ENHSA
European Network of Heads of Schools of Architecture

Towards a competences based architectural education

Tuning architectural education structures in Europe

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Towards a Competences Based Architectural Education in Europe

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1. Tuning Educational Structures in Europe

The text of the session 1 is written by the Tuning Management Committee

Tuning Educational Structures in Europe is a university driven project, which aims to offer a universal approach to implement the **Bologna Process** at the level of higher education institutions and subject areas. The Tuning approach consists of a methodology to (re-) design, develop, implement and evaluate study programmes for each of the Bologna cycles.

Furthermore, Tuning serves as a platform for developing reference points at subject area level. These are relevant for making programmes of studies comparable, compatible and transparent. Reference points are expressed in terms of learning outcomes and competences. Learning outcomes are statements of what a learner is expected to know, understand and be able to demonstrate after completion of a learning experience According to Tuning, learning outcomes are expressed in terms of the *level of competence* to be obtained by the learner. Competences represent a dynamic combination of cognitive and meta-cognitive skills, knowledge and understanding, interpersonal, intellectual and practical skills, and ethical values. Fostering these competences is the object of all educational programmes. Competences are developed in all course units and assessed at different stages of a programme. Some competences are subject-area related (specific to a field of study), others are generic (common to any degree course). It is normally the case that competence development proceeds in an integrated and cyclical manner throughout a programme. To make levels of learning comparable the subject area groups/Thematic Networks have developed cycle (level) descriptors which are also expressed in terms of competences.

According to Tuning, the introduction of a three cycle system implies a change from a staff centred approach to a student oriented approach. It is the student that has to be prepared as well as enabled for his or her future role in society. Therefore, Tuning has organized a Europe-wide consultation process including employers, graduates and academic staff / faculty to identify the most important competences that should be formed or developed in a degree programme. The outcome of this consultation process is reflected in the set of reference points – generic and subject specific competences – identified by each subject area.

Besides addressing the implementation of a three cycle system, Tuning has given attention to the Europe-wide use of the student workload based European Credit Transfer and Accumulation System (ECTS). According to Tuning ECTS is not only a system for facilitating the mobility of students across Europe through credit accumulation and transfer; ECTS can also facilitate programme design and development, particularly with respect to coordinating and rationalising the demands made on students by concurrent course units. In other words, ECTS permits us to plan how best to use students' time to achieve the aims of the educational process, rather than considering teachers' time as a constraint and students' time as basically limitless. According to the Tuning approach credits can only be awarded when the learning outcomes have been met.

The use of the learning outcomes and competences approach might also imply changes regarding the teaching, learning and assessment methods which are used in a programme. Tuning has identified approaches and best practices to form specific generic and subject specific competences.

Finally, Tuning has drawn attention to the role of quality in the process of (re-)designing, developing and implementing study programmes. It has developed an approach for quality enhancement which involves all elements of the learning chain. It has also developed a number of tools and has identified examples of good practice which can help institutions to boost the quality of their study programmes.

Launched in 2000 and strongly supported, financially and morally, by the European Commission, the Tuning Project now includes the vast majority of the Bologna signatory countries.

The work of Tuning is fully recognized by all the countries and major players involved in the Bologna Process. At the Berlin Bologna follow-up conference which took place in September 2003, degree programmes were identified as having a central role in the process. The conceptual framework on which the Berlin Communiqué is based is completely coherent with the Tuning approach. This is made evident by the language used, where the Ministers indicate that degrees should be described in terms of workload, level, learning outcomes, competences and profile.

As a sequel to the Berlin conference, the Bologna follow-up group has taken the initiative of developing an overarching *Framework for Qualifications of the European Higher Education Area* (EQF for HE) which, in concept and language, is in full agreement with the Tuning approach. This framework has been adopted at the Bergen Bologna follow-up conference of May 2005. The EQF for Higher Education has made use of the outcomes both of the Joint Quality Initiative (JQI) and of Tuning. The JQI, an informal group of higher education experts, produced a set of criteria to distinguish between the different cycles in a broad and general manner. These criteria are commonly known as the "*Dublin descriptors*". From the beginning, the JQI and the Tuning Project have been considered complementary. The JQI focuses on the comparability of cycles in general terms, whereas Tuning seeks to describe cycle degree programmes at the level of subject areas. An important aim of all three initiatives (EQF, JQI and Tuning) is to make European higher education more transparent. In this respect, the EQF is a major step forward because it gives guidance for the construction of national qualification frameworks based on learning outcomes and competences as well as on credits. We may also observe that there is a parallel between the EQF and Tuning with regard to the importance of initiating and maintaining a dialogue between higher education and society and the value of consultation -- in the case of the EQF with respect to higher education in general; in that of Tuning with respect to degree profiles.

In the summer of 2006 the European Commission launched a European Qualification Framework for Life Long Learning. Its objective is to encompass all types of learning in one overall framework. Although the concepts on which the EQF for Higher Education and the EQF for LLL are based differ, both are fully coherent with the Tuning approach. Like the other two, the LLL variant is based on the development of level of competences. From the Tuning perspective both initiatives have their value and their roles to play in the further development of a consistent European Education Area.

This brochure reflects the outcomes of the work done by the Thematic Network on Architecture named "European Network of Heads of Schools of Architecture (ENHSA)" so far. The outcomes are presented in a template that was developed to facilitate readability and rapid comparison across the subject areas. The summary aims to provide, in a very succinct manner, the basic elements for a quick

introduction into the subject area. It shows in synthesis the consensus reached by a subject area group after intense and lively discussions between the partners of the network. The more ample documents on which the template is based are also included in the brochure. They give a more detailed overview of the elaborations of the Thematic Network.

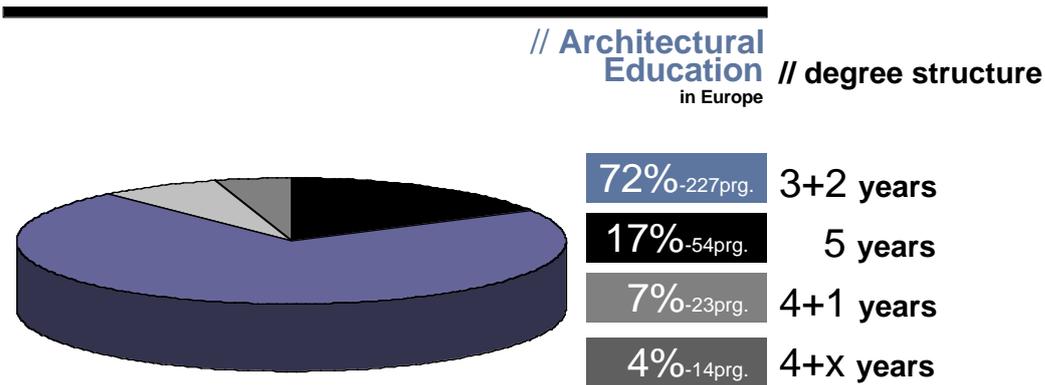## 2. The State of the Art in Architectural Education in Europe

Architecture as manifestation of our culture in space emerges through a creative synergy of artistic expertise, technical intelligence and scientific knowledge guiding the act of designing buildings and structures. In a wider definition architecture includes the design of the total built environment: from the big scale of town planning, urban design and landscape design to the small scale of the construction details and the objects design. The process of design through which architectural forms are produced is primarily driven by values, principles, ethics and objectives directing the creative manipulation of mass, space, volumes, materials, textures, light and pragmatic elements such as cost, construction techniques and technology, in order to achieve an aesthetic, functional and meaningful end.

An architect is a person who is involved in the creation of the build environment by translating into built forms and spatial organisations the socially and culturally defined demands of persons, groups or bodies. In the broadest sense an architect is a person who transforms through the architectural design practice the citizens' needs into designed proposals of physical space to be constructed. They should be able to operate within a variety of client, architect, management and builder relationships in an effective and professional way, within the constraints imposed by the building and construction industry, the project budget and the brief. This is why architects must possess a systematic and broad body of knowledge, skills, and theory developed through education, graduate and post-graduate training, and experience. The process of architectural education is structured to assure the public that when an architect is engaged to perform professional services, that architect has met acceptable standards enabling proper performance of those services. The different national and international professional societies of architects are charged to maintain and advance architects' knowledge of the art and science of architecture, to respect the body of architectural accomplishment, and to contribute to its growth.

There are about 310 Schools of Architectures in Europe recognized by the State. They belong either to Universities or Technological Institutions or to Art Academies or constitute autonomous higher education institutions. Architecture as subject has a inter/multi disciplinary nature, many different profiles of Schools of Architecture can be recognized. Those profiles can be structured according to the gravity different domains of architectural knowledge have in the school curricula, and/or according to three main polarities dominating today the debate on architectural education and affecting directly the priorities of the schools curricula: The artistic versus scientific, the vocational versus academic and the specialization versus general education. The different combination of these poles together with the different degree of their gravity give a broad spectrum of different curricula identities reflecting the specific character of each school. In the contemporary international competition of the higher education institutions, the redefinition of a recognisable identity of a school of architecture constitutes one of the main lines of the mission statements of European Schools of Architecture.

According to an inquiry that ENHSA Thematic network run in 2006[1], the total number of students in schools of architecture in EU is estimated around 150000 and the number of teaching staff around 15000. From the existing schools in EU, it appears that 44% present a primarily teaching oriented profile, 7% a primarily research based profile and 49% appear to be both teaching oriented and research based.

Schools of architecture in EU have broadly adapted or are in a process of adaptation to the Bologna process (see table 1). The 72% of the schools are already adapted their curricula in the 3+2 model, the 17% remaining to the old format of 5 continuous years. A 7% of the schools follow a 4+1 scheme and the rest 4% organise the curricula in 4+more
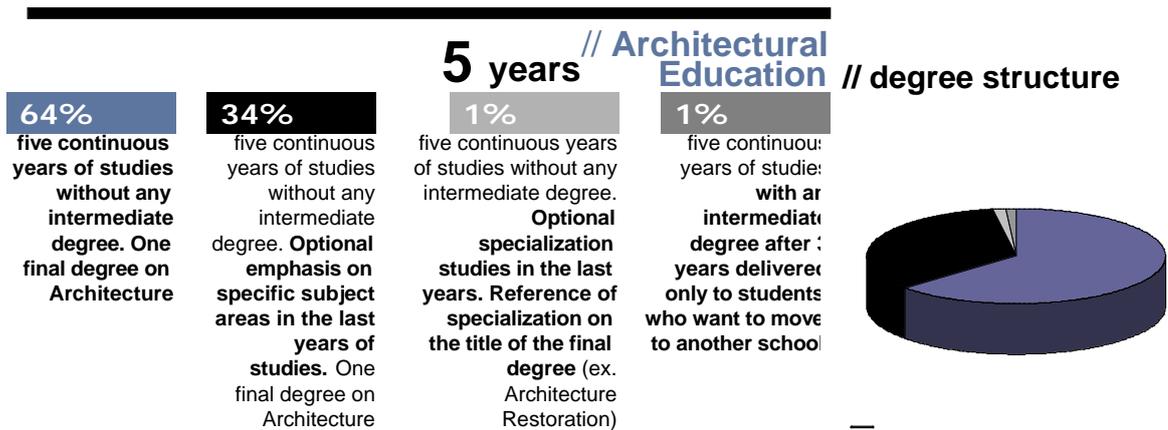
// **Architectural Education** in Europe **// degree structure**

72%-227prg.	3+2 **years**
17%-54prg.	5 **years**
7%-23prg.	4+1 **years**
4%-14prg.	4+x **years**

Mapping the Reforms in Europe **2006**

Table 1

than one year. This strong tendency to the 3+2 model is broadly decided by the schools themselves. The 61% of the schools reformed their curricula after their own decision and not under the obligation of a law. On the contrary the 39% of the schools is adapted to the Bologna schemes under the obligation of a new law.

The majority of the schools of architecture in Europe (60%) offer postmasters courses. 12% of them offer only post master degree and 48% doctorate and PhD degrees. The 39% offer only degrees equivalent to Masters giving access to the profession of the

5 years // **Architectural Education** **// degree structure**

64%	**34%**	**1%**	**1%**
five continuous years of studies without any intermediate degree. One final degree on Architecture	five continuous years of studies without any intermediate degree. **Optional emphasis on specific subject areas in the last years of studies.** One final degree on Architecture	five continuous years of studies without any intermediate degree. **Optional specialization studies in the last years. Reference of specialization on the title of the final degree** (ex. Architecture Restoration)	five continuous years of studies **with an intermediate degree after years delivered only to students** who want to move to another school

Mapping the Reforms in Europe **2006**

Table 2

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[1] The method of collecting the requested information was the following: A questionnaire was sent to two Heads of Schools of Architecture partners of the network in each EU member state, asking them to provide data corresponding to the state of the art of the Bologna process in their Country. In case that the data provided by the two responders were not in concurrence, then the team had a direct contact with them to clarify the situation.

architect.

We can distinguish different profiles of the curricula in schools of architecture in EU Countries. For the schools that follow the 5 years continuous model the different versions of this model appear in the table 2.

We can see that the majority (98%) of schools following this model, deliver one general degree in architecture even if in some cases a sort of specialisation appears. The areas of specialisations tend to be the restoration and conservation, the urban design, the construction and the landscape design. Only 1% delivers a specialised diploma. It is interesting to notice the optional 3+x model which delivers an intermediate degree only in case that a student wants to continue his/her studies in another institution.

3+2 years // **Architectural Education** in Europe // **degree structure**

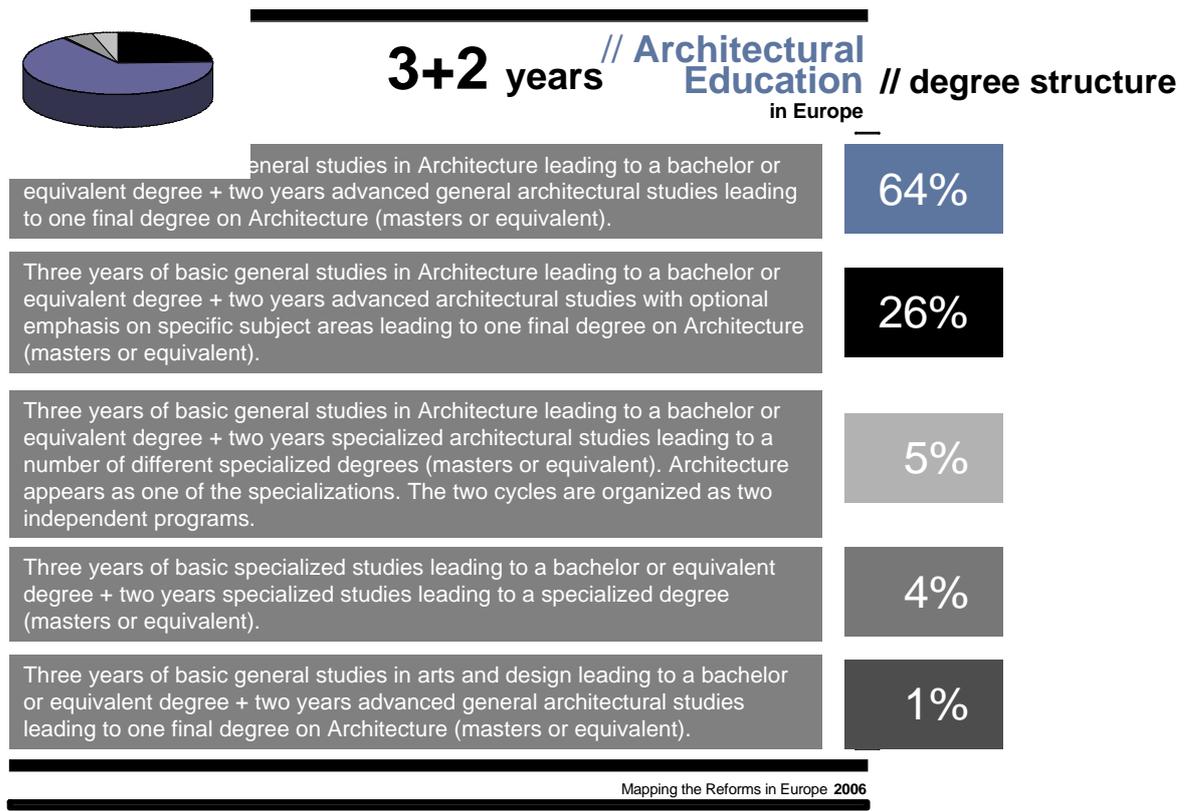|	
...eneral studies in Architecture leading to a bachelor or equivalent degree + two years advanced general architectural studies leading to one final degree on Architecture (masters or equivalent).	64%
Three years of basic general studies in Architecture leading to a bachelor or equivalent degree + two years advanced architectural studies with optional emphasis on specific subject areas leading to one final degree on Architecture (masters or equivalent).	26%
Three years of basic general studies in Architecture leading to a bachelor or equivalent degree + two years specialized architectural studies leading to a number of different specialized degrees (masters or equivalent). Architecture appears as one of the specializations. The two cycles are organized as two independent programs.	5%
Three years of basic specialized studies leading to a bachelor or equivalent degree + two years specialized studies leading to a specialized degree (masters or equivalent).	4%
Three years of basic general studies in arts and design leading to a bachelor or equivalent degree + two years advanced general architectural studies leading to one final degree on Architecture (masters or equivalent).	1%

Mapping the Reforms in Europe **2006**

Table 3.

For the schools that follow the 3+2 model, there are several different offered paths that students have to follow (see table 3). However, the majority of the schools that follow this model (90%) deliver a general degree on architecture even if some of them (26%) propose some emphasis on particular subject areas, which can appear as an optional initiation to a specialisation. We can distinguish two different models for specialised studies in architecture: In the first (5% of schools following the 3+2 model) the specialisation is based upon a three years cycle of general architectural studies and in the second (4%) the specialisation is started from the first cycle offering this way a fully specialised curriculum.

4+1 years // **Architectural Education** in Europe // **degree structure**

Four years of general studies in Architecture leading to a bachelor or equivalent degree + one year of advanced general studies in Architecture leading to one final degree on Architecture (masters or equivalent).

Mapping the Reforms in Europe **2006**

Table 4

In the case of schools following the model 4+1, our inquiry did not register cases of specialised studies but only general architectural studies, based upon a 4 years cycle of basic studies and one year more advanced general architectural studies (see table 4) .

If in the multiplicity of models regarding the system of studies described above we add the multiplicity of the approaches to the contents of studies, we can easily understand the extremely complex situation in the profiles and the particular characteristics in architectural education in different geographic and cultural environments in Europe. This situation makes schools of architecture to be very seriously concerned about the way they will stand over the two contradictory tendencies influencing their curricula: The one which demands from them to become more European in order to participate more efficiently in the under construction Higher Education Area and through this participation to obtain a better place in the international competition of schools and of the degrees they offer to their graduates. The other requests from the Schools to protect and to promote their local (educational and cultural) characteristics in order to become more attractive in the competitive mobility of post-graduate students motivated by the demand for a more personalised education, based upon the particular career interests, priorities and preferences.

3. Contribution and Perspectives of ENHSA Thematic Network in Architectural Education in Europe

The above consequences of the prospect of the creation of the European Area for Higher Education withinin the context of the Sorbonne-Bologna-Prague-Berlin-Bergen-London process has constituted the central theme of the majority of the activities of the ENHSA Thematic Network and more specifically of the Meetings of Heads of European Schools of Architecture. This prospect has triggered off our interest in getting to know better other schools of architecture the persons involved in the decision-making for their future, and from this acquaintance to gain a deeper insight into our own schools and into our position in the European context of architectural education. What should we do about our schools in this new and increasingly changing social and financial context? What aims and objectives should we set and what strategies should we adopt to ensure their fulfilment? How we will reform and reconstruct our educational structures, will update the content of the studies we offer and will reconsider our teaching methods and strategies? These are the fundamental questions for the answers of which our network pursue to create a constructive milieu.

For the creation of this milieu, our work went through various phases. In the debates that took place we critically followed the developments in the political context. We listened carefully to the positive as well as the negative considerations of the changes in the European context for architectural education. Moreover, from the debates we concluded that the nature of architectural education in the future is defined to a larger or lesser extent by the way in which these schools will deal with the four fundamental issues: firstly, the structure and content of architectural studies; secondly, the evaluation of the quality of school curricula; thirdly, the redefinition of the multifaceted professional profile of the architect of our days; and fourthly, the student and staff mobility, and the system of credits (ECTS).

We focused our interest on these issues and we attempted to follow the various ways in which schools of architecture deal with them. We carefully mapped the points of convergence as well as divergence, the tendencies and dynamics, the particularities and differentiations. Through a thorough inquiry at schools of architecture, valid qualitative results yielded which could describe the nature and qualities characterizing a great number of schools of architecture in Europe. We continue to map the educational approaches and teaching methods in order to be able to draw a picture of the particularities of the European profile of education, but primarily to learn from the others and to understand ourselves through this knowledge.

In times of such fundamental changes in higher education in Europe, the importance of our network became apparent as it aims to integrate, develop and preserve a lively and dynamic milieu for communication, exchange and collectivity, and to cultivate creatively, with dialogue and collaboration, the future of architectural education in Europe. For such a milieu to be kept alive, we felt from the very beginning that it must not limit itself to the level of exchange of views and information but that it should be in a position to proceed in more constructive and creative syntheses. To schedule procedures for the development of tools and mechanisms that will more decisively support schools of architecture in their effort to be integrated in the European Higher Architectural Education Area.

More specifically we focused on the curriculum and in particular on its structure and the content of studies as these two parameters encapsulate answers to the question of quality, professional identity, and the dynamics of mobility. Whilst the system of studies in most schools of architecture in Europe comes from governmental bodies, educational structures and the content of studies are primarily issues dealt with by higher education academic institutions. The need for compatibility, comparability and competitiveness of higher education in Europe, as this is suggested in this new political context, requires reliable and objective information about educational structures and the content of studies, that is to say about the educational programmes we offer. We therefore felt that we urgently need new tools and approaches in order to be able to describe our curricula as well as to recompose them in the prospect of the reforms suggested by this new political context of the European Commission.

4. The ENHSA Thematic Network in the Tuning Project

The involvement of our network into the Tuning program and the approach it indicated to restructure education resulted from our above-mentioned needs and demands. To better grasp the school curricula and to create the conditions for their comparability and innovative development, we found that it is extremely useful, and

for this reason more than necessary, to redirect the focus of our initiatives over a competences-based platform. To rethink the education of the architects in terms of competences was not conceived only as a technical issue emerged by a certain strategic decision to assure comparability and transparency in educational structures. On the contrary, we consider this approach as a new paradigm in understanding education in all its levels, from the curriculum design to the pedagogy and to the teaching methods applied to the education of every specific domain of architectural knowledge.

As a new paradigm we see the competences based approach to be characterised by significant shift from a conception of education as a technical issue of knowledge transmission to its conception as a project of creating a specific profile. In this project-based conception, an educational activity can be achieved only if there is a clear and transparent description of: 1. All parameters defining the profile of the graduate (the object of the educational project). 2. All the steps and the available means of the process of the educational project development (the teaching methods, means and pedagogy). 3. All the parameters defining the profile of the educational environment and of the persons involved in the educational project.

In this approach, learning outcomes as set of competences including knowledge, understanding and skills that a learner is expected to know/understand/demonstrate after completion of a process of learning — short or long are abstractly descriptive not prescriptive. Competences represent the deep structure of the graduates profile, a kind of diagram of parameters, the definition of the contents of which is open to the particular interpretation by the school, which selects them as objectives of its mission statement to be fulfilled. As competences can be identified and related to integral programmes of study and for individual units of study (modules), they can appear as a common tool in a holistic approach to the project of education. As competences are normally obtained in different course units and can therefore not be linked to one unit, they are offered as a new background for collaboration between modules, which appear rather isolated in the traditional modularised system. To identify which units teach the various competences ensures that these are actually assessed, and that quality standards are met.

The involvement of schools of architecture in this complex task of redefining architectural education through the terms and conditions resulting from this new conception of education is not at all an easy task. It presuppose a long period of familiarisation with the notions and the terms which constitute the framework of references of this paradigm, but also a very precise results which will prove its operational value in a period of time characterised by a demand of fast and efficient reform of our educational structures. This is why our thematic network started an extended debate between the heads of schools of architecture as decision makers related the overall structure of their institutions' architectural education system in parallel with the debate between the teachers as the decisive agents of the creation of specific aspects of the overall profile of the graduates.

Most of the partners of our thematic network consider that learning outcomes and competences are the most relevant elements in the design, construction and assessment of qualifications ensured by schools of architecture, as they constitute the reference points to be met. We all consider that it is of vital importance to discuss and agree upon a kind of rank order of competences, which will be offered to schools as a tool to structure their curricula. This way each school will be able to articulate their educational objectives as well as their reference points for quality assessment. In our effort to avoid any sort of unified, prescriptive, or definitive European curriculum and stay away from any rigid set of subject area specifications to restrict

or direct educational content in a way which will damage the rich diversity of European higher architectural education, the competences based approach is an appropriate strategy.

We feel that we have a lot of things to do but till now, the development of the first steps of Tuning project, gave us very significant insights and extremely useful opportunities to refresh our practices and visions on the education we are offering with innovative and inventive experimentations.

5. Tuning Architectural Education Structures in Europe

5.1 the profile of the graduates according to the academics

The ENHSA Thematic network worked on competences following Tuning methodology adapting it to the particularities of architectural education from one part and to the potential of its partners to absorb in a rather short time the innovative character of the approach from the other. This was a strategic decision from the part of the working group in order to have better results and a safest familiarisation with new logics, necessary for a creative adaptation of the new upon the old and established powerful structures. The risk for the competences-based approach to be considered as a from above imposed condition and to lose because of this reason its credibility and operational value made us to follow a step by step and long time process in our work on competences.

We worked on three main categories of competences. The **generic competences** in principle concern the broader academic and higher education profile of an architect and are to great extent subject-independent. The definition of this category of competences was mainly based upon the generic competences formulated by Tuning with some marginal transformations necessary to bring them closer to the particularities of the architect's profile.

The approach to **subject-specific competences** was developed on two and complementary axes: The first axis concerned the **specific competences on profession** related to the graduates skills to practice the various forms of the architectural profession as these are achieved by schools of architecture today. The second axis concerned the graduates' **specific competences on architectural research** related to the research in architecture. The reason for which our group incorporated in this project the research competences is related to a general strategy of our thematic network to enhance the quality and quantity of the research outcome and to contribute to the permanent claim of schools of architecture in Europe to ensure for architecture a better position in the research capital and to appear as one of the

	Bachelor	Masters	PhD
Generic Competences	20 Competences	20 Competences	20 Competences
Specific Competences on Profession	23 Competences	23 Competences	23 Competences
Specific competences on Research	18 Competences	18 Competences	18 Competences

eligible subject area for research funding. It goes without saying that competences and learning outcomes should correspond to the final qualifications of a learning programme. Competences are conceived and described in our work as points of reference for curriculum design and evaluation, and not as straitjackets.

The working group on competences defined 20 generic competences, 23 specific competences on profession and 18 specific competences on research. These competences were inquired on their significance in the profile of a graduate of bachelor degree (three years, 6 semesters 180 ECTS[2]).

The consultation on competences was made electronically and the number of persons who contributed was about 275 teachers from schools of architecture from most of the European countries. Even if the sample does not assure a statistical credibility of the resulted ranking, we strongly believe that it consists a reliable indicator of the existing tendencies and dynamics. On the other hand the aim of this inquiry was not to produce a definitely ordered list of competences but on the contrary, to offer to our partners a dynamic spectrum of competences supported by a record of temporary tendencies.

The process of consultation was developed upon five steps. In a first step the competences group worked to define the three groups of competences. In a second step the list was subject to a broader evaluation and enrichment, which took place in the framework of a meeting of Heads of European Schools of Architecture, which had the evaluation as a main theme[3]. On the basis of the results of the debates of this meeting, the group finalised the lists and prepared the questionnaire, which was diffused electronically to a limited number of partner schools. This was the third step of a pilot circulation of the questionnaire testing is operationality. The results of the pilot inquiry gave the possibility to formulate the final questionnaire, which was diffused to all partner schools. The fifth step was the final processing of the questionnaire. In this brochure we will present first the way that the three categories of competences are ranked in the different levels of qualifications and after the structure profiles of the graduates on the basis of the three categories of competences.

In this brochure we present the result of this extended inquiry on two axes: the one looking at the gravity of competences the other at the profile of the graduate. The first one concentrates on the competences and presents the three categories of competences ranked for the different qualifications. We can observe through this presentation the balance of the significance and the respect of each competence as we move from the bachelor degree to the PhD. For operational reasons we have limited our presentation to the ten most respected competences for each category. The second axis formulates the framework of the most respected competences for the structure of the profile of the graduates. This presentation describes the main competences, which according to a random sample of teachers in schools of architecture across Europe, should structure the profile of the graduates of the different qualifications proposed by the Bologna process. For operational reasons we have limited our presentation to the 5 most respected competences for each category and graduates profile.

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[2] The decision to define the bachelor on the base of the 3+2 model was supported by the results of the inquiry on the state of the art of the curriculum reforms in European Schools of Architecture, presented above in the section 2.

[3] It was the meeting of Heads which took place in 2004 under the title Shaping Architectural Curricula for the European Higher Education Area" (see www.enhsa.net/hm4.htm)

5.1.1. Generic Competences

The non-ranked list of generic competences used in our inquiry was the following.

Ability to work in an interdisciplinary team
Ability to develop a trans-disciplinary understanding
Appreciation of the diversity and multicultural quality of contemporary European society
Ability to identify and work towards targets for personal, academic and career development
Awareness of and respect for points of view deriving from other national and cultural backgrounds
Ethical commitment
Capacity to develop an analytical and critical thinking and understanding
Capacity to apply knowledge in practice
Capacity to apply a spirit of synthesis of ideas and forms
Capacity to generate creatively new ideas and forms
Capacity to adapt proactively to changing situations
Capacity to evaluate ideas, proposals, forms
"Learning to learn" ability
Decision – making skills
High level computing skills including the ability to use the Internet critically as a means of communication and a source of information
Personal and social skills in expression and communication by speaking, writing and sketching
Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)
Basic knowledge of all the professional applications of the discipline
Responsibility for one's own work and ability to be self-critical in relation to that
Knowledge of languages
Other   (persons participating in the inquiry had the possibility to add competences not listed in the questionnaire)

The ranked competences are presented in the three tables below. We can observe the practical technical and introductory nature of the qualification of bachelor, the more skill and knowledge-oriented nature of the master qualification and the more critical and thoughtful nature of the Phd.

15	High level computing skills including the ability to use the Internet critically as a means of communication and a source of information
13	"Learning to learn" ability
9	Capacity to apply a spirit of synthesis of ideas and forms
16	Personal and social skills in expression and communication by speaking, writing and sketching
8	Capacity to apply knowledge in practice
7	Capacity to develop an analytical and critical thinking and understanding
10	Capacity to generate creatively new ideas and forms

17	Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)
18	Basic knowledge of all the professional applications of the discipline
6	Ethical commitment

Generic competences of Bachelor
Ten most respected

7	Capacity to develop an analytical and critical thinking and understanding
9	Capacity to apply a spirit of synthesis of ideas and forms
10	Capacity to generate creatively new ideas and forms
2	Ability to develop a trans-disciplinary understanding
16	Personal and social skills in expression and communication by speaking, writing and sketching
15	High level computing skills including the ability to use the Internet critically as a means of communication and a source of information
8	Capacity to apply knowledge in practice
17	Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)
1	Ability to work in an interdisciplinary team
14	Decision – making skills

Generic competences of Master
Ten most respected

7	Capacity to develop an analytical and critical thinking and understanding
12	Capacity to evaluate ideas, proposals, forms
3	Appreciation of the diversity and multicultural quality of contemporary European society
13	"Learning to learn" ability
16	Personal and social skills in expression and communication by speaking, writing and sketching
17	Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)
2	Ability to develop a trans-disciplinary understanding
19	Responsibility for one's own work and ability to be self-critical in relation to that
14	Decision – making skills
1	Ability to work in an interdisciplinary team
7	Capacity to develop an analytical and critical thinking and understanding

Generic competences of Master
Ten most respected

bachelor	master	phd
High level computing skills including the ability to use the Internet critically as a means of communication and a source of information.	Capacity to develop an analytical and critical thinking and understanding.	Capacity to develop an analytical and critical thinking and understanding.
"Learning to learn" ability.	Capacity to apply a spirit of synthesis of ideas and forms.	Capacity to evaluate ideas, proposals, forms.
Capacity to apply a spirit of synthesis of ideas and forms.	Capacity to generate creatively new ideas and forms.	Appreciation of the diversity and multicultural quality of contemporary European society.
Personal and social skills in expression and communication by speaking, writing and sketching.	Ability to develop a trans-disciplinary understanding.	"Learning to learn" ability.
Capacity to apply knowledge in practice.	Personal and social skills in expression and communication by speaking, writing and sketching.	Personal and social skills in expression and communication by speaking, writing and sketching.

generic competences
comparison chart of the five
most respected

5.1.2. Subject Specific Competences related to the Profession

The non-ranked list of specific competences on profession used in our inquiry was the following.

Ability to create architectural designs that satisfy both aesthetic and technical requirement
Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
Awareness of the issues and themes of present day architectural debate
Ability to recognize and use appropriately architectural theories, concepts, paradigms and principles
Knowledge of the fine arts as an influence on the quality of architectural design
Knowledge of contemporary and historical works that have achieved the highest standards in architecture
Ability to abstract and present key elements and relationships
Adequate knowledge of urban design, planning and the skills involved in the planning process
Understanding of the relationship between people and buildings and between buildings and their environments, and of the need to relate buildings and the spaces between them to human needs and scale
Awareness of the potentials of new technologies
Understanding of the profession of architecture and the role of architects in society, in particular in preparing briefs that account for social factors
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
Critical awareness of the relationship between current developments in architecture and the past
Understanding of the methods of investigation and preparation of the brief for a design project
Understanding of the structural design, construction and engineering problems associated with building design
Adequate knowledge of physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against climate
Necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations
Adequate knowledge of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning.
Ability to work both with a high degree of autonomy and collaboration
Ability to engage in self-managed and life-long learning (eg working independently, time management and organization skills)
Awareness of the need for continuous professional development
Ability to respond creatively and flexibly to changes in the professional environment
Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms

The ranked version of the subject specific competences on profession is presented in the tables below, showing the ranking according to bachelor, master and PhD qualifications.

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
6	Knowledge of contemporary and historical works that have achieved the highest standards in architecture
2	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
15	Understanding of the structural design, construction and engineering problems associated with building design
1	Ability to create architectural designs that satisfy both aesthetic and technical requirement
6	Knowledge of contemporary and historical works that have achieved the highest standards in architecture
2	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
15	Understanding of the structural design, construction and engineering problems associated with building design
1	Ability to create architectural designs that satisfy both aesthetic and technical requirement
6	Knowledge of contemporary and historical works that have achieved the highest standards in architecture

subject specific competences: profession
bachelor
Ten most respected

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
2	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
1	Ability to create architectural designs that satisfy both aesthetic and technical requirement
23	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms
3	Awareness of the issues and themes of present day architectural debate
10	Awareness of the potentials of new technologies
21	Awareness of the need for continuous professional development
15	Understanding of the structural design, construction and engineering problems associated with building design
11	Understanding of the profession of architecture and the role of architects in society, in particular in preparing briefs that account for social factors
7	Ability to abstract and present key elements and relationships

subject specific competences: profession
master
Ten most respected

4	Ability to recognize and use appropriately architectural theories, concepts, paradigms and principles
2	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
23	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms
7	Ability to abstract and present key elements and relationships
3	Awareness of the issues and themes of present day architectural debate
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
13	Critical awareness of the relationship between current developments in architecture and the past
10	Awareness of the potentials of new technologies
6	Knowledge of contemporary and historical works that have achieved the highest standards in architecture
21	Awareness of the need for continuous professional development

**subject specific competences: profession
phd**

Ten most respected

bachelor	master	phd
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 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	Ability to recognize and use appropriately architectural theories, concepts, paradigms and principles
Knowledge of contemporary and historical works that have achieved the highest standards in architecture	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences
Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	Ability to create architectural designs that satisfy both aesthetic and technical requirement	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms
Understanding of the structural design, construction and engineering problems associated with building design	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms	Ability to abstract and present key elements and relationships
Ability to create architectural designs that satisfy both aesthetic and technical requirement	Awareness of the issues and themes of present day architectural debate	Awareness of the issues and themes of present day architectural debate

subject specific competences: profession

comparison chart of the five most respected

5.1.3. Subject Specific Competences Related to the Research

The non-ranked list of specific competences on research used in our inquiry was the following.

Awareness of the ongoing nature of architectural research and debate
Critical awareness of the relationship between current architectural discourse and practice and the architecture of the past
Awareness of the highest standards of achievement in architecture, in design, in built work and in scholarship
Awareness of the moral and ethical issues of investigation and the need for professional codes of conduct in research (eg. appropriate acknowledgements of contributions, etc.)
Ability to define research topics which will contribute to knowledge and debate within architecture
Ability to formulate research questions
Ability to identify and use paradigms, theories concepts and methods of enquiry appropriate to the discipline and the topic of enquiry
Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
Ability to prepare, process, interpret and present date using appropriate qualitative and quantitative techniques
Ability to work with a high degree of autonomy (eg. Accept responsibility for research project planning)
Ability to communicate appropriately in written, oral and graphic forms
Awareness of and ability to use appropriate tools of other human and physical sciences (eg. Literary criticism, art history, philosophy, studies in constructional analysis, etc.)
Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)
Ability to collect and integrate several lines of evidence to formulate and test hypotheses
Ability to plan, conduct and report on investigations
Ability to write in one's own language, using correctly the various types of architectural literature
Ability to reference sources accurately and appropriately
Ability to evaluate evidence and draw appropriate conclusions

The ranked version of the subject specific competences on research is presented in the tables below, showing the ranking according to bachelor, master and PhD qualifications.

13	Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)
11	Ability to communicate appropriately in written, oral and graphic forms
3	Awareness of the highest standards of achievement in architecture, in design, in built work and in scholarship
18	Ability to evaluate evidence and draw appropriate conclusions
16	Ability to write in one's own language, using correctly the various types of architectural literature
8	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
17	Ability to reference sources accurately and appropriately
4	Awareness of the moral and ethical issues of investigation and the need for professional codes of conduct in research (eg. appropriate acknowledgements of contributions, etc.)
2	Critical awareness of the relationship between current architectural discourse and practice and the architecture of the past
1	Awareness of the ongoing nature of architectural research and debate

subject specific competences: research
bachelor
Ten most respected

11	Ability to communicate appropriately in written, oral and graphic forms
18	Ability to evaluate evidence and draw appropriate conclusions
8	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
13	Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)
17	Ability to reference sources accurately and appropriately
16	Ability to write in one's own language, using correctly the various types of architectural literature
3	Awareness of the highest standards of achievement in architecture, in design, in built work and in scholarship
1	Awareness of the ongoing nature of architectural research and debate
5	Ability to define research topics which will contribute to knowledge and debate within architecture
2	Critical awareness of the relationship between current architectural discourse and practice and the architecture of the past

subject specific competences: research
master
Ten most respected

17	Ability to reference sources accurately and appropriately
8	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
18	Ability to evaluate evidence and draw appropriate conclusions
5	Ability to define research topics which will contribute to knowledge and debate within architecture
11	Ability to communicate appropriately in written, oral and graphic forms
1	Awareness of the ongoing nature of architectural research and debate
16	Ability to write in one's own language, using correctly the various types of architectural literature
6	Ability to formulate research questions
10	Ability to work with a high degree of autonomy (eg. Accept responsibility for research project planning)
14	Ability to collect and integrate several lines of evidence to formulate and test hypotheses

subject specific competences: research
phd

Ten most respected

bachelor	master	phd
Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)	Ability to communicate appropriately in written, oral and graphic forms	Ability to reference sources accurately and appropriately
Ability to communicate appropriately in written, oral and graphic forms	Ability to evaluate evidence and draw appropriate conclusions	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
Awareness of the highest standards of achievement in architecture, in design, in built work and in scholarship	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)	Ability to evaluate evidence and draw appropriate conclusions
Ability to evaluate evidence and draw appropriate conclusions	Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)	Ability to define research topics which will contribute to knowledge and debate within architecture
Ability to write in one's own language, using correctly the various types of architectural literature	Ability to reference sources accurately and appropriately	Ability to communicate appropriately in written, oral and graphic forms

subject specific competences:
research
comparison chart of the five most respected

5.1.4. Competences framing the profile of the graduates from different qualifications

The next three tables present the profile of the graduates from each one of the degrees offered by the European system of architectural education. For the working group on competences these tables constitute a very first approach to the formulation of a qualifications framework for architectural education.

bachelor generic	bachelor profession	bachelor research
High level computing skills including the ability to use the Internet critically as a means of communication and a source of information.	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	Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)
"Learning to learn" ability.	Knowledge of contemporary and historical works that have achieved the highest standards in architecture	Ability to communicate appropriately in written, oral and graphic forms
Capacity to apply a spirit of synthesis of ideas and forms.	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	Awareness of the highest standards of achievement in architecture, in design, in built work and in scholarship
Personal and social skills in expression and communication by speaking, writing and sketching.	Understanding of the structural design, construction and engineering problems associated with building design	Ability to evaluate evidence and draw appropriate conclusions
Capacity to apply knowledge in practice.(8)	Ability to create architectural designs that satisfy both aesthetic and technical requirement	Ability to write in one's own language, using correctly the various types of architectural literature
bachelor all competences related to bachelor		

master generic	master profession	master research
Capacity to develop an analytical and critical thinking and understanding.	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	Ability to communicate appropriately in written, oral and graphic forms
Capacity to apply a spirit of synthesis of ideas and forms.	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	Ability to evaluate evidence and draw appropriate conclusions
Capacity to generate creatively new ideas and forms.	Ability to create architectural designs that satisfy both aesthetic and technical requirement	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
Ability to develop a trans-disciplinary understanding.	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms	Ability to use IT and Internet resources (statistical, cartographical methods, database creation, etc.)
Personal and social skills in expression and communication by speaking, writing and sketching.	Awareness of the issues and themes of present day architectural debate	Ability to reference sources accurately and appropriately
master all competences related to master		

phd generic	phd profession	phd research
Capacity to develop an analytical and critical thinking and understanding.	Ability to recognize and use appropriately architectural theories, concepts, paradigms and principles	Ability to reference sources accurately and appropriately
Capacity to evaluate ideas, proposals, forms.	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)
Appreciation of the diversity and multicultural quality of contemporary European society.	Ability to communicate appropriately to a variety of audiences in oral, written and graphic forms	Ability to evaluate evidence and draw appropriate conclusions
"Learning to learn" ability.	Ability to abstract and present key elements and relationships	Ability to define research topics which will contribute to knowledge and debate within architecture
Personal and social skills in expression and communication by speaking, writing and sketching.	Awareness of the issues and themes of present day architectural debate	Ability to communicate appropriately in written, oral and graphic forms
phd all competences related to phd		

5.2 The Profile of the Graduates According to the Professionals

The second part of the inquiry that ENHSA thematic Network run on competences concerned the profile of the graduates according to the professionals. The questionnaire we had prepared, presented to the professionals a list of competences and asked them to proceed to a double consideration. The first was the evaluation of the gravity of each one of the competences according to an ideal profile of a graduate. The second concerned the estimation of the degree to which each competence is assured by the education offered to the graduates by the schools of architecture. With this double ranking we can see the degree to which, according to the professionals, the existing educational structures assure the most significant and respected competences.

	competences ranked by the professionals	% grade
3	Capacity to develop an analytical and critical thinking and understanding	**66**
4	Personal and social skills in expression and communication by speaking, writing and sketching	**61**
1	Ability to work in an interdisciplinary team	**58**
5	Ability to work both with a high degree of autonomy and collaboration	**62**
20	Ability to create architectural designs that satisfy both aesthetic and technical requirements	**57**
7	Capacity to apply knowledge in practice	**52**
21	Necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations	**47**
11	Ability to evaluate evidence and draw appropriate conclusions	**57**
10	"Learning to learn" ability	**62**
6	Ability to develop a trans-disciplinary understanding	**53**
26	Understanding of the structural design, construction and engineering problems associated with building design	**54**
9	Capacity to apply a spirit of analysis and synthesis of ideas and forms	**64**
24	High level computing skills including the ability to use the Internet critically as a means of communication and a source of information	**68**
19	Planning and time management skills	**43**
17	Basic knowledge of all the professional applications of the discipline of architecture	**57**
2	Ethical commitment	**59**
13	Ability to receive and respond to a variety of information sources (textual, numerical, verbal and graphical)	**62**
27	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	**52**

8	Capacity to generate creatively new ideas and forms	**71**
28	Awareness of and respect for energy and sustainability management	**56**
16	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	**47**
15	Ability to plan, conduct and report on investigations	**53**
22	Understanding of the methods of investigation and preparation of the brief for a design project	**55**
18	Decision – making and management skills	**45**
29	Adequate knowledge of urban design, planning and the skills involved in the planning process	**57**
33	Adequate knowledge of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning	**46**
34	Ability to identify and use appropriately sources of relevant information and to identify and use relevant retrieval tools (bibliographical sources, archival inventories, etc.)	**57**
14	Awareness of the issues and themes of present day architectural debate	**68**
12	Awareness of and respect for points of view deriving from other national and cultural backgrounds	**56**
23	Adequate knowledge of the history and theories of architecture and related arts, technologies and human sciences	**67**
30	Adequate knowledge skills involved in the conservation and restoration of buildings	**48**
32	Adequate knowledge and skills involved in interior design	**52**
25	Knowledge of languages	**51**
31	Adequate knowledge and skills involved in landscape design	**47**
	% Grade of successful development by the Schools of Architecture in Europe	**Average grade 57,52%**

From the above table we can observe a general mistrust from the part of the professionals to the architectural education environment. The most significant competences are not considered as very well covered by the education system, creating this way a gap between profession and education. As the collaboration between profession and education become more and more necessary in our fast changing and reforming world, the results of this inquiry showing us a possible ground on which this collaboration can be developed: the common project to raise the degree to which are covered the significant for the profession competences. It does not at all mean that the schools have to be adapted to the demands of the profession since as academic institutions they have to educate architects (and not only to train professionals) and to remain autonomous in this project. On the contrary we can see through the elaborated data that this gap can easily be covered into the framework of the Lifelong Learning perspective.