

Chapter 2

Learning Outcomes and Generic Competences for the New Architectural Curricula

What should be the contemporary profile of a graduate from a European school of architecture? Which competences should this person have? Which skills, abilities and capacities should his/her education ensure? How can we rank those competences and learning outcomes? Which are the most significant ones? Can we agree upon a ranking order of those competences? There are different ways to 'translate' those competences in terms of curriculum contents, structures and teaching practices. Can we map some of them in order to have a reference point to inspect them as to different curriculum profiles (ethical-philosophical, structural, operational, vocational, academic, artistic, technical, etc)? How can we construct the European curriculum of each school without looking for harmonisation of its degree programme to any sort of unified, prescriptive or definitive prefabricated curriculum? How can the discussion about competences and learning outcomes become a tool for the protection of the rich diversity of European architectural educations without restricting or damaging the independence of local and national academic authority?

Interventions of Session 2

Panel

Roberto Bobbio, Genoa, Italy

Julian Keppel, Bratislava, Slovakia

Roger Liberloo, Limburg, Belgium

Zoran Nicesić, Belgrade, Serbia and Montenegro

François Nordemann, Paris, France

Ramon Sastre, Barcelona, Spain

Chair

Per Olaf Fjeld, Oslo, Norway

Introductions

In an effort to make the debates at Hania more constructive to all, the organizers considered that it would be important to have the following questions answered by delegates of schools that have already changed or are changing their school curriculum in the framework of the European Higher Architectural Education Area.

Question 1

In the framework of the European Higher Architectural Education Area, what is the profile of the architect-graduate from your School which has determined the direction and orientation of your new school curriculum (i.e. with global architectural knowledge or with more specialised knowledge, artistic, academic, technical, vocational, etc.)?

Question 2

What are the five fundamental competences and skills that your new school curriculum ensures to your graduates in order to enable them to construct the above profile?

For your help we propose to you to use the following (open ended) list

1. Ability to work in an interdisciplinary team
2. Ability to develop a trans-disciplinary understanding
3. Appreciation of the diversity and multicultural quality of contemporary European society
4. Ability to identify and work towards targets for personal, academic and career development
5. Awareness of and respect for points of view deriving from other national and cultural backgrounds
6. Ethical commitment
7. Capacity to develop an analytical and critical thinking and understanding
8. Capacity to apply knowledge in practice
9. Capacity to apply a spirit of synthesis of ideas and forms
10. Capacity to generate creatively new ideas and forms
11. Capacity to adapt proactively to changing situations
12. Capacity to evaluate ideas, proposals, forms
13. "Learning to learn" ability
14. Decision - making skills
15. High level computing skills including the ability to use the Internet critically as a means of communication and a source of information
16. Personal and social skills in expression and communication by speaking, writing and sketching

17. Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)
18. Basic knowledge of all the professional applications of the discipline
19. Responsibility for one's own work and ability to be self-critical in relation to that
20. Knowledge of languages
21. Other.....

Question 3

How does your new school curriculum ensure this profile in terms of:

- Related subject areas (what subject areas can ensure these five competences and skills of the profile)
- Positioning, timing and weight in the structure of the curriculum (in which years of studies are the five competences and skills ensured, in what relation with other subjects, and what is the importance of these subject related areas compared to other subjects in the overall school curriculum).

Chairman's Introduction

Per Olaf FJELD

Oslo School of Architecture, Oslo, Norway

We have fairly little time, but I think that we must use as much as we need, because the three questions that we are going to address are quite essential. It is very important not to lose our focus, because what we are striving for is the quality of architectural education, which we believe will also raise the quality of architecture. It is quite easy to forget that, in a time when information is so broad and can be discussed in so many ways. At the same time the idea of quality is no longer the same; any discussion of the quality of architecture has to be based on many aspects. That is not only a difficulty, but it also puts pressure on each school to find its own profile; and without specific profiles, I think that there will be a lack of quality in education.

To find a profile is a creative act in itself; it is not just a matter of information, or of ideas, or of knowledge. Therefore, one of the essential questions in architectural interaction today is to be able to focus on what specific profiles are. A second question could relate to what content defines a profile, and – as we have stated many times – Europe is remarkable for the diversity within its different schools. I think, too, that to find a profile is also to define the context, which again is a creative act. It can relate to many different types of competences; we see them over and over again, we are able to bring them up, we have an awareness of where and what they are, but from all that to making them a content, from which a fruitful profile can then be made, is another creative act that has to be looked into. A third question could be how a specific profile can be reached, and I think that in many ways it is a matter of timing: how any one of us sees the world and how we want to focus in relation to that, the ability to have a certain focus on the profile and its content lies within the information itself. Therefore, I think, the three issues presented in these three questions are essential, if the aim is to improve the quality of architectural education and at the same time improve the quality of architecture. So it is going to be interesting for the panel to bring out that focus; and I would ask each member of the panel to be as precise as they can in their interventions, and hopefully we will be able to discuss it in the next session.

The idea is for each member to deal with one question at a time.

Learning Outcomes and Competences for the Architectural Curricula at **Bratislava** School of Architecture

Julian KEPPL

Slovak University of Technology Faculty of Architecture Bratislava, Slovakia

I will answer the first question very briefly. To answer this question I focused on the profile of an architect or the profile of our own output, and I would like to say a few words about the history of teaching architecture in Slovakia. We started in 1947, but the real beginning was in 1950 when the faculty of architecture was established. At that time, we created a profile that focused on a thorough knowledge of typology. This was done through the organization of design offices, such offices concentrating on a special type of building. The requirement was for an architect who was able to create that particular type of building, for example, residential buildings, industrial buildings, buildings for culture, and so on. The typology was, you might say, a driving force in the organization of our study programme and our curriculum. This orientation also reflected the structure of the school, which had very strongly typologically oriented departments.

The course of study was organized as follows: students started with a theoretical course on the typology of a certain type of building, and then in the next semester the students followed this up with studio work, the profile of an architect being someone who was able to do projects 'in an envelope', which means the ability to produce a product. Then in 1990, and later in 2002, we passed through quite big changes. In 1990, we saw changes in the political field and the economy, and so also in our school of architecture, so we started a different approach to architecture education, and we also redefined the profile of an architect. It had become necessary to look for a broader profile, and so the traditional typologically oriented departments and studios were replaced by problem oriented studios focusing on themes such as restoration, ecologically conscious design, interior design, and so on. Now our studios are not organized according to building typology, but instead by trickiness and scale. We differentiate between levels of project difficulty in terms of the title of Rem Koolhaas' book *SMLXL*, using the terms 'simple', 'medium' and 'difficult' for projects at the Bachelor's level. At the engineer's or Master's level we use the terms 'difficult', 'extra difficult' or 'extra-extra difficult', meaning that the students are obliged to integrate some new ideas into their design and to look for original improvements or solutions.

Finally, I would just like to add something about the structure of our study programmes. Since our Faculty of Architecture at the Slovak University of Technology in Bratislava is the biggest school of architecture in Slovakia, with about 1000 students and more than 80 teachers, we cover a wide field of disciplines, from building or product design to town planners and spatial planners. Our attention is focused primarily on architecture, but there are also many other fields of study at our faculty. Another thing I didn't mention, with regard to the organization of studies, is that we adopted this two-stage structure, with Bachelor's and Master's levels, in a latent way in 1990, legalized it in 1998, and are continuing it with a slight adaptation of the programme. The difference compared to my

colleagues is that we have a 4-year Bachelor's programme and a 2-year Master's programme – or Engineer programme, as we call it, because our graduates finish with the academic title of engineer-architect.

Learning Outcomes and Competences for the Architectural Curricula at **Vallès-Barcelona** School of Architecture

Ramon SASTRE

Technical University of Catalonia, School of Architecture of the Vallès, Barcelona, Spain

Spanish Schools of Architecture must produce (by law) an architect who must cope with a wide range of competences: Urban and Regional Planning, Building Design, Building Technology (Physics and Structure), etc. In this sense, Curricula from old times have been designed to touch all the necessary matters to provide the supposed level of knowledge in all those areas.

At this moment, Government is trying to adapt Spanish Education Laws to the European Higher Education Area (EHEA), but it appears to be quite complicated, since there are many other laws that assure architects their **exclusive** expertise in the field of building design and construction.

Other professionals claim their expertise in some of those areas (structures, services, planning,...), so there is the possibility that new Curricula adapted to EHEA would allow to separate this complex knowledge of the present architects in different specialists dealing in a narrower field of expertise.

Most of the Schools of Architecture are against it, mainly if we are speaking in terms of Bachelor. If Bachelor would take five years, as was approved by EAAE some years ago, things would change and they would accept Masters to produce specialists from a generalist Bachelor.

In our School (Vallès, Barcelona, UPC), we share most of these feelings. We promote experiences in the curriculum that deepen in interdisciplinarity. The way we teach in the Studios, the free elective subjects about sustainability, third world cooperation, etc. are examples of this promotion.

Learning Outcomes and Competences for the Architectural Curricula at **Belgrade** School of Architecture

Zoran NICESIĆ

Belgrade, Serbia and Montenegro

The general orientation of our curriculum is aimed at **global architectural knowledge** in an **academic framework**. Traditionally, our school developed as a technical faculty (title: engineer of architecture), but has gradually developed in the last 30 years towards a school offering global architectural knowledge. The future curriculum will offer a variety of profiles and optional courses and is basically oriented at developing all aspects of our discipline (artistic, technical, practical).

The basic direction of the new curricula we are developing should have the following tree levels: (3 + 2 + 3 year's full time course)

Bachelor of Arts and/or science level (as a basis for further education and a degree enabling the candidate to work in the field of architecture *without possibility of independent work and license*). The bachelor has basic global knowledge and a general profile, and is competent to participate in various work done in all fields of the profession. During the second and third year of the course, various options are offered enabling the student to seek an adequate profile that can be developed during further studies or in practice. Optional courses will enable students to either work towards a practice oriented profile (in case they intend to terminate their studies on the bachelor level), or prepare for graduate studies during their bachelor years. We expect the majority of students to go beyond this level and into further education (on our faculty or elsewhere, immediately or eventually).

Master of Arts and/or Master of Science level (academic level that together *with results in practice and a successful professional examination produces a license*). On this level, we are introducing various fields of specialized knowledge, basically in *3 recognizable profiles...* **The architect - designer, the architect - engineer and the architect - urban designer and planner**. Additional possibilities for personalizing the curricula are given to all students through optional courses. Themes in the field of **history and culture, planning and management** are also considered as potential additional profiles, and are still discussed as possibilities.

Doctor of science level as an academic level oriented to research and teaching. Up to now, the Doctor of Science thesis was done through individual work of the candidate and guidance of a mentor. Compulsory academic background of every candidate was Master of Science. That was done after a Diploma in architecture / license level (5 years), and Master of Science course (2 years). Of course, the diploma and master level could be acquired in other disciplines complementary to the thesis the candidate chose to work on.

In our new curriculum, and on the basis of new legislative solutions that are being introduced, we now expect to develop an independent 3 year course producing a Doctor of Science that will follow the Master of Science diploma.

Learning Outcomes and Competences for the Architectural Curricula at **Genoa** School of Architecture

Roberto BOBBIO

Genoa, Italy

According to the (last but not ultimate) University reform, as it has been implemented in Italy in application of the Bologna declaration, two different systems still coexist in Italy, to become an Architect:

- a straight 5 years curriculum (without intermediate degree) that leads to a master ("*laurea specialistica*" or, as recently renamed "*laurea magistrale*"); this curriculum continues the tradition of the previous laurea in architettura;
- several "3+2" years curricula; there are two first level degrees that lead to a bachelor (*laurea*), one in architecture, one in planning; the bachelor in architecture has different specializations (architectural design, building construction,); the second level degrees that lead to a master are four: in architecture, landscape architecture, building restoration, planning.

Traditionally, the architects in Italy are pre-eminent professional figures in many fields of activities, including:

- Architectural Design
- Buildings Construction
- Urban Design & Planning
- Landscape Design & Planning
- Architectural Restoration & Conservation
- Industrial & Naval Design

The professional competence of an Architect in all these fields is generally recognized; moreover, a national law (issued in 1929 and recently reformed according to the Bologna Declaration) identifies "Building Construction" as the proper professional field of the architects and the civil engineers and assigns to the architects a unique competence in the restoration of historic buildings.

To work as a free-lance Architect it is compulsory to pass an exam and to be admitted to the National Board of Architects, that has a local board in every province; training is not requested; according to the university degrees reform, a short stage is part of the new programs.

The National Board, according to the recalled reforms and to the new educational programs, is divided into sections and sectors:

- section A includes a junior architects sector and a junior planners sector (with limited professional competences);
- section B includes four sectors: architects, landscape architects, restoration architects and planners (with full professional competences).

Profile of the architect-graduate at the Faculty of Genoa

The Faculty of Genoa, till this moment and for many reasons (immediate opportunities, lack of certainties about the final model that the reform will produce in Italy, etc.) has maintained its traditional "5-years master degree" in Architecture and has applied the "3+2" model only to create the following new degrees:

Bachelors (3 years curricula) in:

- Architectural Design and Construction Techniques
- Urban Design & Planning
- Landscape Design
- Architectural Restoration & Conservation
- Industrial Design
- Naval Design

Masters (2 years curricula) in:

- Landscape Design & Planning
- Industrial Design
- Naval Design

The "5-years curriculum" is intended to develop the "global architectural knowledge"; the "3+2" years curricula are intended to develop specialized knowledge, while all the existing "3-years curricula" are intended to develop professional skills.

It must be stressed that on this subject a strong debate is still under progress in Italy; this debate takes place while the Ministry is carrying on the reform of the university studies in order to apply the principles of the Bologna Declarations and the following UE statements that deal with the creation of a European Space of the Higher Education. Someone intends the "3-years" curricula, within the same class of degrees, as preliminary courses of studies that must provide the students with a basic formation. In this perspective, the "2-years curricula" (were they exist) are intended to specialize this common basic knowledge and to give the students specific professional skills. Some others intend the "3+2" curricula as a whole: a specialized course of studies entirely devoted to lead the student to a well defined professional profile. In this case, the final "2-years" curricula are intended as the conclusive step for acquiring specific skills that can be useful either on the academic and the professional field. The debate is still alive and the final result can nor be foreseen at this moment.

Some of these degrees, established by the Faculty of Architecture, will be jointly run with the Faculty of Engineer beginning with the 2005 academic year.

The "global architectural knowledge" is articulated into 10 areas:

- Architectural Design
- Building Technology
- Construction
- Mathematics & Informatics
- History of Art & Architecture
- Drawing & Architectural Surveying
- Physics for Building & the Environment

- Restoration & Conservation
- Urban Design & Planning
- Social, Economical, Evaluation, Geographical & Geological Studies

The activities in the Italian Schools of Architecture are organized in:

- Courses Lessons (one single discipline: fundamentals and their applications; integrations among disciplines are possible)
- Studio Works (laboratori): more disciplines focused on an a project. In the 5-years curriculum one discipline is predominant. In the 3+2 curricula the studio works can be differently organized; a major orientation is to integrate more disciplines.
- Individual students work (previously approved by the Degree Council) such as stages, courses abroad, language and informatics skills, etc.

Learning Outcomes and Competences for the Architectural Curricula at **Limburg** School of Architecture

Roger LIBERLOO

Provincial Higher School of Limbourg, Department of Architecture and Arts Diepenbeek, Belgium

It 's my believe that to understand our answers to the questions, it's important that you now something about the context in which they were formulated. My school, the school of Diepenbeek is situated in a provincial area. The bigger cities as Brussels, Antwerp, Eindhoven (NL) and Aachen (D) are on a distance of about 80km. The school was erected in the fifties of the last century together with a lot of other schools of higher education in a movement of democratizing education. It gave the children of the working class of the province a better opportunity to engage in higher education. We have now 311 students and a staff of 19 fte's spread over 34 individuals. There are 2 professors, 8 lecturers, 22 assistants and 2 visiting professors.

Architecture: 311 students

1AR	2AR	3AR	4AR	5AR
115	65	53	38	40

Teaching staff: 19 FTE / 34 individuals

Student - FTE staff ratio: 16.4 - 1

Professors	Lecturers	Assistants	Visiting professors
2	8	22	2

In the preparation of the academic reforms we put up a new pedagogical structure. We divided the courses in three course groups which form the ABC of the schooling. The A

of Architecture, the B of Building technology and the C of Culture. Each group is subdivided in clusters. Within A there are the clusters of Architectonic Design, Imagery, Architectural sciences and Environmental sciences. B contains the clusters of Structure, Technology and Management & Law. C groups Man and Space, Culture on the Move and Concepts in the making, new names expressing changing insights in how to deal with the humanities and cultural studies in architectural education. In each cluster a chairman is chosen, one of them leads the course group; together they form the educational board with an educational head that is chosen every four years. Within this educational board the course group chairmen form, together with the educational head, the executive board. The Executive board and the educational board had each of them 10 meetings last year. Important decisions were put to the general assembly of all the teaching colleagues, and we close the year with an internal conference to tune up a last time and straighten things out at the closely following barbecue.

Pedagogical structure		
Architecture	Building Science	Culture
Cluster Architectural Design (1)	Cluster Structure (1)	Cluster Man and space (1)
Cluster Imagery (1)	Cluster Technology (1)	Cluster Cultures on the move (1)
Cluster Architectural Sciences (1)	Cluster Management & Law (1)	Cluster Concepts in the making (1)
Cluster Environmental Sciences (1)		
Educational Board (10) + 1 (educational head)		10 meetings
Executive Board (3) + 1 (educational head)		10 meetings
Educational Head (70% head / 30% teaching)		
Department Head		

Within this academical structure we developed some policy instruments:

1. a general document about the academical reforms
2. a self evaluation report presented to the external accreditation commission
3. our ICT- policy
4. an educational concept for architectonic design in the bachelor
5. the competences for the bachelor and the master.

Now, to answer the first question about the profile of the graduated architect: in the bachelor we aim to the centre of the target, with the intention to offer a broad education which gives the student the opportunity to get introduced to artistic, academic, technical and vocational experience and knowledge. The master offers the possibility to differentiate into four directions leading all to an architect's master diploma, that gives admission to architectural practice after a 2 year's term of probation under the supervision of the Belgian institute of architects.

- architectural critique
- imagery
- building technology
- urban design

The option consists in the first master year in the combination of the students choice for a seminar (8 credits), and the preparation of a thesis (4 credits). In the second master year the seminar (8 credits) is combined with the thesis (8 credits) and the final architectural design project (32 credits).

These options with their link to the thesis and (in the future) to the architectural design project form together the ideal environment to develop research.

The Architectural Critique option wants to create an inspiring, non-ideological intellectual space within the architectural education, and foster conceptual widening in the architectural consciousness of the future architect. It works on three domains:

- democracy and architecture, with particular attention to the complex relation between Europe and the USA
- the postmodern (in philosophical terms) architectural design as a meaning creating act of consciousness,
- "old and new", the equilibrium between conservation and development.

"Imagery" concentrates on experience and handling concrete materials, and is build-up thematically, as for instance the last year's subject was "tactility".

"Building Technology" focuses within the framework of sustainability on technological deepening by studying concrete innovative projects. Buildings are studied as a spatial circuit, a constructive structure with a skin (material & construction), detailed and equipped.

"Urban Design" handles 3 domains:

- behaviour and space,
- typology,
- tissue-analysis,

and works thematically. It explores for instance the differences and similarities in housing and living in the border region of the river Maas in Belgium and the Netherlands.

Our care to establish the PHL-profile of the graduates must be seen also against the background of our mission-statement, which makes clear our point of view concerning the fundamental values of communication and transparency, our understanding of the professional field, the professional skills of the architect and the basic intellectual attitudes of an architect about conceptual thinking, raising awareness and processing information.

- point of view concerning the fundamental values of communication and transparency,
- viewpoint concerning our understanding of:
 - the professional field,
 - the professional skills of the architect
 - the basic intellectual attitudes of an architect about
 - * conceptual thinking,
 - * raising awareness
 - * processing information.

Learning Outcomes and Competences for the Architectural Curricula at **French** Schools of Architecture

François NORDEMANN

Normandy / Paris Bellville Schools of Architecture, France

I am speaking from a very special situation, for two reasons. The first is a French reason: France is at the point of installing the Bologna Process, so this back-to-school week will be the key moment for how all training schools in France will practice an attitude that up until last semester they had been only working on. Secondly, from a personal point of view, I am also in a special position: having recently stepped down as Dean of the school of Normandy, I am at the moment neither a Dean nor a teacher. In any case, this should help me to be really short, which could help many people here, I guess.

The idea of the curriculum we are working on basically rests on a non-professional focus, on learning a discipline within its specific controlled environment. This means that we are trying shrink the field, to shrink the domain in order to concentrate on design processes. This opens the field to many attitudes; it opens it to all sorts of different characters and different ways of approaching the discipline, whether formal or scientific or academic. This is an evolving situation, but an existing one nonetheless.

The idea is to get rid of the professional focus so that, by shrinking the real, by shrinking the curriculum to the core of architecture and design processes, we can open it to older, different, kinds of professions. We are happy to see architects in other professions, such as planners (who are not practicing architects in the sense of erecting buildings, but who have programme specifications as designers, and whose clients may be public or private institutions), experts in preservation, experts in maintenance, or experts in urban policies. I think that this is a balanced situation, where an architect working as a practicing builder can speak to other architects in the same field but in other professions. I would insist that designing a curriculum is a creative act for each school, as a specific way of thinking and of getting into methods (whether in construction or history or sociology) and skills (e.g. communication, drafting, computer design, graphics, etc.). And maybe, to echo Professor Lupo Donà dalle Rose this morning, the idea is to tune a curriculum in order to make music rather than noise.

Learning Outcomes and Competences for the Architectural Curricula Questions 2 & 3

Per Olaf Fjeld, Oslo, Norway

Thank you very much, for your interesting comments. The first round is finished, and I think that we have to combine the second and third questions. If it is possible to get through the questions, we should, but first I have a general comment to make on the first round. I think that the idea of profile should be investigated much more seriously, because the relationship between profile and content is not necessarily clear. Of course, the content itself can give the profile; but the profile can also offer the content, and in that sense, a lot of clarification is required from each of the schools. And if that happens, we could understand more precisely the core of what the schools stand for. In a similar way, precision and variety within the discussion would also help clarify things considerably. I think that the idea of the profile, and the capacity of each school to find a profile are very fruitful issues. Now we go to the second and third questions.

Julian Keppl, Bratislava, Slovakia

Going on to question number two, we stress the ability to develop a trans-disciplinary understanding, because the profession of an architect is becoming more and more that of a person who puts things together, a co-ordinator. Architecture is now the art of putting many different things in one harmonious whole, and so, from that point of view, we think that the ability to communicate with other professions is very, very important. Our next priority is awareness of and respect for points of view deriving from other national and cultural backgrounds. Since we are in the center of Europe, we are used to communicating with various cultures, as we are on the crossroads of many cultures and we have the privilege of being on the border between west and east and the passage from north to south. The famous Linus Romanus, for example, goes through Slovakia, and also we were on the borderline of the Iron Curtain, so that for us communication and the knowledge of other national and cultural backgrounds is very important. The next priority is the capacity to apply knowledge in practice. As I mentioned, our tradition is to educate architects for practice, and we still have quite a good ratio of graduates who work directly in architecture – I would say roughly about 60-70%, and of these approximately 20% work abroad. So I think that from that point of view we are a quite successful institution. The creative capacity to generate new ideas and forms depends, I think, on each individual architect, so I will not comment more on this point. The fifth priority is high-level computer skills, including the ability to use the Internet as a means of communication and a source of information. We think this skill is now crucial for architects.

Roberto Bobbio, Genoa, Italy

With regard to the second question, I will try to be very brief. It was not easy to make a choice, but we discussed it among ourselves and we reached a consensus. The five-year Master's degree and the 3+2-year degrees have different stresses and different focuses. For the five-year Master's degree the capacity to generate creativity, to be creative, has

always been a feature of the education of the Italian architect, and is still probably the first point. Then come the capacity to synthesize ideas and forms, the ability to work with other people, personal rather than social skills in expression – this is something that we stress, even though it is not always possible to transmit it to our students – and, finally, the ability to receive and respond to a variety of information sources. The new degrees stress ability to develop trans-disciplinary understanding, to use different disciplines to collect solutions, again the ability to work in teams, capacity to be practical, basic knowledge of all the professional applications of the discipline, and again, personal skills in expression and communication. Thank you.

The 5 major fundamental skills

5 years Master degree	3+2 degrees
Capacity to generate creatively new ideas and forms	Ability to develop a trans-disciplinary understanding
Capacity to apply a spirit of synthesis of ideas and forms	Ability to work in an interdisciplinary team Capacity to apply knowledge in practice
Ability to work in an interdisciplinary team	Basic knowledge of all the professional applications of the discipline
Personal [and social] skills in expression and communication by speaking, writing and sketching	Personal [and social] skills in expression and communication by speaking, writing and sketching
Ability to receive and respond to a variety of information sources	

How the 5-years curriculum ensures the stated profile

Fundamental competences and skills	More involved areas	How	When
Capacity to generate creatively new ideas and forms	Architectural design Urban design Construction Drawing	Studio works	Every year
Capacity to apply a spirit of synthesis of ideas and forms	Mathematics History Architectural design	Lessons Class work Home work correction	Above all last three years
Ability to work in an interdisciplinary team	All the areas	Studio works Final Thesis Research Application	Above all last two years
Personal [and social] skills in expression and communication by speaking, writing and sketching	Informatics (ICT) Drawing Restoration Design (urban, landscape, architectural)	Studio work Student reports (presentation of Analysis, Diagnosis, Projects) Work evaluation	Every year
Ability to receive and respond to a variety of information sources	All the areas	Lessons Seminars Group work (studio and home) Work evaluation	Every year

Ramon Sastre, Barcelona, Spain

The five fundamental competences and skills that school curriculum intends to ensure to graduates are:

1. Ability to develop a trans-disciplinary understanding
2. Capacity to develop an analytical and critical thinking and understanding
3. Capacity to apply a spirit of synthesis of ideas and forms
4. Basic knowledge of all the professional applications of the discipline
5. Responsibility for one's own work and ability to be self-critical in relation to that

One of the particular features that characterised our School is the way we teach in de Design Studio. Traditionally these studios were led by Design Teachers. Now in our school, these teachers join with others from specific areas, creating diverse dual teams: design+planning, design+structures, design+drawing, etc. or even teams with three areas together.

Once we have these teams, subjects to be developed by the students during the course must be appropriate for the team in order to make students understand how related these different pieces of knowledge are.

On the other hand, traditional self-explained subjects as construction, structures, drawing, etc. leave part of their contents (mainly practical part, exercises, examples ...) to be done in the design studio. And not only that: teachers from these subjects can check what students have learned in their classes, or at least what they are able to apply in a design. This means that the teachers are able to emphasize some points or go over other ones so that students get what is really important in the subject.

Precisely, this is one of the issues that sometimes generate more arguments among teachers. It is quite normal that teachers think that their subjects have not time enough to be explained or practiced. Even some of them consider that subjects to big (in terms of credits) produce an automatic negative consideration to small ones. If we have, for instance, a studio with 30 credits and 6 other subjects with 5 credits each, students tend to see something "important" and other things that are "neglectful".

In our school we have semesters with 37.5 "old credits" (30 ECTS). Around 15 old credits are devoted to the studio and the rest for other subjects. And of these 15 old credits, 9 credits are given by design teachers and 6 from teachers coming from other areas.

Finally there is the Final Thesis Project. This is a hard work students must do before graduating. It is a complete work where equilibrium in their proposals is one of the main issues. It is not a "real" project as it was called, may be twenty years ago, since a "real" project nowadays is something huge, full of calculations, texts, reports, laws to be accomplished, etc. But it is in this work where students show us the capacity to develop an analytical and critical thinking and understanding or the capacity to apply a spirit of synthesis of ideas and forms, just to mention two of the five points we have checked in Question 2.

Roger Liberloo, Limburg, Belgium

We listed 12 general competences, and 47 specific competences for the bachelor, 46 for the master

These competences were first formulated within the branches of the educational structure, decided on in the educational board and one colleague did the final editing, but it still needs further development.

The competences were structured in 4 groups:

- Analysis and interpretation
- Design
- Realisation
- Communication

Competences concerning research are interwoven in these 4 groups.

The difficulty doesn't consist in naming five fundamental competences, but in choosing which would be the five fundamentals. Probably there are more than five of them. We consider our general competences as being the fundamentals. They are twelve and about possessing an intellectual ground attitude, thinking and acting out of a broad interest, thinking and acting multidisciplinary, tackling problems scientifically, researching systematically, thinking conceptually, taking a creative and imaginative stand, critical reflection, communication, organising adequately, thinking and acting ethically and internationally.

Nevertheless, a more concrete example for the group of "Analysis and interpretation":

" the capacity to subject architectural spaces and designs to research in the field of usefulness, liveability and experience, and to present this research in a report"

or

"the capacity to reduce the complexity of a given design context to design criteria".

As I pointed out last year, when we define a competence, we should take in to account also things concerning context, result or products, processes, activities, resources, parties involved, problems, attitude and measure of independence. This would lead us to far in our 5 minutes margin of today. To establish competences in this sense, thorough and patient thinking, writing and communication is needed, because doing this requires to explicitly formulate all the things we did implicitly for almost 25 years.

In Design:

" the capacity to reflect critically on one's personal design approach and to be able to use this reflection to develop this personal approach "

or

" the capacity to make the expression of a building tangible by choosing materials and detailing that realize the desired imaginative qualities on every scale level "

In Realisation:

" the capacity to develop and work out a research project / an architectural project systematically".

In Communication:

" the capacity to consult with a client in a given context about the urban, architectural and technological options ".

1. The old curriculum wasn't that bad, so we kept a lot of it!
2. The work of working out the competences according to what I said about it before, and relating the competences to the subject areas and vice versa is a long winded task. We need another year for it and a well defined and well structured database.
3. New subject areas we introduce in the first bachelor:
 - learning process and handling information,
 - introduction to research.
4. Radical reform of the history course. From chronological to thematically, we want to develop the historical consciousness and methods of approach in stead of memorizing 3 millenniums of architectural facts.
5. A first global answer to the question which competence is realised within which subject area, showed us clearly that interdisciplinary work should get much more attention.

	Competences within one subject area	Competences within interdisciplinary teams
Bachelor	46%	54%
Master	18%	82%

6. Implementing a one week practical experience in the three years of the bachelor:
 - 1) observing and analysing existing buildings and interviewing commissioner, contractor and architect,
 - 2) spreading the week over one year and observing and reporting the realisation of a small building
 - 3) spreading the week over one year and observing and reporting in an architectural office the activities concerning one building.
7. Implementing new pedagogical approaches in the studio:

8 hours of studio will not be anymore 8 hours of individual consulting, but will especially in the first two years be structured in:

 - a one hour lecture,
 - three hours of special and well focused practice
 - and four hours of consulting about the individual design project;

Beside it, we try to penetrate the often obscure design process by introducing the terms "mimesis" , "transformation" and "creation" in the pedagogy of the studio and by using within this framework a second layer of design methodological parameters.
8. Using a template, a gentle reminder for every design project with:
 - title of the module
 - the team: year coordinator, responsible colleague in charge, assistants, supporting lecturers, visiting lecturers and professors

- the competence oriented assignment: the assignment has to be formulated mentioning which competences will be dealt with explicitly, methodically and therefore demonstrable
- design methodical specificity: the specific design method that will be put central in the learning process of this module with:
 - a specification about mimesis, transformation or creation, and
 - the design methodical parameters
- educational description of:
 - the lecture
 - the practical training
 - the consult
 - individual independent work
- planning and timing
- the research aspect: a short description of how and in what measure the module realizes the aspect of research directly or indirectly. Not every module has to do this in the same direct measure.

Title of the module

The team

Co-ordinator of the year:

Chief responsible of the module:

Assisting architects:

Supporting lecturers:

Guest professors:

Competence oriented assignment

The assignment is formulated in terms of competences, so that they can be thought explicitly, methodically and as such, demonstrable. (we use a list of numbered competences)

Design methodological characteristics

Here follows a stipulation of the specific design methodological approach that is central to the learning process of the module with :

1. a specification about : mimesis, transformation and creation
2. the design methodical parameters.

Educational description

Here follows a short description of :

1. the lecture component
2. the practical training
3. the consult
4. the individual independantt work.

Timing

the number of weeks, the planning of the concrete activities and when which documents have to be handed in.

The research aspect

A short description of how and in which measure the aspect of research will be realised directly or indirectly in the module. The aspect of research doesn't have to be incorporated in every module.

Françis Nordemann, Bellville, France

To answer the second question, and I am speaking on a very global basis, not just for Belleville but for the twenty schools in France, what we are trying to do is to define the requirements, which – whatever they may be – are not actually spelled out. But, for instance, developing trans-disciplinary understanding or the ability to work in teams are not things that we teach, but things that we practice. Teaching these things is not our goal. It's like reading, writing, sketching, counting: they are expected to be able to do things, but we don't teach them – we practice them so that they can improve their skills. Besides that, and in addition to the core that I was describing before, we are developing and offering a range of different methods, whether in philosophy, in history, in calculating, or whatever, but these are more attitudes to enable the student to get to something else. And in addition to methods we are also teaching skills, but again with the idea of developing an offer, offering them to the students, so that they can create their own path with whatever the faculty can offer them. Thank you.

Per Olaf Fjeld, Oslo, Norway

Thank you, for your generous remark. I have one final comment to make. For many years now the EAAE has been able to produce very precise knowledge, and that knowledge was necessary to create a base from which the discussion could proceed. This knowledge, even though it may be of use to us, may not necessarily be interesting to anyone else unless we are able to reconstruct it in some way. In that sense these three questions are essential, and I think they should be further worked upon – including in relation to what this panel has said and done. If we continue to produce information that we all sense is unimportant in itself, and if that is not able to inspire the ideal profile and the ideal content, I fear the information will simply remain as information. So, there is a challenge that I think should be taken very seriously. I thank the panel for their contributions and all of you for listening. The panel is closed. Thank you.

Discussion

Coordination by

Per Olaf Fjeld, Oslo, Norway

Spyros Raftopoulos, Athens, Greece

I would like to address a question to the panel: Which is the character of the bachelor degree in relation to the practice of architecture and whether the people that finally qualify should be called architects or just people that have a certificate but which is of a lower quality and value in the professional practice of the country. Thank you.

Per Olaf Fjeld, Oslo, Norway

I ask Julian Keppl to comment on the question first. Thank you.

Julian Keppl, Bratislava, Slovakia

Regarding this principle of education of architects, I hope that we are speaking about education and not about training, because, in my opinion, these are different things. In thinking about the Bachelor's degree or that principle, taken from the United States and Great Britain, we recognized some positive points. One very strong argument, in my opinion, is that a curriculum that covers five or (for instance, in my country) six years is less amenable to change than a shorter programme; that was one of the reasons that we adopted the two-stage study in the early 90's.

Regarding the relationship to practice, we do not have enough information from the profession, because as yet only a handful of Bachelor's graduates have left school; the majority want to continue their studies. But I know that some colleagues like to employ Bachelor's graduates in their practice because they are cheaper than architects. Architects are creative people, and all most of them want draughtsmen or assistants, and for that purpose a Bachelor's degree is quite adequate. As I said, we perceive the Bachelor's degree as a first stage, and we believe that most Bachelor's graduates will continue, but we are awaiting the reaction of the profession. From our point of view a Bachelor's graduate, as a professional, should be responsible only for certain small tasks, not for larger projects, and should work under the supervision of an authorized architect. As I said in the beginning, the idea of a relatively short and therefore easily adaptable study programme is a good one, because the lifetime of a study programme is sometimes very short due to new information and new circumstances. So this is the first point, and the second is price on the labor market.

Roger Liberloo, Limburg, Belgium

By Flemish law the diploma of Master's of Arts and Architecture is equal to a diploma of architecture, but, as I said before, graduates have to do a two-year probation term under the supervision of the Belgian Institute of Architects before they can work independently as architects. What will happen with the Bachelor's degree, I don't know; it is new for us.

Stefano Musso, Genova, Italy

Genoa has chosen a sort of middle course between the two conflicting extremes that exist in Italy. Some faculties have opted for a three-year curriculum as the first step in a generalistic formation within the field of architecture rather than a deeper and more professional profile, as opposed to the Master's degree, which is seen as a more specialized education characterized by different specific fields of activity. In this perspective, a Bachelor's degree is not a gateway leading directly into the professional world. Other schools have chosen another way to create Bachelor's degrees, focusing more on the practical and professional profile, with specific themes and fewer common subjects, even if they all belong to the general field and general frame of architecture studies. Also, the relations with the professional orders are different in the two cases. Genoa has chosen to create different titles, partly because they belong to a tradition of the school – for instance, the penchant for architectural restoration. Genoa is a very stratified historic town, so architectural restoration is a natural subject, but even so we haven't decided to create a Master's in architectural restoration.

The students that stop after taking a Bachelor's degree from our school can become technicians – people who can undertake general problems at a construction site, an analysis, diagnosis, developing a service and so on – but they are not able or authorized to undertake a project by themselves. If they want to continue, they can enter again for the five-year curriculum and become architects, or they can go away, for example, to Rome, where there is a Master's in architectural restoration and preservation.

The same goes for the other Bachelor's degrees, for example, urban design and industrial design, even if these are not the same class of degree in Italy. The Bachelor's degree in architectural design and construction techniques, on the contrary, is intended more as the first stage of the five-year curriculum, the intention of the faculty being that when students have completed the Bachelor's degree they enter again for the five-year programme. We must take into account that, at the beginning of their studies, a lot of students are not sure whether they will be able to continue and complete their studies, but we are trying to make a more specified profile, in this field also, using a connection with the faculty of Virginia to create more specialized technicians that are able to work in construction companies, at construction sites, in the public administration, etc., in support of the professionals.

In any case, the National Board of Architects has been reformed along exactly the same lines as the University system: the law-makers have instituted two main divisions, senior and junior, each of which is in turn subdivided, the senior into four fields – architectural design, conservation and preservation, urban planning, and landscape planning – and the junior into two broader ones, architecture and planning, simply because it is expected that junior architects will be using their abilities, their competences and their skills to support the work of the senior architects. I don't know what the outcome will be, because we are still at the beginning of our experiment and there is a huge and hard debate in Genoa and in Italy in general.

François Nordemann, Paris, France

In France, we have that major system that has just been installed and that we assumed would help the student get a taste and some understanding of what I call 'design attitudes'. In addition to that we are trying to encourage the students to learn skills, not general

skills, like drafting, but special skills, such as photo-shopping, which may be slightly outside the general field of architecture but can be useful to architects in developing their ideas. The other point I would like to mention is that we are worried about whether other universities, that are not specialized in architecture, might be able to create Bachelor's degrees outside of the architectural system. That is something that could happen, and although we don't know when or how or even whether there is anything to worry about, we are nonetheless concerned.

As for our Master's degrees, these are national diplomas with a specific orientation, such as urban design, or formal design, or some functional aspect, etc. They give students the title of Master in Architecture; but in order to become practitioners able to sign building permits, they have to get a license that is delivered jointly by the French National Board of Architects and the Ministry of Culture. This is an in-between situation that nonetheless is very efficient, because it gives graduates with Master's degrees a variety of places to work where this licence is not required, in big architectural offices, for example, or in the same field but in other professions, such as programme specification experts, etc.

Ramon Sastre, Barcelona, Spain

In Spain, it is not clear at the moment whether the Bachelor's programme will be three or four years, and that will be the determining factor. A three-year programme would just be a first stage but would not lead to professional qualification. With this kind of Bachelor's degree you could then choose one of specific fields in architecture, or change to engineering, or go to another school or country to do a Master's programme. A four-year degree, on the other hand, would allow for some professional responsibility. Nothing is clear yet, but there is talk of allowing such graduates to co-sign designs, as long as they are working with a fully qualified architect. Another proposal is for them to sign only for 'small buildings', but in that case we have to define what we mean by a 'small building' (complexity, surface, etc.). So at the moment, I think that the best thing is to view it as a step to change, although one can, of course, work with a three-year Bachelor's degree in, for example, an office, but with no professional responsibility.

Zoran Nicesić, Belgrade, Serbia and Montenegro

We haven't had any experience as far as Bachelor's degrees are concerned, because up until now we haven't had any; but the idea is to make a curriculum that is more or less compatible to two major realities: one is that people do not have the same capacities and the other that people do not have for whatever reason, material or other, the ability to go on; and we expect to develop various fields in architecture, on the higher level, because of the various interests that those same students have.

We expect the Bachelor's level to be a temporary status: it will entitle the graduate to work in some area related to architecture, perhaps computing, bureaucracy, site-building, or helping in any kind of studio. If you consider that the number of highly educated people in Serbia and Montenegro, for example, is only between 4 and 5%, which is very low, and if you consider the per capita income as well, then it is quite clear that we would rather have a larger number of Bachelor's graduates than not have any educated people at all. This is one of the reasons why this 'take it or leave it' system of zero + five is not the best option for us. Of course this Bachelor's level also tends to be compatible with mobility and some other principles.

On the other hand, the Bachelor's level cannot be a basis for acquiring a license and a Bachelor's graduate cannot be a member of any kind of professional association that has the word 'Architecture' in its title. In order to be a professional and fully licensed architect one has to have completed a five-year programme plus a certain number of years in practice, to have achieved some results in those years of practice, and to have passed an exam. It may be possible for a Bachelor's graduate to have the practice, but he doesn't have the right to take the exam before he has finished his basic schooling.

We also expect to be able to develop a system of evaluation at the Bachelor's level that will screen out those who should not be encouraged to complete the five-year training period. As things stand in Belgrade, for example, the greatest hurdle is actually entering the programme; once a student is in, as long as he is tough enough he will find a way to finish his five years of training. This means that, in a way, we are actually working against ourselves by lowering the level of the criteria for a diploma in architecture. If there were some kind of intermediate level evaluation, we would be able to stop students from continuing or to require a certain level of quality from students continuing their studies. So those are the major reasons why we have decided to have this two-level schooling. I have one final comment to add, that although we are a state university we have a mind of our own, and if at any point the state or the government tries to give Bachelor's graduates the right to practice architecture, and as of that moment we will stop awarding Bachelor's degrees.

Per Olaf Fjeld, Oslo, Norway

Thank you. I do think that we are only at the beginning of these changes and we really cannot yet foresee how far-reaching they will be. On the European level, they will certainly change architectural education, they will change architecture and, I think, they will also change the profession. So far we only have an awareness of these changes, but I think they will be quite extensive. Therefore, let us return to the three questions: if within this framework schools do not have the capacity to produce their own profiles and develop their own content, then I think it is going to be quite 'open' out there in terms of the competition with other schools and with other initiatives related to space. So I think we are just at the beginning of this discussion...

Christian Huetz, Regensburg, Germany

I have a feeling that most people think that everyone who embarks on an architecture programme will end up working as an architect; but this, I believe, is precisely what you do not think. I think that we should give architecture students a chance to complete an academic cycle of studies and earn a Bachelor's degree. This is an example of a modern trend: first three years of study in one field – architecture, for instance – and then switch to something else. Students should have this possibility, for we must be aware that not everyone who starts to study architecture will end up working as an architect, as used to be the case; when I started out it was natural for me to assume that I would eventually become an architect (the fact that I am now a professor is beside the point).

I come from the state of Bavaria, which has two borders: one internal (with the rest of Germany) and one external (with the rest of Europe). In Bavaria we have both a Bachelor's and a Master's programme and our Board of Architects came up with quite a clever suggestion to accommodate the two systems. Graduates of the three-year Bachelor's

programme do not have the capacity and are not allowed to work as architects. They may have the knowledge and the skills, but they do not have the capacity. Only a Master's graduate with two years of practice can join the Board of Architects. But a Bachelor's graduate who wants to be an architect can, after six years of practical experience, sit an exam held jointly by the Board of Architects and the Universities. That, I think, is a very clever solution to allow people who want to be architects to complete their professional qualifications.

Per Olaf Fjeld, Oslo, Norway

Any comments? This is, of course, a point we often come back to. I think we all realize that not all those who study architecture, especially in the three-year programme, will practice as architects; but at the same time this raises the question of what architecture education is and how it should be structured in the future to achieve the type of qualities we want to pursue.

Roger Liberloo, Limburg, Belgium

In Flanders, a student who has done two or three years of architecture can easily switch to industrial engineering (which is a four-year diploma), since he has had enough mathematics and physics to continue in this field.

Per Olaf Fjeld, Oslo, Norway

Any other comments related to the same issue?

Guido Morbelli, Torino, Italy

I think the question raised by our Athenian colleague is extremely crucial. If, as I believe, we are going into a general application of the 3 + 2 system, then what does the junior architect do? Now, as far as I know, the only country with a long tradition of Bachelor's graduates being able to exercise certain professions is Britain; and I had hoped to learn something from British people here, but since I haven't seen any professors from British schools I may have to write directly to the RIBA. The point is, as my Genoa friend and colleague said, that we made the 3 + 2 system and the order of architects has gone along with it, but we don't really know what a junior architect is allowed to do because there is no legal provision for this case. There are only very vague words, vague assertions, but that is not enough; there has to be a law.

Now I think that there is a reason why it is not clear what junior architects can do, and this might affect other countries that are going to adopt the 3 + 2 system and that have to reach an agreement with their professional organizations. The reason is that the order of architects is strongly opposed to junior architects because they think of them as competition, but that is not the case. This happened in Italy – not because Italians are bizarre, but for very practical reasons – and it can happen in other countries, so there has to be a very clear agreement with the profession as to what junior architects can do. I come from the Torino Polytechnic, which was one of the first schools in Italy to generally apply the 3 + 2 system to engineers and architects, and I, as head of a course of studies of one chair in the Torino School of Architecture, can control what is happening there. We are already in the fourth year, so some of our students have already completed

their three years of study and have earned their laurea, but not one of them, as far as I know, has left.

The main reason why they go on is that we have a tremendous problem in the form of professional surveyors who do almost everything; they are the kings of the countryside and the small towns. Some people even say that they have the power to perform marriages! Many students reason – very simply – that there is no point in their leaving after three years to go and do something that they really don't know how to do, when in any case they will have to compete with the surveyors and will therefore never do anything but minor work, and certainly nothing connected with architecture.

Turning to another point: the theme of one part of this workshop was how schools can construct European curricula without focusing on harmonization with the Greek programme to create a unified, definite, prefabricated, prescriptive curriculum? This workshop, however, had so many questions on its agenda that it was absolutely impossible to answer even one, let alone all of them, in such a short time. I suggested that we use the results of the EAAE questionnaires to work out a simplified minimum curriculum that would become more or less compulsory in all countries in Europe, and of course we have to come to an agreement with the European authorities. And so I think we should work on a unified dual-level common curriculum for Europe, because the free circulation of architects guaranteed by the Schengen Treaty is bound to increase, but it cannot work if each country has its own system and architects in some places study for four years and in others for six. So I think that the EAAE can be of great help in working out something that will lead to unification of the curriculum. Thank you.

Per Olaf Fjeld, Oslo, Norway

I think it is interesting that this confusion, if I may use the word, still continues to exist, and it indicates the complexity that we will be facing in the future. Let us, just for a moment, take one fairly clear example: for a very long period of time Scandinavia had a 5- to 6-year programme, and when one had completed this programme one was called an architect and could go out and practice; it was as simple and uncomplicated as that; and it is fair to say that it did not have bad results. Within the current system, where nobody is sure of what an architect is or is not, there has to be an additional set of rules that was never needed before in order for the government and the professionals to secure a standard of quality. Under the old system newly graduated architects could go out into the professional world and compete directly, which meant that buildings were being created by young architects, which was essential within the tradition of Scandinavian architecture. With the openness that now exists, and I am not putting a positive or negative charge on it, I don't think that we can foresee the changes that this will bring about. Which takes back to our three questions: if we are not precise on this, either as a body or, most importantly, as individual institutions, I think that we will find ourselves trapped in a situation in which the competition among architecture schools will be much harsher than ever before.

Adalberto Del Bo, Milano, Italy

In Italy, whenever the subject of the 3-year Bachelor's programme comes up, and what these graduates can and cannot do, someone always mentions Germany, as an example of a country with Fachhochschule that produce fully fledged architects in 3½ years, that

is, seven semesters. Whether it is true or not, the fact that there is such a difference in length of programmes and that in some cases people can become architects in as little as 3½ or 4 years, makes the discussion very difficult, and in fact quite impossible.

Constantin Spiridonidis, Thessaloniki, Greece

Dear colleagues, we have now spent at least three years trying to map out the possible professional activity of those who graduate from a Bachelor's programme; we, a body of academics, have been expending our energy and our brain-power on trying to invent jobs for them. This is not our job. It is up to those who decided to create this Bachelor's degree to solve the problem. We are here as academics, and as academics we have to discuss what the profile of an architect should be. Four years ago we decided that for someone to be entitled to be called an architect he had have completed at least five years of study, so I don't think that we should waste any more time trying to define the potential professional activity of a Bachelor's graduate. What we should be doing is sticking to our academic identity and defining the identity of the people we will be offering to society as architects. Three years is more than enough for discussing this kind of issue.

What I found most interesting about today's discussion is the fact that we have six or seven cases of a new curriculum on the table; and I would like to ask the intervenants whether they are using the new curricula as a means of creating a new architectural identity or whether they are adapting the previous conceptions of architectural identity to a new system of studies. For me the crucial issue is this: does Bologna offer us an opportunity to re-think and redefine a new profile for architects or does it oblige us to adapt existing practices and conceptions of profile to the constraints of a totally different system? This is a question that we obviously cannot answer now, but hopefully we will have an opportunity to discuss it later.

Alexander Kudriavtsev, Moscow, Russia

I agree with Constantin that we have our own academic tasks, but I think that we cannot promote our obligations without collaborating with the professionals, because that is where the demand is coming from. And we can leave the Bachelor's graduates where they are, but we must remember that they are really the future architects; they work with licensed architects, where in most cases they are exploited, and they have no social protection, so we must acknowledge their situation and we must recognize and support their special status. Just as the Commission for Architectural Education understood that it is impossible to work solely within an academic framework, and invited representatives of the UIA, a professional committee, to its meetings, so too I think that it would be very useful for us to collaborate with the UIA and use their experience in a similar way. Thank you.

Per Olaf Fjeld, Oslo, Norway

Any final remarks or questions?

Joaquim Braizinha, Lisbon, Portugal

Thank you. I would like to give you some idea about the current situation in Portugal in

relation to architecture, following the Bologna Agreement. Our Minister cleverly decided to appoint commissions for each scientific area; the architectural commission is headed by Domincos Tavares, who up until then had been the director at Porto and who was here with us for many years. And Domincos Tavares began talking with all of us, who are connected with the direction of schools in Portugal, about things like whether Bologna really brings anything new to architecture in the matter of teaching and learning.

The idea of more learning and less teaching was something we implemented a long time ago; with practical training, design projects, and so on, the goal of more learning and less teaching has already been achieved. In Portugal, the new paradigm that Bologna proposes has been part of architecture education for a long time. Of course in fields such as law, international relations, economics, physics or mathematics, the situation is different; there is more weight on tradition, on theory, and so on: more teaching, less learning. But we architects long ago learned something very near to this new paradigm that we are talking about, in the sense of pedagogical process.

The second thing Domincos Tavares asked us was whether we, within the family of architecture, could do anything with three-year basic training in architecture, and we answered "no": we have a Community Directive requiring five years, we have directives from the order of architects, and we have a long-standing 3 + 2 structure in the Portuguese polytechnics; and while the dream of the polytechnic is to be a university, we do not dream of being polytechnics. We want to remain with our five-year structure: not 3 + 2 but a single five-year programme.

We studied the evolution of the curriculum from the 60's, when Domingos and I and the other heads of schools were students; and we saw that the basic scientific side of architecture has always remained a part of the curriculum. There may be changes in some disciplines – the name, the materials, the content – but basically, we have a tradition of drawing, design project, construction technologies, and so on, as well as certain standard theoretical subjects like economics, law, geography and sociology. So the final draft decision that was communicated to the Minister was that architects want to remain with the single five-year programme plus one more for a Master's degree; so our proposal is 5+1.

You must understand that in Portugal we have a system of very comprehensive secondary studies. Students come to the university from all possible areas, which means that some have never studied history, for example, and some cannot draw, and so on; and we feel that the first two to four years are a very important preparatory period, which helps the students to acclimatize and adapt to an architectural way of thinking. This, then, is the position that the President of the Commission communicated to the Minister.

I forgot to mention earlier that, when the discussion about Bologna started in Portugal, a letter was circulated from Lisbon, from the directors, saying that architecture and medicine would be excepted from the Process, as indeed they have been. All these processes are being concluded now, and by November the Ministers will have informed us, the basic agencies, of the basic requirements of the architecture curriculum that will have to be accommodated. After that we will have nine months to adapt. In other words, we have a timeframe, we have a methodology involving all the schools in Portugal, and we have conclusions. Thank you very much.

Per Olaf Fjeld, Oslo, Norway

Thank you very much. The panel closes this session. Thank you for an interesting discussion. It has not necessarily been easy, and it is certainly clear that there is a big variation in the decisions here; but at the same time we have gained a strong awareness of where we are going and how things will develop. Thank you very much