

Chapter 4

Learning Outcomes and Competences Related to the Profession(s) that 'Emerge' from Architectural Studies

Which are the desired learning outcomes and competences including skills, knowledge and content of the professional profiles related to architectural education? What are those profiles? How can the above competences be translated into contents of the curriculum (topics to be covered) and structure of the curriculum (modules and credits)? What are the strategies for and objectives of this translation? Which priorities and which values and ethics of the learning outcome? Which approaches to teaching and learning are appropriate to ensure those learning outcomes and competences (types of methods, techniques and formats)? Which methods of assessment can we apply to evaluate the achievement of those competences (when required, which kind of teaching material should be produced)? Which educational units and activities should be created to achieve the defined learning outcomes?

Interventions of Session 4

Panel

Joaquim Brazinho, Lisbon, Portugal

Juhani Katainen, Tampere, Finland

Guido Morbelli, Torino, Italy

Aart Oxenaar, Amsterdam, The Netherlands

Are Risto Øyasaeter, Trondheim, Norway

Spyros Raftopoulos, Athens, Greece

Chair

Loughlin Kealy, Dublin, Ireland

Questions for Session 4

Question 1 (5 minutes)

In a changing society where demands tend to be in constant reformulation, what are the professional activities that your new school curriculum can ensure that your graduates can practice?

Question 2 (5 minutes)

What are the five fundamental competences and skills that your new school curriculum ensures to your graduate in order to enable them to practice the above professional activities?

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

1. Ability to create architectural designs that satisfy both aesthetic and technical requirement
2. Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
3. Awareness of the issues and themes of present day architectural debate
4. Ability to recognize and use appropriately architectural theories, concepts, paradigms and principles
5. Knowledge of the fine arts as an influence on the quality of architectural design
6. Knowledge of contemporary and historical works that have achieved the highest standards in architecture
7. Ability to abstract and present key elements and relationships
8. Adequate knowledge of urban design, planning and the skills involved in the planning process
9. 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
10. Awareness of the potentials of new technologies
11. Understanding of the profession of architecture and the role of architects in society, in particular in preparing briefs that account for social factors
12. Critical awareness of the political and financial motivations behind clients' briefs and building regulations so as to develop an ethical framework for decision making within the built environment
13. Critical awareness of the relationship between current developments in architecture and the past
14. Understanding of the methods of investigation and preparation of the brief for a design project

15. Understanding of the structural design, construction and engineering problems associated with building design
16. 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
17. Necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations
18. Adequate knowledge of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning.
19. Ability to work both with a high degree of autonomy and collaboration
20. Ability to engage in self-managed and life-long learning (eg working independently, time management and organization skills)
21. Awareness of the need for continuous professional development
22. Ability to respond creatively and flexibly to changes in the professional environment
23. Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms
24. Other...

Question 3

How does your new school curriculum ensure these competences and skills in terms of:

- Related subject areas (what subject areas can ensure these five characteristics of the professional profile)
- Positioning, timing and weight in the structure of the curriculum (in which years of studies are the five characteristics 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

Loughlin KEALY

University College Dublin, School of Architecture, Dublin, Ireland

Good morning! This is the fourth session of this meeting at Hania, and we are going to spend some time on the issue of learning outcomes and competences related to the professions that emerge from architectural studies: that is what it says on the top of the programme, and that is what we are going to try to do for the next while. We have a panel here that will assist us in our discussion: from Athens, we have Spyros Raftopoulos, who is the Deputy Dean at the School of Architecture of the National Technical University; from Lisbon, we have Joaquim Jose Braizinha, who is the Director of the School of Architecture at the University Luisiada; from Tampere, we have Juhani Katainen, who is a Professor of the Department of Architecture at the University of Technology; from Torino, we have Guido Onorato Morbelli, who is the President of the Course of Studies in Architecture at the Polytechnic of Torino. From Trondheim, we have Are Risto Oyasaeter, who is the Pro Dean of the Faculty of Architecture and Fine Art at the Norwegian University of Science and Technology, and from Amsterdam, we have Aart Oxenaar, who is the Director of the Academy of Architecture. My name is Loughlin Kealy and I am a Professor of Architecture and Head of the School of Architecture at the National University of Ireland in Dublin.

So, this morning we have a panel here, each member of which will address each of the three questions, as you know from the papers that were circulated. And these questions are related to the professional activities that your school curriculum assures that your graduates can practice; then, there are a set of competences for discussion and elaboration and comment and so on; and then a third question is how your school tackles the question of ensuring that these competences can be transmitted or learned. I have asked the members of the panel to speak for about ten minutes each, and I have also said that it might be useful just to have a very brief one-minute statement on the legal position of the profession in their country, in other words, basically whether the function and title of architects is protected by a legal framework or not, just to allow us to put these things in context. But our discussion this morning is primarily about learning outcomes, rather than lengthy discussions about the structure of the profession and so on. So, I am not sure who would be queuing up to begin first, but since I have a list here which is roughly in alphabetical order I am going to start in roughly alphabetical order, and Aart, since Amsterdam come before Athens, I will ask you to begin.

Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Amsterdam** School of Architecture

Aart OXENAAR

Amsterdam Academy of Architecture, Amsterdam, The Netherlands

Thank you Mr. Chairman. First, I will give you a very short statement about the position of the profession in Holland. It is quite simple: we have a legally protected title, with a register of architects, urban designers and landscape architects, but we have no professional protection. Anyone can put up a building as long as they do not call themselves architects. If someone wants to be called an architect he has to be registered in order to obtain the title. I will not follow the three questions, but I will try to make a statement in which the three questions will, I hope, be answered.

Our academy is rather a special school, so in that sense I am the odd man out to begin with. We are a design school, created by designers for designers. The school started as an association of architects that decided they needed new talent, which they chose to train themselves; and it has remained like that. We offer a four-year Master's programme, with two years of academic training and two years of professional training. I will explain a little more about that later.

Each of the three disciplines within the school – architecture, urban design, and landscape architecture – is taught in constant consultation with the others, and focusing in a practical way on the changing demands of society. And we obtain this goal through a rather special system on two levels: first we do not have any fixed teachers – there is no tenured staff – all teachers are practicing designers that come into the school for specific projects or lectures. For 250 students we have up to 500 teachers coming in each year, some for sixteen-week projects and some for a single lecture, so the profession has a very direct input. They can formulate their own assignments within the set aims and competences, of course, of our academic programmes, and thus they bring in both the themes they are working on in practice, the acute briefs, but also their research questions.

The second element through which we obtain this idea of a professionally oriented design school is what we call concurrency: our students work and study concurrently, that is to say they come to the school twenty hours a week and have to work at least twenty hours in practice. In reality they usually have four-day-a-week contract, and they come to school for twenty hours, thus obtaining a total of 240 ECTS points – 120 academic points and 120 points for an examined role in practice. Given the fact that we already were a Master's programme, and – within changing systems – always have been, we did not develop a new curriculum to adapt to this Bachelor's/Master's system; but we did write a new curriculum for the practical part. This was done specifically at the demand of the visitation committee – we had a visitation accreditation process two years ago – because they said it was time for the academies (there are six schools of this model in the Netherlands) to make explicit, and I quote, "to what extent practice should be part of the curriculum to acquire the title of architect, urbanist, or landscape architect".

In a sense it was quite interesting: the visitation committee asked us to come up with a curriculum for the practicing designer. In doing that, we started, rather basically and simply, by taking the EU directive, which has already been translated into the competences required for registration under Dutch law. So we took what they call the 'beginning terms' for the profession in the Netherlands, we regrouped these into three sets: the more autonomous or disciplinary competences, the contextual competences (that is, the competences that you need to deal with other disciplines), and the professional competences (that is, those skills that enable the student to function as a practicing architect within the building process and within the profession).

The disciplinary and contextual competences we consider as part of the in-school academic curriculum, whereas for the professional competences we made what we call an out-of-school curriculum. Together they form a list of ten competences. I won't bore you by listing them now, they will be translated into English and put on our website, where you can look them up if you like. However, I do think that it is essential to point out that the ten competences we formulated are, of course, not an aim in themselves, and that what we want to assess is the ability of the student to function as a designer; this can be judged by his behavior in the execution of his work, by examining how he acts, reacts and reflects in and upon his work as a practicing designer in training.

We have made that aim visible and assessable through two means: firstly, the students make a portfolio in which they represent the work that they have been doing in the firm and which is checked by the mentor in the firm – they can always come up with all kinds of nice pictures of the wonderful buildings the firm is doing, but we want to know exactly what the role of the student was and what designs he worked on; and then they make a report in which they not only describe and reflect upon what they have been doing, but also give what we call a *plan de campagne*, thinking ahead and saying what their next step could or should be, based upon what they have done and how they have progressed.

We have been working in this way, without a written curriculum, for almost 100 years now, so we have considerable experience in doing this. The reality is that most students acquire the ability to deal with, and the responsibility for, all the phases of building design, from initial sketch to final working drawings, in reverse order. They usually begin by making technical drawings and details for the plan to be executed, and end up as assistant designers, or involved in the first design sketches, or as project leaders. I chaired the "beauty committee" in Amsterdam for a while, and quite often students of mine would be presenting projects, because by their third year they would be responsible for one project within the firm. We did an interesting exercise: we put the curriculum we made next to the 'function families' (as they call them) of the Dutch Architects Union, which they have formulated in order to set the tariffs for work (and where by the range of tariffs you can see the range and the build-up of work reflecting the growing level of activity of an architect, or an architect-to-be, within the firm), and they matched quite well; so, in a sense, with our new curriculum we also follow the architect in his growth from a novice designer with an engineers diploma to a fully fledged designer.

You must be aware that students come to us with a Bachelor's degree in engineering, so they have already acquired the technical side. Now there is, of course, a practical problem with this system, which is that we cannot and do not want to make a three-party contract. You may all be aware in your own countries of different forms of 'dual learning',

as we call it in Holland, where you learn partly at school and partly in a company, which usually involves a tripartite contract between the school, the employer and the employee; but this is something that we do not want and in fact cannot do, given the fact that our students have a normal contract as employees of an architectural firm, and we cannot interfere with that.

The essential thing is that it is the students' responsibility to acquire professional skills and to give proof of them to the academy. It is their own responsibility to go out into the profession, acquire skills and competences and prove to us that they have them, and the portfolio and the report are how they do that. A student's mentor or employer has a role in the sense that he affirms that what is included in the portfolio is indeed what the student has done. The academy then has special examiners to evaluate the portfolio, and the examined portfolio is part of the year exam, which means that it is required to pass the year, and conversely that a student can fail a year even with a fully approved practice of at least twenty hours a week during the year. And indeed, one result of this exam may be that we advise students to move on in their career, either by going to another firm which will give them the possibilities they need, or by talking to their mentor-architect at the firm.

I think that, from this point of view, it is clear that practical training is a very serious thing for us, and if we take it seriously I don't think that we can stop at, and I don't mean this disrespectfully, filling in a shopping list of what we are giving, and by just saying that by putting four or five major points within normal academic training we will prepare students for practice. I think that it is a matter of 'either/or', and that a distinction should be made as to what an academic curriculum is and what is part of practical training. And I also think that schools should be allowed to decide for themselves what they are. If they are for academic training, the 3+2 system, which most of us are, that is fine, but stick to that. Delft is very clear on that: they say that they give academic training, and that becoming an architect is another story – that comes with practice. We say that we give academic training concurrent with practical training, but that takes two more years.

I think that part of the discussion here could be whether we, as schools, think that it is important to play a role in the formation of an architect as a practicing professional and, if so, we should think about a system of rules and regulations into which these two years would fit, or we should simply say that we are academics, we do academic training, and the profession is a different thing altogether. And, to add one small point: the EU is not helping us here. It used to be in the regulations that architects should have these two years of practical training, but this was taken out at the Maastricht Treaty for competition reasons; so now it is up to each school to discuss it with the professional associations in their country. Or perhaps we could initiate a discussion here. In that sense I was very interested to hear that James Horan opened the way for a working group where schools and professions within Europe could start discussions again. Thank you very much.

Loughlin Kealy, Dublin, Ireland

Thank you very much, Aart. That was a very clear and succinct presentation. I have just one question – a clarification, really: in your relationship with the profession, is there any periodic formal evaluation or feedback to you about the success of your programme?

Aart Oxenaar, Amsterdam, The Netherlands

I don't know if I should use the word formal, but indeed this was one of the points that the visitation committee raised: how much contact do you have with the people that are in fact responsible for half of your ECTS points? We have always been very careful, because if you make it too formal the school becomes an accrediting institution for the practices, and we become the ones who say which is a good firm for training architects and which is not. We have always been very reluctant to do that; but we do have annual meetings where we inform and discuss with the firms, group sessions and, from time to time, individual meetings. Also, you mustn't forget that, since all our teachers are practising architects, many of them also end up training our students. So in a sense it is a very closely-knit network in which we are operating.

Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Athens** School of Architecture

Spyros RAFTOPOULOS

Technical University of Athens, School of Architecture, Athens, Greece

Following the example of the previous speaker, I won't try to answer the three questions precisely, but I will attempt to present, more or less, what we are doing and, as much as possible, the relation between our academic profile and the profession. But before going into any details I would like to give a few particulars about our school. It is a school of architecture that belongs to the National Technical University of Athens; in fact its formal title is Architectural Engineering, even though we tend to try to forget the engineering part and stick to the architecture part.

It is a relatively large school, which has grown quite considerably over the past few years, with about 1700 active students – and if you count the dormant students the total is more than 2000. To continue with the statistics, which I know are not very interesting but I think they give a picture of our problems, we have approximately 105 permanent staff members, of which, approximately again, 60% or 60-65 people are architects, most of them practicing architects. We also have about 20 planners, and the rest belong to many other disciplines, including engineers, mechanical engineers, artists, and so on.

The curriculum is organized as a five-year continuous comprehensive programme; there is no breakdown, so students formally finish their studies after their fifth year. I say formally, because due to the workload the majority do not finish in less than six or six and a half years. Now, trying to relate the structure of the curriculum with the profession, we do not have a direct link with any practical experience or anything like that, apart from whatever

voluntary work students may decide to do during their studies or during their holidays. Nevertheless, in our experience, and that is largely related to the fact that most of us are practitioners, we think that the curriculum is linked to the demands of the profession, and I will explain that link later.

The curriculum itself is design-oriented, so starting from the first years we have some compulsory subjects that try to give students global knowledge; and then, in the latter part of the programmes, we have in the past few years introduced – with the new curriculum we have applied – what we call the integrated design studio, which means that the professors, or tutors, who have an almost one-to-one relation with the students, are from different disciplines. This includes not only academic disciplines but also designers, construction people and other specialists, who try to give students some exposure to the actual practice of architecture.

We also have certain other compulsory subjects, such as dissertation; this means written dissertation, because we consider that an architect should be able to write and to present his work in either written or oral form. So in the ninth semester students have to do what other people may call research study under the guidance of a tutor. They choose their own subject and their own tutor, and then they have to prepare their written dissertation and to present it orally to the public in an open sort of procedure where anyone can come and listen to the presentation.

Finally, the focal point of the whole programme of studies is the final thesis. This has to be a design thesis – it can't be anything else; and it takes a long time for a student to complete, which explains why the period of study is usually so prolonged. The minimum time is supposed to be six to nine months, but the most students spend a year or sometimes more – the extreme being two or two and a half years – preparing their design thesis, which is a complete study of a building, or a complex, or whatever they have chosen. They choose the subject, we approve it, and then they choose the tutors that they want to supervise their design project to the end. Once they have finished this project they have to pass the examinations, which are normally reviewed by a jury of at least five professors and one external examiner – and there is one of the links that we have with the profession: we ask the official bodies of architects or engineers to supply us with people that will react to the quality and the standard of the study itself.

Going a little bit further and trying to go over the curriculum without going into any more details, the profession in Greece is a controlled body of people that qualify as architects after sitting a formal examination at the Technical Chamber of Greece. It is rather a formality, but still, the students that finish their studies have to present their final design theses to a committee from the Technical Chamber of Greece, which represents the entire body of engineers of Greece, civil engineers, mechanical engineers, and so on, and which actually awards the licence that enables a person to call himself an architect and to practice architecture.

The reality is that we now have approximately 15,500 architects in Greece, which is an enormous number for the size of the country. Most of these have graduated from the schools of Athens and Thessaloniki, while now a number of new schools are also starting to produce graduates. There are also a lot of people who have studied abroad and are licensed to practice in Greece on an equal footing.

To give you some idea of the state of the profession, as you yourselves may have realized from the building environments you have seen, very few buildings have actually been

designed by architects. We also have a great number of civil engineers – about 20,000 – who have the same license and can also practice architecture, as well as quite a large number of people who have completed a three or three and a half year programme in a technical college and who can also practice architecture, but on a smaller scale. There are some restrictions on the latter, for instance the majority cannot belong to the Technical Chamber, but they are licensed to 'design' buildings of up to a certain size. In fact, as a study conducted two years ago showed, architects were actually employed in no more than 5% of the buildings in Greece.

In conclusion, I would like to say that, apart from the curriculum and the comprehensive architectural degree that we give, we also have post-graduate specialized programmes in conservation, theory of architecture, and planning, in order to give a bit more of what people may call a Master's degree, as it is called in the Anglo-Saxon countries. As a final point, I would like to say that I would hesitate to try to pin-point any fundamental competences as they are listed in the paper that we received, and that it is very difficult to choose one or another as higher or better. I think that one would have to have just one basic required competence, such as the ability to create architectural design, and that everything else is complementary to this basic competence. This is what we are trying to do with the curriculum; and, based on the reaction we are getting from the professional body, we think that up to a certain degree we are succeeding.

Loughlin Kealy, Dublin, Ireland

Thank you Spyros. Again, I have one question, and it is whether the Chamber or the architectural profession has any direct role in shaping your curriculum and in deciding what is taught.

Spyros Raftopoulos, Athens, Greece

No, there is no direct involvement of the profession in the formulation of the curriculum at all.

Guido Morbelli, Torino, Italy

If I understood correctly, you said that the students at the end of their studies make two theses – a written dissertation and a design thesis?

Spyros Raftopoulos, Athens, Greece

Yes. That's right.

Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Lusiada-Lisbon** School of Architecture

Joaquim Jose BRAZINHA

University of Lusiada, School of Architecture, Lisbon, Portugal

My school is one faculty in a private university that offers all the other fields of study, such as law, psychology, management, economics, mathematics, history, design, industrial design, and patrimony sciences. The university is twenty years old, and my faculty has 2300 students and 150 teachers, all practicing architects. Of these 150 teachers, 20 hold PhD's, 50 have Master's degrees, and 80 are assistants without academic qualification. This is because we have a very narrow law that obliges us to have one PhD for each year of studies and one PhD for every 200 students, and the same number of MAs.

We are under the supervision of the Ministry of Education, and they are always disturbing us with enquiries, visits, qualifications, and so on. It is a single unit five-year curriculum, and the four first years offer plenty of global knowledge but centered on architectural projects, what are generally called laboratory projects, with twelve hours a week in each year for secondary courses in other disciplines – history, structure, construction, sociology, economics, and so on. The course-load in these early years is 28 hours a week, and we might prescribe a further 28 hours of work a week for the students. As you see it is a full-time course, we don't leave them much time to play. The last year has only 18 hours a week of class-work: 16 hours on projects and 2 on urban and architectural law. And the students have at least 38 hours of individual work, because, at the end, after the fifth year, we have an exam with a special jury that includes people invited from other countries; this is a public exam where the students are obliged to explain all the work they have done.

After this students can enter their names in the Order of Architects, after which they have to do one year of compulsory practical training supervised by the Order. They apply for this practical training and, when it is completed, they have to prepare a portfolio of all the projects they have done and from all the types of work they can do. Then, they may or may not have to sit a final exam, depending on whether or not their school is recognized by the Order.

We are licensed by the State to offer Master's degrees, and we have four Master's programmes. According to Portuguese law, these must be two-year programmes; the first year is elective, but during the second year the student must develop his thesis with a supervisor, and then there is a final exam. We have four Master's programmes: theory of architecture, technology of architecture, architectonic patrimony (this has to do with pathologies and intervention in the patrimony), and sustainability. We also have the capacity to offer PhDs, which according to our law requires five years, but I think that is too much. Most of the MAs and assistant teachers have already approved the PhD plan, and our supervisors are working on it.

recognize the programmes or degrees; this accreditation is carried out by means of panels, reviews, visits, and so on. Sometime in October or November we are going to have a new accreditation visit. The Order has no sympathy with the 3+2 system; they want the unified five-year programme according to European legislation and our traditional practice.

Concerning the list of competences, I would like to say that long ago the University defined five very generic competences: general knowledge of the field, theoretical and cultural knowledge of architecture, technical and practical knowledge, social and communicative skills, and self-management. I think that all of these competences can be included here because they are very generic.

We are the biggest university and the biggest school of architecture. There are several other private universities (the public universities have a *numerus clausus*, so they have a small number of students), but we have the biggest faculty with the most visibility in the field. At the end of the courses, and after the practical training, the new architects can work by themselves, or in enterprises, in municipalities, in central government, in construction – they have a wide field of opportunities. A survey made in the course of the most recent accreditation process showed that our graduates find jobs within three months of finishing; there is no unemployment among young architects. Portugal may be a small country, but there is a great deal of activity, and job opportunities are a question of self-management, I suppose. Thank you.

Loughlin Kealy, Dublin, Ireland

Thank you, Joaquim. I have more than one question for you. First, I would like to know whether the Ministry has any role in regulating your curriculum or is that done by the order?

Joaquim Jose Braizinha, Lisbon, Portugal

Yes, the Ministry is involved; in fact everything is controlled by the Ministry. In Portugal the Minister appoints commissions for each scientific area, to think about and to form our position according to the Bologna Agreement. The commission on architecture is headed by Dominco Tavares who was the Director of the School in Porto. He worked with people from all the different schools, and we were invited to propose a minimum curriculum and to comment on the single five-year programme; and then we have three months in which to propose a new curriculum, which the Ministry will have to approve.

Loughlin Kealy, Dublin, Ireland

OK. I have a linked question, which is whether the Chamber is also governed by law. The Chamber, the actual functions of the architects' Chamber.

Joaquim Jose Braizinha, Lisbon, Portugal

No. It is controlled by the order.

Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Tampere** School of Architecture

Juhani KATAINEN

Tampere University of Technology, Department of Architecture, Tampere, Finland

Introduction

The new university law and its statutes has now passed the Parliament and stands in order next fall 2005. Our students are selected via competitive system specially developed for our schools of Architecture. Yearly intake today is 120 students for three schools of Architecture. In the coming system they are selected for both phases: BA and MA. The students, who have started earlier, have right to study following the existing system. When changing the system after Bologna Declaration we found that our existing ways to study can be fluently adapted to the two-phase studies.

Only problem is the shortness of the whole, when also diploma work is included to the two years of Master studies.

Our students work while studying and we see this very important part of their studies. It is really difficult to simulate the Architects office work at school projects. Real life is better teacher in practice. Working has naturally prolonging effect to the studies; this has been so far accepted, although contrasting views have been lately expressed, mostly from bureaucratic sides. Our teachers have normally very close connection to the working life which also helps students to get good information about the Architects_ duties.

Bullit points

The Architects title is protected by law in Finland. Also our latest Building law defines more than before about the qualities, what has to be expected from those who design buildings and built environment.

Most teachers come from practise and they are practising also while teaching.

Most of our students have working experiences while studying.

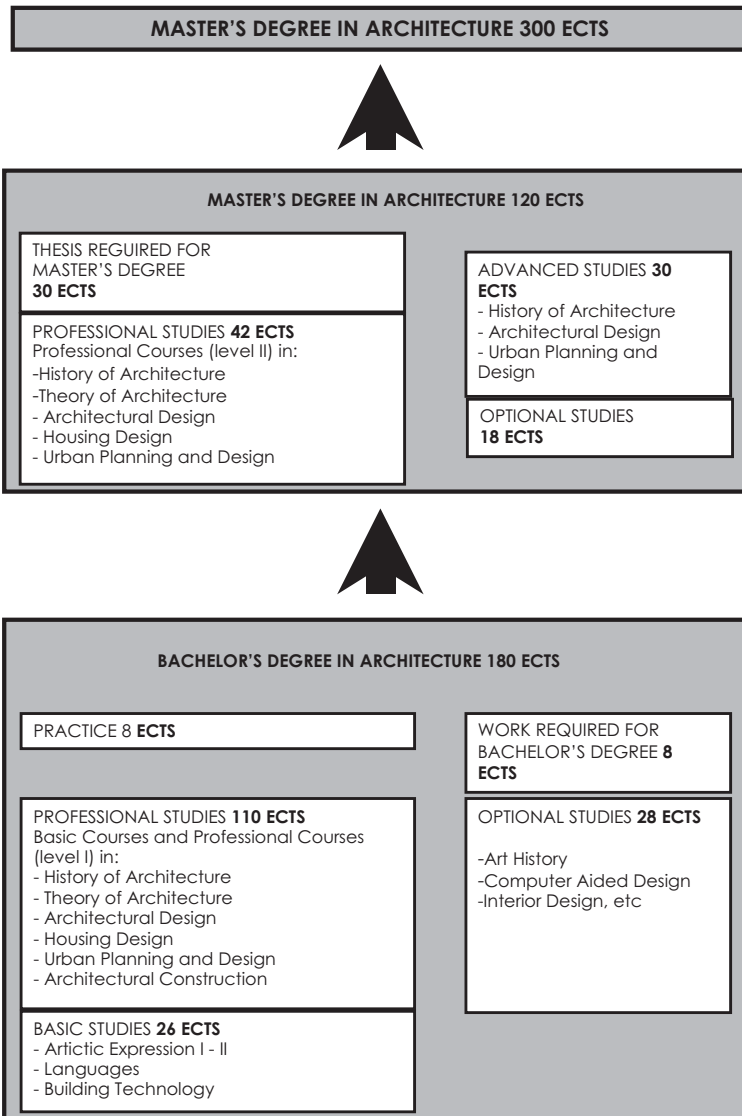
We evaluate our schools_ success via our students success in real working life.

We have (voluntary) register for the practising architects, to get registered one has to have three years practice after diploma.

The answers to the posed questions:

1. Our curriculum divides its time between:
 - Architectural Design
 - Urban Design
 - Architectural Theory and History, including repair, restoration
2. Five fundamental competences (the given frame as a whole is very good and it is very difficult to make a choice). My personal selection is as follows:

- ability to create architectural designs that satisfy both aesthetic and technical requirements.
- ability to recognize and use appropriately architectural theories, concepts, paradigms and principles.
- 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.
- understanding of the profession of architecture and the role of architects in society, in particular in preparing briefs that account for social factors.
- ability to work both with a high degree of autonomy and collaboration.



Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Torino** School of Architecture

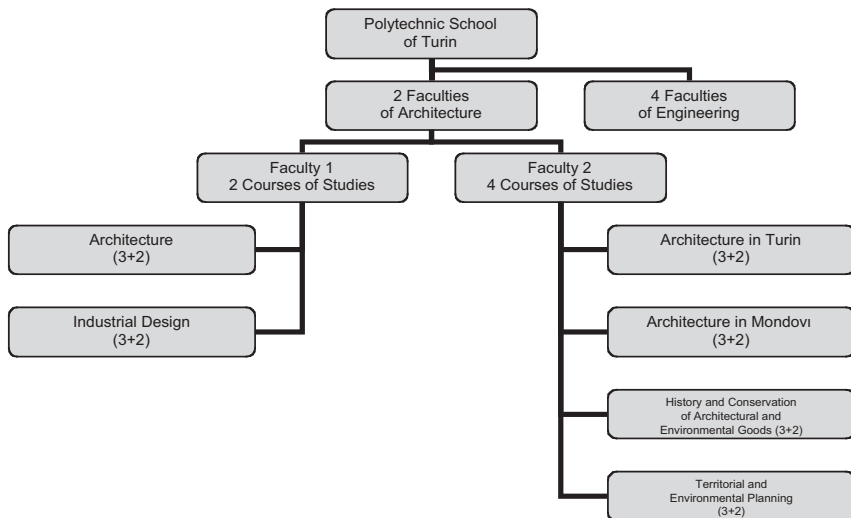
Guido Onorato MORBELLI

Torino Polytechnic, II Faculty of Architecture, Torino, Italy

Question 1

The *Politecnico di Torino* consists of 4 Faculties of Engineering and 2 Faculties of Architecture, at their turn subdivided in various Courses of Studies (Diagram 1). The *Politecnico* has now about 26.000 students (about 6800 of them in Architecture and 18.000 in Engineering) and 875 lecturers (201 in Architecture and 674 in Engineering).

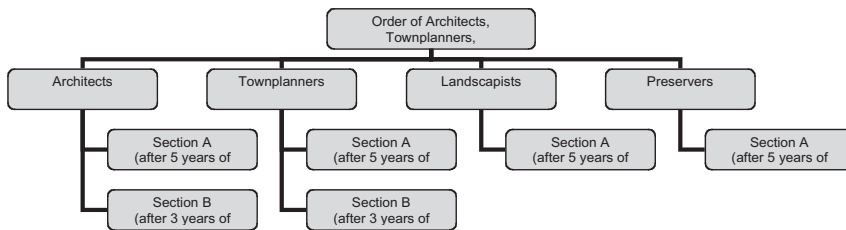
Many Italian Faculties of Architecture – the Torino one among the first - underwent, after the year 2000, the radical transformations suggested by the Sorbonne and Bologna agreements and introduced in 1999 - as an option left to the various Universities - by the Italian Ministry for Education, University and Scientific Research. The Architectural Profession was then obliged to adapt to them.



The old Faculty of Architecture of Torino, forming since about 75 years an architect capable of coping with the whole range of competences guaranteed by the Law, "from the spoon to the master plan", was split in two:

- *Faculty 1*, formed by two Courses of Studies - in *Architecture* and in *Industrial Design* - dishes up a "traditional" Architect-designer in the former and an Industrial Designer in the latter. The Industrial Design Course of studies is very successful (about 120 enrolments per year), but does not qualify its graduates (*laureati*) to any institutional professional Order. Faculty 1 has about 3500 students and 91lecturers.

- *Faculty 2*, subdividing its competences into *four* Courses of Studies: two in *Architecture* (in Torino and in Mondovì, a small town 80 km south of Torino), one in *History and Conservation of Architectural and Environmental Heritage* and another one in *Territorial, Urban and Environmental Planning*, qualifies (after a period of professional training and a State examination) to the various Sectors of the new-born (or, if you prefer, transformed and renewed) Order of Architects, Planners, Landscapists and Preservers (Diagram 2). Faculty 2 has about 3300 students and 110 lecturers.



Both Courses in Architecture qualify to the main Sector of the above-mentioned Order, enabling its members to perform any sort of architectural service, exactly as they have always been doing in the years before; the other two qualify to the homologous Sectors of the Order, enabling to make works of conservation or townplanning *only*.

In no Faculty there is, as you certainly realized, a Landscape course.

All Courses of Studies of the two Faculties last 5 years and have a 3+2 format, with 180 ECTS in the first 3 years (leading to the *Laurea*) and 120 ECTS in the following 2 years (leading to the *Laurea Specialistica*, the Italian equivalent of the European Master Degree). The 3-year courses are completed with the submission of a student portfolio, the following 2-year courses with the submission of a thesis.

Since the conservative and planning competences are largely cared in Faculty 2 by the above mentioned last two Courses (*History* etc. and *Territorial* etc.), both Courses in Architecture were more concentrated on a figure of architect-designer, characterised in their case by different approaches, relying on the presence in each Course of well qualified competences: the course of Torino insists on a kind of formation largely based on the teaching of History of Architecture and Building Restoration, while the course of Mondovì assumed environmental and landscape characteristics.

Both Courses in Architecture lead, after 3 years, to the *Laurea* and aim, interpreting the very vague expressions of the reforming legislation and of the ministerial circulars, to the formation of a minor technician with sufficient professional knowledge, employable in private professional offices or in the Public Administrations as a collaborator, not as a full architectural designer or as an executive. The 3-years *laureati* in Architecture (as in Territorial, Urban and Environmental Planning) can enter the corresponding Section B of the Order of Architects etc.

The Specialized Architect (attaining his *Laurea specialistica* after the 2 years of studies following his *Laurea*) of Torino will carry out design tasks at any level: new buildings, architectural restoration, urban design, general and detailed plans; it will also be possible for him to teach in the secondary school or to try the academic career.

The Mondovì architect will carry out more or less the same tasks of the Torino one, but with a special interest for environmental and landscape problems, such as bioclimatic architecture and landscape plans.

In order to complete a possible landscape vocation in *both* Courses (Torino and Mondovì) was instituted, in association with the Faculty of Agriculture of the Torino University, a *Laurea specialistica* in "Garden Design" (*Progettazione dei giardini*) which, with the exchange of 25 ECTS (on 120) between the two Faculties, will form a Landscape Architect accepted in his special section of the *Ordine degli Architetti etc.* Our students willing to enter this Course must follow a "green path" in the first 3 years.

The link of our Courses in Architecture to the "social demand" should be assured by the so-called "Club of Institutions" bringing together all Institutions of the civic society (such as Local Administrations, Chamber of Commerce, relevant industries, Trade Unions etc.), which should meet once an year and advise our Faculty about the adherence of its Courses to the real word.

Question 2

We hope that the five fundamental competences and skills that our new school curricula ensure to our graduate are:

- in both Courses in Architecture: N. 1, 10 and 11;
- in Torino: N. 2 and 13
- in Mondovì: N. 8 and 9

Question 3

Our new school curricula should ensure these competences and skills in terms of:

- Related subject areas in both Courses in Architecture:
 - N. 1: Courses of *Architectural Design* and of *Science of Constructions*
 - N. 10: Courses of *Building Technology* and of *Applied Physics*
 - N. 11: Courses of *Surveying* and of *Sociology*
- Related subject areas in Torino:
 - N. 2. Courses of *Theory of Architecture* and of *History of Architecture*
 - N. 13 Course of *Architectural Restoration*
- In Mondovì:
 - N. 8: Courses of *Town Planning* and of *Town Design*
 - N. 9: Courses of *Landscape Ecology* and of *Botany*.

Loughlin Kealy, Dublin, Ireland

Thank you, Guido. That sounds like a very complex system, and we will look forward to reading the proceedings, when we might find it easier to get a grasp of the whole picture. I certainly get the impression – I don't know whether this true or not – that in the principal courses in architecture they would lead to a registered architect in the full sense of the word, whereas the more specialist courses would have a more limited registration, would that be correct?

Guido Morbelli, Torino, Italy

Our profession is protected by the Ministry of Justice, which controls all the professions in Italy; but, as far as teaching is concerned, we depend on the Ministry of Education. As I said, one can enter the profession only through a two-part state examination. There is a written part, in which the candidate has to prepare a summary of a building design (in one day), and an oral part. There is also one year's compulsory practical training.

Competences Related to the Profession(s) that 'Emerge' from Architectural Studies at **Trondheim** School of Architecture

Are Risto ØYASAETER

Norwegian University of Science and Technology, Faculty of Architecture and Fine Arts, Trondheim, Norway

I would like to give you a short review of the context I come from. Three years ago our school of architecture was reorganized as the Faculty of Architecture and Fine Arts, one of seven faculties at the National University. Apart from us there are another two autonomous architecture schools in Norway. We have about 70 undergraduate students and approximately 30 PhD students. I think there is a movement now for our school to strengthen its co-operation with the Fine Arts department.

The university practices a very strong interdisciplinary approach; this is something that we find very interesting, and are taking an active part in shaping and implementing. Another current tendency in Norway is quality reform, which is something new within the university system, and which emphasizes the learning process: instead of emphasizing content, we emphasize the best way of conveying the content to the students. And, as you said, this session was called learning outcomes, which essentially means the kind of students we want to produce.

I think that this is an important issue in discussions about architecture education, because if we managed to remain as a separate faculty when they reorganized the university it was because they recognized that our way of teaching is often very different from that of other disciplines in the university; and in that sense I think this is something that we should be very aware of when we talk about teaching architecture. Another characteristic I would point out is the relation between the profession and education. In the Nordic countries – I can only talk with certainty about Norway – there is no form of qualification demanded from the profession; this is part of a long tradition of basing the contact between education and the profession on trust and on a very close relationship, and there is no desire on the part of the profession for professional accreditation of the education we provide.

I think that it is an interesting task to consider how education and the profession base their cohesion on trust. Speaking of our curriculum in relation to competences with regard to a profession that is constantly changing, I would say that we have a very clear differentiation between the first three years, which are compulsory, and the two final years, which are optional and offer greater thematic freedom. We want to provide a solid base in the first three years through architectural design, to ensure that the basic skills are there, and that is the main goal of having a professionally oriented approach. I think that the competences are ensured through three years of studio training in architectural design as the basis for later differentiations, and I want to point out that we believe that studio training and its proportional share of the curriculum are a very important part of building up professional skills.

It is interesting to note that when you are part of a university this creates a structural difficulty, because we tend to look at our curriculum from the point of view of studio teaching, which causes problems when you start to make interdisciplinary connections – it is a structural problem, which really has nothing to do with content.

To ensure these competences we teach design studios in the three first years, when the students are taught by teams of teachers. They have to work together in groups comprised of architects, artists, engineers, and sometimes sociologists, the idea being to assure a professional approach through architectural design. Contact with the profession is also ensured by having practicing architects teaching in the faculty – we have a pretty strict tradition at our university that people are hired for life, but we are trying to loosen that up in order to be more open to the profession.

We have external examination from the profession on every course throughout the five years, and our thesis or diploma programme is based on individual diplomas in which programming and methods are important elements that the students develop individually. Our reaction from the profession is that they support the diversity in the choice of diplomas or themes that the students work with, and they think that one of the most important things for the school is for it to support an innovative approach in thesis work.

With regard to question two, where you wanted us to indicate whether there is something that is missing from the lists or something that we emphasize, I think that what characterizes our education is competence number 5, which is knowledge of the fine arts as an influence on the quality of architectural design; this is taken care of by artists working in the integrated studios I mentioned earlier. Then, after contact with the profession, I think that we emphasize awareness of the potentials of new technologies, and in the curriculum of the first three years we are trying to reinforce and more fully integrate this element.

An illustration of this integrated way of thinking is that we wouldn't consider a sustainable approach successful until it included the whole spectrum from technology to fine arts. Next, I think, is point number 20, the ability to engage in self-managed and life-long learning. This is an approach that we try to teach to students: they meet every year with the profession, and they meet the profession in relation with the diploma at the end of their course. Another point is awareness of the need for continuous professional development; but, as I said, there are no formal requirements from the profession.

I would also say, concerning this pedagogical approach, that we try to emphasize the way we have organized the faculty. The groups are always organized with practicing architects and very academic, research-oriented people, so that means that we no

longer have a clean group of technologists or historians, but that they are organized in groups, in the organization too.

Loughlin Kealy, Dublin, Ireland

OK. Thank you very much, Are. We have come to the end of the contributions from our panel, and we have a few minutes to spare. Are there any questions for clarification purposes from the participants here? We will obviously return to this discussion later, but I'll take some questions now if there are any.

Roger Liberloo, Limburg, Belgium

I am interested in some more figures from the colleague from Trondheim. I understood that there were 70 students, but are these first-years or...?

Are Risto Øyasaeter, Trondheim, Norway

Excuse me. 70 students are taken into the first year, so that makes approximately 350.

Roger Liberloo, Limburg, Belgium

And how many staff members are there?

Are Risto Øyasaeter, Trondheim, Norway

50.

Loughlin Kealy, Dublin, Ireland

OK. Are there any other questions?

Manuel Nicolau Costa Brandao, Porto, Portugal

I didn't really understand how the last years function at the school in Trondheim. I understood about the first three years, but not the two final ones. You said they function with options? Could you just explain this to me in a few words?

Are Risto Øyasaeter, Trondheim, Norway

The three first years should ensure the basic understanding of architectural design, and then in the last two years the students can choose their courses, but it is still studio teaching. But we have worked on the pedagogy of those courses; so we offer courses where you work as if you were in a professional office, meaning that all the students work on one solution. Another extension, the converse, would be an artist course where everything is open, but it would still have to have an architectural focus.

Discussion

Coordination by

Loughlin Kealy, Dublin, Ireland

Loughlin Kealy, Dublin, Ireland

Just to resume where we left off, we have heard some very interesting presentations, which if anything, I suppose, illustrate the differences as opposed to the commonalities. I think it would be worthwhile to step back for a moment. We are reflecting on the questions of competences and outcomes, and we know that they range from certain abilities that we can define and certain skills that can be acquired; but, I suspect, they also cover attitudes of mind, ethical positions, and so on. These are all tied up with the kind of outcomes you might expect would come from the process of education. As regards the professions we are aware – and we don't really want to labour the point – of the differences between professions in different parts of Europe and in different jurisdictions and so on; but it is clear that there is a relationship between the legal basis on which professions exist and in which architects practice and how those things are interpreted and responded to within various programmes of education.

What, I suppose, is also implicit – we haven't talked much about it at the moment, but the question emerges from architectural education – is that there are clearly some things that can be explicitly taught and other things that are learned rather than taught. And people have chosen learning-teaching situations that they anticipate will give rise to certain skills and competences. What crosses my mind when I listen to the range of contributions here is that, inevitably, we are looking at the social responsibility of schools of architecture.

Architecture, no matter how we look at it, is a public activity. Sometimes it is supported or governed or controlled by state law, in other cases it is not; but either way it has a core place in our own culture, in our own civilization; and to that extent schools of architecture have a very crucial role to play. To me it raises the question of how one comes to a view of how well one is doing one's job. And we have heard some different viewpoints here: people who feel that their school or their teaching is so integrated in the architectural profession that there is no need for formal methods of assessing how well they are doing, whereas in other cases assessment methods are formalized, and in some cases they are overseen by the state. In our own case, our assessment methods are overseen both internally and externally, and also by the professional body. So there is a great deal of variety in that respect.

Just by way of background, Constantin, in his first presentation at the beginning of this meeting, referred to a small sample survey that Lawrence Johnston had conducted. It is in the context of the United Kingdom, where, as you may know, the relationship between schools of architecture, the architectural profession and the state is very formalized; and this questionnaire, which was distributed to a number of practices, simply asked a couple of questions. It asked them what they regarded as the key competences from the list that you saw, and it also asked them how well they thought the schools were delivering them.

These questionnaires are great fun to look at, because you turn up all sorts of interesting things. Now, although I haven't had a chance to analyse them, I thought we could pick out a couple of things that most of us would agree were important learning skills and outcomes from professionally orientated courses, such as, for example, students' ability to work autonomously and also to work with others – you know, this interplay between autonomy and collaboration. And it is very interesting when you see what the practices think: there is a huge difference between how highly the practices rated those abilities and how they see the schools delivering them. If we look at the area of personal, social and communication skills, through writing, speaking, sketching, and so on and so forth, again there is a notable shortfall, but perhaps not as dramatic. And perhaps one should expect that professions always feel that the schools are falling short of what they require. If we look at a core thing like students' abilities to work with a synthesis of forms and ideas and so on, which again we would think of as fairly central to our education, there is a shortfall but it is not dramatic, and practices are probably reasonably content. But if we go to more professionally oriented skills like decision-making, management, and so on, there is a complete difference between the importance that the practices attribute to these kind of skills and what they feel the schools are delivering.

What can we make of these things? It is only an initial and very simple study; but what it perhaps does show is that other people may have very different views of what we are doing from our own; and this, I think, puts a very high premium on feedback and communication, whether formal or informal. I am sure you have plenty of questions, but I would certainly like to see us address this question of how good the connections between the profession and the schools are.

Gunnar Parelius, Trondheim, Norway

I think we need to go back to a very basic question, because we need to understand why it is that we sometimes don't understand each other; and I think there are some basic things that get in our way. I think it has to do with conceptual thinking as opposed to what applies to art and to recognizing art, recognizing a man, recognizing beauty, because you recognize them even if you can't define them. But with conceptual thinking you are just setting the borders of what is and what is not; you're not really concerned with the core qualities that you recognize in a man.

This also has to do with the trusting part: if you really recognize someone you are also able to trust him. Trust is not based on a checklist, being able to check off all the items and define the limits of what makes a man, or a politician, etc. Checklists are fine if you trust the people you are speaking with and you use them as tools for conversation or dialogue, but in the conceptual way of thinking they become a means of control. Then all you can see is whether all the parts are there, or whether something is within a border or not; you're not really trying to recognize if you are meeting an architect or a man or seeing beauty.

There is an influx of conceptual thinking into our discipline and I think that this confuses us. We need to go back to see what we are really doing, because what we are making are things that we are not able to pinpoint. We are able to recognize them but not able to pinpoint them via checklists. The problem when you use checklists is that you don't get the singularity of each person you have to recognize, or each architect you have to recognize as an architect. You don't see that each individual instance really has its own

set of criteria and that if you make a preset list of criteria you lose out on this singularity and the importance of this other thing being there. You merely get this dull kind of normality of thinking that gets you down to the basics, which is barely enough. You get a leveling down of the really important things, down to the outer limits. So we really need to think about how we handle concepts, how we handle recognition and how we handle trust before we lose the key element of our discipline.

Loughlin Kealy, Dublin, Ireland

Thank you. I always think that trust is a two-way process, that has to be worked on all the time, and it is also very important to be able to listen very sharply. I think there is an important issue here, how trust is maintained and built particularly when the pressure is on.

Juhani Katainen, Tamere, Finland

I would like to take an example of the issue of trust. If I heard correctly yesterday, in Holland they are going to drop the financing of the second period of architectural studies. This, if it is true, is an example of mistrust of the profession, because we all know that those five years are necessary. So maybe Aart can tell me whether they are really going to do that, because if they do then we are on loose ground. Not very long ago in Germany the politicians were trying to put the schools back to the three years and were saying that was the maximum they were going to pay for, whether anyone liked it or not, but the graduates would still be called architects. So this is a big question of trust; and if we're losing it we should earn it back and we should be very adamant on this issue. And also, we could use this meeting to send a message somewhere if it's needed, either now or later on. Thank you.

Aart Oxenaar, Amsterdam, The Netherlands

I think that as far as the financial question is concerned we are not threatened at all. Our Master's programme is fully financed, and will be. I don't know about the universities, except that there has been some discussion, but I know nothing about any law that would cut the finances for university Master's degrees, so I don't quite know where the remark came from. Unless Kees has something to say?

Kees Doevendans, Eindhoven, The Netherlands

Well, the finances will not be dropped totally but it's clear that in the universities most funding goes for research, so if there is no research in the Master's phase then there is almost no money. It's also a fact that tuition fees for the Master's phase will be much higher than they are now so that the students themselves will have to pay a lot more money for their studies. That's the mechanism inside the universities. There is a tendency to consider research as much more important than education, and education merely as a spin-off of research.

Aart Oxenaar, Amsterdam, The Netherlands

May I try to bring the discussion back to our theme, which is the relation between education and practice? In my presentation I raised the point of the role of academic training in

the practice of architectural or urban design or landscape architecture. Do we think that the 3+2 system offers any room at all to prepare students for the practice of their profession? I understood from the remarks from the table that we do not. We have relations with professions, and in education we reflect on it, and we have contacts; but as for specific training for the practice of the profession, we just don't have the time. Many countries have now instituted systems requiring one or two years of practice before you can be registered as an architect or formally receive the title.

The next question is whether each of us as individual schools want to be crisp and clear on this and say that 3+2 is training in architecture and that a specific additional period is necessary to become a practicing architect, a professional. Then the next question is, do we leave that to the profession? Do we say that it's up to the specific architects associations in each country or to the state to come up with rules, systems, regulations, exams or however they want to do it? Or do we think that we as educators also have a role in the period that leads to being a fully licensed practitioner? I think that could be an interesting question for us to discuss, especially since this is the trend in Europe. You see different regulations: the British are pretty crisp and clear on it, other countries are less so. Holland is in between - we are halfway between two systems. I hear Denmark is thinking about it. So, this could be a moment for us as schools to discuss our relationship to this "part three", as some call it, and our role in it.

Loughlin Kealy, Dublin, Ireland

OK. Thank you for that. But while I'm quite prepared to concede that we need to refocus every so often, there were issues raised in the previous questions that are also relevant. And I would like to say that in some cases the relationship you're talking about is actually very clear, and I don't accept the kind of dichotomies that you present, I think there are different paradigms of architectural education that we're learning about as we go on.

Herman Neuckermans, Leuven, Belgium

I have a remark and a question. The remark is about the reference to the inquiry in the UK. I have no objection to this kind of procedure, but I would frame it into the wider problem of validation, that is, seeing what competences you claim your graduates have and then afterwards using this as a means of checking whether they have them or not. And this – and this is important, I think – is not just an issue for the practitioners. To some extent or for some questions, maybe, but I would not leave it to the sole judgement of the practitioners.

That's my remark. My question is for Aart, because of the whole panel, in my opinion, the system you presented obviously had the strongest connection between education and practice. And if I understood correctly, half the time or half the credits your students require for a Master's are devoted to practice. My question is, how do you handle the fact that on the one hand your students are already practicing architecture while on the other you are still teaching them? What do you give them that they do not have? How can you co-ordinate these things? Are you repeating what they have already learned? Probably not, but how do you organize the academic education of people who already learned much from actual practice? In the other examples these things are less easily distinguished, because they are mixed. The argument of the others is that they include aspects of professional practice in their academic training, but in your case the two things are clearly distinct. So how do you deal with this distinction?

Aart Oxenaar, Amsterdam, The Netherlands

Let me first be clear that what is taught in the practice period is not part of a normal Master's programme. We give the normal 120 ECTS points for the Master's programme, spread out over four years. So we have, in fact, a full-time four-year Master's programme, of which two years are spent in school, following an academic curriculum, and four years are spent in part-time practice, since you cannot have an eighty-hour working week. So we demand twenty hours of working practice- actually you usually work four days- and we demand twenty hours of working in school.

As I explained in my presentation the way this works is that you can do it consecutively: first two years Master's and then two years of working in practice to obtain your license. We do it consecutively, because we strongly believe that it is a very good thing to have a synergy between working practice and academic learning. In fact that's the way architectural training started - in the 16th, 17th, 18th century it was all working from practice, architectural apprenticeships.

And as I explained, what we see happening in practice is that our students will have a Bachelor's in Engineering, with a concentration in architecture or urban planning or landscape design, and they will start out as draughtsmen in architectural offices, performing basic tasks. In other words, they follow in reverse the whole system of sketch, preliminary design, design, and final drawings. They won't start as a full-fledged architects in their first year of working, but will probably start on final drawings and work their way back to design. The training is mutual, so in that sense it's a synergy and not an opposition.

Richard Foqué, Antwerp, Belgium

I want to make some comments and observations from my own experience, which I think may broaden our discussion this morning. Before my academic career I was the founding partner of a rather large architectural firm, where, of course, we saw a lot of young people from different schools and different countries. When you are looking for a new collaborator - and I suppose this the case in most architectural firms - you usually tend to look for certain profiles. Maybe you are looking for someone who is very good in conceptual thinking or conceptual design, maybe you are looking for a more managerial type of collaborator, maybe for a more technical one, and so on and so forth. And that's exactly what I think is important and what makes it so difficult to get a unified kind of competence for architectural education. I also don't think that it is the right thing to do, because the "ideal architect" is an impossibility - what we call in Flemish a "white raven".

I think that it would be a good idea for schools to focus on certain competences and work on them, build them up to a highly elaborated, professional and scientific level. This would also encourage the diversity and the richness of the different schools in Europe. For as I discovered in my own office there is a rich variety just among the Belgian schools, and I knew exactly that for a specific position I should have someone from this or that school. And I think it's important that every school should do some thinking on that level and ask itself what it can offer. Because I think that as a school you cannot offer everything in relation to practice. And, of course, you have various means of doing it. You can have case studies, which is a fantastic way of dealing with it, I think, or you can have professionals on your juries, and so on.

Aart Oxenaar, Amsterdam, The Netherlands

You said that you know that for a specific task you want someone from a specific school. Can you try to identify what makes the difference between schools? Why is it that one school apparently trains a certain type of architect and another school another type? Is it something in the programme? Is it in the tradition of the school? Is it in the teachers? I would be very interested to know what the differentiating factor is.

Richard Foqué, Antwerp, Belgium

I think it is in all those levels and I think it is very difficult to distinguish where exactly. Of course it's in the programme, of course it's in the courses offered, of course it's in the teaching staff and in the profile of the school itself, in the mission statement and so on; but it's multi-layered, I think. And you will obviously know the situation in your own country better, you will know the profiles of the several schools almost intuitively. This, of course, is more difficult when you are looking at it on the European level, but it should be possible to be more explicit – for example, each school could do that in its mission statement.

Christian Huetz, Regensburg, Germany

I would like to comment on something Loughlin said earlier about the connection between schools and the profession. I think that this is a very serious question and I have one answer, which is perhaps a bit provocative. There are people who say that the moment the graduate of a school can no longer be used in a bureau then the school will have gone a step forward... Well, I think he's got a point. If you focus only on practice, as they do in the Fachhochschule that, I think, is a real danger. Because if you focus only on practice then where is the liberty of teaching? Where is the liberty of learning? Where is the innovation? Yesterday we talked about research and innovation: what happens to them if you think only of what has to be done in the office, what has to be done in the practical placement? This I think is something very serious and very dangerous.

Loughlin Kealy, Dublin, Ireland

Thank you, Christian, that's a very clear position. I can just imagine the response of some of our professionals to the idea of useless students being a step forward...

Christian Huetz, Regensburg, Germany

I'm sorry, I didn't mean useless students, I meant just the opposite. Students who are all graduates, who are really thinking in an architectural manner.

Dimitris Kotsakis, Thessaloniki, Greece

Our problem today is the education of the architect and not education in architecture. But in order to deal with the content of the problem we first must put it in context, because no problem exists out of context. Loughlin mentioned three aspects of this context: social responsibility, architecture as public activity and quality assessment. I will add a fourth point: the autonomy of higher education, freedom of thinking. Now, how are these four things related? If architecture is a public activity, then the responsibility is social and that means an integral social responsibility to society as a whole and not to a practice, an

office, or a particular group of interests in society. So these two aspects are intimately related: architecture as public activity means social responsibility. This in turn means quality assessment, which has at least three levels.

The first, and deepest, level is the university, the education and self-assessment of the educator, who is responsible directly towards society as a whole. Then there are the professionals and, finally, what we call "the state". (This is a serious problem in the European Union, because the "state" is represented by a bureaucracy, so that on the third level the EU member states are dealing with a bureaucracy, but we not discuss that now.)

Now, if we take this as a problem of assessment, we come to the fourth point in relation to context, that of the autonomy of higher education, which means the freedom of thinking and which also means that the responsibility towards society as a whole is assumed by this higher authority in education. In that case the two other assessments, the professional assessment and the state assessment, are inferior because otherwise there would be no such thing as freedom of thinking and no such thing as assuming the responsibility towards society as a whole. Instead, you get responsibility towards the profession or towards one class in society or towards one group of interests.

So that's the context. Now let's look at the content. The content is the relation between education and practice. I've heard the phrase mutual trust, which is a very good phrase, but I do not see any mutual trust. Take the example of external examiners. There are external examiners in every studio, and they come from the profession, but you don't have educational examiners in the professional practice. Each studio in the university has an external examiner, but each office in the practice does not have a teaching examiner, which means that trust is not mutual. So it is a unilateral trust: the university trusts the offices, but the offices do not trust the university. This is not the function of an institute of higher education. It is the function of a lower institution, a servant institution. Now if we are here as servants, then that's all right, we have to be obedient to our masters. If not, we must demand mutual trust, and we must demand mutual trust in all respects.

And there is another question about content. If the university professors who teach design are practicing architects, as they are in many countries, and they are protected by law as both practicing architects and university professors, then the question of obedience becomes double. In this case the university professor is not only obedient to the profession as a professor but also as a practicing architect. So not only is he not free, but he is doubly a servant, both as teacher and as practitioner.

Loughlin Kealy, Dublin, Ireland

Thank you. I'm not sure how this relates to the relationship between academia and the profession in quite the same way, but I take your point about symmetry of trust.

Gunnar Parelius, Trondheim, Norway

I have a remark to make on the dissymmetry of mutual trust. I think that many of you use external examiners, but they don't decide the curriculum, they don't decide what each subject or course should have as its objectives: that's up to the university or school. So I state this only for the sake of discussion. The use of external examiners may be a good starting point for a discussion on how we should draw up our curriculum and maybe change it. But external examiners are not there as a way of recognizing or controlling the curriculum.

Patricia Ruisch, Amsterdam, The Netherlands

My question is perhaps for Gunnar Parelus, in relation to the previous speaker. I was wondering whether centres for architectural education could become centres for lifelong learning. Why should we stop when we have our diplomas and have entered the professional world? Why shouldn't we come back? I'm asking you because you are the only person who mentioned life-long learning, and I was wondering whether in your school there was some thought about having professionals coming in and wanting to know about new architectural ways of thinking, or techniques, or anything else, and not only as examiners?

Gunnar Parelus, Trondheim, Norway

We already offer courses of this kind, called "post-education courses", where professionals can come back to the university and continue their education in certain fields. This relationship between education and the professional body is part of our life-long way of thinking. I would like to add that since Norway is a small country, with few people, the schools and the profession have always been closely linked; but in response to the greater diversity of today's society there has been an initiative from our professional body, which has developed a half-year internship system where students can elect to go out and practice for half a year. This is offered as a means of facilitating the transition from academic training to professional life, because that includes changes like strict time-limits and economy, and they have recognized that need. This initiative is not intended as a means of accreditation on the part of the professional body. Thank you.

Heiner Krumlinde, Bochum, Germany

First of all, I would like to swear to you that there are no German schools with a three-year architecture programme.

To continue: for us, the most important word in the stated theme is the word 'outcomes'. This obviously depends on actual developments, what an architect will be doing once he has finished his studies. When I was just starting out, it was useful to be a school architect because there were a lot of schools to be built. Some years later it was good to be a hospital architect, or an airport architect, but where is the demand today? I think that today the demand is for people who have a lot of specialized computer skills and other competences that are outside our primary disciplines. So while this 'three-plus-two' system is producing the kind of building technician we used to have in Germany, it is only the 'two' part that enables him to be an architect.

I think that what we have forgotten in our meeting is to include someone from the other side. We are all here speaking as architect to architect, so we know everything we can about what the demand for the future will be; but there are surely others – clients, people with a better view of cultural demands, people who are more conscious of the social aspects – who have a broader vision that we have. An architect cannot be the master of all disciplines but he must be able to get into different disciplines, to sustain a dialogue with specialists, to be able to adapt his efforts to changing demands. I think the best way is to help architects become the kind of people who can initiate discussions with specialists from other disciplines.

So in Bochum we have created a Master's in media and management in architecture, for people from different disciplines, with some years of practical experience, who ultimately

will be better equipped to bring architecture to the people and the people's demands to the architect. I think this is a very remarkable point for the future, to ensure a better and more secure position in the future for the architectural profession. The other thing I want to say is that in our opinion the 'generalists' who have chosen their own subjects and specializations are the best basis for future development. It is not good for all schools to be specialized in a very narrow field, producing specialist architects: it is better to have a 'generalist' architect, who is competitive for his region, for his culture and is a modern person. Thank you.

Nicolau Brandao, Porto, Portugal

I would like to make a contribution to the theme of context and the theme of trust. I agree absolutely with what has already been said about it, but the Portuguese situation is even more dramatic. In Portugal less than five percent of building - I will mean the architecture, not the actual construction - is done by architects or even with any input from architects. So the professional organizations are not strong enough to have a social influence. All the professionals want, all the employers want, is someone who doesn't think too much, who isn't too concerned with culture, with education, with aesthetics, or even with human needs. They simply want someone to sign a paper for them and to do what they want done, so that there is no trust at all between the schools and the employers.

Also, strangely enough, we probably have more schools than most other countries in Europe - I think we have twenty-four of them now. Why? Because architecture became a fashion for students. And there are schools that treat it as a business, that produce people to put signatures on pieces of paper for the builders. So this is all very easy, and if we go along in this way with the Bologna Process as they want to, this would be acclaimed in many schools of Portugal. Fortunately the professional bureau that supervises the profession is very suspicious and doesn't trust schools either. But, sometimes, unfortunately, they have to put them all together in the same basket. So we teachers and deans at the older schools, who think in the old way, are being pushed against the wall to some extent, and things are very, very difficult. That is all I want to say for now: I just wanted to remind you that there are some very special situations.

Loughlin Kealy, Dublin, Ireland

The last speaker has raised the question of there not being trust, and certainly, I would think from my own situation that the trust between the general public and the professions is quite often strained. There are plenty of examples of people who have been increasingly prepared to take losses and to challenge pressured decisions in court. I also think that there is increasing evidence that the trust between the general public and academia is also not to be taken for granted. So there is a question, I think, looking at all of this as different relationships, of how one can create a climate where schools are actually free to exercise their expertise and meeting or trying to provide a curricular context that meets the demands that society is making.

I think that this is a serious challenge, whatever the type of society one is living in. I would also take the view that most countries now are going through quite a bit of change - if I was describing the situation in my own country five or six years ago it would be a caricature of what the situation is today - and values change quite quickly and demands for services change quite quickly as well. And that to me means that if one is to be prepared to meet

the legitimate demands that people have, then one has to think a little bit ahead of the situation one finds oneself in now.

Dimitri Kotsakis, Thessaloniki, Greece

A point about life-long learning. There are two paradigms. The first is the computer paradigm, which means hardware education as opposed to software education. The hardware is nursery school, primary school, secondary education and a Bachelor's degree, all of which contribute to creating a person. And then the software is what we call flexible specialization, which changes every four years. So, in a way, it's like drugs: you take something in the university, you get out, and then you come back to the university and take the new brand of it. This, then, is the computer paradigm, so commonly put forward these days. The second is the human paradigm of life-long education, which means two things: there is learning to learn, which starts from a very sound and broad, general, first, deep education, and there is the life-long learning for which you yourself come back on your own responsibility. I just wanted to note these two paradigms of life long learning.

Marvin Malecha, Raleigh, USA

It's always difficult to follow Dimitri, but I'm going to try. The first point that I'd like to comment on is relative to the balance of trust. In the United States I sit on two fairly important panels between educators and practitioners. One is the 'Large Firm Round Table', which is comprised of 35 of the largest architectural firms in the United States and has a history of employing about 75% of the graduates from schools. We meet on a regular basis and discuss what the issues are in their offices versus what the issues are in education; it's actually quite an interesting council.

In fact, at the last 'Round Table', one of the gentlemen from the south offered an interesting proposition on the nature of trust. It's sort of a southern saying so bear with me. It has to do with the nature of breakfast. When the chicken and the pig come to breakfast, he said, the chicken has an involvement, while the pig has a commitment... And, I think, the nature of what happens to many practices is that they see educators as involved with architecture and the practitioners as committed to it on a survival basis, and hence the lack of trust. Now interestingly enough, if you invited one of the better members of the 'Large Firm Round Table' to talk about what they wanted from a graduate, it would not be very different from what Dimitri just articulated. In fact, they don't look for specific software education; they don't look for specific skills, because they all have practices where they do that themselves.

One of the most significant developments happening in the large practices in the United States is that each large office has its own in-house school. I was recently at a presentation of an office by the name of Freeman & White (and by the way they offer many of their courses on their web-site), who had recently received recognition for having the best in-office teaching programme. (They call it the Freeman White Academy.) They spend almost 2 million dollars a year, and they have a curriculum as substantial as many architectural programmes teaching their own employees. And their point is that they want people to come to their office who know how to continue learning, who have an idea about the value of practice, in fact, in many ways very similar to what Dimitri just talked about.

The biggest problem our school has with offices is with the small firms that do not have those capabilities at hand, and who are expecting individuals who can sit down on day one and do what we in the United States call 'billable work'. So this is a difficulty, and it is perhaps one of those areas where we as educators need to respond to domains of knowledge rather than specific issues, so that somebody can leave school at least exposed to domains of knowledge. I realize that this is an American perspective, but how schools involve themselves with how offices are teaching in the office may in fact relieve a lot of these issues. And we have started to build relations with RTKL in Baltimore, with Freeman & White, with SOM, with Genstler, all of which have in-house teaching programmes where they find the involvement of professors with them extremely valuable. So in some ways, what Dimitri is talking about is, in fact, I think, a picture of the future, at least in the United States.

Juhani Katainen, Tampere, Finland

Coming back to the question of trust and the issue of social responsibility, I would like to add one more phrase to the table and that is consumer protection, because although we are not going to deal much with that here, it is heavily used by EU and national legislators in formulating their programmes. I know that it is used a lot in Britain, where you can invoke it as solid grounds for your demands. So this is actually as important a phrase as life-long learning. Thank you.

Herman Neuckermans, Leuven, Belgium

I also want to comment on the problem of trust and distrust, and on the symmetry of distrust. I don't know what the solutions might be, but maybe life-long learning, first as an attitude and then perhaps in practice, by coming back to the schools, could be a start. But I think we should be focusing on the opposite end of the picture, on the secondary schools. In my opinion, every single person should learn something about space and quality of space, because many of these people will become builders, and they should at least be aware of some of the qualities of space.

I can foresee that the secondary schools will say that this is already included in their programme, perhaps in a basic course on the history of architecture, but in most schools this is taught by art historians who only teach the history of styles, and that, for me, is perhaps the weakest point in modern architecture today. I think that the focus should be on quality of space, and that every person should be taught something about it. And while I know that ethical attitudes can change in the course of life, and that we don't give them too much thought, except as we are required by law, but at least we as educators should do what we can, and I think that the forthcoming programme of the EU fortunately focuses on that aspect, not specifically for architecture but on the secondary schools.

Frank Delmule, Ghent, Belgium

I wonder whether, if the community ever stopped wanting architecture, we would stop teaching architecture? I think we form a specific intellectual with a specific dynamic mind, and I think that our schools are a vehicle for realising that.

Loughlin Kealy, Dublin, Ireland

You wouldn't like to risk answering your own question, would you?

Frank Delmule, Ghent, Belgium

I think I answered it within the question... it was a rhetorical question.

No, I think that we can't stop teaching architecture because it's fundamental in a community, but what I see now is that society doesn't really want architecture. Architecture remains in the neighborhood of the community, but not within its heart. And I think that is why that they don't finance it so much, because in effect they don't want it, they just tolerate it. But I think that as schools we don't have to worry about type; we have to continue to form specific intellectual professionals other than doctors and the like. That is what an architect is, a specific mind, a specific dynamic mind, and that is our job.

Per Olaf Fjeld, Oslo, Norway

I think it's important that we don't create this gap between the profession and the educator ourselves. It's a natural, positive gap that will always be there in some way. We can broaden that gap by arguing that it is so difficult, but it is not necessarily so. It is not so difficult if you take away the idea of genius, when you understand that both parts have a limitation, like any other type of profession and to understand that it is a common limitation. I think it is also the essence of a certain type of awareness of what we do. If we are able to state that awareness I think we will also have the capacity to strive for a certain type of precision or a direction.

Richard Foqué, Antwerp, Belgium

I just wanted to make a comment about what Spyros and Marvin were saying. It seems to me that, if you were really honest in trying to see where innovation is taking place in architecture, you would have to admit that it is not in the schools, but in the offices, in practice. This in turn raises the question of research – research bodies, resources, research in design, research bodies on all the things we've been talking about for seven years. But that's the main thing, and you see the same dichotomy in industry. The big innovations in the pharmaceutical sector, for instance, do not take place in the schools or universities, except in some preparatory ways, but in industry.

This is related to what Marvin was saying about the big firms, and although the American situation is different from the European one, since we have much smaller offices, the tendencies are there. You can see the tendencies, and I think that that is something that we should be very aware of. And I support what Per was saying: is it really a problem if there is a difference between education and practice? Maybe it's healthy to have a gap between the two. To be honest I've no answer to that but...

Pierre Von Meiss, Lausanne, Switzerland

I have two or three questions to ask on behalf of my head of department, whom I am replacing. I must admit that they are not on as high a level as the discussion that is taking place, but they are related to it. The first thing he wants to know is how the EAAE participants

deal with the new problem that has emerged with the Bachelor's and Master's system, which is that everyone wants to teach the Master's programme and feel like they are devaluated when they teach in the Bachelor's programme. This is a new problem, which was unexpected, and has nothing to do with the Master's and Bachelor's programmes themselves.

The second thing he would like to know, and this would have to do with some kind of European co-ordination organization, is what weight should be given to studio work as compared to the rest in the ECTS, and whether there is a specific range or bracket upon which we could agree.

The third thing is this: we in Lausanne don't give, and are definitely against giving, credits for internship, practical training, le stage. We are against it because we want it to be something a bit 'wild' in the sense that the school has nothing to say other than checking whether the students have completed it or not, because at this stage these young people are twenty-two years old and have never had to stand on their own feet and have been spoon-fed all through school and university. So we think that it is important for them to suffer in finding a job and to get the job they feel they should have. And if they can't all get into the top firms, then that's another lesson learned, but in any case we don't give them any credit. So these are the three questions, and I don't want to change the direction of the discussion now but maybe after the meeting someone can tell me how they think it should be handled.

Loughlin Kealy, Dublin, Ireland

Would anyone like to respond to that, in terms of just clarifying what the position in your school is in regard to internship?

Aart Oxenaar, Amsterdam, The Netherlands

Let me say this once again, because it always gets misunderstood. Looking just at our school, we do not give points for internships within the normal Master's programme. We have a normal 120 point Master's programme, so I fully agree that within the 3+2 system there is no time for large internships and points as well, so it's something extra we do alongside the regular programme. And in answer to Christian Huetz, it is not a programme driven by practice. On the contrary, it's a very free programme; but there is an influence from practice in the sense that – and what Marvin and others were saying was also along these lines – practicing architects do have the possibility of bringing their research into school, bringing in their innovative work.

In fact, the way the market has been going down in Holland, architects have more time, so we see them coming to us saying they want to do research on specific themes and asking if there is a possibility of doing it in our school. So that's a totally different kind of relation to practice than reserving time within our programme to make them do these specific things that lead to billable hours, to use Marvin's example from the American system. It is a very difficult system, a different system than that.

Christian Huetz, Regensburg, Germany

Just a tiny remark on trust. Trust needs difference. To take a literary example, the one thing you don't trust is the Doppelgänger; they are the most unnerving people you can

meet. And people looking in mirrors thinking that they are geniuses – you really don't trust them. You don't even trust people that are too much like yourself, and so it should be with institutions. There should be a difference, only then can you have trust.

Loughlin Kealy, Dublin, Ireland

OK, I have a sense that we are coming to the end of our discussion here. I have a really stupid question that I would just like to get some of you to respond to. Before you came here there was a list of competences that were selected from a variety of sources. They were put together and you were asked, I suppose, to reflect on them and to give your responses to them. And the people on the panels and from the floor have responded to this list in different ways, some people fairly explicitly, most people not. I would like to ask you whether you think that it is useful for us to try to develop and elaborate this as a basis for discussion. Now would those people who think it is useful mind lifting one hand? OK. Now who thinks that it is of no use whatever? That's a third category... I was just asking something and you didn't hear the question so you're the third category. But I think some people are suggesting that there is some value, but that it needs to be thought about more deeply. Would that be the consensus of your position? Yes? OK, with that very unscientific impression gleaned... Herman, you have one more intervention you want to make? I'm just about to wind up the session now.

Herman Neuckermans, Leuven, Belgium

Just one small comment. I tried to answer the questions, especially the last one, which asked where in the curriculum these competences come up. And that, in my opinion, is a very difficult question, because most of these are attitudes of some kind that are built up all through the curriculum, so you cannot identify them with any one specific course. This is a bit like my objection to the pedagogical units: they are OK for some things, but not for others, and if you have a critical mind you cannot identify them simply with one or another course; they pervade the whole thing, and that makes it difficult. I made diagrams with arrows, which is not the normal way of answering this type of question, but there was a real difficulty here.

Loughlin Kealy, Dublin, Ireland

I agree with you on that, actually. And now I would like to thank the members of the panel, and I would also like to thank you for your questions and your contributions. Thank you very much.