 2010

Did you know that in Tallinn, the capital of Estonia, half of the local population suffers from SAD: seasonally adjusted disorder? On top of this, as a part of the former Soviet Empire, for many years Estonia was denied access to its own waterfront. Urban designer Veronika Valk is trying to address both of these issues. She is Estonia's most inspiring and surprising young architect. Her ideas are turning not only the world of architecture around but also the mood of her country.

Otto Von Busch 01 12 2010

The Swedish fashion artist, theorist and designer wants us to have fun with fashion and own it again by becoming a "fashion hactivist."

"My current research explores how fashion design can address social issues through engaged practice and how fashion designers can provide tools for consumers to access a deeper involvement in fashion, beyond the "ready-to-wear" paradigm. This can bring designer and consumer closer and create dynamic ecologies of professional amateurs and fashion hacktivists. To manage processes like this designers would need to evolve a new "molecular" approach to design management and develop new tactics and organization models." Otto von Busch is an artist, activist, fashion theorist, designer in critical fashion design at Göteborg University (Sweden)…

Injection week 15-21 11 2010

More lectures, more input, more discussion.

Cover of the Fragile December edition – an oppostion magazine made by students reflecting on Fragile themes, provoking different opinions.

Pieter VERSTEEGH

Professor, University of Applied Sciences of Western Switzerland, Fribourg School of Architecture, Fribourg, SWITZERLAND

Exploring education and sustainability in Fribourg

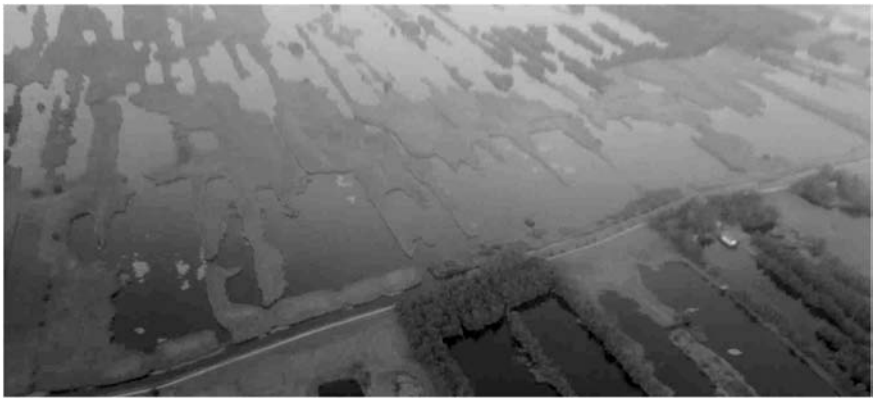
I will try to focus my intervention on a specific way we try, at the Western Switzerland University of applied sciences in Fribourg, to deal with a paradigm shift that is very broad. I will try to show in which way we believe this shift is changing architectural practice, how it influences our learning environment and the tuning of our educational priorities.

Changing profession?

The paradigm shift, I am referring to, is the changing awareness of professionals induced by an increasing importance of sustainability in our society. The notion is quite recent. When, in the eighties, I was first confronted to the concept emerging from complexity studies, it hardly found any echo in Switzerland, neither in the professional nor in academic context. I must say that in French the notion suffers from clumsy translation: "développement durable" – "lasting development" refers more to a time-span concept than to an ethical paradigm shift: Any Swiss architect or engineer considers himself to be contributing to it, conceiving buildings to last for generations to come! Nowadays of course, sustainability is a very broad concept, a sort of huge container word, very fashionable, in which we tend to throw many issues dealing with all kinds of ideals.

Many professions feel close to sustainability. In architecture however, professional and academic answers have remained mainly technical: we have responded by increasing building quality standards, by developing minergy and 0-emission technologies and so on. Architects often relegate questions of sustainability to such technological progress.

Several times during our sessions in Chania we have evoked a rapid changing profession. In some ways though, architecture seems to be very much resisting to change. By shifting



the attention of sustainability issues to technological answers, architecture tends to refuse addressing issues that concern its "core business": architectural practice itself. By advocating architecture as building production activity, we comply with building business, but resist to more essential critical questions raised by sustainability. Questions that concern *ethical* change.

Shifting architectural practice

Sustainability raises questions that exceed technological exploits. Questions for instance, on how to deal with existing built environment, with shrinking populations, with – colonialist – export and globalization of unsustainable architectural and urban expansion standards and models, on how to deal with nature. Such issues inevitably lead to ethical shifts that may feel quite uncomfortable! The shifts we refer to are difficult to cope with in terms of practice, education and research, since they do not necessarily comply with existing expectations of building economy and politics. Nor do they respond to the way in which architecture is enjoying its renewed cultural status of high (visual) art. They do however slowly but surely lead to a changing attitude of students and professionals.

Architecture schools can strongly contribute to this change. We feel that we deal with a change of the paradigm of the architect as builder to the architect as transformer; from an interest in the production of a built environment to its continuous sustainable transformation; from a restricted focus on built environment to a holistic concern for human living environments. This leads to a shift of the understanding of the architectural practice from "building" to *"caring"*, a change of ethical nature that brings about new interdisciplinary interests and calls for new professional tools, adapted to emerging priorities.

An expanded holistic understanding of architectural environments leads to different interdisciplinary embeddings. One can think of the increasing interest in landscape architecture for instance, but also of a renewed interest in humanities. And it connects us to other practices undergoing similar change, such as health care or education and pedagogy when understood as creative reflexive practices.

From globalization to "glocal attitude"

As a part of a university of applied sciences, proximity to local life and economics is one of our school's main values. This characteristic has allowed us to stress on a shift from globalization, a trend that implies tremendous problems and contradictions relative to values pursued by sustainability, to *"glocal attitudes"*: attitudes allowing to connect and adapt global understandings of human living environments to their local values and specificities, and to learn from these to inform in return our global understandings, models, tools and eventually standards.

In terms of learning environment, this is particularly emphasized in our master program, a mobility and network program conducted as a joint venture with the Berne and Geneva schools of architecture, connecting different places, domains and disciplines. It is a program in which three different local identities, cultures, linguistic roots participate in a continuously renewing co-construction of identities. Each school responds to its cultural background, but is engaged in cross-fertilizing critical discourse and practice. It allows for the construction of a thematic research environment in which students, teachers and researchers work together on common projects from complementary viewpoints.

New educational priorities

In the Swiss didactic culture, this has meant shifting habits from instruction to education and coaching, from knowledge transfer to the development of skills and tools. For the school curriculum it meant mainly a shift from the teaching of branches to interdisciplinary embedding. The Students do not follow a "linear" sequence of "courses", but are confronted to different changing practical situations.

Indeed, we feel it is important to rethink methods of helping students to learn in a fast changing environment. How, as educators, can we contribute to coping with more and more unstable connections, challenges and subjects? Architecture is an engaged, creative and reflexive practice. The architect's strength is to propose new realities in an interactive environment. In our didactic project, this meant moving closer to this activity. Educational priorities have been strongly shifting from result-driven to process-driven programs, in which students and faculty are confronted to other practices and a variety of disciplines changing according to the evolutions of thematic content. It is a way of embedding the students within an increasingly evolving research environment. The ultimate aim of this pedagogic concept is to develop self-learning abilities and to help students to forge a personal ethical attitude relative to the architectural profession. Our school tries to teach students to learn how to learn: to develop skills to critically select relevant subjects and questions; to recognize relevant information, disciplines, domains; to surround themselves accordingly and to be open to different practices and expertise; and to implement implications in architectural practice. The thematic emphasis has shifted from the built environment and its production to living environments and their

qualities, from building to caring, from responding and producing to critical reactivity and adaptability and open-ended exploration.

For our faculty this implies the development of a coaching attitude. It calls for interactive discussions on an even level between teachers, researchers and students, as well as the involvement of students in the school's strategic choices. Teachers, researchers and students meet in different configurations in project laboratories and interdisciplinary research seminars, thematic

interactions of conferences and workgroups, exposing them to a "waterfall" of expertise to select from, and deepened in individual optional activities. The learning process is structured by a "profile search", during which the students work on the development of a personal attitude, the selection of relevant subjects and interests, connecting them to personal work and preparing them for their master thesis.

Challenges and difficulties

Challenges for our school are multiple: in terms of employability, we try to prepare students for a fast changing living environment, by expecting them to ask critical (and sometimes not so nice) questions, enhancing their reactivity and ability to develop new visions with an awareness in which a broad consideration of sustainability is central. We try to prepare them for an ethical professional research attitude. We are also aware that the program, only five years old, is of both ambitious and experimental nature, and meets many difficulties: continuously under construction, it is engaged in a change process that is very slow. The program is difficult for students: it is not very comfortable, highly and individually engaging and includes many parallel project-based activities. It is also very demanding for teachers: it weakens their position as "experts who know", and requires research that can be strenuous. It necessitates a change of attitude and a basically different student evaluation. Finally, it is difficult for some professionals: we do not deliver docile followers… But we do feel that we are achieving some results: we have positive feedback from our students, our partners from other disciplines, and of various professional circles. We detect among our students an increasing critical and ethical awareness and curiosity. And we learn a lot.

Aart OXENAAR

Director, Amsterdam Academy of Fine Arts, Amsterdam, The NETHERLANDS

I was trained as an architectural historian, so the theme of the relation between architecture or architectural education and a fast-changing world is to me a long and well-known theme. I could take you through the magazines of the 1850s with equal discussions when iron and glass came in, or 1900 when concrete began to take over. Many of you still remember the 1960s when society changed dramatically and almost everybody here followed the changes in the design disciplines when the computer came in. I do not say this to downplay the importance of the theme. On the contrary, I think it is very important. But it indicates that relating to change, to changing subject matter, is the state of being of architectural education rather than a temporary problem we are confronted with. A state of being that forces the architect and the architectural educator time and again to focus more precisely on what the essence of his craft is.

We are supposed to do that here and now in the perspective of, as the poster says: "learning for the future". Here again the art historian in me comes up. It is difficult if not impossible to look at the future. A Dutch art historian once indicated that each Utopia, each attempt to paint an image of the future, can in hindsight be dated within a margine of about five years. So we can not escape our own time. What we can do, however, is paint an intensified image of the present; looking ahead is painting that picture, trying to be as intense and precise and well-informed as we can about where we stand now. The best we can do is être de son temps, as the French avant-garde postulated in the 19th century debate on the future of the arts. And I think the basis of this question today - how can we, as schools of architecture, be of our time – can be focused on two questions: first what the essence of the craft of architect is or should be; and second how to organize our schools so as to maintain an open relationship with the developments in science, in building technology, in practice and in society relevant to the craft.

First the view point of craft. Designing is the talented, intuitive and creative way of solving a problem – to give one of many possible definitions of 'design'. It is also, and perhaps even more so, the means for the architect on his way to the making, the making of space, which is the essence of architecture. "Designing by thinking of the making", an old quote from Allison and Peter Smithson, has recently gained new relevance in discussions in our school. Especially in this world of ever-increasing technical possibilities, increasing specialisation in the process of planning, designing and building, it becomes ever more important that the architect can take his role with a clearly profiled craft. This does not mean that the broader potential of architecture is abandoned. On the contrary, in the thinking of the making, the awareness of this broader context of the architect to play a role in society is of course included. It is in the actual making however, that this potential literally and practically gains substance. The architect must know and understand new developments in order to integrate them into his design. But for solving all these specific aspects of the problem, be they technical, practical, administrative or ecological, we do not - let's face it - need the architect. Many specialists solve these better and more easily than the architect could or would do. And this is in fact what is happening. In the Netherlands, and I am sure it is the same in many other countries, an ever growing part of our built environment, of the built volume, is produced without the intervention of a designer. In order to keep his role the architect then should not try to compete with all these new specializations, but aim to focus more than ever on showing, or even proving – here we can look at the

PhDs and the research work in education - what the added value of the architect is and what his design can add to these broader developments in technique and society. And that is his craft as a maker of space. His role is that of the one who can add meaning to the volumes and voids we create. We should therefore teach future architects the attitude and the craftsmanship of being an architect; we should supply them with enough knowledge to be able to be a sparring partner for all the other specialists. But we should not make them run after every new social movement or every development in science or technology.

To move onto the second point: how to organize our schools so as to be able to react to these larger developments and changes - while at the same time assuring the core elements of the architectural education. My main argument would be: by trying to keep the structure of our schools as open as possible. And we can do this in three ways: by being open to practice, by being open to new developments in all fields, and by being open to teachers and students, enabling them to bring in new subjects. As was mentioned in one of the earlier sessions: new subjects emerge from new students. So they're a group not to be forgotten.

In our school, we try to keep that openness, that 'porosity' towards our surroundings, to quote David Porter, in a number of ways.

- We retain a simple, but strict program structure, prescribing aims and competences to be addressed in each element, but leaving the themes addressed and briefs prescribed open to the teachers.
- We have no tenured staff. So for each studio, or any of the other elements in the program – lecture series, excercises, formstudies – teachers can be selected according to their artistic, practical, technical or theoretical knowledge and experience to fit the questions at hand and make sure their teaching reflects the state of the art. Most teachers are recruited from practice, so they will bring themes from the 'real world' into the school. Continuity in teaching is assured by the heads of the departments and coordinators appointed for specific elements. To keep a fresh agenda heads of the departments have four to five year maximum appointments.
- Semester themes are set - on a voluntary basis - in order to make the individual studios part of a collective 'research by design' effort. Themes are often chosen from acute urban questions at hand in the city of Amsterdam and specialists brought in as guest speakers. The results are presented in a public exhibition and made subject to open debate.
- Despite pressure from the government to make students study faster, we have also retained the openness of the school toward the student by allowing them to write their own brief for their graduation project. We think this is important to help them individually develop a critical position as a designer. But it is also important for the school, as it shows us what themes students think relevant for the future of the profession.
- This open system also helps us react to the crisis in the architectural profession. Our students - we run a 240 EC master's program, including 120 EC for work in practice - work part-time in a practice and come to school evenings and fridays. It is hard to find jobs at the moment, but thanks to intensive contacts with local practitioners students now work in several Amsterdam based offices on either research-related themes or non-commercial tasks. By doing so, the requirements for the period of professional practice can still be fulfilled.

In this way the adjusting of subject areas, which is what we are talking about today, is not imposed 'top down', but is brought in from practice through teachers and students and is steered by the agenda of the heads of departments – as said before: refreshed every four years.

Where does this put us now?

Over the last years we have seen a subtle change in the school from making a concept to the conceptualizing of the making. When I first arrived ten years ago conceptual thinking was very much in vogue. Now we see both with teaching staff and students a shift towards making – a surprising effect of which is the diminishing of large scale computerfacilities and the growth of the maquette studio. The students learn computerskills in practice; they have their own laptops and we found out that by the time we had figured what we should teach them to do on the computer, they could already do it. What we do now is teach them how to integrate the use of a computer within a design process. What we do have, however, is a far larger workshop and we will need an even larger one as studios are more and more oriented towards making, both in scale and 1:1.

So, in conclusion, it was the open interaction between academics, practitioners and students, working within the educational framework of the school, that made for a critical learning climate – not top down decisions from the staff. And this open interaction allowed the necessary aspects of the craft of the architect to be addressed, while giving space to the student to develop his or her own personal attitudes towards that craft.

In the end, I think, that is the essence of a school. It should not be a 'mould for architects' – to quote Viollet-le-Duc– but a place where students learn enough to be able to become an architect. As much as we expect architects or expect our students to be inventive in solving problems and dealing with changes in their craft and their profession, we, as heads of schools, should be inventive in dealing with those changes as well. Our major task at hand is to organize our schools so as to make sure that they can adapt to those changes.

Peter KJAER

Rector, Umea School of Architecture, Umea, SWEDEN

Establishing a new School of Architecture in the very North of Sweden gives reasons to reflect on the role of architecture, architects and architectural education in the world of today.

Based in the outskirts of Europe very north in a sparsely populated region of Sweden it seems to be relevant or even important to make analyzis of conditions and possibilities in the world today on what should be the context for the school and its candidates and what is the task for a modern school of architecture?

The role of architecture

It's a fact that the concept of architecture developed in the modern movement and especially by the functionalists nearly a hundred years ago represents the latest comprehensive theory of architecture.

The social ambitions and the worshipping industrialism were through out decades important values in developing architectural project both in terms of urban planning and building design.

The development has since the late 50'es and 60'es continued without sincere and comprehensive critical theoretical reflections on the role of architects and the role of architecture. With respect of Rossi, Eisenmann, Venturi and Koolhaas their contributions, their qualities highly respected, in various ways stands as attempts since they still must be regarded as individual contributions. Especially it is critical that architecture has turned out to be regarded only from its individual formal aspects (Koolhaas excluded) and e.g. the idea of cityness or better a new cityness is out of concern.

The idea to develop discussions of the relation between theory and practize (re-establishing a relation between theory and practize) is fundamental for UMA. It basically bring us to the position to insist on re-thinking the modern concept of a comprehensive theory.

The context for the new school

UN predicts that world population during the next 30 years will grow from 6.800.000.000 today (51% living in urban areas) to 10.000.000.000 around 2040 (with 80 – 85% living in urban areas). This means that the urban areas will more than double themselves.

The growth in terms of population are expected to mainly take place in the fastest growing regions as India and Africa. Probably here the already uncontrolled biggest cities as Cairo and Mumbai will have to more than to double their curent sizes.

Europe is expected to be more or less status quo maybe with an decreasing population even if some immigration are calculated.

The consequenses of this is that architects in Europe will mainly have to deal with restructureing and retrofitting existing urban areas. as infrastructure might be an rising issue. Revitalizising of suburban areas will without doubt be an important issue just as new sustainable concepts for enviromentals interventions will be highligted.

The bigger activities will take place outside Europe in different cultural, political, economical and religious contexts. If one are reflecting on theese aspects new generations of architects will have to work in non-democratic political systems, non-christian cultures and in unknown social contexts.

It therefore seems like it is important to train the students to work not only transdiciplinary but also transcultural. The perspective of their training must be global, which is a challenge also in terms of developing theories, since theories based on European modernism are inadequate. And the demands to focus on environmental perspectives seems to be inevitable.

Profile of the school

Establishing a new school we started making a vision and a profile for the school.

The vision:

To improve society and everyday life in a sustainable perspective through architectural research performed in international trans disciplinary teams and network and through educating students of architecture with artistic and innovative skills.

We see this to happen through architectural intervention based on three concepts

- ethical (social and sustainable responsibility), thinking and knowledge
- aesthetical (cultural, artistic) thinking and knowledge and
- technological (structure, building physics, communication) thinking and knowledge

The profile:

UMA is a laboratory for investigating and innovating processes and production of architecture and training young architects for the practice of architecture

The structure of the educational system is a full 5 years program (accreditated and notified Spring 2011) giving a 3 year BA of Arts in Architecture and a 2 year MA of fine Arts in Architecture. The 4 year doctorate program is starting up Autumn 2011.

Since UMA is giving BA and MA *in Art in Architecture* the profile is artistic. In the UMA version it's based on the Beaux Art tradition

Since the Beaux Arts architecture has been one of three arts - painting, sculpture and architecture. All three arts could create space, but architecture was the only where space was *primacy*

This was a transition from the original understanding of art between *techne and poesis into a concept of beauty. Now it's rather a discussion about the raison d'etre for art - its role in society* – about how to reintroduce primacy of space into architecture of today.

Artistic approach in terms of architecture, painting and sculpture will often be presented as a whole - as a composition, a form, a space. After the first examination and experience one can start looking at details, not in a strict order but in the way ones eyes examine the work. Not to reveal the one and only truth of the art but to learn from its unpredictable spatial composition, the use of light to create sequences, the use of materials all supported by the structural concept.

Teaching architecture therefore must be taught from this perspective, as a project based program onto disciplines can and ought to be integrated.

The actual organization at UMA

At UMA the bachelor program basically contains 50% project and 50% courses.

The master programs includes during the first 3 terms in the two years program 33% courses and 66% project and the last semester, the thesis, is 100% project.

Both in the BA and MA the courses are mainly given in:

- Theory – theory and history of architecture, philosophy, communication
- Technology – structure and building physics, light and acoustics
- Environmental development – developing strategies, project management
- Design methods

The theoretical elements all include analyzing methods, working methods and communication tools. In the masters programs also testing tools are taught.

The pedagogical form for the courses is basically workshops that are a combination of lectures and students working on exercises and small conceptual projects. The students are examined both by presentations and delivering papers.

Even in the main review of the projects all the individual courses will be assessed and specialist haven given courses during the time of the project will participate in the final review.

The basic and specific profile of UMA is given by the 3 year BA program.

Here UMA intend to educate well-qualified designers even if not professional qualified architects. The bachelors program therefore can be described as the place in the laboratory of architecture where the students actually are taught – and where the pedagogical concept is to learn through producing.

The bachelor program introduces in year one the basic concepts of architecture in terms of space, body, scale, tectonic, light and acoustics. Second and third year introduces architecture in context starting in 2nd year with very local Nordic, European cultural context to a global context in the 3rd year.

The masters programs enable UMA to grab actual challenges of architecture in a global perspective and have a dynamic structure of masters programs.

The two-year master programs are offered for a period basically for no less than 3 years and probably for a longer period. Today we focuses on 3 aspects

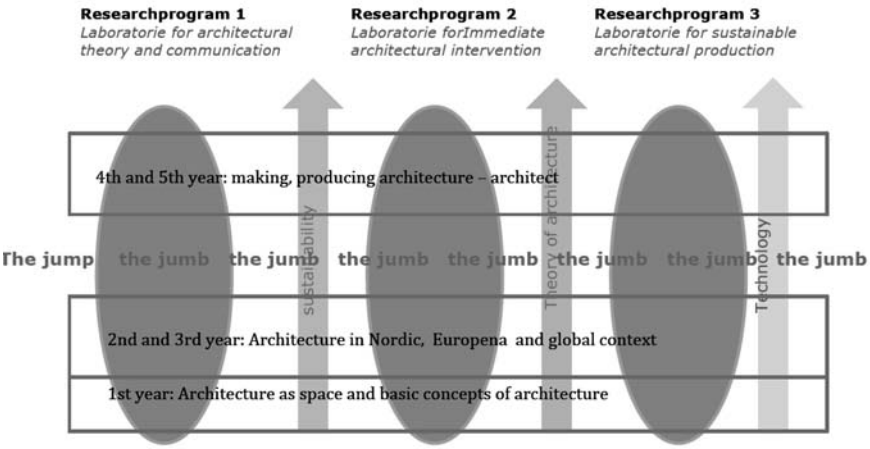
- the lack of a comprehensive theory of architecture based on a new ethics
- the need for integrating architecture into society developing strategies
- the need for developing profound sustainable strategies of architecture

These 3 aspects is the foundation of the three research platforms of UMA and the foundation of the master programs

While the bachelor program can be described as a pedagogical situation for the students and the tutors, the master programs does not deal with pedagogics. In the master programs the students are doing, designing, making architecture. We do not simulate but work in real projects.

The change from bachelor to master program is described as a jumb.

Structure of research and education at UMA



External collaboration strategies

At UMA all activities tries to involve various kinds of external collaboration.

All research activities will involve external partners. Especially lab 2 and 3 will work together with partners from other universities, from industry, from NGO, from local authorities and from consulting business.

In education it will be a strategy, that teaching in fields that is related to but not core architecture as building technologies, sociology etc. will be taught by practitioners. We are e.g. collaborating with English and German engineering companies who run teaching structure and building physics.

To build up an international education demands international staff, students and collaborations. It needs international activities and local partners. It also needs strong critical academic qualifications at the same time as professional architectural competences. That's (hopefully) what UMA is about.

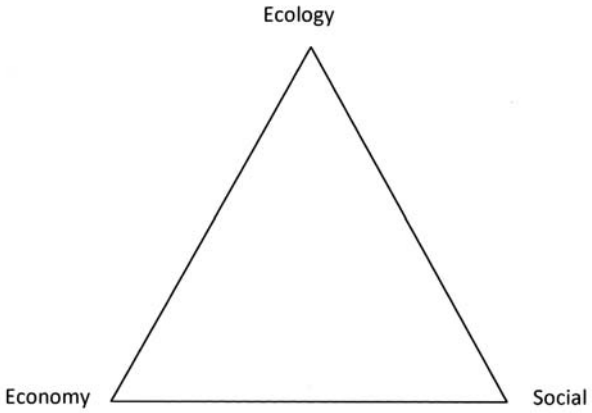
Michael EDEN

Head of Program, Chalmers University of Technology, School of Architecture, Goeteborg, SWEDEN

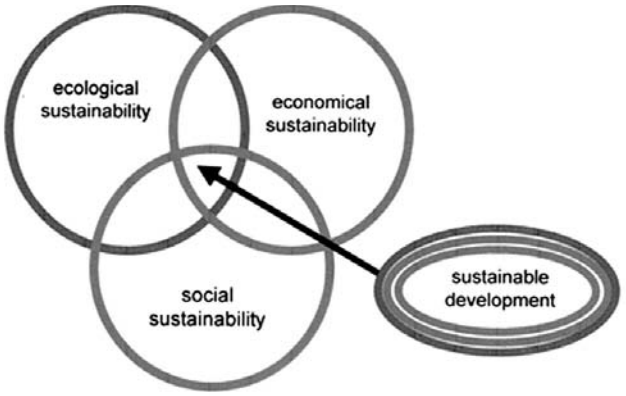
Sustainable development

When I saw the headline my immediate thought was "sustainable development". The second thought was: "Is it really new?" The concept is at least 23 years old, and today it is involved in almost every discourse about anything. Sustainable growth, social sustainability, ecological sustainability, sustainable building, sustainable urban regions – you name it. This use, or misuse, has more or less turned the concept to a buzzword.

There are many descriptions and even attempts to illustrate the meaning. In the early 1900s many speeches started with the phrase: "Sustainable development is not only a matter of ecology, it also embraces social and economical aspects", illustrated by a triangle.

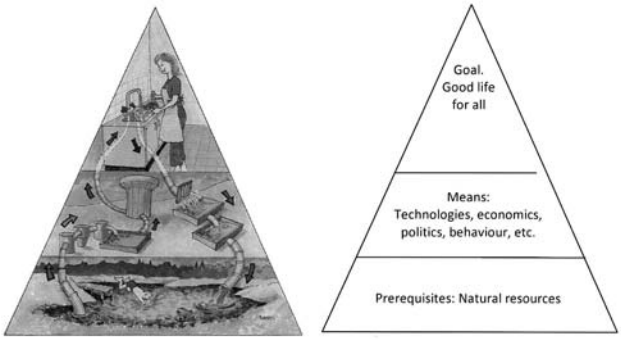


Another image is based on circles.



Architects are used to interpret images, and the reflection is that these two illustrations do not clarify what sustainable development "is". The triangle shows three kinds of disciplines or perspectives, but what does the triangle represent? Some sort of connection perhaps, or that each field has the same importance? The circles in figure 2 tell us that every science has a field of its own that is not really "sustainable" and that they need to coincide when it comes to sustainable development. But, do the circles represent organisations or scientific disciplines? If they represent organisations, where are the politicians? If they represent disciplines, shouldn't culture, technology, health and other topics be involved?

It is hard to catch the meaning of sustainable development in a picture, but I have found a simple one that can be useful (Made by Palme U. Environmental Systems Analyses. Chalmers).



In this model you can, at least, see that sustainable development deals with goals, means as well as prerequisites. You can also see the relations between them. The model puts stress on the "prerequisite level"; not surprisingly it emanates from natural sciences. On the other hand: The tough lesson to be learnt is that mankind is bound to planet earth, and that is the only planet to live on and from.

To conclude the introduction: Sustainable development is a political vision about a good life for everyone, now and in a never-ending future. The means to reach it has to be interpreted and specified depending on the context. The political genius in the vision is that it is including and that no one really can be against it. The goals must be said to be fair and reasonable. The problems start when we must formulate strategies to reach them.

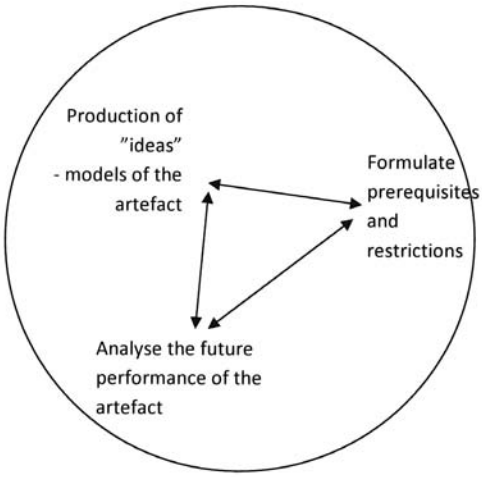
Let me now mention a little bit about design. A typical design problem is unique, undecided, and unstable and contains value conflicts. Such problems are often described as "open" or even "wicked".

Design processes are characterized by their manifoldness of methods. You can, however, distinguish at least three basic ones.

- Holistic approaches, producing and testing a "solutions" and see if they are relevant in the problem area. These methods are often intuitive and artistic.
- In order to produce a solution the designers collects and sorts out different kinds of information. In the ongoing assessments of tentative solutions the designer adds more information and uses analytical methods. Information handling is a second basic method, often based on science.

- The third moment is the moment of negotiation and decision. There is not one a true answer to design problem, the decision about which alternative that shall be the outcome falls out in negations between the designer and e.g. client, end users, co-designers etc.

Then, what are the outcomes from design processes? Well, the goal is the construction of a future artefact. In order to read that goal designers produce models of the artefact, and simultaneously conceptual models of the problem area. During the process the designers also produces knowledge about the artefact in their context, both now and in the future. I can't avoid making an attempt to use an image, describing the interaction between these outcomes.



My conclusion is that sustainable development is problem tailored for designers. The problems are context bound; that is more or less unique. If we concentrate on "building" the contexts can be regional variations in climate, culture or politics. The solutions are dependent of interaction and negotiations with several very different views and interests involved, e.g. architects, economists, politicians, citizens. The problems are containing potential value conflicts, to say the least. We have to take long term decisions to which there are no certain answers. Instead, the problems are undecided and unstable since there is a variety of possibilities and strategies to cope with them.

So, if we have found that sustainable development is a typical matter for designers and know that architects are designers: Why is the building sector one of the slowest to improve such an elementary and simple matter on how to improve its environmental performance? And –at least in a Swedish perspective – why are architects not in the lead for such processes towards improvement?

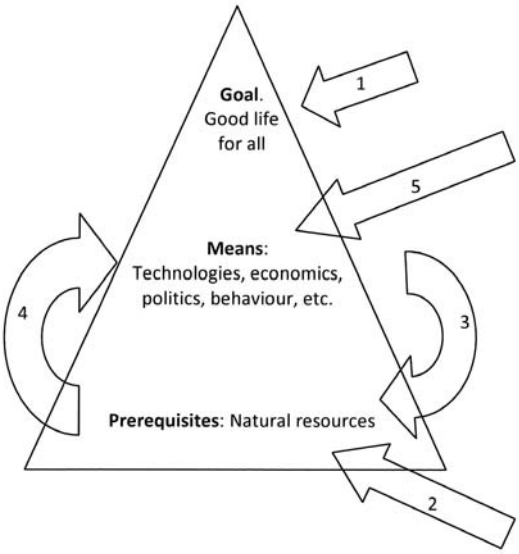
Many investigations on a global scale about how to reach the climate goals tell us the building sector must make tremendous efforts to diminish the energy use. They also point out that it is possible. The emergence of passive housing in Sweden can work as an example. In the year 2000 the government and the building sector together published a vision, with ambitious goals for e.g. energy use to be reached in 2025. In 2003 one project was finished that fulfilled these goals. Today, in 2010 lots of affordable and functioning passive houses are built, all demonstrating that the target values for 2025 can be reached. In other words the perform-

ance expected in 2025 was possible to reach in 2005 and is proved to possibly be a standard in 2010. Still, less than 10% of new production fulfils the passive house standard.

However, we must notify that the passive house standard is not enough. It says very little about, materials and embodied energy, water and sewage or biodiversity just to mention three other important environmental problem areas. Furthermore, apart from defining indoor climate, it says little about the use of the building, its functionality and the end users needs. And it says nothing about "beauty". In relation to sustainable development, passive house standards can be said to be a necessary and successful step forwards, but with the words of Winston S. Churchill "This is not the end. It is not even the beginning of the end, but it is, perhaps, the end of the beginning".

I have now pointed out a number of "shoulds". The building sector should use it potential for improvements. The architects should be the leaders in design processes aiming at sustainable development. I might be old-fashioned, but I claim that the basic sustainable way to promote sustainable building and convince a client is knowledge and using knowledge based arguments. In other words, the new generation of architects need to be better researchers and negotiators without losing their skill in holistic artistic approaches. After all, creating or assessing "beauty" is the special competence of architects.

Using figure 4 we can see that architects need knowledge in order to formulate restrictions and that architects can produce knowledge in the analyses of future performance of the artefact. In figure 5 I have made an attempt to illustrate the knowledge production in a design processes.



Arrow 1 The goal level "a good life" is a kind of knowledge that is familiar for architects. Our products are meant to be used. Our products affect the society. Our education, from history to current urban regeneration, makes us aware of the social sustainability, our responsibility and how to handle it.

Arrow 2 Learning about the environmental prerequisites, what is wrong with the world and what has to be handled is a kind of knowledge produced by others. The learning is a comparably easy task, and a necessary one.

Arrow 3 How environmental prerequisites affect building and architecture becomes more complex. Architects work in a context of technical, economic and institutional imperatives, balancing and integrating them in a way that none of the specialists in techniques, economists or administrators can do.

Arrow 4 When our models are produced, we assess them in relation to restrictions. Producing environmentally smart architecture is much more that choosing "natural" materials, etc. It is a matter of life cycle impact from many types of energy and material flows in a long time perspective. Architects have the best position to introduce the building as a whole into different systems.

Arrow 5 There is no doubt a huge need for innovative products, technical systems or buildings, sometimes referred to as "transformer toys". This is perhaps the most fun part, and of course architects shall be active in this area to, but we have to accept that we are not better than other inventors.

I would now like to refer to what David Porter said in yesterday's discussion. Architects know a lot, and our approaches, models and methods could be exported to other professions and disciplines. One field in which we should be very active in is the production of conceptual models about sustainable building. There is a challenge to make the architectural perspective understandable for other that architects, and also to prove that our models are more relevant. Arrow 3 in figure 5 represents one of the fields in which our way of formulating problems by merging very different aspects into one concept could give benefit to others than just architects. Also arrow 4 in figure 5 represents a field in which we should be able to export models, methods and perspectives that others can benefit from.

Concepts or conceptual models can be of three kinds: Ideological, open and closed. Closed concepts are measurable and often "right or wrong", and often come from natural sciences. Open models are more diffuse, possible to interpret, but at least based on reasonable empirical observations, often coming from social and human sciences. Ideological models are political, religious, ethical etc. and can be interpreted or just accepted as well as contradicted. In the problem area "architecture that makes a contribution to sustainable development" such models can be exemplified as:

- Sustainable development, is an ideological concept
- Sustainable architecture, is an open concept
- Environmental performance or technologies, are closed concepts

In many "green" handbooks these models are mixed up in a confusing manner. Open, descriptive prefixes like "healthy", "natural" or "renewable" are coupled to techniques that make them closed, or even ideological. "Natural ventilation" can certainly be an appropriate technology sometimes, but must not be overarching concepts like "good comfort" or "energy efficiency". The way I recommend the students to address the problem is to first formulate open models like for example "good indoor comfort", "energy efficiency", "low environmental impact" and

"good architecture". After that, more closed models can be set on a systemic level, e.g. target values for energy use, target values for life cycle assessment, target values for temperature, air flows and light. Not until you have formulated these conceptual models you can start to deal with the technical solutions and design different systems to see which ones are most suitable. And to see which ones that can give "good" architecture.

If architects can sort out the use of concepts and conceptual models in this manner for ourselves, I am convinced that we also can make a meaningful contribution to other disciplines dealing with the transformation of the built environment to a sustainable one.

Where can we find the workshop for this production of knowledge and concepts? It can be tied to our main responsibility to produce artefacts. The building sector learns from projects and built examples have always been a main source for information and inspiration. Every successful project is both a contribution towards a sustainable development in itself and an object to learn from. The project can be regarded as a closed model, since it is there and can't be altered. In the learning process the trick is to reopen the case and see what lies behind the artefact. Useful questions are:

- How was it accomplished - from vision (ideological) goals (open) alternative models (semi open) to the product (closed)
- Did it work?
- How can we go on? Improve the product? Improve the goals? Improve the design process?

So far I have mostly talked about the new priority. Let me just mention some new subject areas. One is the production and use of concepts and conceptual models per se, and especially the relation between the building as a system and its relation to environmental prerequisites (arrows 3 and 4 in figure 5). The second is a theoretical base in systems and system's theory, since the challenge to grasp sustainability issues introduces a new complexity in our projects, dealing with systems and system boundaries. A third could be tools and guidelines for continuous learning, since the adventurous journey towards sustainability will be long and contain many unforeseen surprises.

On a more practical level the new IT-tool like BIM, GIS, etc. seem to be very useful in order to help us handle all new information. The question for a school of architecture is, however, how much of this that can be pressed into the curriculum, and how much you can expect the architect to learn in practice. We all know that five years is a short time for an architectural education, and that the learning must continue, not only concerning sustainable development.

There is final subject area that has to do with the perspective on building and architecture. Often the building sector is compared to the production industry and been said to be old fashioned. The question is why that comparison is made. Building is much more than just mass production! The main task for all actors in the sector is a long term and continuous regeneration of the built environment, by refurbishment or adding new buildings. We always work in a given context and some kind of urban-rural landscape system. If we change our basic paradigm (conceptual model) from "production" to "stewardship" the long-term task might be easier to grasp and handle.

My favourite example in this perspective is the ongoing regeneration of the Ruhr area, the Emscher Park project that started in the 1990[ies]. If you go to the Innerstadtpark Nord in Duisburg

you can get a magnificent view of the area. In a bird's eye view it still looks very unsustainable with the traffic system, the polluting industries, the coal-mines etc. But gradually and stepwise, and with architectural means, injections and design interventions are made.

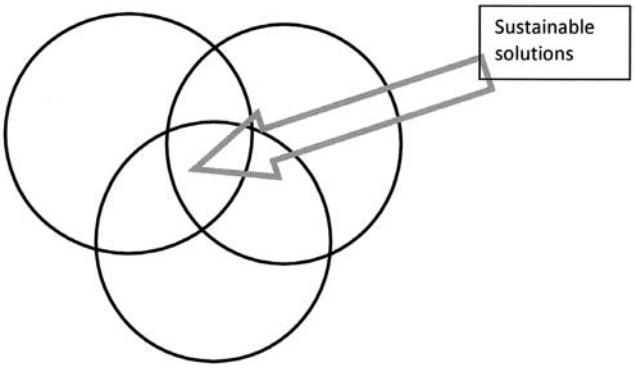
The picture shows that nature is gradually restored, Emscher Park is becoming a park, and that new features are appearing, for example the IKEA warehouse. Notwithstanding what you like or dislike about IKEA, there are at least three features that can be a starting point for reflection.

It represents a new kind of business. Architects and perhaps especially "green" architects don't like the business approach. But we can't deny that if the world must change, somehow or another change must offer business options. IKEA does perhaps not represent the avant-garde in design, but you can't deny that they give good design and sufficient quality to a large number of persons, fulfilling their needs and wishes. Secondly IKEA could help us to find a way to cope with the necessary industrialisation. They produce flat parcels that are mounted on site into 3D products, with the engagement of the end users. Architects, and perhaps especially "green" architects don't like industrialisation either, but the logistics and distribution IKEA uses could perhaps make us create industrialised products that can be adapted to the large variety of contexts in which we are working.

Finally, the idea of assembling on site also means products that can be disassembled. "Design for disassembly" is said to be the great challenge in producing less worthless waste and a necessary step towards sustainable material flows. Hence, the picture is chosen to illustrate what we need to cope with. The new priorities and subject areas in the vision of sustainable development are among others new business, relevant industrialisation, an active interface towards the end-users, recovering harmed nature, efficient material flows and using architectural design as the means.

It might be difficult to define what sustainable development "is". But – we can at least define what to do in order to promote sustainable development by assessing our models and projects.

If you have a solution, a proposal, and a model of an artefact you can rather easily tell if it fulfils the criteria of reasonable environmental impact, reasonable economy, and reasonable functions, using familiar design processes, but with non familiar criteria..



It is time to finish this tour: I have advocated that one base for the architects contribution to sustainable development is to respect measures for the environmental performance of a building and also respect the end-users' needs. So, one extreme position could be said to be that the figures and the end users' wishes are that what counts. Stop. The other extreme could be that these restrictions are rubbish and that the architectural concept isn't negotiable. Between these you can find a role of the architect as a skilled team worker in democratic design and learning processes. There is, however, a more challenging and stimulating position: From team *member* to team *leader* in processes aiming at sustainable architecture, with the clear aim that the sustainable architecture should be not only endurable but also desirable. This is a position, which no other professional can cover. It must be a comfort for us to realise that this ambition is very familiar. If we learn about environmental performance and techniques and how to cooperate in teams we can take the position as team leaders, since no one else can make the necessary integration of immeasurable, aesthetic innovations.

Debate

Trevor Harris, Helsinki, Finland

I think this has been one of the more inspiring sessions over the last few days. This question about new priorities, new subjects leads me to think that a lot of the things that have been talked about such as sustainability as well as all the necessary competences for this may be found in those schools which are developing a more holistic approach to problem-solving and which may in the long run work for better survival strategy. At the end of the day, I think modern day architects are, in fact, spatial managers and manipulators of chaos and complexity. By that I mean that when you are in a learning situation, quite often the teachers try to simplify or over-simplify a situation and describe it in terms that make it readily accessible, whereas if you approach architectural problem-solving through more sophisticated systems of thinking, I think you might arrive at answers more easily. Having said this, my question to the panel is the following. On the one hand, we cannot ignore the traditional things that architects should be good at: their abilities to look, listen, feel, smell and act; in other words, the sensitive side of being an architect and defining what the world is. I would like to know how you, as practitioners and educators, develop and keep alive the sensitive nature of an architect when most of the time, the challenges we are facing at the moment are pretty hard, pretty gruesome and pretty ugly. I was wondering what you think, within an educational context, the way of balancing the two things is: on the one hand, making sure our graduates are robust and strong enough, but on the other hand, not to the extent that they have to sacrifice their sensitivity.

Michael Edén, Goeteborg, Sweden

There is no given answer to that question and perhaps there never will be. We do have a platform of expertise in that we have to train very carefully so that we know we are architects with an architect's competences. As many of us mentioned, the learning capacity of today is something that has to be increased; we cannot just teach subjects, we have to be trained in projects so we learn the difficult way to integrate different aspects; we must also have this iterative process of formulating criteria, testing against various criteria, changing the criteria. From my point of view, I have been outside the architectural world for many years and clients need qualities among the engineers that the school should teach. I think we have a very solid base and that is what should be taught from day one and never be forgotten. I have no other answer.

Peter Kjaer, Umea, Sweden

Basically, architecture is real. It is materiality, it is light, it is acoustics. So how do students learn about acoustics or light simply by working with it in scale one to one? This is one thing they can do in schools; you can of course try to get students to make models or carry out examinations of various types of buildings, but you must address the issue of the senses. That way, you make it part of the study of the students, because you cannot teach it, but they can study it. They must think about being able to have these softer qualities which basically constitute architecture. If we then tackle the question of being robust and how students could become

robust enough, I would say that it is difficult to be robust if you are in a design studio all the time. So probably one of the issues is that they have to be confronted by users or constructors or whoever, but they have to feel the "pain" of the conflict. They have to know that the concept of architecture is not necessarily the nice drawing, but it might be the discussion with the users how to develop the programme so we can leave behind this crazy idea that architecture is some divine idea coming from God. I think this comes very much from our approach and from our attitude. There is one thing that is quite interesting to me which is that very often when we talk about studying or teaching, it is only about it in an institutional way. Institutions build up barriers around them, so already there is a hindrance to having a very good relationship with the work surroundings, which is difficult. So in a way, we should try to rethink the idea of institutional thinking. Perhaps we could learn from our colleagues from Münster in the way they are trying to give students responsibility in a completely different way, perhaps that is one way to learn from or to discuss.

Urs Hirschberg, Graz, Austria

To rephrase your question: now that the world is in crisis, should we go into a completely different kind of teaching? I think we certainly cannot insulate ourselves from practice and the situation in practice should always be in some way or another in the way we teach. At my school certainly, we have practising architects as teachers. At the same time, I think there is something to be said for the agenda of the university and for the academic world to be, to a certain extent, independent of the current situation on the job market, or of the current financial situation. If we are serious about these things that we investigate at a university, we see there are ways of investigating things at the university that simply cannot be done in practice. That is one of the reasons why universities exist. There, you can do things differently, more thoroughly, hopefully more experimentally. You can also do things which are geared more towards the future that nobody is doing in practice yet. So I think that especially when the situation in practice is not clear, I do not think we should try to only look at specific situations and how we make our students most employable, but that we should be true to these longer term goals. At some point, the economy will pick up, but if we take the low point of the economy and destroy all these things that are dear to us in an a academic sense, then in my mind, that is not a good way to go.

Aart Oxenaar, Amsterdam, The Netherlands

Making contact with practices may be the way to stay away from this thinking in terms of gruesomeness. As I said before, all our students work in practice, all our teachers work in practice, so they know what it is like out there. There was a time they reacted to crisis by saying that yes, they knew what it was like out there, so the teachers and students would go into the studio and what would happen is what we call the secret pact between student and teacher as if they were saying, "Yes we know it's horrible out there, let's stay in here and have fun!" That is not what is happening this time, in fact, it is quite the contrary. I would like to quote something which I think was said by Hillary Clinton, "Never waste a good crisis". I think this is a great time to move, to think, to readjust. Regarding the practice, what we have now with the students who work within the offices, is that they work on more research-oriented or somewhat wider themes that normally they would not have so much time to work on in an office. This actually

creates a very positive atmosphere. What began as a crisis and as something difficult and with the architects saying, "I apologise that I have to lay off six of your students because I have no work", now the idea from the architects is, "Since the tables are empty anyway, why don't they stay and we will do something else!" And they come up with great results: they bring in clients, they bring in finance, they bring in people to come and criticise. All of a sudden, these people are in the office, so in fact the economic crisis is changing what is happening in the office. It may well be that we are going to try and see if this kind of educational model where the office takes on this second role in education rather than just having students work there in the normal everyday sense may be kept as part of lifelong learning.

Herman Neuckermans, Leuven, Belgium

I would like to react to what Peter Kjaer said. I have nothing against bringing practice into the school, even on a scale one to one, but let me give an example. I remember that once in our university, one of our teachers was designing a large auditorium of 700-800 seats. This auditorium had to serve the purpose of lectures being held there, but at the same time concerts could be held there in the evening. It was thus a very difficult thing. I remember at that time they managed to build a huge model in which you could even stand: it was a very big thing. When the model was built and before it was built, he had already changed his mind three times so the model did not follow his vision as a designer. In the end we were able to simulate a lot of things, even there, as to how the room would sound. There are things that you can build, but I think that there are things you cannot do in the schools. That is a sort of reversal of the arguments we heard.

Peter Kjaer, Umea, Sweden

I totally agree. We have just been talking about how students can study light or acoustics or similar aspects. One of the biggest or most important tools we have to develop is probably the ability to create scenarios in order that customers or contractors can visualise the impact of a project. That is another way of looking at it. I do believe in simulation to a certain extent. However, I also believe very much in reflection.

Stefano Musso, Genoa, Italy

Simulation is a good tool, but we have to know what to simulate and why we are doing it. It is also of course a real thing.

Peter Kjaer Umea, Sweden

Of course, it is important to deal with the real thing.

Stefano Musso, Genoa, Italy

The process is also a real thing, but in order to arrive at the construction site students must be able to use or deal with many non-material things. Therefore, in our curriculum, not in the subject areas, but in all the actions we are developing in our schools, we have to help students

acquire intellectual instruments, such as the ability to reflect, as well as many of other things that Peter Kjaer has already mentioned. Also because I think the link between the profession or practice and theory is important, even if I do not think this a particularly interesting separation, although I have nothing against bringing practice into schools and recognise the fact that it is necessary to bring some culture into the practice, yet we cannot. If the problem is complex, there is no simple recipe. Therefore, we cannot solve the problem of the education of students simply by saying that they must be practitioners from the beginning of the curriculum. This is also because the ability to do something is not a value in itself. If we do not agree we can, at least, say that this thing is good.

Jos Leyssens, Vice President of ACE

Speaking on behalf of ACE, first of all, we would like to thank ENHSA and EAAE for the invitation to come here; we have been coming to this important conference for several years and we are very glad to be able to be here with you. The link between education and profession is of course very important and the exchange of information is very interesting. We come to inform ourselves about architectural education and its evolution, the defeats, the threats and for this year, the new priorities. I can tell you that we came with a lot of questions to the meeting this year and I think we will leave with even more questions. I feel a bit that I am in the maze of Daedalus but without Ariadne's skein of thread. I cannot come out of this maze since you leave us with a lot of questions to which will have to try to respond next year. From what several speakers told us, we understand that you estimate for yourselves that your education is education in architecture: you are not going to educate students simply to become an architect. We respect that point of view; I heard Art Oxenaar telling us that we are not a mould for architects and I agree with him.

What I was surprised to hear however in today's climate is that you are not really very concerned about employability, even if that was termed in a slightly different way. If the governments of the twenty-six European countries represented here were at this conference and heard that the first priority of the schools is not employability, they would be extremely surprised. You emphasise research a lot, which I think is very important: we need it as a profession. This research has to be done in university schools and somehow also in practices but I miss research in your own sector. You speak about your graduates, you speak about the students who leave the schools and do something else, but you have no figures as such about the number of graduates that go into the profession and then do other things. Therefore we do not know about their professional lives. I think there is some enquiry to be done in this field in order to know about the outcome of the students. I come from the school of University of Leuven, like Hilde Heynen and as Hilde said the other day, less than half of the number of students that graduate from the University of Leuven go into the profession. That is true for that university but on a national level, which I know quite well as I was President of the Belgium Chamber of Commerce for three years, that is the only school where less than half of the number of students who graduate from the school go into the profession. In all the other seventy schools in Belgium it is more than half: two-thirds of students or even more go into the profession. In the context of Belgium, for example, we have in the first year of architecture in all of these eighteen schools 2,200 students. From these, around a thousand students reach the Master's degree. From these thousand students, 900 go into the professional practice system, which in Belgium is for two years after graduating with a Master's degree. That means that 90% enter

the professional practice period. Out of these, only 10% stop after the period of professional practice, meaning that 800 graduates remain in the profession and then for another three to five years, 20% of these people leave the profession. They are frustrated because they cannot become truly professional in the sense that they do not earn enough money. I think it has to be of your concern what happens to these people afterwards. Saying now that less than half of the people you educate are going into the profession is not true. I think if this is the situation in Belgium, it must be more or less the same elsewhere in other European countries. What I did not hear is an important question: what does the profession expect from education? You say that you are going to bring practice into the schools: this is excellent. We say we will bring school into the practice: this is also excellent. But what does the profession expect? I think a debate has to be started on this issue; perhaps it is something to think about for next year. I am quite interested in figures: last year I spoke about the figures for how many students and how many schools we have in Europe. It is interesting to hear things. The schools present what they are doing now and what they are changing in their programmes. This is interesting to hear and to pick out certain pieces of information. We are also aware that there are some new schools starting up. If every year we have three or four new Schools of Architecture in Europe, and we already have 350 schools with around 150,000 students of architecture, what are these youngsters going to do? Is there any space for them in the profession? Or, as was my question last year to which I understandably got no response, seeing that it needs a lot of consideration, do we need diversification in education? That is what I meant here. You are all talking about the changes you are making in your educational system, but not about diversification. This means showing young people, your students what kind of possibilities are open to them apart from the specific profession of architect. There are many possibilities for them, but they have to be shown by the educational system so that the students are aware of all the possibilities for their professional life. You may think I am here to speak about the profession, that I am in some way protecting the professionals. This is not the case. I am genuinely concerned about our young people, our students and naturally my own children. They need to have accurate expectations of their own future; they cannot be allowed to be frustrated. Far too frequently, they have been educated in a sense that they have a mirror put in front of them which shows an image of a nice profession, a nice professional life as an architect and this is not the case in reality.

Stefano Musso, Genoa, Italy

I think we are all aware that the realities are never what we dream of! Your remarks have been quite challenging for us as always and that is why we try to work in partnership, not on two different sides of the world, not knowing the existence of the other. I think that every time it is always a process of free ways in different situations. Yet I think that all the people who said we are trying to keep together the profession and the schools and so forth, we are not thinking only in this instrumental relationships. I think that we are two sides of the same reality; we are at least linked through our architecture. Yet I think that since we like architecture, let us be extremely sincere. What we have to avoid is the way of thinking that we have the right and power to control professions. But I hope that the professionals are not thinking of substituting the official system because it does not work in this way. I think the only way is a dialogue and of course the remarks and the assumption of common responsibilities.

Marie Henry, Waterford, Ireland

I am extremely sympathetic to any graduate that does not find work. I, like many people here, have a daughter and she is thinking about studying architecture. Part of me thinks that is wonderful; part of me is very worried about what will happen in the future. In Ireland, like in other countries, there have been times when we have had too many nurses, not enough nurses; too many doctors, not enough doctors; too many architects, not enough architects. If we react too quickly, if we close all the Schools of Architecture, or half of our Schools of Architecture, there may be a problem in the future. Am I allowed to say there is education for the sake of education? As educators, we facilitate people in reaching their potential, so there is an argument to be made that you educate for the sake of education, for the reaching of potential. The outcome is not just entering a workforce. The final thing I would like to say is the following. I did a little research a couple of years ago. When we were setting up our school, I quizzed 300 architects and asked them many, many questions. 95% did feel that society undervalued them, but the same 95% felt that, were they to do it all over again, they would still do architecture. As we have said before, you come out of studying architecture with a way of thinking that influences every single thing you do in life.

Pieter Versteegh, Fribourg, Switzerland

I would just like to expand a little on that because the question was asked in such a manner that I had the impression there would be a consensus about what the architectural profession is and how people entering that profession should be working and that workforce idea that you are talking about. That is not true. I believe that our institutions also have the role of helping the profession to evolve, to change, to answer differently to the changes in society and we are trying to act upon that. This means that we have this dilemma about the employability of our students. If we teach people, if we develop architects who try to be critical and active in a transforming landscape of the profession, then maybe that is good, entering the office can be good work for us. We see from many firms and we also see that our graduates on the Master's programme have difficulty in entering local firms doing routine jobs, but they are also very much appreciated in other kinds of firms that are active internationally, those that deal more critically with questions of what the profession should be doing and they try to expand their own practice in a certain way. So this dilemma exists always; it is very difficult for us to deal with that. I believe that regarding expectations, we have expectations from organisations like yours and those special organisations to help us develop ways of answering that, and to develop ways of working with the profession to have better tuning between institutions and offices.

Stefano Musso, Genoa, Italy

I would actually like to go back to the central point of the session, which was subject areas. That is of course very much linked to the problem of employment but there are other things which also need clarifying.

Aart Oxenaar, Amsterdam, The Netherlands

I would like to return to the remark about what I said about the school being a mould, not being a mould for architects; you picked it up maybe as if I meant to say that the school should not produce architects but in fact if there was anybody who meant architecture schools should produce architects. His whole critique came from his discussion in which in fact he thought was a school that, enclosed in itself, knew what an architect should be and almost had, in his view, eternal values about what the architect was to be and to remain. His critique was therefore very much orientated towards the fact that schools should not be a mould which forms an architect according to specific lines of what a school thinks an architect should be, but it should have a far more open relationship with practice which is how things are made. It was not without reason that he wrote his brilliant children's books explaining, for instance, how to build a house. He was very much open to practice and the realities of the situation and started this new school in Paris which is still there. I think - and especially from what I have heard here around the table - schools are very much aware of what the realities of practice are and are tackling this issue.

Urs Hirschberg, Graz, Austria

It was a long question, so maybe it deserves a short answer. One of the arguments you made was that the universities do not look at what the graduates do. My university did a study about what our graduates do, looking in particular about how much money they earn. It was rather devastating for architecture: we found out that our graduates on average start out with making around a thousand euros less per month than mechanical engineers and similar professions. Architecture students in Austria can choose from any area of their academic field, they are completely free, there is no limit to that. My university would actually like to have more people going into mechanical engineering or into fields of engineering and to have, based on the studies made, much fewer architects because we just cannot cope with all these people who want to come there. At the same time, the students who enter our school know that right from the beginning; they enter with completely open eyes. My daughter is studying architecture so we have the same problem that Marie mentioned. One of the reasons my daughter gave was that she looked at the people in this field and said she just liked them better than in the other fields she considered! It may sound a silly reason, but maybe it is not really. I could talk about employability and perhaps correct slightly the image I gave of my school as if we were all about machines and such like. There are ways to study at my school that are very much in the line of "traditional" architecture. That also demonstrates the liberty a student has. The responsibility is with the students as to how they want to steer through these things that the university offers. There are those who know they want to be practising architects in a certain middle-of-the-road sense: they are employed while they are studying, they have no trouble finding a place. Within this spectrum, I do not think we fail in terms of employability in the traditional sense. At the same time, those of our people who go out on a limb somewhat and use that opportunity, we also help them to go deeper into the outskirts of what the profession might be. In my experience, I had no trouble at all in finding a rather better paid job. This is thus a picture with many angles to it.

Suzanne Komossa, Delft, The Netherlands

I think there are two things at stake: One is the question of efficiency the other is effectiveness. Governments and universities tend to stress efficiency. However efficiency is not necessarily almost the most effective in regard to research and the development of new ideas. Sometimes doubles – two people or groups working on the same subject independently - can be very fruitful. If two groups compete and come to different conclusions and join their ideas at the end, not in the beginning, more new things can be found. In that sense, innovation defies a clear-cut definition of proceeding 'efficiently' from A to B because it deals with something that is yet new and unknown depending on different brains and coincidence. You studied something, I am studying something, and if one would argue for efficiency alone, one would say we have to work together. As said, working the other way around – first developing the idea separately and than joining can be even more productive. If you think about knowledge and the industry, you need people that are willing to just get started taking up the risk to succeed or fail. Also in that sense, smaller research units – sometimes with the same subject – reduce the risk of failure, though that does not look efficient in the beginning at all.

Constantin Spiridonidis, Thessaloniki, Greece

I have three remarks which are perhaps questions at the same time because there are no answers behind these remarks. I will start with the first one and with an empirical observation. Every year in my school, about ten students ask me to give them letters of recommendation because they want to continue their post-graduate studies in another institution in Europe. Statistically, and without exception, half of them are oriented towards post-graduate programmes related to new technologies in architecture, while the other fifty percent is oriented towards environmental studies and issues. It seems that these two tendencies - I do not wish to label them, but you understand what I am saying - appear to be two different orientations and subject areas. The reason for this orientation is not because these people will have better professional perspectives, that is for certain. It means that there is an interest, generated by the existing educational system or from the broader educational environment, which influences the consciousness of students and they want to develop such a kind of subject and approach. It was interesting - although unsurprising - that these two models or paradigms appeared to be present in the panel today. The question is whether we are speaking about two different worlds because in the end, if you want to look more deeply, they have completely different priorities, views and orientations. Therefore, I wonder if we are facing some kind of schism where one direction is coming from one side and the other direction is from the other side. My feeling is that there is no link between them. If, for example, someone investigated the digital paradigm, he would find there very little environmental sensitivity; similarly, if one went to the environmental side, he would see that a digital approach is not the priority there. Are we therefore facing two different kinds of worlds, or has it just happened and is it possible to find a relationship between the two? This is the first question. The second is the following. I totally agree with Peter Kjaer's initial comment that he is a very lucky man, which I think we will have to call him from now on! He has the unique advantage of being able to conceive a curriculum and to direct and to have it implemented. Unfortunately, the other people do not. I am sure that no-one in this room has this privilege. The main question is that these innovations, these technologies and environmental sensitivity, the approaches of these two models are easily incorporated into the existing structures of the schools. In the schools there are always staff

members who do not share the same ideas and we all know very well that introducing a new element into the school is something of a "mission impossible". If there is the possibility of implementing something new, this thing appears to be more or less marginalised for a long time until it achieves its dominance. Yet once the dominance has been achieved, another new thing is already at the door. This is how it goes. The question thus is, in this fast-changing world, how easily or not is the existing infrastructure in school, both the intellectual and the material, accessed? Moreover, what kind of actions does a head of school have to take in order to facilitate the incorporation of the new with what already exists in the school? The last question-cum-remark mainly concerns the technology and digital approach. This requires a very specific infrastructure. From the presentation made by Urs, it appears that this infrastructure is very expensive and very difficult to install. Once again, the question is how this infrastructure can be easily used in order to become useful in the development of the quality of education. Does, for example, a school that has a robot and a 3D printing machine offer better education than another which does not? I think this is an issue because I have noticed in more than three cases that this infrastructure is not very useful for the students. The rapid prototyping process, for example, needs twenty-four hours in order to produce a model. If there is a class of twenty students, then the machine needs to work for a long time, so practically it is not very useful. Maria Voyatzaki is just adding that at the same time, 20 centimetres costs 200 euros. The infrastructure is there, but the school uses it to produce prototypes for the industry outside. So what is all this about? I am asking the question honestly; I did not mean it ironically. What I would like to suggest is that it appears that the infrastructure becomes a factor of quality in some cases - I do not want to make generalisations - but in the end, the serious impact that is felt in the school is under debate. This is what I would like to know.

Gunnar Parelius, Trondheim, Norway

The discussion about values is very important. It is also connected to what we are talking about here. In society, there are many institutions, many sets of logic and we have to recognise our own set of logic, our own institution, our own values and not try to translate them too fast into market values. This is a basic thing. Moreover, we should not be lazy in this struggle to discover what we are doing. I admire all these attempts trying to understand what architecture is; yet we should also always try to understand how the basic nature of architecture is changing, in the short term but also with a long term idea. We should do it to understand what architecture is, of course through the making of it. This should not, however, be overtaken by all these market interests at the present moment. We should show the possibilities of going out into the market but we should treat universities as academic institutions. This is done in most other university departments or faculties because there they do not think about employability as such: it is of course something they reflect into how the subject changes, but in English, they learn English, and in social anthropology, they learn social anthropology. It is certainly important to have the values of the university as opposed to the values of the market and to stay in touch with this. Then of course we come to art. One example of how we can do this - it may be the wrong way - is to talk about the added value of architecture. For me, this is the added value of life, instead of stones: it is something quite different that you take care of, it is there and you need to have it but it cannot be considered an added value, and then have it asked what is considered an added value.

Frid Bühler, Gremany

I would like to return to two points of this morning's session. The first is that Pieter said we have to pull down the institution of architects. That is more than to work in an interdisciplinary fashion because if we speak about this interdisciplinary work, it is always focused on architecture. If we talk about theory, it is architectural theory and so forth. What you meant is really directed behaviour in this. The second point is that more and more of the curriculum contributions deal with making space as one of the essentials of architectural work and therefore one of the essentials of architectural education. There was an example yesterday from speakers who dealt with what may be called the space in the street from the point of view of an architect. For very many years a famous Swiss artist, has been dealing with the same topic in video art; now I come back to the point of the question. For many years, the biennale in Venice has been dealing with exactly this coming together of these two subjects, these two disciplines of art in the same subject that means space. Fine arts needs this space, dancing needs space, as does cinema. These are all artists' disciplines that in earlier times were very close to us and which have their own way of discussing this and thinking about this; in the theory of art, in cinema they all have theoretical aspects and they have other ways of designing space. The last biennale was very inspiring in this sense. The curator, who was at that time head of the state school of Frankfurt, one of the leading international schools in Germany and one which often sets trends. Months ago, I was a member of a peer group there and we had to discuss a new studio which was to be established there. This new studio aimed at combining parametric design with architectural theory. Now they have established a new studio which is poised exactly on the borderline between fine arts and architecture; the teachers are architects as well and artists and the topic is space. This means this is a dialectic way of doing the designing of space and a dialectic way of thinking about it in theoretical matters. My question is the following. For me, if we are talking about new priorities, this could become a new trend; it could be a new priority in the coming years or even decade for broadening the architectural discipline to look beyond the boundaries out of a stable condition necessary. My question is, do you agree with my feeling that a new tendency is awaiting architectural education, a tendency which is truly interdisciplinary and which may break down these boundaries?

Stefano Musso, Genoa, Italy

Does anyone on the panel want to intervene, firstly to answer the three questions that Constantin proposed about the two different worlds or whether there is something in between? The real answer to the impact that the acquisition of expensive infrastructure has or does not have on the quality of education and what it means to use such means to shape the curricula and the fight of our students.

Peter Kjaer, Umea, Sweden

I would like to answer the last question first, if I may. I have just been to the biennale in Venice; I went a week ago and I saw the opening. In the biennale it is completely obvious that it is about space. The interesting thing is that it is not necessarily European architecture that has contributed to this: it is Indian, it is Chinese, it is Japanese. I had the idea before I went that the concept of space in a way was connected to the European way of thinking about architecture

but it does not seem to be like that. The biggest contribution was perhaps an Indian one. You had to go there to and see it because they brought back the idea of local architecture with the glow of perspective. They showed their work in the office and how they worked with training local people to do architecture, not as an exclusive thing but as a very local act. In India it makes sense because they still have a need for craftsmanship. It would not make sense in Denmark or Sweden where everything is concrete structures. But then we have to go back and make the connection. This is exactly what I think: whether it is possible for us to rethink architecture and bring it back to business in that sense, then space is exactly the place to come from. This is not just something I think, it was coming from the idea of *Beaux Arts* when there were the painters and sculptors and architects: they were all part of fine art. That was the question about space. Then the three big, difficult questions posed by Constantin. But they are essential to the core. I think you are probably right in remarking that Schools of Architecture will probably develop with different concepts and different profiles. I am quite sure that the environmental issue will be a very strong issue in many schools. It is difficult to see how they can escape that, whatever they do. Yet if technology is the other issue, I am not the right person to answer that. But someone from a college coming from the Schools of Architecture in technological universities might have the idea of how we could develop that. I think that was a very interesting point. Regarding this machinery technology, I think researchers do need some of this equipment. The only equipment we have in our school is a light oratory. We are up in the north, so we have the need to study light: everyday light, sunlight, so we have a light oratory. We also have a winter oratory because it is a place in the world where there is a lot of snow and we need to know how the snow is coming and creating problems for the infrastructure for example. I would say, therefore, laboratories that are connected to the idea of the programme would be efficient and necessary for research.

Michael Edén, Goeteborg, Sweden

First of all, I must apologise for laughing when you asked "What is it all about?" as it was exactly something I myself wanted to ask and so I could not give an answer! I would like to make the point that the dividing line between technology and environmental concerns should not be there because we cannot solve the environmental problems without a lot of the technological development. However, I think there is a historical reason. The early Green movement was very hostile to the industrialists and the existence of technology. On the other hand, the engineers were not very keen on the environmental restrictions. I would very much like to see that as a fusion or a new field. I do not have a lot about the second comment about innovation. What you were saying about the innovation in the theory for producing industry has found to be not very relevant to the building sector because we work in a very project oriented way; we work in teams. We do not do prototypes for mass production, and also there is a scarcity, meaning that what is common practice for one company is very new and experimental for another. It is therefore sometimes very interesting to see in the meetings of the building sector how information is spread. Finally, of course borders should be crossed and also taken down sometimes but using a metaphor from ecology, we could say that the most productive areas are the borders, the source. So in one way, I am very pro borders. Put them there, then let people challenge them and then something happens. So in one way, we need disciplines, we need precise questions, and then we need architects challenging that. Yet we should not think that the problem is to erase them. We have to be precise.

Pieter Versteegh, Fribourg, Switzerland

I also believe that what we have to do is to rethink the borders a little and the boundaries between disciplines. That is why we are talking about renewing transdisciplinarity, we found out in our experimentations with the students that a strong interdisciplinary environment where students look at different disciplines is neither a very easy, nor a very direct one for the students. It asks them to go through theories that they have neither the competency nor the knowledge to understand; it is very esoteric. Architecture can be, as I call it, an autistic discipline, so going through this system of courses in which you try to teach students about other disciplines and try to make them understand, taking it back to architecture is a tremendous detour. So you have to try and develop a way of putting architecture students together with people from other disciplines in teams, working together and practising together the real thing. It is amazing to see how, for instance, a biologist can speak and think and work on the urban; I learn so much about it and is so direct that I do not need the text on biology to understand him, it is just a question of practising, working with these people that is important. So we are more and more into this organisation of practising together. This also starts to answer Constantin's question about separation between aspects because I think such separation exists only in a simplistic view of things. I can connect it back to the machines that you are working with because there is one way of seeing this very expensive machinery. I remember seeing the first movie here, I think is was two years ago, by Gramazio and Kohler and I was sitting here and really feeling like it was some 1940s Charlie Chaplin movie! I truly felt a very strange awareness. I thought how this really showed that we have not been dealing with industrialisation at all in architecture. It is so amazing that we still have to go through this now! Again, today, I wonder, we can be very critical about these kind of instruments, but what I take from it is that you are working with people from industry, from industrialisation, from other ways of producing things and working together is really the important thing that we gain from this.

Maria Voyatzaki, Thessaloniki, Greece

Maybe we are having this discussion at a very wrong moment: I have been trying very hard to persuade my school to buy equipment. In fact, any misuse of any tool is dangerous for architecture and so consequently for human beings. To be banal, especially for the people who have heard me speak about this: a pencil and a piece of paper can be as dangerous for architecture as a machine. Therefore, it could be dismissive to say that buying the machine could not make any difference to architecture but at the same time it could be accepted that no good architecture would necessarily be produced if the means were available to the school. However, if a school can be open and complementary and have the best of both worlds that is to say, to have a strong mission statement, a strong philosophical premise and at the same time to have the means to be testing things one to one and have a close cooperation with the industry, then this is ideal. So I do not think there is an "either/or" situation, I think there is a "both/and" situation.

Urs Hirschberg, Graz, Austria

We are eager to agree with this, so I will perhaps answer the earlier question. The machinery in itself is not so worthwhile if it is not connected, if you cannot do meaningful things with

it. We might also talk about it in terms of whether you are looking for machines that do a lot for a lot of students. The worst thing is to just spend your money. When we talk about the best machines, one might be a laser cutter because many people can use it; it is very simple and many things can be done with it. There are many different, very interesting gauges and architectural thinking. Yet that is no reason for not obtaining such things and if you have the occasion to handle these things, you can do interesting things with them. The other question is why there are these two camps, the digital aspect and the sustainability side. The project that allowed us to buy the robot was labelled as "resource efficient non-standard structures". So in the programme for that, we try to bridge that because so far non-standard is always stupidly expensive and is used for extravaganzas, whereas to think of how these new technologies can actually be used towards resource efficiency was the new trajectory of our research. Of course, no-one ever fulfils the ideal but we search and make an effort to bridge those fields and think about sustainability when we use digital tools and the like.

Maria Voyatzaki, Thessaloniki, Greece

While I am sure you know this, I just wanted to mention it for the sake of this discussion. There are two things: there is the essence, the real issues and as has been indicated, there is politics. Therefore, subject areas in Schools of Architecture are associated with certain personalities whereby, even though they see that things are not separated but interlinked, to use Chris Younes's favourite word, they cannot get on, so they decide to set up two different Master's courses for that very reason. I am sure you know this: at the Bartlett for example, which is known to be a centre of excellence when it comes to research, they have the Master's on sustainability and environmental issues, they have all the other things on theory and digital and all that, but they have a very particular Master's course that hits the nail on the head. This is adaptive architecture because the digital paradigm has a value - going back to the previous sessions - it talks about adaptive and responsive architecture and it puts the emphasis on the climate, when it wants. In fact, however, this can be a dimension where you have a general umbrella that talks about the contemporary approaches to design through a certain means. One threat can be the environment as a response to the responsive, adaptive aspect of contemporary architecture. Thus there are ways of bridging gaps but in Schools of Architecture things co-exist or they are separated because they are associated to certain personalities. It is a true fact.

Stefano Musso, Genoa, Italy

Man cannot be avoided!

Herman Neuckermans, Leuven, Belgium

There is a way between having the tools and not having the tools, but using the tools from somebody else. I am in the Faculty of Engineering and there are many in my situation and there is something that spread across Europe. Just before I retired, I became a member of a committe at our school which is in the mechanical engineering stuff and we can use it when and how we like. They have a laser cutter, they have 3D printers, they have other relevant equipment they have all the stuff. This is the best solution I can imagine: they have to follow

the evolution and you just use them and then you use them when you need them; it is not the reverse, because if you have the thing, it is not question of putting the cart before the horse - you need some reason to have these things, a paradigm and then they fit the tool and not the reverse.

Constantin Spiridonidis, Thessaloniki, Greece

I have to come to back to this because I have the feeling that probably my intervention appeared to you as a negative criticism of the new technological infrastructure and the new digital paradigms, but it is the contrary. I have very good proof of this since over the past three or four years we have organised with Maria Voyatzaki at least five workshops which have focused on this issue. Therefore, the concern behind these efforts was to find the articulation between two important questions: the one being the environment and the role of architecture in the protection of the environment. The second was the use of new possibilities to create forms. Personally, I do not think that these are two different paradigms and two different directions, even if different people go to the one and to the other. I will add in parentheses that among the students whose letters I signed, those who preferred to go to the environmental studies appeared to have higher marks in the theoretical aspects of the course and worse marks in the design studio. This was in contrast to the others going to the digital, who had very good marks in the studio and not such good marks on the theoretical side. This was our situation at least, I do not know if this is too much of a generalisation, but there seems to be a feeling that the good designers want to go to the digital things while the "thinkers" want to go to the other side of things. So even if different personalities follow the one direction or the other, in the end, I feel that there is something in common. The common word which I find very interesting is the word "generate". Generating forms, form generation, generative components: all this discourse of the digital related not to the design form, but the generational form, I think has inherently a very strong natural and ecological nature which has to be cultivated. Therefore I think that one of the projects that we have to develop is to find the articulation between the two. For this reason, both approaches are extremely useful and necessary in Schools of Architecture. The other thing that I would like to say is that if we follow the suggestion made, whereby we have to involve students in the decision-making, then we must realise that students are fascinated by both of those aspects. It is therefore absolutely necessary in Schools of Architecture to have the opportunity to cultivate them. Even if, at this very moment, there is not a significantly different structure and the question is whether we should spend money on installing equipment and why we should, I would like to give another reason for this. It is not only a reason to persuade our heads to invest in this direction - although I am sure that it is something else we could use! - it is that the presence of such an infrastructure could keep the students who graduate from the school in the school. This is because what we actually do is to export our brains, brains which are produced after some very hard work in our institution. We export these brains for free to other institutions who invest them in order to have this infrastructure, which in itself attracts these brains in the first place and in most cases keeps them there and exploits them. Thus we lose the human capital which we have produced. This is why I think the schools have to develop these kinds of facilities in order to extend the educational cycles to the third cycle and to offer a more precise and extended education.

Reflections

Stefano Francesco MUSSO

The session devoted to the problem of any new teaching subject matter or areas in the construction of the curricula in our schools of architecture was particularly rich in examples and points of view, partly converging and partly reflecting the many differences between the various involved realities. The members of the panel, in fact, reasoned on the proposed themes and questions raised by the organizers with a perspective of general nature but, inevitably and rightly, starting from their educational experiences and management.

It is now difficult to propose a comprehensive summary and significant conclusions that tie together the various interventions, without the risk of trivializing or excessively outline their content. However, we can at least offer some thoughts on what is shared in common and emerged from the statements of speakers, together with the lively debate that followed. That's the reason why I avoid here any quotations to the texts of the single authors.

Though with different accents, on the other hand, they all agreed that the issue of new subject matter of teaching, in any field of education but especially in architecture, cannot be addressed with abstract or ideological attitude. In a world that changes rapidly and sometimes dramatically, each action of didactic and pedagogic nature be born from a continuous and updated reflection that transcends the mere mechanical organization of the study courses and of the schools in which the careers of our students develop. Since Vitruvius, as some of the components of the panel have pointed out, there is clear awareness that architecture is a complex art (and technique or science) and that the architectural profession requires that architect's preparation must continue throughout his professional life and that it cannot be reducible to patterns fixed and constant over time. The concept of "*golden mediocritas*", for the author of "De Architectura", was a very different thing than the mediocrity which we refer to today, with deprecation and negative side effects. The architect should be, even then, an educated person, perhaps not really experienced in every field is involved in but voted them and able to "take a glance" knowledge of the many aspects involved in the act of designing and afterword constructing buildings, for the benefit of mankind, able to respond to their practical and spiritual needs: stable and safe, functional but also "beautiful." From those distant considerations, the world is very changed, with a significant acceleration in the last two centuries and a true global revolution in recent decades. In this long process, topics, issues, conceptual, theoretical and practical instruments that the aspiring architect and then the professional one must know and dominate, owning and knowing how to maneuver the ultimate goals of its action in society, are not simply changed. They have expanded in quantity, they differentiated as regards the contents, the theoretical basis and the operational impact. They were intertwined, overlapping, contaminated, or hybridized drawing or reflecting a pattern of knowledge, intentions, and increasingly complex ways, yet fluid and dynamic. So, it is not the first time that we question on the topics proposed by the organizers of this conference. Several times, during past history, with different ways dependent on social, political, economic, cultural and geographical factors, the issue of what is necessary, useful or essential to the education of an architect was faced with obvious repercussions on the organization of studies and schools for that purpose. This was true at least since, from the late Renaissance and then, more decisively, in the Eighteenth and Nineteenth centuries, the education and training of the Architect

has abandoned the "workshop", the simple learning by viewing and experiencing from others, to be finally committed to specific training within institutionalized schools and using various models. From the Academies, the professional Colleges, the Schools Polytechnic, till the current faculties and schools within modern universities. In the Eighteenth century, for example, who wanted to practice as an architect in Lombardy (north Italy), was obliged to follow the teaching of Mathematics at the Faculty of Medicine in Pavia, or at the Palatine Schools in Milan, in addition and for integration to the knowledge about the classical treatises on architecture and the matters mainly related to the drawing art, acquirable at the Brera Academy of Fine Arts. It's just a quick mention in a very complex and diverse situation, across Europe, that we have no time to analyze here, but that tells us how the plot and the gradual expansion of disciplinary knowledge has always characterized the different education and training systems for architects. The situation, today, is even more complex and mobile. However, it remains the need to bring the different basic and specialized contributions on the field to an acceptable synthesis, always avoiding the risk of responding to the complexity of a changing world (as has already changed in the past) with a simplistic, additive or multiplicative mechanism of expansion of knowledge, content and tools that are considered necessary to form a suitable architect, at the time in which we live, able to respond to its increasing complexity.

On that, all the panelists were very clear and consistent. On the other hand, using a culinary metaphor, we know that in the preparation of all food all ingredients are essential but not sufficient to guarantee its quality e palatability. We need also the recipe, the inspiration, the experience or, more probably, a non predictable mix of these different things, so that quality could be really achieved. And we cannot forget also the accidents or the external boundary conditions which also profoundly affect the outcome of the process of food preparation itself.

In other words, less extemporaneous, the question refers to the eternal conflict (in itself erroneous and capable of determining disasters) between "reductionism" and "holism" considered as recurring human attitudes in the field not only of the studies and knowledge. Even this aspect of the issues raised in the session has been clearly expressed by the speakers, using significant examples related to both the content of traditional and innovative training courses for architects, and the educational structures in which they are hinged.

Emerges so clearly from their papers, for instance, that certainly the issue of “sustainability” is more and more crucial for the education of our students, today and for their future professional practice. It, inter alia, requires a proper training, constant updating of contents and the conceptual or operational tools acquired in school and destined, inevitably, to a gradual obsolescence. One arduous and urgent task for our schools, by and through the content they offer students that are updated at the time when they are attending the courses, is to firstly teach them how to learn by themselves in the future. Educate self learning and self education are new challenges with respect to the recent past. They impose on us, as educators, an effort of pedagogical imagination that is absolutely innovative. We will never prevent the changing world around us. The schools will inevitably come after and adjust, hopefully in a critical way, the changes around them. Their action, however, always ends up affecting the transformations of contemporary society. Everything is to decide whether such influence is positive, proactive and able to positively contribute to solving the many problems of contemporary society, or if it is merely and passively submitting to reflect the ongoing changes. Consider the increasingly urgent need to save the limited, often irreplaceable or irreproducible resources of our "Mother Earth". Of course this is a crucial and sensitive area of action for anyone involved in

the processing and management of the built and natural environment. Among these, the architect has a role certainly not secondary. Someone among the panelist, however, stressed that this is a theme not totally new, although recent, and that certainly it should be not the subject of a new single discipline and teaching. Interpreting the theme of sustainability with all its implications and contradictions, as a new "field" of teaching, would be, perhaps, a real betrayal of its essence. With different accents, all the speeches of the session say it clearly. The issue is so crucial that cannot be forced to cross the boundaries of disciplines in the traditional sense. Even more, we know how the sustainability and future of life on the planet is linked more to the overall style of life than to individual objects or their characteristics and performance. These are certainly relevant and are duly subject of teaching and educational experimentation, but unfortunately they are not sufficient to ensure the future sustainability of life in the built environment. This example helps us understand that it is not thinkable or useful to respond to the issues raised by the session, chasing or multiplying the knowledge involved in this process. Would it not be fair and useful even provide for them new spaces of expression, self-formalized in the curricula of studies that our schools must arrange for the students of today and tomorrow. It would be a vain pursuit to the rapidly changing world. The result should be an exasperated process of specialist reductionism, always destined to be overtaken by external changes and marked by a dramatic loss of centrality of Architecture. Many, in fact, stressed the need to keep (or recover in time where it was foggy) the holistic dimension of Architecture, not surprisingly marked by the specificity of the project. I do not mean to claim that the only simple singularities of the project, considered as special product of the architect that, indeed, should be rather constituted by the construction of what the project entails. I mean, rather, as many contributions to this session indirectly suggest, to recall the centrality of the project as a very special way to explore the world around us and its possibility, or need, for sustainable conservation, modification and transformation. The project activity marks the education and action of the architect as that of many other players in the world today but, in relation to Architecture, it shall outline in the most recognizable and most delicate and ambiguous ways. If considered as a simple "product", it suffers from the reduction to a simple image that conveys different meanings and messages (sometimes even counterproductive), far from it should provide answers to the question of social living in the world with balance, justice and freedom. For us, rather, in the project lies the delicate ability to pre-see the results of a deliberate action on the world. Too high, then, is the risk that, while running its spaces and using its resources, we are left to a blind will to power, appearing indifferent to the needs of the same world around us, all folded in on itself, auto aim, self-referential or subject to interest foreign to it. Here again, as is apparent between the lines of many interventions and the ensuing debate, the contemporary philosophical, epistemological and pedagogical reflection can help us avoid dangerous drift. The means, in fact, should never win out over goals, or even become an end in themselves. The relationship between science and technique or technology is emblematic for this purpose if indeed, as many complain, has now reversed the traditional link between them that the ancient and modern thought had established, to make room for a kind of self finalization of the last ones. The same process is likely to invest now even our educational activities, if we confuse the subjects taught and their contents, and whether we want the latter, taken by themselves, isolated and increasingly parceled out (or atomized), such as ultimate goals of our training action.

For these reasons, then returned to the fore, in addition to questions about "what" we teach (such as subjects, with such content, in such proportions and where) those linked to clarify the "why" we do it, that is the reasons and purpose of our educational activity, but also those designed to investigate the "how" it can be expressed effectively rather than efficiently. The "why", first, involves a broad ideal panorama, which is also political, I would say, rather than the only autonomous subjects. Although it is certainly possible, for example, strengthen the presence of matters as Ethics or Aesthetics alongside those of Building Physics or Materials Technology and others already present in our curricula. The questions related to "how" we teach must also find answers respectful of the unique conditions under which each of us work (the place, its history, its characters, land, environment, social, political or productive structure it is embedded in,...) and where the school is rooted, with its own specificity that is irreducible to international standardized models (size, teaching staff, relations with the territory, history ...). These are questions that affect also the issue, some underlined, linked to installations, machines or innovative means by which students may be allowed to actively experiment their design ideas (modelers, simulators, robotics, structures and technical supports, tools and devices). All the panelists, in fact, recognize that is not certainly in the sophistication or economic weight of these endowments that the only or unique opportunities for innovation and effective training of our students reside. Again, the media cannot or should never take the total over the ends of our actions.

I conclude by referring the reader to the individual papers presented at the meeting and the debate that has developed from them. Indeed, I believe that only by constantly returning to these questions, we can tune into the school and the didactic activity (subjects, structures, curricula, methods and forms of teaching...) with the changing world, with its needs and the expectations of the society in which (and for which) we work and, even more, our students will work.

Session 5

Conclusions and Future Perspectives

Chair:
Constantin Spiridonidis, Thessaloniki, Greece

Introductory panel:
Per Olaf Fjeld, Oslo, Norway
James Horan, Dublin, Ireland
Loughlin Kealy, Dublin, Ireland
Stefano Musso, Genoa, Italy

Debate

Constantin Spiridonidis, Thessaloniki, Greece

I would like you to express one or two thoughts on what I have experienced so far. I would also like to explain a little the preparation process I went through with Maria Voyatzaki in organising the agenda for this event before presenting it to the Council for a final decision.

From the very first session, I noticed that a certain word appeared many times in this meeting; it appeared much more often than in other previous meetings. I tried to follow this during the second, third and fourth sessions and I noticed that this is the first time at this meeting that this word does not necessarily dominate, but it certainly appears very frequently. This is the word "must". Never in the past did we speak using the word must. This is because in all the previous meetings the discussions were focused, more or less, on issues about our past experiences, to understand conditions, political aspects, the Bologna Agreement and such like. This time, however, when the discussion was about the future, the word must appeared very often. Must is a strange word: it seems to incorporate both frustration and hope, for it always describes something that does not exist, which is why it must exist. Yet at the same time, it incorporates a hope that this which does not exist can really exist. Therefore, the fact that this word appears many times made me think that we are in a situation where we are feeling rather frustrated with what we already have but where could become optimistic about what we have in mind to obtain. It is a somewhat strange situation which reminds me of the words of (name?) who said that we are experiencing a condition where something takes time to die and something else takes time to be born.

We are in this transitory period, a very particular situation where we are hoping for things that we do not have, but we are starting to believe that these will be possible to obtain. Having that in mind, I remembered the discussions we had in the preparations of this and our hesitation over the word "uncertainty". The discussion with Maria Voyatzaki was whether in the title the word uncertainty should appear in a negative or a positive sense. The result of this discussion was that finally uncertainty appears here as something neutral and that was something that we liked: it was behind our thoughts. Uncertainty was not something with a negative symbolism or derogatory connotations; on the contrary, we considered it as something that could be positive while uncertainty can also be negative. If someone looked at the history of architecture, he could say - here I ask Stefano Musso if he agrees with this - that architecture is the history of the different forms of uncertainty which created the views, the values and the perspectives of the new versions of architecture. He could also say that it is not possible to have architecture or production or creative actions without the feeling of uncertainty, without the existence of a crisis, without the existence of something which is considered negative, or without the feeling that we do not have something that we would however very much like to have. What we do not have is a direct critique of what we already have here in which what we are hoping for is not there.

Architecture is, therefore, always produced by such forces which nourish our creative production. So instead of blaming this and looking for a way to try and deal with it as we did previously, trying to transform the uncertainty into certainties, let us decide to deal with the uncertainty in order to protect it because this will help and facilitate our creativity. Continuing the idea

of that in architectural education, it was with great pleasure that I felt that in this situation of uncertainty, a new situation has emerged. My feeling is that it is already here, not something to be expected but which we are still continuing to discuss as if it were something expected; this is the feeling that we have passed from an education conceived as the transfer of knowledge to an education which is conceived as a facilitation of acquiring new skills. I think that this shift which has been happening progressively, year by year, in this room, makes this year a very significant statement. I remember in 1996 - as do most of you who are frequently in this room - that in the first session about competences, there was a kind of fear, a wariness of touching it as something operational or useful. Now, however, I strongly believe that firstly there is a common understanding between us that we are more or less ready to implement new teaching practices in order to achieve this paradigm shift. I also tend to believe, and I hope I am right to believe this, that for most of us, the tendency to educate or the concept of educating students in order to achieve skills and competences is the only way to produce the "local tomatoes". This really is the only way, because when someone defines competences, defines concepts and each one of us, I mean each school, translates these concepts in its own different way; this will assure that in this way the "tomatoes" will have a flavour.

Moreover, they will have the local flavour, which will not be universalised but will be very particular and very interesting for the people who taste the flavour in order to feel that they are in a particular place. As we are obliged therefore to be universal and at the same time local, this shift towards competences, which has within it the must and which incorporates the frustration and the hope, I feel that it was something that was, to myself at least, evident in this room; this was a very optimistic message that I received from this meeting. Of course, I am not the appropriate person to make such comments, but forgive me for this somewhat egotistical, positive view of the event, and I hope that your contributions will help all of us to define the main lines of the eventual future development of this meeting.

Oren Lieberman, Bornmouth, United Kingdom

We tackled many things and through some of your comments and those of the panel, I feel we have arrived at a certain place as well. This does not mean that we know where we are, but we have certainly arrived somewhere. In the spirit of some of the things we have discussed over the last days, I would like to make a suggestion if I may. It draws a little on the word speculation which has come up several times; it draws on the desire to interlink, different ways of producing things. I think we are all looking for different ways of producing things and we might develop a kind of example in this meeting whereby we might look at different ways of producing things. I would like to suggest that we might not only retain the kind of format that we have had here but perhaps also inject it with some embodied action. I would recommend that part of the meeting - whether next year or in later years - be for us to do some stuff, to gather together in Chania and for perhaps one of the days, to begin to produce space, as we ask our students to; to be involved with the city in a particular way; to use us as an example as part of the discussions which will then follow; to incorporate some of the things we have been discussing over the last four or five years and then today. This deals with the relationship between the discourse and the singular event which develops into a very lively and deeply informative discussion such as we have had here. It changes the way in which I think because it affords me a view into different ways of doing things. We may

also to be able to do something which might be called an event that we might not be able to explain exactly but which we could do together; it could then participate in the nature of our discussions in future meetings.

Constantin Spiridonidis, Thessaloniki, Greece

We had a discussion about that yesterday afternoon and I am glad that you have presented this in public because in this way, it will be recorded and can be elaborated on. Since all proposals are welcome, I would like to ask you if possible to make them a little more detailed and precise in order for us to understand these ideas a little better regarding the practicalities; afterwards we will see if an idea could be feasible and how it could be done.

Denise Mazlum, Istanbul, Turkey

I think this meeting was very interesting, but in my opinion, a very important part of the discussion is missing, since there are no students here at all. Would it be possible to have some sessions where student representatives are present, together with some students from Chania University? Would it not be interesting to hear their opinions as well? This is my suggestion.

Constantin Spiridonidis, Thessaloniki, Greece

I have to say that such a suggestion has appeared several times in the past. The reason that we hesitated to have students was based upon how possible it is to have a representative selection. There is an international, or at least a European, association of students of architecture and there was an idea to invite some of the people from there but it was said that we would probably need to have a broader spectrum because here we discuss things related to different geographies and different educational systems and so forth. It remained, however, something on the side. I think that this year, the presence of Stephanie was something of a shock, in a positive sense! Not in terms of Stephanie herself, but simply the fact that the students showed themselves to be able to structure a very interesting discourse and to open our minds. For this reason, I think that we have to consider your proposal seriously and to collaborate in order to find a way for students who may come here to be cases who will represent a number of approaches. It is not a very easy task to choose, otherwise we would appear to be favouring some views over others. In any case, however, this is something that I think is worth our attention in the future.

Colin Hughes, Manchester, United Kingdom

To add to the discussion you have just had, at the European Assembly of Students of Architecture that we had in Manchester earlier this month there were about 450 students from around 50 different European countries. I animated a debate within the standing conference of Schools of Architecture in the UK a meeting in which we actually liaise with students to discuss the possibility of their trying to use their network for things other than just promoting their workshop assembly. I can say that they were generally of the view that they like to be students outside the system but of course I am reminded that they were often supported by people like me financially when they come to my city and perhaps they might be very interested in some of the issues that clearly correspond to the debates here. It was quite obvious from

the anecdotal admissions of students about issues concerning mobility between countries and qualification recognition that they were experiencing considerable difficulty with what is meant to be a fluid system where there is mutual recognition. So I have not lost hope that we can make something of this. I know that a couple of people in Manchester are still very interested in trying to develop some things so it may be that the network which actually has national representatives in 50 countries could be used to gather data or do other things and maybe produce representatives. It did seem somewhat problematic when we had the meeting in Manchester, but it is not over yet! I know that for example Adrian Joyce from ACE is quite interested in this as well as in the UK are very interested because they again want to have an avenue of UK networks. It would be very valuable if that could then work on a European level. There may be more news on that at some point.

I would like to make one other comment. In his presentation, James Horan talked about us being fearful; he talked about legislation and regulation. I think that every year we need to be reminded that regulation is the ascertaining of a minimum standard: frankly, it has nothing to do with our ambitions very often, it has nothing to do with the great success that architecture enjoys and so on. I personally do not feel threatened by regulation in the sense that a minimum standard is something that we should all have no difficulty in meeting quite comfortably. Obviously, there is a huge amount of tedium in going through the processes of asserting our standards but the issue of having standards is, I think, a given. I think we might consider other formats within the framework of this meeting. It is very interesting when we talk about uncertainty in the future and change: one thing that never changes is the way events are run here. I know there are very good reasons for it but the debates sometimes are really collections of comments rather than debates. I certainly still believe it would be very valuable if we could promote more debate and perhaps work on somewhat more defined issues. That is a personal view that may not be shared by others.

Constantin Spiridonidis, Thessaloniki, Greece

Concerning the students, I would like to say that the problem we have is that of having to pay for the students because of course we have to pay for their travel expenses. Given that the schools barely support the participation of the heads, how would it be possible for them to support students? The problem is that the mobility of students is not eligible for the expenses paid for by European funding for this kind of programme. This means we have to find other sources in order to cover this. If someone wanted to have ten people as student representation, for example, already it would be about 1000 which is not very easy to find. This is why in the past we have had some kind of representation but it is not a reason to start looking for possibilities. Yet since you have this kind of link, we have to keep it alive in order to see if we could manage to have such possibilities.

List of Participants

Matthias ACKERMANN, Prof., Dean
Fachhochschule Nordwestschweiz, Institut Architektur, Gründenstrasse 40,
Muttenz CH-4132
SWITZERLAND
Tel: 0041612699010, Fax: 0041612699011
E-mail: matthias.ackermann@fhnw.ch

Oya ATALAY FRANCK, Head
Faculty of Architecture, Zurich University of Applied Sciences (ZHAW),
Tössfeldstrasse 11, Postfach, Winterthur CH-8401
SWITZERLAND
Tel: 0041589347602, Fax: 0041589347620
E-mail: oya.atalay@zhaw.ch

Balint BACHMANN, Dean
University of Pécs, Pollack Mihály Faculty of Engineering, Boszorkány u. 2, Pécs H-7624
HUNGARY
Tel: 003672211968, Fax: 003672214682
E-mail: bachmann@pmmk.pte.hu

Balazs BALOGH, Professor, Head of Department of Design, Vice Dean
Budapest University of Technology and Economics, Faculty of Architecture,
Muegyetem rkp. 3, K epulet III 1, Budapest 1111
HUNGARY
Tel: 003614631321, Fax: 003614633171
E-mail: bbalogh@goliat.eik.bme.hu

Andrej BARANOWSKI, Professor
Faculty of Architecture, Gdansk University of Technology,
ul. Narutowicza 11/12, Gdansk 80233
POLAND
Tel: 0048608287519, Fax: 0048583471315
E-mail: abaraster@gmail.com

Valeriy BGASHEV, Vice-Rector
Moscow Institute of Architecture, Rozhdestvenka Street 11, Moscow 107031
RUSSIA
Tel: 0079104900415, Fax: 0074956211240
E-mail: id@markhi.ru

Zeno BOGDANESCU, Dean
"Ion Mincu" University of Architecture and Urbanism, Academiei Str. 18-20,
Sector 1, Bucharest
ROMANIA
Tel: 0040741207988
E-mail: zenobogdan@yahoo.com

Carl BOURGEOIS, Professor
Hogeschool Voor Wetenschap & Kunst - Sint-Lucas Architectuur, Hoogstraat 51, Gent 9000
BELGIUM
Tel: 003292251000, Fax: 003292258000
E-mail: carl.bourgeois@architectuur.sintlucas.wenk.be

Dag BOUTSEN, Professor
Hogeschool Voor Wetenschap & Kunst - Sint-Lucas Architectuur, Hoogstraat 51, Gent 9000
BELGIUM
Tel: 003222420000, Fax: 003222451404
E-mail: dag.boutsen@architectuur.sintlucas.wenk.be

Joaquim BRAIZINHA, Professor
Universidade Lusiada de Lisboa, Rua de Junqeira 194, Lisbon 1749
PORTUGAL
Tel: 00351968013795, Fax: 00351213647920
E-mail: jotabe@lis.ulusiada.pt

Manuel Nicolau BRANDÃO, Director do Curso de Arquitectura
ESAP - Escola Superior Artística do Porto, Rua do Infante D. Henrique No 131,
Porto 4050-298
PORTUGAL
Tel: 00351223392130, Fax: 00351223392138
E-mail: arquitectura@esap.pt

Leif BRODERSEN, Head of School
KTH School of Architecture, Ostermalmsgatan 26, Stockholm 10044
SWEDEN
Tel: 0046706624070
E-mail: leif.brodersen@bredband.net

Frid BUEHLER, Prof., Head of Architects Department
ASAP - Association for the Recognition of Architectural and Urban Planning Studies, Constance
GERMANY
Tel: 0049(0)173 3548294
E-mail: frid@buehler-buehler.de

Herbert BUEHLER, Prof., President of FBTA
MSA, Münster School of Architecture (FH Münster Fachbereich Architektur),
FBTA Deans Conference, Leonardo Campus 5, Munster 48149
GERMANY
Tel: 0049(0)173 3548298
E-mail: herbert@buehler-buehler.de

Martin CHENOT, Directeur
Ecole Nationale Superieure d'Architecture de Saint-Etienne, 1 rue Buisson BP 94,
Saint Etienne cedex 42003
FRANCE
Tel: 0477423541, 0614374104, Fax: 0477423540
E-mail: martin.chenot@st-etienne.archi.fr

Iuliana CIOTOIU, Chancellor
"Spiru Haret" University , Str. Ion Ghica 13, Sector 3, Bucharest 030045
ROMANIA
Tel: 0040724997889
E-mail: usharh_ciotoiu.iuliana@spiruharet.ro

Luis CONCEIÇAO, Head of Architecture Course
ISMAT - Instituto Superior Manuel Teixeira Gomes, Lusofona Group,
Av. Do Campo Grande, 376, Lisbon 1749-024
PORTUGAL
Tel: 00351217515565, Fax: 00351217515534
E-mail: lconceicao@netcabo.pt, cristina.matos@ulusofona.pt

Claudio CONENNA, Lecturer
Aristotle University of Thessaloniki, School of Architecture, University Campus,
Thessaloniki 54124
GREECE
Tel: 002310994381, Fax: 00302310995568
E-mail: cconenna@arch.auth.gr

Rob CUYVERS, Head of Department
Provinciale Hogeschool Limburg, Department of Arts and Architecture, Agoralaan,
Universitaire Campus, gebouw E, Diepenbeek 3590
BELGIUM
Tel: 003211249200, Fax: 003211249201
E-mail: rob.cuyvers@phl.be

Pia DAVIDSEN,
The Royal Danish Academy of Fine Arts, School of Architecture,
Philip de Langes Alle 10, Copenhagen K 1435
DENMARK
E-mail: Pia.Davidsen@karch.dk

Lindsay DAWE, Course Director
School of Architecture, University of Ulster, Belfast Campus, York Street, Belfast BT 15 1ED
UNITED KINGDOM
Tel: 0044(0)7521769619, Fax: 0044(0)2890267237
E-mail: l.dawe@ulster.ac.uk

Javier DE CARDENAS, Prof. Dr., Architect
Fundacion Digeo de Sagredo, Avda. Juan de Herrera 4, Madrid 28040
SPAIN
Tel: 0034913366572, Fax: 0034915448780
E-mail: javierdecarde@hotmail.com

Johan de WALSCHE, Chair Education Committee, Architecture Programme
Artesis University, College of Antwerp, Mutsaartstraat 31, Antwerp 2000
BELGIUM
Tel: 003232056170, 0032474074546, Fax: 003232260411
E-mail: johan.dewalsche@artesis.be

Adalberto DEL BO, Professor
Facolta di Architettura Civile, Politecnico di Milano, Via G. Durando 10, Milano 20158
ITALY
Tel: 0039026555971, Fax: 00390223997138
E-mail: studiodelbo@fastwebnet.it

Naciye DORATLI, Assoc. Prof. Dr. (Acting Dean)
Faculty of Architecture, Eastern Mediterranean University, Ismet Inonu Avenue,
Famagusta Mersin 10
Turkey, Northern Cyprus
Tel: 00903926301345/1346, Fax: 00903926302365
E-mail: naciye.doratli@emu.edu.tr

Catharina DYRSSEN, Professor, Head of Department
Chalmers University of Technology, Goteborg SE-41296
SWEDEN
Tel: 0046317722334, Fax: 0046702044892
E-mail: dyrssen@chalmers.se

Michael EDEN, Professor, Head of Programme
Chalmers University of Technology, Goteborg SE-41296
SWEDEN
E-mail: eden@chalmers.se

Stephanie EICKELMANN, Vice Dean
MSA, Münster School of Architecture (FH Münster Fachbereich Architektur),
Leonardo Campus 5, Münster 48149
GERMANY
Tel: 004917621977667, Fax: 00492518365002
E-mail: s.eickelmann@fh-muenster.de

Karl-Otto ELLEFSEN, Chair
Oslo School of Architecture and Design, St. Olavs Plass, P.O. Box 6768, Oslo NO-0130
NORWAY
Tel: 004722997001, Fax: 004722997190
E-mail: Karl.O.Ellefsen@aho.no

Mathias ESSIG, Professor
Beuth Hochschule für Technik Berlin, Luxemburger Str. 9-10, Berlin 13353
GERMANY
Tel: 00493045042577, 0049308816759, Fax: 0049308824569
E-mail: essig@beuth-hochschule.de

Tijl EYCKERMAN, Chair of Architecture Programme
Artesis University, College of Antwerp, Mutsaartstraat 31, Antwerp 2000
BELGIUM
Tel: 003232056170, 0032475838299, Fax: 003232260411
E-mail: Tilbert.eyckerman@artesis.be

Elsbeth FALK, Study Advisor
Amsterdam Academy of Architecture, Waterlooplein 211-213, Amsterdam 1011 PG
NETHERLANDS
Tel: 0031205318218
E-mail: Elsbeth.falk@ahk.nl

Lorraine FARRELLY, Associate Head, Director of Research
School of Architecture, University of Portsmouth, Portland Building,
Portland Street, Portsmouth PO1 3AH
UNITED KINGDOM
Tel: 004402392842083, Fax: 004402392842087
E-mail: lorraine.farrelly@port.ac.uk

Sven FELDING, Rector
The Royal Danish Academy of Fine Arts, School of Architecture,
Philip de Langes Alle 10, Copenhagen 1435
DENMARK
Tel: 004520436601
E-mail: sven.felding@karch.dk

Irena FIALOVA, Ing. Arch.
Faculty of Architecture, Czech Technical University, Thákurova Street 7, Prague 16634
CZECH REPUBLIC
Tel: 00420602263633
E-mail: irena.fialova@fa.cvut.cz

Esra FIDANOGLU, Assoc. Professor
Istanbul Kutur University, Atakoy Yerleskesi, Es Karayolu Uzeri, Yan Yol, Bakierkoy,
Istanbul 34156
TURKEY
Tel: 00905327128072, Fax: 00902124658308
E-mail: esrafidanoglu@gmail.com

Per Olaf FJELD, Professor
Oslo School of Architecture and Design, St. Olavs Plass, P.O. Box 6768, Oslo NO-0130,
NORWAY
Tel: 004791195066, Fax: 004722997190
E-mail: PerOlaf.Fjeld@aho.no

Richard FOQUE, Professor, Dean Emeritus, Chairman University Press Antwerp
"Henry Van de Velde" institute of Architecture, Kleine Goddaard 14, Apt. 4.2, Antwerp 2000
BELGIUM
Tel: 0032475429503
E-mail: r.foque@telenet.be

José Maria GONZALEZ BARROSO, Vice Dean
ETSAB - Architecture School of Barcelona, UPC, Av. Diagonal 649, Barcelona 08028
SPAIN
Tel: 0034934016341, Fax: 0034933343783
E-mail: director.etsab@upc.edu

Marco GRASSI, Architect, Assistant Coordinator of International Relations
Facolta di Architettura Civile, Politecnico di Milano, Via G. Durando 10, Milano 20158
ITALY
Tel: 00390223997140
E-mail: arcmibov@polimi.it

Els HANNES, Coordinator
Provinciale Hogeschool Limburg, Department of Arts and Architecture, Agoralaan,
Universitaire Campus, gebouw E, Diepenbeek 3590
BELGIUM
Tel: 003211249200, Fax: 003211249201
E-mail: els.hannes@phl.be

Ebbe HARDER, Head of International Affairs
The Royal Danish Academy of Fine Arts, School of Architecture,
Philip de Langes Alle 10, Copenhagen K 1435
DENMARK
Tel: 004532686013, Fax: 004532686076
E-mail: ebbe.harder@karch.dk

Trevor HARRIS, Deputy Director, Professor, Architect SAFA RIBA
Aalto University School of Science and Technology, Department of Architecture,
PO Box 11300, Espoo 00076
FINLAND
Tel: 00358503416822, 0035893211261
E-mail: trev.harris@h-k.fi

Jorgen HAUBERG, Vice Rector
The Royal Danish Academy of Fine Arts, School of Architecture, Philip de Llanges Alle 10,
Copenhagen 1435
DENMARK
Tel: 004532686340
E-mail: jorgen.hauberg@karch.dk

Tore HAUGEN, Dean, Professor
NTNU, Faculty of Architecture and Fine Art, Alfred Getz vei 3, Trondheim N-7491
NORWAY
Tel: 004790576660
E-mail: Tore.Haugen@ntnu.no

Jorgen HELSTRUP, International Coordinator
Aarhus School of Architecture, Noerreport 20, Aarhus C 8000
DENMARK
Tel: 004589360000, Fax: 004586130645
E-mail: jorgen.helstrup@aarch.dk

Maire HENRY, Head of Department of Architecture
Waterford Institute of Technology, Department of Architecture, Waterford
IRELAND
Tel: 00353872725805
E-mail: mhenry@wit.ie

Aulikki HERNEOJA, University Lecturer
Department of Architecture, University of Oulu , P.O. Box 4100, Oulu 90014
FINLAND
Tel: 00358405787018
E-mail: aulikki.herneoja@oulu.fi

Martine HEYDE, Head for Education and Programme
Ecole Nationale Supérieure d'Architecture de Lyon, 3 Rue Maurice Audin, BP170,
Vaulx en Velin 69512
FRANCE
Tel: 00632159896
E-mail: heyde@free.fr, martine.heyde@lyon.archi.fr

Hilde HEYNEN, Professor, Chair of Department
Katholieke Universiteit Leuven, Kasteelpark Arenberg 1, Leuven 3001
BELGIUM
Tel: 003216321361
E-mail: hilde.heynen@asro.kuleuven.be

Hansjoerg HILTI, Dean
Hochschule Liechtenstein, Vaduz LI-9490
LIECHTENSTEIN
Tel: 004232651122, Fax: 004232651121
E-mail: hansjoerg.hilti@hochschule.li

Urs Leonhard HIRSCHBERG, Prof. Dr. sc., Dean
Graz University of Technology, Faculty of Architecture, Rechbauerstrasse 12, Graz 8010
AUSTRIA
Tel: 00433168724728
E-mail: hirschberg@tugraz.at

Katrin HOLMVIST STEN, Director of Studies
UMA - Umea School of Architecture, Ostra Strandgatan, Umea 90187
SWEDEN
Tel: 0046730964373
E-mail: katrin.sten@arch.umu.se

James HORAN, Professor
Dublin School of Architecture, DIT, Bolton Street, Dublin 1
IRELAND
Tel: 00353872557765, Fax: 0035312883855
E-mail: james.horan@dit.ie

Deniz INCEDAYI, Prof. Dr., Head of the Department
Mimar Sinan Fine Arts University, Istanbul 34420
TURKEY
Tel: 00905322421804
E-mail: denizincedayi@gmail.com

Adrian JOYCE, Director
ACE - Architects' Council of Europe, Rue P.E. Janson 29, Brussels BE-1050
BELGIUM
Tel: 0032473670248
E-mail: adrian.joyce@ace-cae.eu, info@ace-cae.eu

Nina JUZWA, Professor, Architect
Faculty of Architecture, Silesian University of Technology, Gliwice 44100
POLAND
Tel: 0048509630827
E-mail: Nina.Juzwa@polsl.pl

Johannes KÄFERSTEIN, Head of Department
Lucerne University of Applied Sciences and Arts, Technikumstrasse 21, Horw 6048
SWITZERLAND
Tel: 0041442734432
E-mail: Johannes.kaeferstein@hslu.ch

Tim KAMMASCH, Dr. Phil., Prof. of Architectural Theory
Bern University of Applied Sciences, Pestalozzistrasse 20, P.O. Box 1058, Burgdorf CH-3401
SWITZERLAND
Tel: 0041444514354
E-mail: kammasch@bfh.ch

Zoi KARAMANU-RODOLAKI, Professor, Head of the Department of Architecture
Technical University of Crete, El. Venizelou 129, Chania 73100
GREECE
Tel: 00302821037121, 00302821037102, Fax: 00302821037183
E-mail: karamanu@arch.auth.gr

Juhani KATAINEN, Professor Emeritus, Architect Safa
Tampere University of Technology, Korkeakoulunkatu 10, Tampere 33720
FINLAND
Tel: 00358505716705, Fax: 003589496539
E-mail: juhani.katainen@kolumbus.fi

Loughlin KEALY, Emeritus Professor
School of Architecture, Landscape & Civil Engineering, University College Dublin, Richview, Clonskeagh, Belfield, Dublin 4
IRELAND
Tel: 00353872389802
E-mail: loughlin.kealy@ucd.ie

Julian KEPPL, Vice Dean
Slovak University of Technology, Faculty of Architecture, Námestie slobody 19, Bratislava 81245
SLOVAKIA
Tel: 00421254435091, 00421905215944
E-mail: keppl@fa.stuba.sk

Peter KJAER, Rector
Umea School of Architecture, Ostra Strandgatan, Umea 90187
SWEDEN
Tel: 0046705504696
E-mail: peter.kjaer@arch.umu.se

Jean-Michel KNOP, Directeur
Ecole Nationale Superieure d'Architecture de Grenoble, 60 Avenue de Constantine BP 2636, Grenoble cedex 02 38036
FRANCE
Tel: 0033(0)476698300, Fax: 0033(0)476698338
E-mail: jean-michel.knop@grenoble.archi.fr

Suzanne KOMOSSA,
TU Delft, Faculty of Architecture, Julianalaan 134, Delft 2628 BL
NETHERLANDS
Tel: 0031621877937
E-mail: s.komossa@tudelft.nl

Leena KUORELAHTI, Coordinator of Academic Programmes
University of Oulu, Department of Architecture, P.O. Box 4100, Oulu 90014
FINLAND
Tel: 0035885534985, 00358405735351, Fax: 0035885534996
E-mail: leena.kuorelahti@oulu.fi

Jos LEYSSENS, Vice President of the ACE
Architects' Council of Europe (ACE), Rue Paul Emile Janson 29, Brussels 1050
BELGIUM
Tel: 003225210417
E-mail: info@ace-cae.eu, Herlinde.Leyssens@licencetobuild.be

Oren LIEBERMAN, Professor
The Arts University College Bournemouth, Wallisdown, Poole BH125HH
UNITED KINGDOM
Tel: 01202363700, Fax: 01202537729
E-mail: olieberman@aucb.ac.uk

Stephan MAEDER, Director
Zurich University of Applied Sciences, School of Architecture, Design and Civil Engineering,
Winterthur CH-8400
SWITZERLAND
Tel: 0041522677601, Fax: 0041522677620
E-mail: mdrs@zhaw.ch

Rainer MAHLAMÄKI, Professor
Oulu University, Department of Architecture, Aleksanterinkatu 6, Oulu 90014
FINLAND
Tel: 00358503376231, Fax: 0035885534917
E-mail: rainer.mahlamaki@oulu.fi

Marvin MALECHA, FAIA, Dean
NC State University, College of Design, Campus Box 7701, 50 Pullen Road, Raleigh, NC 27695
USA
Tel: 009195158302, 009196490646, Fax: 009195159780
E-mail: marvin_malecha@ncsu.edu

Deniz MAZLUM, Associate Professor
Istanbul Technical University, TU Mimarlik Fakultesi, Taksim, Istanbul 34437
TURKEY
Tel: 00905357400756, Fax: 00902122514895,
E-mail: mazlum@itu.edu.tr

Michele MICHEL, International Coordinator
Ecole Nationale Superieure d'Architecture et de Paysage de Bordeaux, 740, cours de la
Libération, BP 70109, Talence 33405
FRANCE
Fax: 00556807484
E-mail: michele.michel@bordeaux.archi.fr

Sophia MEERES,
DAPA-MINISTERE de la Culture - ENSPA Marne la Vallée, 182 rue Saint Honore,
Paris P.C. 75001
FRANCE
Tel: 0033613427321
E-mail: sophia.meeres@ucd.ie

Stefano MUSSO, Dean, Full Professor of Architectural Restoration
University of Genoa, Faculty of Architecture, Stradone di S. Agostino 37, Genoa 16123
ITALY
Tel: 00393386390359, Fax: 00390102095905
E-mail: etienne@arch.unige.it

Herman NEUCKERMANS, Em. Professor
Katholieke Universiteit Leuven, Kasteelpark Arenberg 1, Leuven 3001
BELGIUM
Tel: 003216321361, Fax: 003216321984
E-mail: Herman.Neuckermans@asro.kuleuven.be

Helene Bang NIELSEN, Head of Studies
Aarhus School of Architecture, Noerreport 20, Aarhus C 8000
DENMARK
Tel: 004589360000, Fax: 004586130645
E-mail: helene.bang.nielsen@aarch.dk

Torben NIELSEN, Rector
Aarhus School of Architecture, Noerreport 20, Aarhus C 8000
DENMARK
Tel: 004589360000, Fax: 004586130645
E-mail: torben.nielsen@aarch.dk

Francis NORDERMANN,
Ecole d'Architecture de Paris-Belleville, 24 Place des Vosges, Paris 75003
FRANCE
Tel: 0033232834201, Fax: 0033232834210
E-mail: francis@francisnordemann.fr

Lucyna NYKA, Vice-Dean for Research
Gdansk University of Technology, ul. Narutowicza 11/12, Gdansk 80-233
POLAND
Tel: 0048601800986, Fax: 0048583471315
E-mail: lnyka@pg.gda.pl

Werner OECHSLIN, Prof. Dr.
ETH Zurich, Wolfgang Pauli-Strasse 15, Zurich 8093
SWITZERLAND

Thomas OLOFSSON, Head of School
UMA - Umea School of Architecture, Ostra Strandgatan, Umea 90187
SWEDEN
Tel: 0046703406421
E-mail: thomas.olofsson@arch.umu.se

Stefaan ONRAET, Professor
Hogeschool Voor Wetenschap & Kunst - Sint-Lucas Architectuur, Hoogstraat 51, Gent 9000
BELGIUM
Tel: 003292251000, Fax: 003292258000
E-mail: stefaan.onraet@architectuur.sintlucas.wenk.be

Aart OXENAAR, Director
Amsterdam Academy of Architecture, Waterlooplein 211-213, Amsterdam 1011 PG
NETHERLANDS
Tel: 0031205318218
E-mail: aart.oxenaar@ahk.nl

Georgios PANETSOS, Professor, Chairman
University of Patras, Department of Architecture, Rio Patron, Patras 26500
GREECE
Tel: 00302108231756
E-mail: gparch@otenet.gr

Georgios PAPAKOSTAS, Head of Department of Architecture
Aristotle University of Thessaloniki, School of Architecture, University Campus,
Thessaloniki 54124
GREECE
E-mail: gpapako@arch.auth.gr

Gunnar PARELIUS, Faculty Director
Faculty of Architecture and Fine Art, Norwegian University of Science and Technology,
Alfred Getz vei 3, Trondheim 7491
NORWAY
Tel: 004791381980, Fax: 004773595094,
E-mail: gunnar.parelius@ntnu.no

Guy PILATE, Directeur Adjoint
ISACF - La Cambre, Place Flagey 19, Brussels 1050
BELGIUM
Tel: 003226436665, Fax: 003226474655
E-mail: guy.pilate@lacambre-archi.be

Emil Barbu POPESCU, Professor
"Ion Mincu" University of Architecture and Urbanism, Academiei Str. 18-20,
Sector 1, Bucharest
ROMANIA
Tel: 0040744528953, Fax: 0040213123954
E-mail: mac@iaim.ro

David PORTER, Head of School
Mackintosh School of Architecture, Glasgow School of Art, 167 Renfrew street,
Glasgow G36RQ
UNITED KINGDOM
Tel: 00441413534651, Fax: 00441413534703
E-mail: d.porter@gsa.ac.uk

Colin PUGH, Acting Head of School
Manchester School of Architecture, Chatham Building, Cavendish Street,
Manchester M153BR
UNITED KINGDOM
Tel: 0044(0)1612476958, Fax: 0044(0)1612476810
E-mail: c.pugh@mmu.ac.uk

Spyros RAFTOPOULOS, Professor, Head of School of Architecture
National Technical University of Athens, 42 Patission Str., Athens 10482
GREECE
Tel: 00302107723871, Fax: 00302107723873
E-mail: raft@central.ntua.gr

Patricia RUISCH, Programme Coordinator
Amsterdam Academy of Architecture, Waterlooplein 211-213, Amsterdam 1011 PG
NETHERLANDS
Tel: 0031205318218
E-mail: Patricia.ruisch@ahk.nl

Guven Arif SARGIN, Assoc. Professor, Dr.
Middle East Technical University, Department of Architecture, 122 Inonu Blv., Ankara 06531
TURKEY
Tel: 00903122102203, Fax: 00903122107966
E-mail: sargin@metu.edu.tr

Ramon SASTRE, Professor
ETS Arquitectura del Valles (UPC), Pere Serra 1-15, Sant Cugat del Valles 08173
SPAIN
Tel: 0034934017880, Fax: 0034934017881
E-mail: ramon.sastre@upc.edu

Yves SCHOONJANS, Professor
Hogeschool Voor Wetenschap & Kunst - Sint-Lucas Architectuur, Hoogstraat 51, Gent 9000
BELGIUM
Tel: 003292251000, Fax: 003292258000,
E-mail: yves.schoonjans@architectuur.sintlucas.wenk.be

João SEQUIEIRA, Head of Integrated Master Course in Architecture
Universidade Lusófona de Humanidades e Tecnologias, Av. Do Campo Grande, 376,
Lisbon 1749-024
PORTUGAL
Tel: 00351217515565, Fax: 003511217515534
E-mail: joao.sequeira.ulht@gmail.com

Mikhail SHUBENKOV, Vice-Rector
Moscow Institute of Architecture, Rozhdestvenka Street 11, Moscow 107031
RUSSIA
Tel: 0079854104013, Fax: 0077956211240
E-mail: shubenkov@gmail.com

Juri SOOLEP, Professor, Dr.
Estonian Academy of Arts, Pikk Street 20, Tallinn
ESTONIA
Tel: 003725017840
E-mail: jyri.soolep@artun.ee

Constantin SPIRIDONIDIS, Professor
Aristotle University of Thessaloniki, School of Architecture, University Campus Box 491,
Thessaloniki 54124
GREECE
Tel: 00302310995589, Fax: 00302310994241
E-mail: spirido@arch.auth.gr

Anna STEFANIDOU, Director of Global Education
Boston Architectural College, 320 Newbury St., Boston MA02115
USA
Tel: 0016174176086, 00306944260253
E-mail: anna.stefanidou@the-bac.edu

Sally STEWART, Programme Leader for Diploma and Postgraduate Studies
Mackintosh School of Architecture, Glasgow School of Art, 167 Renfrew street, Glasgow G36RQ
UNITED KINGDOM
Tel: 00-441413534663, Fax: 00441413534703
E-mail: s.stevenson@gsa.ac.uk

Gert TER HAAR, Head of School
School of Architecture Groningen, Zuiderkuipen 19, Groningen 9711 HR
THE NETHERLANDS
Tel: 00310653236211, 0031505955408, Fax: 0031503130106
E-mail: g.a.ter.haar@pl.hanze.nl

Anne Elisabeth TOFT, Associate Professor, Architect MAA, PhD, EAAE Project Leader (EAAE News Sheet Editor)
Aarhus School of Architecture, Noerreport 20, Aarhus C 8000
DENMARK
Tel: 004520683847
E-mail: anne.elisabeth.toft@aarch.dk

Elzbieta TROCKA-LESZCZYNSKA, Professor, Vice Dean
Faculty of Architecture, Wroclaw Technical University, Ul. B. Prusa 53/55, Wroclaw 50-317
POLAND
Tel: 0048603138806, Fax: 0048713212448
E-mail: elzbieta.trocka-leszczynska@pwr.wroc.pl

Koenraad VAN CLEEMPOEL, Professor, Dr.
Department of Architecture, University College, Provinciale Hogeschool Limburg / Hasselt University, University Campus, Agoralaan (gebouw E), Diepenbeek 3590
BELGIUM
Tel: 0032498126529
E-mail: koenraad.vancleempoel@uhasselt.be

Koen Van de VREKEN, Prof., Arch., Dean of Department of Architectural Sciences and Product Design
Artesis University, College of Antwerp, Mutsaartstraat 31, Antwerp 2000
BELGIUM
Tel: 003232056170 / 0032473725186, Fax: 003232260411
E-mail: Koenraad.vandevreken@artesis.be

Rogier van den BERG, Head of the Urbanism Departement
Amsterdam Academy of Architecture, Waterlooplein 211-213, Amsterdam 1011 PG
NETHERLANDS

Leendert VAN DUIN, Professor
Delft university of Technology, Julianalaan 134, Delft 2628 BL
THE NETHERLANDS
Tel: 0031639250942
E-mail: l.vanduin@tudelft.nl

Christian VAN LANGEN, Head of School
Rotterdam Academy of Architecture and Urban Design, Heijplaatstraat 23,
Rotterdam 3089 JB
THE NETHERLANDS
Tel: 0031107945375, Fax: 0031653708029
E-mail: c.r.van.langen@hro.nl

Julian VELESHNJA, Architect, International Relations Office
POLIS University Tirana, International School of Architecture and Urban Development Policies, Rr. "Vaso Pasha", No 20, Tirana 1010
ALBANIA
Tel: 00355672677010
E-mail: juljan_veleshnja@universitetipolis.edu.al

Johan VERBEKE, Professor, Dr.
W&K, School of Architecture Sint Lucas, Paleizenstraat 65, Brussels 1030
BELGIUM
Tel: 003222420000
E-mail: johan.verbeke@architectuur.sintlucas.wenk.be

Hans VERPLANCKE, Arch.
K.U. Leuven, Department of Architecture, Kasteelpark Arenberg 1, Heverlee 3001
BELGIUM
E-mail: hans.verplancke@asro.kuleuven.be

Pieter VERSTEEGH, Professor
University of Applied sciences of Western Switzerland, Fribourg School of Architecture,
80 Bd de Pérolles, cp 32, Fribourg 1700
SWITZERLAND
Tel: 0041796887360
E-mail: pieter.versteegh@hefr.ch

Marc A. VISSER, Associate Professor Architecture
Maastricht University, Department of Architecture, Faculty of Humanities & Sciences,
P.O. Box 616, Maastricht 6200 MD
THE NETHERLANDS
Tel: 0031653210684, Fax: 0031433884910
E-mail: marc.visser@maastrichtuniversity.nl

Lubica VITKOVA, Vice Dean
Faculty of Architecture, Slovak University of Technology, Nam. Slobody 19, Bratislava 81245
SLOVAKIA
Tel: 00421257276279, Fax: 00421252921533
E-mail: vitkova@fa.stuba.sk

Pierre VON MEISS, Honorary Professor
Ecole Polytechnique Federale de Lausanne, Lausanne
SWITZERLAND
Tel: 0041216163529, Fax: 0041216163529
E-mail: peter.vonmeiss@epfl.ch

Maria VOYATZAKI, ENHSA III Coordinator
Aristotle University of Thessaloniki, School of Architecture, University Campus Box 491,
Thessaloniki 54124
GREECE
Tel: 00302310995544, Fax: 00302310994241
E-mail: mvoyat@arch.auth.gr

S. Mujdem VURAL, Assist. Prof. Dr. Vice Chair, Erasmus Coordinator
Yildiz Technical University, YTU Faculty of Architecture, Main Campus, Besiktas,
Istanbul 34349
TURKEY
Tel: 00902123832597, Fax: 00902122618929
E-mail: smujdem@vgmail.com

Stefan WESTRYCH, Professor
Warsaw University of Technology, Faculty of Architecture, 55 Koszykowa str., Warsaw 00-659
POLAND
Tel: 0048602260686, Fax: 0048227247334
E-mail: stefan_westrych@wp.pl

Stefan WRONA, Dean
Warsaw University of Technology, Faculty of Architecture, 55 Koszykowa str., Warsaw 00-659
POLAND
Tel: 0048601272746, Fax: 0048226283236
E-mail: wrona@arch.pw.edu.pl

Christiane YOUNES, Professor
ENSA Paris la Villette, 144 Avenue de Flandre, P.C. 75019, Paris
FRANCE
Tel: 0033686060918
E-mail: cyounes@clermont-fd.archi.fr

Zdenek ZAVREL, Dean of the Faculty of Architecture
Faculty of Architecture, Czech Technical University, Thakurova Street 7, Prague 16634
CZECH REPUBLIC
Tel: 00420224354320, Fax: 00420224310573
E-mail: zzavrel@fa.cvut.cz

Stanislas ZIMMERMANN, Head of Joint Master of Architecture
Bern University of Applied Sciences, Pestalozzistrasse 20, P.O. Box 1058, Burgdorf CH-3401
SWITZERLAND
Tel: 0041765668896, Fax: 0041442018897
E-mail: office.ti-bi@bfh.ch

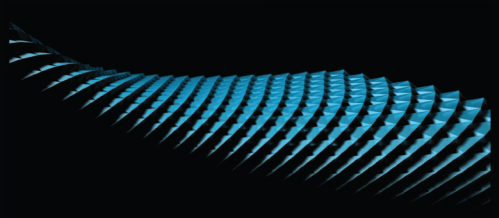
Magdalena ZMUDZINSKA-NOWAK, Dr. Arch., Vice-Dean of the Faculty of Architecture
Silesian University of Technology, ul. Akademicka 2A, Gliwice 44100
POLAND
Tel: 0048322371210, Fax: 0048322371221
E-mail: magdalena.zmudzinska@polsl.pl

EAAE

Transactions on Arctectural Education no 54

Learning for the Future

New Priorities of the Schools of Architecture
in the Era of Uncertainty



ISBN 978-2-930301-52-5