Tuning

Latin America

Higher Education in Latin America: reflections and perspectives on **Architecture**

Samuel Ricardo Vélez González (ed.)

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Tuning Latin America Project

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Tuning: past, present and future
An introduction

Major changes have taken place worldwide in higher education over the last 10 years, although this has been a period of intense reflection particularly for Latin America, insofar as the strengthening of existing bonds between nations has been promoted and the region has started to be considered as being increasingly close. These last 10 years also represent the transition time between Tuning starting out as an initiative that arose as a response to European needs and going on to become a worldwide proposal. Tuning Latin America marks the start of the Tuning internationalisation process. The concern with thinking how to progress towards a shared area for universities while respecting traditions and diversity ceased to be an exclusive concern for Europeans and has become a global need.

It is important to provide the reader of this work with some definitions of Tuning. Firstly, we can say that Tuning is **a network of learning communities**. Tuning may be understood as being a network of interconnected academic and student communities that reflects on issues, engages in debate, designs instruments and compares results. They are experts that have been brought together around a discipline within a spirit of mutual trust. They work in international and intercultural groups and are totally respectful of independence on an institutional, national and regional level, exchanging knowledge and experiences. They develop a common language to problems in higher education to be understood and take part in designing a set of tools that are useful for their work, and which have been devised and produced by other academics. They are able to take part in a platform for reflection and action about higher education - a platform made up of hundreds of communities

from different countries. They are responsible for developing reference points for disciplines that represent a system for designing top quality qualifications which are shared by many. They are open to the possibility of creating networks with many regions of the world within their own field and feel that they are responsible for this task.

Tuning is built on each person that forms part of that community and shares ideas, initiatives and doubts. It is global because it has pursued an approach based on worldwide standards while at the same time remaining both local and regional, respecting the specific features and demands of each context. The recent publication: *Communities of Learning: Networks and the Shaping of Intellectual Identity in Europe, 1100-1500* (Crossley Encanto, 2011) takes all the new ideas into consideration which are developed within a community context, whether of an academic, social or religious nature or simply as a network of friends. The challenge facing Tuning communities is to gain an impact on the development of higher education in its regions. Secondly, Tuning is a **methodology** with well-designed steps and a dynamic outlook that enables different contexts to be adapted. The methodology has a clear aim: to build qualifications which are compatible, comparable, are relevant to society and with top levels of both quality and excellence, while preserving the valuable diversity deriving from the traditions of each country involved. These requirements demand a collaborative methodology based on consensus which is developed by experts from different fields who are representatives of their disciplines, and who have the ability to understand local, national and regional situations.

This methodology has been developed around **three core themes**: the first is the **qualification profile**, the second is the **syllabus** and the third refers to the **trajectories of those who learn**.

The qualification profile enjoys a key position in Tuning. After a lengthy period of reflection and debate within Tuning projects in different regions (Latin America, Africa, Russia), the qualifications profile may be defined as being a combination of forces revolving around four core points:

- The region's needs (from local issues to the international context).
- The meta-profile of the area.

- The taking into consideration of future trends in the profession and society.

- The specific mission of the university.

The question of **social relevance** is essential for the design of profiles. Without doubt, any analysis of the relationship existing between university and society lies at the heart of the matter of relevance in higher education. Tuning's aim is to identify and meet the needs of the production sector, the economy, society as a whole and the needs of each student within a particular area of study – measured by specific social and cultural contexts. With a view to achieving a balance between these different needs, goals and aspirations, Tuning has consulted leading people, key local thinkers and experts from industry, both learned and civil society and working parties that include all those interested. An initial period of this phase of the methodology is linked to general competences. Each thematic area involves the preparation of a list of general competences deemed relevant from the standpoint of the region concerned. This task ends when the group has widely discussed and reached consensus about a selection of specific competences, and the task is also performed with specific competences. Once the means of consultation has been agreed and the process completed, the final stage in this practical exercise involving the search for social relevance refers to an analysis of results. This is done jointly by the group, and special care is taken not to lose any contributions from the different cultural perceptions that might illustrate understanding of the specific reality.

Once lists of the general and specific agreed, consulted and analysed competences had been obtained, a new phase got underway over these last two years that is related to the **development of meta-profiles for the area** under consideration. For Tuning methodology, meta-profiles represent the structures of the areas and combinations of competences (general and specific) that lend identity to the disciplinary area concerned. Meta-profiles are mental constructions that categorise competences in recognisable components and illustrate their inter-relations.

Furthermore, thinking about education means becoming involved in the present, while above all also looking towards the future – thinking about social needs, and anticipating political, economic and cultural

changes. This means also taking into account and trying to foresee the challenges that those future professionals will have to face and the impact that certain profiles of qualifications is likely to have, as designing profiles is basically an exercise that involves looking to the future. Within the present context, designing degree courses takes time in order for them to be planned and developed and their approval obtained. Students need years to achieve results and mature in terms of their learning. Then, once they have finished their degree, they will need to serve, be prepared to act, innovate and transform future societies in which they will find new challenges. Qualification profiles will in turn need to look more to the future than the present. For this reason, it is important to take an element into consideration that should always be taken into account, which are future trends both in terms of the specific field and society in general. This is a sign of quality in design. Tuning Latin America embarked on a methodology so as to incorporate an **analysis of future trends into the design of profiles**. The first step therefore involved the search for a methodology to devise future scenarios following an analysis of the most relevant studies in education by focusing on the changing role of higher educational establishments and trends in educational policies. A methodology was chosen based on in-depth interviews with a dual focus: on the one hand, there were questions that led to the construction of future scenarios on a general society level, their changes and impact. This part needed to serve as a basis for the second part, which dealt specifically with the features of the area in itself, their transformation in general terms in addition to any possible changes in the degree courses themselves that might have tended to disappear, re-emerge or be transformed. The final part sought to anticipate the possible impact on competences based on present coordinates and the driving forces behind change.

There is a final element that has to be taken into account when constructing the profiles, which is linked to the **relationship with the university where the qualification is taught**. The mark and mission of the university must be reflected in the profile of the qualification that is being designed.

The second core theme of the methodology is linked to **syllabuses**, and this is where two very important Tuning components come into play: on the one hand, students' work volume, which has been reflected in an agreement to establish the Latin American Reference Credit (CLAR), and all studies are based on this and, on the other, the intense

reflection process into how to learn, teach and assess competences. Both aspects have been covered in Tuning Latin America.

Lastly, an important area is opened up for future reflection about the **trajectories of those who learn** – a system that proposes focusing on the student leads one to consider how to position oneself from that standpoint so as to be able to interpret and improve the reality in which we find ourselves.

Finally, Tuning is a **project** and as such came into existence with a set of objectives and results and within a particular context. It arose from the needs of the Europe of 1999, and as a result of the challenge laid down by the 1999 Bologna Declaration. Since 2003, Tuning has become a project that goes beyond European borders, in so doing embarking on intense work in Latin America. Two very specific problems faced by the university as a global entity were pinpointed: on the one hand, the need to modernise, reformulate and make syllabuses more flexible in the light of new trends, society's requirements and changing results in a vertiginous world and, on the other, which is linked closely to the first problem, the importance of transcending limits imposed by staff in terms of learning, by providing training that would enable what has been learnt to be recognised beyond institutional local, national and regional borders. The Tuning Latin America project thus emerged which, in its first phase (2004-2007), sought to engage in a debate whose goal was to identify and exchange information and improve collaboration between higher educational establishments, with a view to developing the quality, effectiveness and transparency of qualifications and syllabuses.

This new phase of **Tuning Latin America (2011-2013)** started life on already-fertile terrain – the fruits of the previous phase and in view of the current demand on the part of Latin American universities and governments to facilitate the continuation of the process that had already been embarked on. The aim of the new Tuning phase in the region was to help build a Higher Education Area in Latin America. This challenge takes the form of four very specific central working themes: a deeper understanding of agreements involving **designing meta-profiles and profiles in the 15 thematic areas** included in the project (Administration, Agronomy, Architecture, Law, Education, Nursing, Physics, Geology, History, Information Technology, Civil Engineering, Mathematics, Medicine, Psychology and Chemistry); contributing to **reflections on future scenarios for new professions**; promoting the

joint construction of **methodological strategies in order to develop and assess the training of competences**; and designing **a system of academic reference credits (CLAR-Latin American Reference Credit)** to facilitate recognition of studies in Latin America as a region that can be articulated with systems from other regions.

The Tuning door to the world was Latin America, although this internationalisation of the process wouldn't have gone far if it hadn't been for a group of prestigious academics (230 representatives of Latin American universities), who not only believed in the project, but also used their time and creativity to make it possible from north to south and west to east across the extensive, diverse continent that is Latin America. This was a group of experts in different thematic areas that would go on to study in depth and gain weight in terms of their scope and educational force, and in their commitment to a joint task that history had placed in their hands. Their ideas, experiences and determination paved the way and enabled the results which are embodied in this publication to be achieved.

Yet the Tuning Latin America project was also designed, coordinated and administered by Latin Americans from the region itself, via the committed work carried out by Maida Marty Maleta, Margarethe Macke and Paulina Sierra. This also established a type of *modus operandi*, conduct, appropriation of the idea and of deep respect for how this was going to take shape in the region. When other regions decided to join Tuning, there would henceforth be a local team that would be responsible for considering what to emphasize - specific features, the new elements that would need to be created to meet needs which, even though many of them might have common characteristics within a globalised world, involve dimensions specific to the region, are worthy of major respect and are, in many cases, of major scope and importance.

There is another pillar on this path which should be mentioned: the coordinators of the thematic areas (César Esquetini Cáceres-Coordinator of the Area of Administration; Jovita Antonieta Miranda Barrios-Coordinator of the Area of Agronomy; Samuel Ricardo Vélez González-Coordinator of the Area of Architecture; Loussia Musse Felix-Coordinator of the Area of Law; Ana María Montaño López-Coordinator of the Area of Education; Luz Angélica Muñoz González-Coordinator of the Area of Nursing; Armando Fernández Guillermet-Coordinator of the Area of Physics; Iván Soto-Coordinator of the

Area of Geology; Darío Campos Rodríguez-Coordinator of the Area of History; José Lino Contreras Véliz-Coordinator of the Area of Information Technology; Alba Maritza Guerrero Spínola-Coordinator of the Area of Civil Engineering; María José Arroyo Paniagua-Coordinator of the Area of Mathematics; Christel Hanne-Coordinator of the Area of Medicine; Diego Efrén Rodríguez Cárdenas-Coordinator of the Area of Psychology; and Gustavo Pedraza Aboytes-Coordinator of the Area of Chemistry). These academics, chosen according to the thematic groups to which they belonged, were the driving forces behind the building of bridges and strengthening of links between the project's Management Committee of which they formed a part and their thematic groups which they always held in high regard, respected and felt proud to represent. Likewise, they enabled there to be valuable articulation between the different areas, showing great ability to admire and listen to the specific elements attached to each discipline in order to incorporate, take on board, learn and develop each contribution – the bridges between the dream and the reality. Because they had to carve new paths in many cases to make the ideas possible, design new approaches in the actual language of the area and the considerations proposed, and to ensure that the group would think about them from the standpoint of the specific nature of each discipline. Following group construction, the process always requires a solid framework based on generosity and rigour. In this respect, the coordinators were able to ensure that the project would achieve specific successful results.

Apart from the contribution made by the 15 thematic areas, Tuning Latin America has also been accompanied by a further two transversal groups: the Social Innovation group (coordinated by Aurelio Villa) and the 18 National Tuning Centres. The former created new dimensions that enabled debates to be enriched and an area for future reflection on thematic areas to be opened up. Without doubt, this new area of work will give rise to innovative perspectives to enable those involved to continue thinking about top quality higher education that is connected to the social needs of any given context.

The second transversal group about which one should recognise the major role played comprises the National Tuning Centres – an area of representatives from the highest authorities of university policies from each of the 18 countries in the region. These centres accompanied the project right from the outset, supported and opened up the reality of their national contexts to the needs or possibilities developed by Tuning, understood them, engaged in dialogue with others, disseminated them

and constituted reference points when seeking genuine anchors and possible goals. The National Centres have been a contribution from Latin America to the Tuning project, insofar as they have contextualised debates by assuming and adapting the results to local times and needs.

We find ourselves coming to the end of a phase of intense work. The results envisaged over the course of the project have succeeded all expectations. The fruits of this effort and commitment take the form of the reflections on the area of Architecture that will be provided below. This process comes to an end in view of the challenge faced in continuing to make our educational structures more dynamic, encouraging mobility and meeting points within Latin America, while at the same time building the bridges required with other regions on the planet.

This is the challenge facing Tuning in Latin America.

July 2013

Pablo Beneitone, Julia González and *Robert Wagenaar*

1

Brief description of the area

In the ALFA III-89-Tuning Latin America project Educational and Social Innovation the group of participant Latin American architects pursued the planned tasks to move forward in the second phase of the project, discussing the scope of the first phase, in which the generic and specific competences for the region's architects were formulated. The first phase of the Tuning Latin America project took place in 2005 and 6. Some members from that project also participated in the present phase. They are Inés Juana Presman (Argentina), Flavio Valassina (Chile), Samuel Ricardo Vélez (Colombia), Lourdes Ortega (Cuba), Carlos Enrique Valladares (Guatemala), Juvenal Baracco (Perú) and Cristina Bausero (Uruguay). Constantin Spiridonidis from Greece also participated in both phases. The other countries changed their representatives as is noted in the final page of this document. The period of time that elapsed between one phase and the next, close to five years, enabled the progress of academic proposals and the development of academic programmes to be confirmed and validated in the associated institutions with regard to the reflection and experimentation of teaching approaches and methodologies in the competence-based learning of architecture. All of this relates to training profiles in accordance with architecture qualifications, and reflects the possible and desirable careers within each context of the city, region and country, as published in Reflections *and Perspectives on Further Education in Latin America* (Beneitone et al., 2007).

It is important to remember that degree courses in architecture as a professional training programmes within the context of Latin America have been a response to each country's specific conditions and the needs of both the cultural and social context. The oldest university in

the region is the University of Chile, whose first academic year dates back to 1848. The Faculty of Architecture at the University of the Republic of Uruguay is 91 years old and the Faculties in Guatemala, Argentina, Colombia, and the Architecture Programme in Cuba, have been in existence for well over half a century.

The curricular frameworks and syllabuses attached to the Latin American Architecture Programmes have a common denominator: the architectural project —also called workshop project or design project— where all the theoretical and practical components implemented from other subjects come together: plans and representations, geometry, technology and construction, structures, town-planning, history and theory, to mention just a few. This characteristic, specific to the training of architects, will be made especially clear and will be highlighted throughout the course of this document.

Another common aspect of the training and work of a Latin American architect relates to urban interventions. In all our countries, regional/spatial planning and town planning has been delegated or assigned to architects, even though their professional qualifications do not explicitly define them as town planners. The interdisciplinary work surrounding town planning or regional/spatial projects has been led by architects —whether they be town planners or simply general architects— and this field of activity continues to be an architect's priority within the context of Latin America.

The social and political conditions of countries in Latin America, especially in recent years, have begun to condition, standardise and define the actions of architects, focusing their career on the following: low-resource housing solutions in marginalised and/or displaced communities; controlling the rapidly growing cities as centres of population concentration (almost 70% of population concentration in Latin American countries is found in urban centres, while at the beginning of the 20th century, the percentage of rural and urban population was the opposite); becoming aware of the sustainability, environmental wealth and variety, and wealth in terms of landscapes needing to be preserved and used as a resource, and as a cultural hallmark of our people's identity.

This, combined with other different but essential characteristics required to be pursued in architecture, such as each country's climate, topography, hydrology, seismicity, landscape and cultural roots, has

shaped and conditioned the careers of Latin American architects in an autonomous and specific way according to nation, with little professional exchange among the Hispanic community, and more influences from North America, Europe or Asia than from our own context. The list of proposed specific competences are a reflection of the diversity of career fields for architects in Latin American countries, some of which are more geared towards technique and technology, others towards creativity and design, and some towards town planning. However, they all have a strong element in common in the form of the architectural project as the focal point of curricular plans, and design methodology as the basic strategy in the development of new architects.

In the conclusions drawn from the first phase of the project, it was accepted at the time that, even though the architecture programmes were not competence based, nor was this expressly stated in the programmes, graduates in the schools and faculties did show signs of having completed competence based courses. The workshop methodology used to teach the subject of Projects or Design also met the conditions needed for the student to fully grasp the foundations of the discipline through researching and incorporating the expertise and knowledge gained autonomously from other areas of study into the project, and demonstrating awareness of a clear relationship with the context.

In this second phase of the Tuning Latin America Project, there has been significant progress from the point of view of integrating the region through a common language in order to understand the scope of the education of architects. By implementing an approach based on the generic and specific competences in learning and assessment at each of the participant institutions, it was possible to share the difficulties and achievements in the curricular transformation processes each participant had led and/or established in their respective countries – enabling, through open and critical dialogue, the *meta-profile*3 for the development of the Latin American architect to be reconciled. Meta-profiles represent the structures of the areas and combinations of competences (generic and specific) that lend identity to the disciplinary area concerned. Meta-profiles are mental constructions that categorise competences in recognisable components and illustrate their inter-relations within the curriculum and in relation to the world of work. The construction of the meta-profile serves to focus the discussion of the group as they seek to find common reference points. The meta-

profile itself serves as a useful instrument to find the common elements in programmes in different countries and also helps to evaluate the competence lists.

Measuring the working time required by students to fulfil the intended learning outcomes and proposals set out in the qualification profile, and the pedagogic strategies used to assess the competences, were other parts of the task of comparing and contrasting experiences from each of the countries. The intention was not to reach agreement on the subject, but rather to share achievements and difficulties so as to advance together towards a methodology that enables a clear and transparent verification of the competences that identify the task of an architect within the Latin American context providing thus a mechanism to promote the mobility of both students and graduates in our region.

In parallel, in order to explore the possible future career profiles of architects, field research was developed via interviews with prominent architects from each country including established professionals, teachers and trainers of new architects, and members of government staff or public administration. This was a forward-looking exercise that provided insights and allowed reassessment of architecture as one of the professions needed for the sustainability of communities and society at large in the future.

Finally, the members of the architecture working group stated the need to increase opportunities for joint academic work, whether it be through projects or by consolidating networks. Progress in the region with regard to national or international accreditation processes is a possible scenario for sharing the outcomes of projects such as Tuning Latin America, which has become a benchmark on matters of internationalisation, competence formulation and their assessment. The problems specific to Latin America, as a result of its historical, social and political evolution, albeit within a rich and exuberant context, demand specific competences for future architects in order to support the social transformation processes that are needed, in harmony with the environment and the conservation of natural resources, by way of a committed and responsible response to one's own culture.

It is thus necessary to develop, innovate, research and produce knowledge which allows the architect to intervene and participate relevantly and critically in those processes deemed intrinsic to

development. Discussion on the future of teaching architecture has therefore shifted towards the social and environmental issues of the new millennium and raises the questions: what should an architect know? And, what should they do with what they know? The answers will lie, following reflection within each academic community, in the professional profile we intend to create in line with a given context, and the competences associated with such a context that should be made evident.

2

Meta-profile of the Architect in Latin America

2.1. General agreements about preparing competence-based academic-professional profiles

The group of participants in Architecture defined the methodology to test the meta-profile, the procedure to prepare the synthesis, and the presentation of each country's perspective in a regional map of profiles. The proposed scope of the methodology was as follows:

- Weighting by each of the group members of each of the competences, both generic and specific, according to the degree of importance it was seen to have for the architect profile. The average of this weighting produced a ranking of the most relevant competences in the education of architects.

- The list of all the generic and specific competences considered in the initial phases of the Tuning Latin America Project was then reviewed with the aim of analysing the possibility of including one or several of these in the competences classified as being important. In this respect, it was taken into account that the generic competences defined as being most important lose their generic nature and become specific as part of the meta-profile definition, insomuch as they display the specific careers of an architect, as is the case with the Ability to communicate or connect which, for the architect, refers to technical skill rather than dealing with actual codes of design and architectural expression. Thus, it was possible to establish ten (10)

meta-competences which articulate, within their definitions, both the specific and generic competences initially formulated.

- The competences established in the meta-profile were compared with the principles of the International Union of Architects (UIA), which are for the careers of professional architects throughout the world; considering that the context of an architect's activity can cross the borders of every country towards a globalised world, whether that be in reality or virtually – since an architect does not need to be in a certain place to engage in their profession but can do so remotely by connecting to «the cloud».

- To supplement the previous step, the meta-profile was compared and contrasted with the competences defined for architects in the United States by the National Architectural Accrediting Board (NAAB). This step in the methodology enabled the disciplinary scope relating to specific learning objectives for the architect to be validated.

- The meta-profile of the Architect in Latin America was further defined by using the meta-competences already partly established, taking into account the careers, knowledge and skills an architect should evidence within the regional context.

The work was carried out as follows:

- The degree of importance each specific competence for the Area of Architecture defined in phase 1 of Tuning Latin America was weighted by the participant academics in phase 2 of the Project.

  Weighting range: maximum 1, minimum 13.

Specific competences defined in Tuning Latin America phase 1 for the thematic area of Architecture	Average weighting
4. The skills required to design architectural and/or town planning developments which fully meet the requirements of people, society and its culture, and adapt to the context.	2
12. Ability to perceive, conceive and use space in three dimensions and different scales.	5.692307692

Specific competences defined in Tuning Latin America phase 1 for the thematic area of Architecture	Average weighting
9. Imaginative, creative and innovative capacity in the design process of architecture and town planning.	6.307692308
21. Ability to define the technology and constructive systems that are best suited to the demands of the architectural project and local context.	7.076923077
5. Ability to formulate ideas and transform them into architectural creations in accordance with the principles of composition and visual and spatial perception.	7.307692308
18. Ability to develop town-planning and architectural projects which guarantee sustainable and maintainable development in relation to the environment, society, culture and economy.	7.846153846
14. Command of the means and tools to communicate the town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically.	8.153846154
15. Ability to integrate interdisciplinary teams which develop different intervention techniques in order to improve urban and architectural spaces that are deteriorated and/or in conflict.	8.538461538
16. Ability to acknowledge, value, design and intervene in urban and architectural heritage.	8.615384615
10. Ability to recognise and apply research methods to deal with the demands of the human habitat creatively in different scales and degrees of complexity.	8.692307692
11. Willingness to carry out research in order to produce new knowledge that contributes to the development of architecture.	8.923076923
13. Ability to reconcile all the factors intervening in the area of architectural and urban design.	8.923076923
26. Ability to build, manage, supervise and oversee the execution of architectural and town-planning developments in their different scales.	8.923076923
8. Ethical commitment to the discipline and to exercising the architect's profession.	9.384615385

Specific competences defined in Tuning Latin America phase 1 for the thematic area of Architecture	Average weighting
2. Awareness of the social function of architecture and the capacity of the architect to contribute ideas to society so as to improve the habitat.	9.461538462
6. Knowledge of the history, theories of architecture, art, aesthetics and human sciences.9.461538462	
17. Ability to lead, participate in and coordinate the interdisciplinary work involved in architecture and town planning.	9.461538462
25. Ability to plan, schedule, budget and manage architectural and town-planning projects in the marketplace.	10.23076923
7. Knowledge, sensitivity and commitment towards the issues concerning the current local and global architectural debate.	10.38461538

The first agreement resulting from the weighting of specific competences reinforces the characteristics distinguishing architects from other professions, their «skill to design architectural and/or town-planning developments which fully meet the requirements of people, society and its culture, and adapt to the context».

- Weighting of the degree of importance of the generic competences, defined in phase 1 of Tuning LA, among the participant academics in phase 2 of Tuning, for the area of architecture.

  Weighting range: maximum 1, minimum 13.

Generic competences defined by Tuning LA in phase 1	Average weighting
1. Capacity for abstraction, analysis and synthesis	3
14. Creative capacity	3.071428571
15. Ability to identify, consider and deal with problems	6.071428571
12. Critical and self-critical capacity	6.428571429
2. Ability to apply knowledge in practice	7.785714286

Generic competences defined by Tuning LA in phase 1	Average weighting
25. Ability to design and manage projects	7.857142857
26. Ethical commitment	8
16. Capacity for decision-making	8.071428571
17. Capacity for teamwork	8.071428571
13. Ability to act in new situations	8.214285714
9. Research capacity	8.214285714
10. Ability to learn and keep constantly up-to-date	8.428571429
20. Commitment to conservation of the environment	8.571428571
11. The skills required to search for, process and analyse a variety of information	8.642857143
21. Commitment to the socio-cultural environment	8.642857143
4. Knowledge about the area of study and profession	8.785714286
19. Ability to motivate and steer towards common objectives	9.142857143
6. Ability to communicate orally and in writing	9.214285714
5. Social responsibility and civic engagement	9.5
7. Ability to communicate in a second language	9.571428571
24. Ability to work independently	9.642857143
8. Skills in the use of ICTs	9.642857143
18. Interpersonal skills	9.857142857
22. Appreciation and respect for diversity and multiculturalism	9.857142857
23. Ability to work within international contexts	10
27. Commitment to quality	10.21428571
3. Ability to organise and plan time	10.21428571

- Review of the meta-competences defined in the previous steps (phase 2 of the Tuning LA Project), and coverage of these with regard to the generic and specific competences defined in phase 1 of the Tuning Project.

In this phase of the proposed methodology, the group members reviewed which generic and specific competences should be included in the meta-competence based on what the weighting of the degree of academic importance had shown to be the most relevant for the profile of an architect in Latin America. The 10 meta-competences are shown in the left-hand column, and the generic and specific competences in the middle and right-hand columns, respectively, in such a way that they cover and validate Phases 1 and 2 of the Tuning LA Project. This proposal is a ratification and evolution of previous agreements, synthesising and integrating them. It is important to make a clarification regarding meta-competence number 10, which is not the outcome of a consensus on the predefined competences in the previous stages of the Project, but is an agreement among the group members in view of the employability conditions of the profession within the current context.

Meta-competence for the Area of Architecture Tuning Project phase 2	Generic competences Tuning phase 1, integrated into the associated meta-competence	Specific competences for Tuning Architecture phase 1, integrated into the associated meta-competence
1. The ability to design architectural and/or town-planning developments critically and creatively which fulfil the requirements of people, society, its culture and the environment, whilst valuing the context and considering aesthetic and technical demands.	1. Capacity for abstraction, analysis and synthesis.	12. Ability to perceive, conceive and use space in three dimensions and different scales.
	14. Creative capacity.	9. Imaginative, creative and innovative capacity in the design process of architecture and town planning.
	15. Ability to identify, consider and deal with problems.	5. Ability to formulate ideas and transform them into architectural creations in accordance with the principles of composition and visual and spatial perception.
	2. Ability to apply knowledge in practice.	16. Ability to acknowledge, value, design and intervene in urban and architectural heritage.
	21. Commitment to one's socio-cultural environment.	13. Ability to reconcile all the factors intervening in the area of architectural and urban design.
	4. Knowledge of the area of study and profession.	2. Awareness of the social function of architecture and the architect's capacity to contribute ideas to society so as to improve the habitat.
	27. Commitment to quality.	6. Knowledge of the history, theories of architecture, art, aesthetics and human sciences.
2. Ability to define and materialise the technology and constructive, structural and environmental conditioning systems and installations suited to the demands of the architectural and/or town-planning project in accordance with rules and regulations, and the local context.		21. Ability to define and materialise the technology and constructive, structural and environmental conditioning systems and installations suited to the demands of the architectural and/or town-planning project in accordance with the rules and regulations, and the local context.

Meta-competence for the Area of Architecture Tuning Project phase 2	Generic competences Tuning phase 1, integrated into the associated meta-competence	Specific competences for Tuning Architecture phase 1, integrated into the associated meta-competence
3. Capacity for criticism and self-criticism so as to transform ideas into spaces, forms and buildings.	12. Critical and self-critical capacity.	7. Knowledge, sensitivity and commitment towards issues concerning the current local and global architectural debate.
	16. Capacity for decision-making.	
4. Command of the means and tools to communicate the town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically.	6. Ability to communicate orally and in writing.	
	7. Ability to communicate in a second language.	
	8. The ability to use ICTs.	
5. Ability to integrate and lead interdisciplinary teams.	17. Capacity for teamwork.	17. Ability to lead, participate in and coordinate interdisciplinary work in architecture and town planning.
	19. Ability to motivate and steer towards common objectives.	15. Ability to integrate interdisciplinary teams which develop different intervention techniques in order to improve urban and architectural spaces that are deteriorated and/or in conflict.
	18. Interpersonal skills.	
	23. Ability to work within international contexts.	
6. Ability to apply research methods to meet the demands of the human habitat creatively in different scales and degrees of complexity.	9. Research capacity.	11. Willingness to carry out research in order to produce new knowledge that contributes to the development of architecture.
	11. The skills required to search for, process and analyse a variety of information.	10. Ability to recognise and apply research methods to meet the demands of the human habitat creatively in different scales and degrees of complexity.

Meta-competence for the Area of Architecture Tuning Project phase 2	Generic competences Tuning phase 1, integrated into the associated meta-competence	Specific competences for Tuning Architecture phase 1, integrated into the associated meta-competence
7. Ability to learn and keep constantly up-to-date.	13. Ability to act in new situations.	
	10. Ability to learn and keep constantly up-to-date.	
	27. Commitment to quality.	
8. Ability to manage, schedule, budget, financially control and supervise the construction of architectural and town-planning developments in their different scales.	25. Ability to design and manage projects.	25. Ability to plan, schedule, budget and manage architectural and urban projects in the marketplace.
		26. Ability to build, lead, supervise and financially control the execution of architectural and town-planning developments in their different scales.
9. Ability to act ethically within the framework of the discipline, society and sustainable development.	26. Ethical commitment.	18. Ability to develop urban and architectural projects which guarantee sustainable and maintainable development in relation to the environment, society, culture and the economy.
	20. Commitment to the preservation of the environment.	
	5. Social responsibility and civic engagement.	
	22. Appreciation and respect for diversity and multiculturalism.	8. Ethical commitment to the discipline and to exercising the architect's profession.
	27. Commitment to quality.	
10. Capacity for entrepreneurship and innovation.	24. Ability to work independently.	
	18. Interpersonal skills.	
	3. Ability to organise and plan time.	

The group of academics from the different Faculties and Schools of Architecture in the participant countries throughout Latin America established the synthesis between the generic and specific competences

following the methodology proposed for the second phase of the project, whilst upholding the definition of the 10 *meta-competences*, which, in turn, substantiate the scope of the Meta-Profile formulated below.

- Contrasting the competences defining an architect's meta-profile in phase 2 of Tuning LA with the competences established by the NAAB (National Architectural Accrediting Board) in the United States:

With the recent opening up of international accreditation processes by the United States, the group members from the Area of Architecture considered it relevant to compare and contrast the 10 meta-competences determined for the architect in Latin America with the competences established by the American accrediting board. The result of this convergence is as follows:

Meta-competence for the Area of Architecture, Tuning phase 2	**Competences of the architect in the United States, as defined by the NAAB**
3. Capacity for criticism and self-criticism in order to transform ideas into spaces, forms and buildings.	Tools to devise the design
1. Ability to design architectural and/or town planning developments critically and creatively which meet the requirements of people, society, its culture and the environment, whilst valuing the context and considering aesthetic and technical demands.	Basic design tools
4. Command of the means and tools to communicate town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically.	Visual communication tools: reading, writing and speaking
2. Ability to define and materialise the technology and constructive, structural and environmental conditioning systems and installations suited to the demands of the architectural and/or urban project in accordance with the rules and regulations and the local context.	Technical knowledge

Meta-competence for the Area of Architecture, Tuning phase 2	Competences of the architect in the United States, as defined by the NAAB
10. Capacity for entrepreneurship and innovation.	Research tools
8. Ability to manage, schedule, budget, financially control and supervise the construction of architectural and town-planning developments in their different scales.	Systems management tools
9. Ability to act ethically within the framework of the discipline, society and sustainable development.	Global historical and cultural tradition
5. Ability to integrate and lead interdisciplinary teams.	Cultural diversity
6. Ability to apply design research methods to meet the demands of the human habitat creatively in different scales and degrees of complexity.	Applied experimentation: Design research
7. Ability to learn and keep constantly up-to-date.	Using background data

2.2. Preparing the Meta-profile proposal (framework of the area in which generic and specific competences are combined) for a qualification in Architecture in Latin America

For an architect, the core, cross-cutting competence, both in the training process and professional practice, is the ability to design architectural and/or town planning developments critically and creatively which fully meet the requirements of people, society, its culture and the environment, whilst valuing the context and considering aesthetic and technical demands.

When determining the careers associated with this meta-competence, all kinds of knowledge and expertise need to be engaged, such as specialist, theoretical, technical, graphic, investigative, regulatory and legislative knowledge; which will allow other professional aspects that complement design capacity to be highlighted. The capacities

(understood as evidence of knowledge or expertise, abilities or skills, and attitudes) intrinsic to the formulated meta-competence are:

- The ability to define and materialise the technology and constructive, structural and environmental conditioning systems and installations suited to the demands of the architectural and/or town-planning project in accordance with the rules and regulations and the local context.

- Command of the means and tools to communicate the town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically in different scales.

- The ability to apply design research to meet the demands of the human habitat creatively in different scales and degrees of complexity.

- The ability to manage, schedule, budget, financially control and supervise the construction of architectural and town-planning developments in different scales.

Similarly, architects must develop the skills enabling them to make self-critical decisions in their relationship with the context, work in interdisciplinary groups, keep up-to-date, and make their profession their enterprise, within a framework of ethics and sustainability.

These skills directly relate to the following generic competences, which become specific when referring to an architect's career, (phase 1 of the Tuning project-seeTuning-AméricaLatina.http://tuning.unideusto.org/tuningal www.rug.nl/let/tuningal):

- Critical and self-critical capacity.

- The ability to integrate and lead interdisciplinary teams.

- The ability to learn and keep constantly up-to-date.

- The capacity for entrepreneurship and innovation.

- The ability to act ethically within the framework of the discipline, society and sustainable development.

On the basis of the above reflection, which is supported by the proposed methodology, the group of academics in the Architecture agrees on the following meta-profile for the Latin American architect:

> «An architect is a professional committed to the development of society, who is qualified to design architectural and urban spaces for human use and is fully trained ethically, humanistically, theoretically, technically and environmentally in the discipline of architecture and town planning, with knowledge of history and culture».

In order to clarify the understanding and scope of the meta-profile of the Latin American architect, the formative dimensions and/or career needs were determined, in relation to the agreed meta-competences (the numbering corresponds to the order in which they were previously set out in this document):

The dimension of architectural creativity

1. The ability to design architectural and/or town-planning developments critically (i.e. with full awareness of the situation in which the work is taking place and an ability to act appropriately and thoughtfully) and creatively which fully meet the requirements of people, society, its culture and the environment, whilst valuing the context and considering aesthetic and technical demands.

6. The ability to apply methods of design research to deal with the demands of the human habitat creatively, in different scales and degrees of complexity.

The dimension of architectural thought

3. The capacity for criticism and self-criticism in order to transform ideas into spaces, forms and buildings.

9. The ability to act ethically within the framework of the discipline, society and sustainability.

The dimension of materialising architectural ideas

2. The ability to define and tailor the constructive technological systems to the demands of the architectural and/or town-planning project in accordance with the regulations and local context.

The dimension of architectural communication

4. The ability to use the means and tools to communicate and support both town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically.

The multidisciplinary dimension of architecture

5. The ability to integrate and lead interdisciplinary teams

The dimension of architectural experimentation

10. The capacity for entrepreneurship and innovation in architecture.

The dimension of professional action in the field of architecture

1. The ability to design architectural and/or town planning developments critically and creatively which fully meet the requirements of people, society, its culture and the environment, whilst valuing the context and considering aesthetic and technical demands.

7. The ability to learn and keep constantly up-to-date.

8. The ability to manage, schedule, budget, lead, financially control and supervise the construction of architectural and town-planning developments in their different scales.

2.3. Contrasting the meta-profile agreed in each of the participant countries with programmes and the specific legislation related to each of them.

Each academic then compared the meta-profile with the State or trade-union regulations and the possible fields of professional activity in the respective country. It was therefore possible, once cross-checking had been completed, to submit a substantiated validation of the proposal made by the team.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Argentina	Ministry of Education Resolution 133/87 states that the duties of a Qualified Architect are:	1. To design, plan, manage and build spaces intended for human habitation, including their interior and exterior fixtures and fittings and infrastructure, additional installations (with the exception of engineering equipment) and the required structures to materialise such spaces. 2. To plan, manage and execute work involving demolition, recovery, renovation, rehabilitation and re-functionalization of buildings, groups of buildings and other spaces intended for human habitation. 3. To conduct studies, plan and manage the execution of work aimed at materialising the landscape. 4. To conduct studies and research into the management and planning of spaces that shape the habitat and issues regarding the design, planning, execution and regulations of works of architecture. 5. To conduct technical surveys, assessments and valuations of real estate and participate in the resulting arbitrations and technical reports. 6. To plan, execute, manage and assess everything concerning health and safety in architectural work.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Bolivia	Architects are all those professionals complying with all the requirements set out by Act 1373 of professional practice and all other provisions regulating the pursuit of the profession, architecture being the field of intervention of habitat-architecture, town planning and physical planning.	The field of the professional activity of an architect comprises: a) Undertaking technical-administrative functions within their professional field in the public and private sectors. b) Preparing architectural, town-planning and/or regional/spatial planning projects and determining the technical and structural criteria, installations and services. c) Managing, supervising, administering and financially controlling the architectural and/or town-planning developments. d) Preparing valuations, technical reports and similar tasks within the field of their professional activity. e) Preparing urban-regional planning projects, and managing, financially controlling and administering them. f) Performing other activities, which, by their very nature, are included or correspond to their professional field. g) University teaching.
Brazil	The Brazilian Council of Architecture and Town planning —CAU/BR— specifies professional standards for architects and city planners and the practice areas shared with other regulated professions. It supervises the professional practice of architecture and urbanism and the exercise of activities in areas shared with other professional areas,	Article 2 states that the activities and tasks of the architect and town planner consist of: I. monitoring, coordination, management and technical guidance; II. data collection, study, planning, design and specification; III. technical and environmental feasibility study; IV. technical assistance, advice and consultancy; V. direction of works and technical service; VI. survey, expertise, evaluation, monitoring, appraisal report, technical advice, audit and arbitration; VII. performance of capacity and technical function; VIII. training, teaching, research and University extension; IX. development, analysis, experimentation, testing, standardization, measurement and quality control; X. preparation of budgets; XI. specialized technical production and dissemination; and XII. implementation, supervision and conduct of work, installation and technical services. The fields of professional activity for the Office of Architecture and Town planning are defined in the national curriculum guidelines available on the formation of the professional architect and urban planner in which the nuclei of reasoning skills and knowledge which characterize professional performance of professionals.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Chile	The Constitutional Act of the Board of Architects (art. 12, Act 7211, dated 4th August 1942, and Decree 1214, dated 28th August 1943), remain in force up to this day. The Charter of Professional Ethics of the Architects' Association (basic duties and responsibilities), Supervisor of Health Services and General Ordinance of Town Planning and Buildings (OGUC).	1. To design and financially control the construction of buildings and perform calculations regarding their stability, and their correlative work and complementary installations. 2. To design, manage and financially control the construction of work of an essentially artistic or monumental nature, town-planning developments relating to the aesthetics of built-up areas; city maps and gardens and their expansion and renovation. 3. To serve as an arbitrator or expert in matters relating to architecture and town planning and as a consultant or technical manager in companies or institutions requiring the services of architects. 4. Town and country planning and management and the study of development plans. 5. To be a professional with thorough scientific, artistic and technical training and a profound sense of equity and morality. 6. The ability to supervise the construction of any architectural project.
Colombia	Act 435, dated 1998: «Title I, section 1. DEFINITIONS: For all legal purposes, architecture is understood as being the profession at university level, whose preparation comprises the art of designing and creating spaces, building material works for human use and convenience, and the scope of which basically includes a set of technical and artistic principles regulating this art.	The professional practice of architecture is the activity performed by architects with regard to the design, construction, extension, conservation, alteration or restoration of a building or group of buildings. This professional practice includes strategic and spatial planning, town planning and urban design. It includes: • Architectural and urban design, preliminary studies, models, plans, technical documentation and specifications, preparing plans from basic sketches, architectural and town-planning drafts and projects. • Preparing construction budgets, controlling costs and managing contracts and projects. • The construction, extension, restoration and preservation of architectural and town-planning developments including, among other things, the execution and control of programmes, whatever the contractual arrangement being used may be, provided that they are within the scope of an architect's work. • Supervising projects and building work. • Managing architectural and town-planning developments. • Studies, advice and consultancy regarding urban, regional and land development plans. • Studying, applying for and issuing planning permission. • Preparing valuations and technical reports relating to architecture and constructions. • Teaching architecture. • Others working within the professional field of architecture.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Costa Rica	Profile of the Professional Architect, College of Architects of Costa Rica. http://colegiodearquitectosdecostarica.com/arquitecto.html Meta-Profile: The professional architect has a cognitive skill integrating the use of logical, intuitive and creative thought to conceptualise, conceive, propose, design, execute, schedule and carry out architectural, town-planning and landscaping developments, and addresses the concepts and land-use and planning regulations according to the cultural meanings of the environment and its technological, socio-economic, aesthetic and ecological context, both in urban and rural areas.	The aptitude or capacity to apply the basic formal, functional, legal and technical principles in order to conceptualise, design and develop architectural projects for constructions and urban areas, defining their characteristics and the levels of performance to be reached. The ability to design, manage and assess complete projects which incorporate the context's social, cultural and historical dimensions. The ability to manage, plan and financially control building and development work, whilst complying with the codes and legislation in force. The ability to prepare building schedules which take the requirements and needs of clients and users into consideration. The ability to apply, both manually and digitally, formal and conventional systems of graphic representation to represent and explain architectural and town-planning projects. A protective attitude towards built and natural heritage and the capacity for intervention. The ability to draw up and manage spatial and metropolitan planning, master plans and strategic plans. The ability to conceive and integrate the appropriate type of structure into planned constructions and urban areas. The capacity for strategic thinking and the eventual use of the mechanical and electrical systems embedded in the architectural systems of constructions and urban areas. The ability to apply the regulations and laws associated with architectural and town-planning projects, in addition to building, approval, health and safety, and maintenance codes. The ability to analyse the condition of existing constructions, and the aptitude to define the maintenance conditions and required repairs.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Cuba	Centres of Further Education offering the Degree in Architecture.	a) Planning, design (exterior, interior, landscaping), execution, conservation and management of both new building work and architectural and urban rehabilitation. b) Research and teaching. c) The national defence and intervention of urban and architectural heritage. d) Designing and managing illustrations. Associated careers: 1. The builder architect. 2. The structural architect. 3. The urban architect. 4. The interior design architect. 5. The landscape architect. 6. The publicist. 7. Careers associated with both architectural and urban design.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Ecuador	The Professional Practice of Architecture Act (a Reform Act amending the Professional Practice of Architecture Act published in the Official Register # 999, dated 30th July 1996). The definition of professional practice: the practice of architecture consists of providing professional services relating to the design, construction, extension, conservation, restoration or modification of a building or group of buildings. These professional services include, but are not limited to, planning, strategic planning and land use, town planning, the provision of preliminary studies, designs, models, plans, technical documentation and, more specifically, coordinating the appropriate technical documentation prepared by third parties without limitation, the economics of the construction, arranging contracts, financially controlling and inspecting the construction and overseeing the project.	a) Designing physical and spatial components for the general development plans and policies, and sectorial plans and policies involving housing, education, health, regional administration, town planning and, as a whole, all plans and policies including physical and spatial aspects. b) Carrying out studies, programmes, projects and designs involving architecture, town-planning, organisation and land distribution, landscaping, interior design and sectorial engagement in environmental impact studies. c) Carrying out studies, programmes, projects and designs of restoration, rehabilitation, renovation and remodelling work in building and urban spaces. d) Overseeing the execution of architectural and town-planning developments by both public and semi-public institutions and their departments, insofar as their activity is linked to the profession. e) Teaching, consultancy, supervision and assessment of work in the specific areas of architecture and town planning, and consultancy in accordance with the law. f) Participation in project and design competitions of works related to architecture and town planning. Other activities requiring professional knowledge of architecture and town planning such as: a) the construction, restoration, rehabilitation, renovation, remodelling and maintenance of urban developments. b) Financial inspections, technical reports, assessments and the planning of architectural and town-planning developments. c) Designs relating to industrial products, visual communication elements and objects and constructive systems relating to architecture and town planning.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Guatemala	The architect profile: Plans and constructs buildings of any type requiring social activities, housing, plots of land, housing developments, the integration interdisciplinary teams and preparation of technical reports and valuations. Overseeing design and construction companies and applying their knowledge of the planning, control and supervision of works.	Eligible to work in any of the following activities or specialities: • Architectural design. • Town planning. • The construction of buildings. • Works administration, management, supervision and control. • Planning. • Research. • University teaching. • Preparing technical reports. Professional activity can be through self-employment, in the public or private sector, or in educational or research institutions.
Panama	The profession of architect is regulated by Act 15, 1959, which sets out the functions and competences of an architect and the basic profile of the professional architect: An architect is a professional with broad technical, social and artistic expertise to design, coordinate and carry out the most suitable solutions for people's housing, recreational areas, education and social services centres, and workplaces, whilst attending to the collective wellbeing, stability and safety of the constructions and their functionality.	1. Preparing projects plans and specifications for the construction of all kinds of buildings. 2. Planning, designing, organising, overseeing, financially controlling, executing, repairing, budgeting and preserving the following types of work: buildings of all kind, monuments, parks, squares and gardens. 3. All kinds of interior and exterior decoration of buildings. 4. Planning and overseeing the architectural aspects of town planning. 5. Preparing and issuing reports, valuations and technical surveys on all matters relating to the architect's profession. 6. Teaching subjects relating to the architect's profession in centres of further education. 7. Carrying out any other function that their knowledge entitles them to perform in any public or private institution.

Country	Legal framework and profile scope	The architect's career field according to each country's legislation
Peru	Act # 28966 enacted and passed on 23rd January, 2007, by the Congress of the Republic, and signed by the President of the Republic, complements the existing legal framework governing the architect's profession.	Pursuant to Act # 16053, those holding the academic qualification and professional title of architect granted in accordance with the law, are entitled to work in the areas of: building work, the rationalised habitat, technology and knowledge. In the first, they are entitled to work as a designer, provider of related or complementary services, manager, teacher, researcher, promoter and consultant, among others. As regards the habitat, they are entitled to work in regional/spatial planning, town planning, habitable ecological environments, urban design, ecological and environmental restoration. As regards technology, they are entitled to work in real estate, project management, urban furnishing, appliances and equipment, surface conditioning, materials and other services. Work in these three areas can be undertaken independently, dependently or with associates.
Uruguay	Profile of the Faculty of Architecture degree at the University of the Republic of Uruguay: The graduates of this degree, who will have received a general and balanced education in the discipline, will be entitled to practise as a professional architect, being qualified to do so. Hence, they are entitled to perform tasks relating to architecture, in its broadest sense, involving planning, scheduling, project management, production, consultancy, maintenance and the provision of equipment, in all its dimensions and scope of action, including regional, and to form teams in order to address the said activities, other more complex activities or those requiring levels of interdisciplinary study.	It is now possible to identify scenarios and numerous, different and changeable academic and professional courses of action in architectural and town-planning projects in different scales. These conditions need a general profile to be adopted to train the architect, incorporating ethical training and the social, political and environmental responsibility the professional and academic activity entails. This professional must be aware of the fact that the education received, throughout the course of their degree studies is the first stage in a process of continuous professional development. • The ability to interpret society's individual and collective demands in relation to its relevant cultural and environmental aspects. • The ability to produce architectural projects creatively in different scales with the instrumental, techno-constructive and expressive aspects coherently presented, whilst taking into consideration the respective social, economic, historical, cultural and environmental contexts. • The ability to carry out the tasks relevant to the constructive and technological activity by engaging the appropriate technologies, in addition to quality, health and safety. • The ability to perform activities of organisation, management and supervision of a policy-making, technical and administrative nature in the corresponding activity. • The conceptual and methodological capacity needed to integrate interdisciplinary teams.

A summary of (general) architects' careers in Latin America can be seen in the table above. Architects can work:

1. As planners and designers oriented towards the design and development of architectural and town-planning projects in different scales, using all means of communication —oral, written, via plans and models— associated with the discipline, both for new work and the conservation of heritage property.

2. As planners and town planners, oriented towards the conservation of the environment, landscape intervention and the rational use of resources.

3. As constructors of buildings, in actual building activities such as the extension, remodelling, restoration and preservation of architectural and/or town-planning developments, carrying out activities which include budgeting, planning, performing assessments and valuations of real estate, management, leadership, supervision and technical management.

4. As researchers in the profession's thematic areas.

5. As teachers.

3

Future scenarios for the area/profession of Architecture

The Coordination Unit of the Tuning Latin America Project posed the challenge to the group of participant academics to carry out a prospective exercise by interviewing one or two professionals from the area of Architecture in each country. They were to be asked to think about the future of the profession and the competences that will need to be developed by educational institutions so that their professionals will be effective and relevant in the future, besides the possibility of considering new professions and competences to solve and address issues relating to architecture.

The profile of the interviewees was previously defined by the group of Latin American architects as a) practising architects, with notable professional activity on the local and national stage, either with private offices or studios; b) academic activity, as teachers or researchers; or c) members of government agencies. That their names be not disclosed so as to ensure the anonymity of the source was one of the parameters set out in the project.

Following analysis of the different interviews, this summary addresses the following aspects:

3.1. Brief description of interviewees' profile

All the interviewees were between the ages of 35 and 70, the average age being between 50 and 55. This condition unilaterally directs the reading and interpretation of the gathered information, since it is not possible to compare it with the view held by young professionals, who are highly likely to have a different perspective on their profession and its role in current and future society; the challenges within the next twenty years facing the more senior group and the younger one are very different. The former will be retired or approaching retirement, and the latter will be in the most productive stage of their professional maturity.

This is an aspect that is still to be added, in which the views of professionals recently joining the profession from different areas and sectors would enrich the perspective and would most likely pose other challenges for the training and career of architects in the future, possibly with other commitments and challenges – above all, however, with a more multicultural perspective in interdisciplinary scenarios, where disciplinary boundaries may well dissolve as the problem of the human race living in contexts which are increasingly complex from an environmental, sustainable, political, technical, cultural and social point of view is addressed collaboratively from different angles.

3.2. Characterisation of the future scenarios taken into consideration as a result of the whole

When compiling the responses obtained from the interviews, two opposing points of view were found: one pessimistic about the future of humanity and therefore the career of architects; and the other optimistic, assessing the times to come in all their dimensions and regarding it as a challenge for architecture which, according to this perspective, will play a vitally important role in the future of humanity's sustainability and quality of life.

Among the pessimistic opinions, the following can be found:

- Society will face a continuous process of worldwide urban development (the urban invasion of the rural) with a predominance of private interest over public interest, giving rise to the excessive

growth of large cities, and the inevitable saturation of urban spaces and depopulation of rural areas.

- In the future countries will gear their struggle towards the control of communications.
- The gap between rich and poor countries will widen.
- The crisis of the traditional family at society's core will become evident.
- Individualism will emerge as the paradigm of social integration.
- Changes will be seen in the world's political system: a worldwide crisis of hegemony.
- Sewage pollution and the challenge regarding the reuse of waste will increase.
- There will be a worldwide increase in hotspots where there is conflict.
- There will be greater dependence on information technology in all areas of life, with the consequent loss of human contact.
- Interdisciplinary work increasingly focused on the solution to humanity's problems will mean that architecture will gradually lose its disciplinary objective of addressing architectural and urban space, handing over fields of activity to other professionals.
- The world has become flatter (globalised), and the need to identify oneself will be required.
- Global climate change is imminent, with its environmental consequences, such as desertification and flooding, to name just two.
- The indiscriminate consumption of natural resources will lead to a crisis, not only with regard to petrol as the energy source but also the shortage of water and minerals, the extinction of some species and growing loss of forest cover.
- The future will be marked by famines.

In contrast to the above, the architects interviewed also provided positive aspects, the most notable being:

- Changes in regional/spatial development will not be determined according to countries but to common cultural areas.
- Society at large will seek sustainable and maintainable development beyond public policies within a framework of equality of opportunities.
- The basis of regional/spatial development will be founded on more balanced land distribution.
- New energy-efficient building materials will be produced.
- Society will develop new forms of relationships which will have an impact on architecture, such as the challenge to foster bonding spaces via social and communications networks.
- An increase in public-private alliances will become evident, with mixed investment to generate development.

The structure of family groups will continue to change as will their ways of life.

- Virtual societies and cities will be a challenge.
- Mobility will be an issue to be addressed at all levels, leading to changes in cities and the resulting habitability, requiring new communications systems.
- The democratisation of architecture will emerge through information technology (boundaries are broken open).
- One of the challenges the future holds is the incentive and development to increase employment in renewable energies.
- Town planning and design will be more important in professional architecture than architectural work on an isolated building.

3.3. Professions that can be envisaged in each future scenario

The new professions envisaged to deal with foreseen future scenarios can be summarised as follows:

- Disciplines relating to the environment.
- Greater intervention and the need for specialists in different areas relating to the habitat, city and humankind in the short term.
- In an increasingly changing world, the knowledge brought by specialisation will be ephemeral, steering this situation towards the need to strengthen the professional development of general architects, with important emphases on sustainability and maintainability at the core.. The architect called to address issues of space in the future will be increasingly general, consolidating their vocation as a creative interpreter and interlocutor of several different social actors in all the productive chains, and interpreting all of their interests.
- The specialization related to the production of buildings will be consolidated.
- Architecture may drift towards a greater prominence of form, with the support of new hardware and software technologies. The risk is that this situation may lead to the proliferation of high-cost buildings and wasting of resources.
- No new professions are envisaged that displace or replace the architect's role in future society. Nevertheless, there will be a change in focus for the related specialisations, which will tend to reinforce aspects such as leadership, entrepreneurship, environmental responsibility and social commitment.
- In the future, schools of architecture will be overcrowded, which will cause a process of natural selection among professional architects themselves, and the most talented and creative architect will shine through, to be acknowledged as a star, while many others will take it upon themselves to carry out less acclaimed work.

3.4. Competences that will be required by the professions envisaged

The new, envisaged competences to address foreseen future scenarios are no different to those required by the contemporary architect —it is the same architect as today but in the future, seen with complementary careers— but they may complement others, or other fields of activity:

- The ability to negotiate and resolve conflicts.
- The ability to face the consequences of climate change.
- The ability to structure their professional activity holistically.
- The ability to prevent risks and disasters.
- The ability to perform within other multicultural contexts (knowledge of other languages, other cultures, other ways of life and of relating to people).
- The responsibility for rescuing vernacular architecture with new technologies.
- The ability to pursue their career with a major degree of commitment to society, displaying, through their activity, profound environmental awareness geared towards the preservation and sustainability of the environment, with a clear and tangible capacity to use renewable and non-renewable resources optimally, appropriately and sustainably.
- The capacity for appreciation and respect for multicultural diversity.
- The ability to carry out projects on high density town-planning, public space and green area assessments.
- The capacity for multidisciplinary work.
- The ability to incorporate new means and developments into new subjects or issues.
- The ability to adapt to new contexts.
- The ability to be astonished, and to learn from it.

3.5. Other relevant comments about the future

Additional comments were made about the future, unrelated to competences and capacities or the new disciplines, and are as follows:

- The architect of the future must be capable of asking the right questions in order to get the right answers.

- The competences have always been the same since the beginnings of architecture – what changes is their weighting within the profile. Career levels will also be weighted differently, according to the variables of future contexts.

- The discipline of architecture in the future will tend towards a career focussed on technique, towards practicality and problem solving, leaving the theoretical considerations to a specific field of professionals. This could radically change the length of degree courses and would have immediate repercussions on the employability and remuneration of future architects. The theoretical sustainability of the discipline will be underpinned by interdisciplinary and trans-disciplinary work. However, allowing the profession's actual know-how to be conceptualised by third parties is highly risky.

- Theoretical reflection on architecture in the future should transcend problems of technique and move on towards experience, thus recovering the origin and meaning that have allowed the survival of architecture as a fundamental discipline for humanity and society.

- There is the latent risk of reducing architecture to housing programmes of varying qualities and quantities, leaving the spatial conceptualisation, in its different dimensions, in the hands of other professionals.

- The cross-cutting or generic competences will change. Professionals will be committed to the dynamics of disciplinary integration, which will require mastering new languages and new technologies. Developing the ability to communicate personally and professionally will be of great importance in both the education of future architects and in their careers.

3.6. Group reflection

To round off the proposed theme of future scenarios, the group of Latin American architects speculated on the implications for architecture and the professional approach, based on previous changes in possible scenarios. The following table summarises the reflections made:

Change	Possible scenario	Implications for architecture	Professional approach
Mainly well-informed society, concentrated in large, urban spaces, with greater environmental awareness (nature), and ICT available to everyone.	Energy crisis and food crisis, the merging of the country and city, and of some cities with others (conurbation), greater degree of development in rural areas.	To pursue the development of architecture with alternative technologies. To stress the stance regarding the environment. The rational use of physical space, both public and private.	The development of home automation. To pursue the development of building materials with the support of ICTs (new companies).
Nothing changes, society moves on, abating issues.		The architect would be the same.	
Inclusive society, equality of access to communications, natural resources and basic necessities.	Control of the environment and new energy sources appear.	More general architect (less specific).	
Everything deteriorates and returns to a neo-feudal society. Few control access to information, natural resources and basic necessities.	Deterioration of the environment, traditional energy sources grow scarce.	Architects will work for the owners of capital, social benefit will be forgotten.	

Change	Possible scenario	Implications for architecture	Professional approach
Uncertainty and growing complexity. The knowledge and information society. An increase in inequality between countries and within one's own country. A lack of natural resources. Greater importance of cities with conurbations.	The difference between town and country will disappear. The gap will be narrowed by the knowledge society, and current jobs and positions will disappear. Two-speed cities, changes in the way of life for both, accentuating the differences. Environmental and food crisis.	Increased importance of regional/spatial planning, with new concepts emerging from the public and private sectors. An appropriate ecological approach which keeps environmental impact to a minimum. Conceptual changes in the way architecture and town planning are approached: new spaces and concepts. The need to work in a transdisciplinary way by participating more with other (technological, humanistic, social) professions.	Planners and town planners will be of vital importance. Narrower ties to find all-round solutions to problems.
The computer age. Global inequalities with changes of economic hubs (China), growth of urban development, decrease in growth rates, depletion of resources.	Greater virtual and face-to-face communication. More global compensators for groups. Sustainable services. Higher market quality. Better conditions in marginal areas running the risk of larger wars and conflicts.	Work will become more specialised and compartmentalised. Industrially sustainable and certified architecture and town planning. More technology in planning and building. Architects will have to work increasingly more with interdisciplinary teams of experts. Proposals to address the needs of the habitat with emphasis on marginal areas.	Environmentalist architects will be those working in architecture and certified constructions. More highly specialised in information technology and home automation. Architects will be more leaders of planning and construction teams. Working on architectural aspects with intermediate professions, and their specialisations.

Change	Possible scenario	Implications for architecture	Professional approach
The need for general, but not in-depth, knowledge of all the individual fields of specialisation (sustainability and all the others). Solid cultural and artistic foundations. Developing the capacity for dialogue, learning and proposal. Changes to the organisation of the State and increased community participation. Deepening economic and social crisis. Food and energy needs. ICT development.	Exercising continuance. A large number of architects being educated now are aiming to produce exceptional architecture.	Critical and investigative viewpoint. Prominence and importance through research. Skills linked to the representation of ideas and proposed solutions.	Dealing with the variable and fixed determinants in each context, ordering and putting them forward with a critical attitude. The profession will be arranged into groups, authorship will be unclear, and will be geared towards vernacular production instead of globalised production. The city will be the focal point of the architect's work, rather than the presence of objects. Direct relationship with other professions and expertise.
Cultural change: technological uses, knowledge, environmental depredation.	The virtualisation and internationalisation of services. Diversification and multidisciplinary work. The repetition of cycles. Raising awareness with virtual models.	The use of appropriate technologies. Work in international environments. Designing virtual environments. Greater social and community engagement in architecture. Food production on an urban and architectural level. The use of technologies. Architecture as a reflection of what is happening now: addressing the issues caused by change.	

Change	Possible scenario	Implications for architecture	Professional approach
Increasingly globalised society. Strong growth and ageing of the human population. A longer period of activity and production. Lifelong education. Regarding mankind as an important resource. The lengthening of mankind's active life. Boundaries of knowledge disappear, like something no longer inherited. The use of technologies. The importance of the common good rather than self-interest (humanity and the planet).		The diversification of professions, new, more general and adaptable niches. More technology facilitating work, more available time, more leisure, larger recreational areas. Tension regarding the recovery of one's own identity (nationalist movements). Valuing manual labour and craftsmanship in a wide range of manufactured goods. Automation in all areas of habitation. New legislation to limit the indiscriminate growth of cities. Collective mobilisation systems. Linkage with production and architecture.	Interdisciplinary work.
The crisis in the definition of well-being. "Idle" society. The bankruptcy of States. Widespread unrest due to the consumption of wealth that did not belong to them. States will need to redesign their policies on the relationship between the governors and the governed. Pollution by the poor or by the rich will continue.	Discourses on leadership. Reformulating the idea of collective wellbeing. The artificiality of the environment (plastic), with further impoverishment. Another marginality will emerge: the absence of communications, and work. Dominance will shift from money to computers (the demand for more data and more requirements), leading to greater control.	The re-evaluation of labour. The emergence of the virtual organisation. The need to generate one's own work. The industrialisation of the infrastructure (more resources), with the simplification of the design process. The most important architect will be the general architect who can master the entire project process and interact with consultants. Large-scale development projects. The trans-nationalisation of public works.	

Change	Possible scenario	Implications for architecture	Professional approach
Urban developments will spill over city limits, urbanising the countryside – not only as conurbations but as forms of consumption.	The loss of cultural identity (globalisation), forms of production and consumption. Degradation of the landscape and environment.	If culture changes, architecture changes. Greater inter- and extra-urban mobility. Communications will form the backbone of future life. New forms of spatial arrangement deriving from housing and work space.	The organisation of territory. Interdisciplinary practice. Rescuing useful land for life on the planet (not all developable). Emphasis on the subject of research into new, more advanced technologies for housing, the use of alternative energies (solar and wind power). Appropriate, modern materials that are produced in each country and do not damage the environment.
Economic movements within and beyond limits. Problems with limits and going beyond them in terms of growth. Voluntary work in environmentalism. Political will is required. Human experience has been hounded by squandering or darkness, and it renews itself with similar logic according to the different economic movements (20th century) "society can be changed through architecture". We are skirting round what is real but we spill over into what is virtual.	Wellbeing (and comfort) throughout the course of history has gradually adapted. On the brink of architecture and beyond, as determined by public competitions and such like: the urge for community participation will fail to exist as long as the economy regulates relations in society. The basis of "what is going to happen in 20 years' time" is not shared. The need to build ties between what is lasting, certain, solid, fragile, dangerous, fascinating, real and our life.	Individual and objectual architecture will no longer be carried out, owing to its transformation into something cultural and not social. It will once again be a social asset, and lose its aspect of consumption. (Land-art). Architects base their discourse on materiality and symbolism; or between functionality and meaning. A place will define an inside and an outside, and it will located in the city. The ins and outs of our windowless architecture.	An area of behaviour empowering the conceptualisation of spatiality (ins and outs) such as the public and private sectors. The linkage between both (transparencies and glazing are in the city).

Change	Possible scenario	Implications for architecture	Professional approach
Different points of view regarding 5-year planning.			Food safety. General architect. The design of virtual environments. Planning and town planning. Heritage identity. Pursuing research. Leadership training. Teaching:

4

Observations concerning student workload for Latin America

Establishing an academic credit system for Latin America is an action that transcends institutions since it is a political decision delivered through Ministries of Education. Even though the subject has been addressed in all the countries, problems of clarity remain. Some countries have avoided or postponed decisions in the face of the exigencies of curricular reform taking place throughout the region. These reforms are intended to create mutually recognizable quality systems that national borders in regional contexts (like Mercosur), or in more globalised environments.

It is clear that there is a lack of political decisiveness on the part of national Ministries of Education, or government agencies regulating education, or independent institutions in each of the countries to ensure that the proposal presented by the Latin American Credit Reference —CLAR—, within the Tuning Latin America Project, would be backed by governments and become a national policy. It has to be emphasized that CLAR respects each country's autonomy to measure the timescales reflected in their own credit systems, and what is proposed is an officially approved guideline chart in each country within a regional system.

Transferable credit —CLAR— is based on the time required by the student to achieve a competence. In the case of architecture, which is informed by the creative process argued in the previous chapter, time is not an easily measurable variable in relation to the achievement of a result. Moreover, the timescale and result are not always proportionate

to a student's achievement, since creativity linked to the imagination and determinants in a design process do not follow a pre-established line of methodology, but rather, may be due to unpredictable factors relating to each student, particularly in the initial stages of the design project. This particular condition concerning timescales, facing all architecture students and practicing architects, requires levels to be defined in order to assess the achievement of competences in the project planning, framed within the levels and training periods. These in turn must inevitably be linked with the timescale required in order to attain such a competence.

In architecture, the scope of credit transcends its status as the measurement of time a student invests in their design project and becomes an actual measurement of achievement, and therefore quality. In the overall assessment of competence levels when the project continues or comes to an end, the architecture student's credit is measured integratively as a factor displaying the level of achievement obtained in a project which addresses a human issue whose answer lies in architectural space or town planning, Other factors include the sum of research periods, reading of the context, analysis of the associated variables of the problem, knowledge of references, the emergence of the idea, developing the approach, specifying the project, implementing the proposal and the completeness of the project in relation to the disciplinary dimensions of technique, town planning, architectural theory, sustainability and the environment, and the history of architecture.

Credit for an architecture student, who is immersed in an intangible, unpredictable and creative process, is always variable when faced by timescales, owing to the complex conditions of the problem to be solved, and the very momentum of the student as a creative person under pressure to produce a comprehensive project on architecture and/or town planning.

In this specific situation relating to architecture, credit has value as a tool or bargaining chip for processes of mobility, as it allows a parameter of quality to be set to assess the student's achievements in the design project. Moreover, it allows the final relationship between their training and career to be established according to the levels reached in the basic competence, which is the capacity for project planning. In this way, credit enables the transferability of a student from one institution to another to be negotiated.

More specifically, the commitments made by the group of Latin American architects for the Area of Architecture with regard to CLAR are as follows.

Each country's representative, together with their National Tuning Centre and national faculty associations should:

- Share the scope of CLAR with institutions and government agencies, both as a standardisation tool and in terms of the advantages it holds for mobility and the recognition of qualifications.

- Distribute the Tuning Project results among the highest possible number of institutions in each country.

- Request that the Tuning Latin America Project grants the mobility of experts for teacher training in each of the countries so as to implement measurement and credit systems or similar in curricula.

- Pursue area-based studies of academic weighting among students and teachers in each of the countries so as to pinpoint and back their position in relation to CLAR.

- Propose complementing the concept of credit, as well as measuring the time set aside by the student, with the level of quality reached during that time.

Besides the difficulties involved in measuring the time taken or invested by an architecture student to define their project, institutions and academics need to quantify —theoretically of course— the time the student will invest in carrying out their work. The theoretical proposal made must be accompanied by monitoring, via surveys, conversations or in situ verifications, of the real time each phase of the design methodology demands of the students: the research applied to the problem, draft project, external consultancy, the project and its representation. Establishing means and channels to check timescales associated with different ways of measuring work will constitute the support for adjusting each programme's profile, with the competences expected and their levels clearly relating to the student's timescale.

5

Teaching, learning and assessment strategies for generic and specific competences

When addressing the development of the chapter, "Teaching, learning and assessment strategies for generic and specific competences", the group of Latin American architects established a methodology which allowed us to focus theoretically on the assessment of competences. This decision was taken by the group because of the diversity of methodological strategies and differing proposals on teaching methods appropriate for new architects. Moreover, the institutions in the region have barely begun to transfer and refine the topic of competences, meaning that assessment experiences in the majority of cases are experimental and are in the process of being reviewed so as to consolidate them as a strategy.

In compliance with the requirements set out for this phase of the Tuning Latin America Project, two meta-competences were analysed, one specific and one generic (transformed into specific by its scope within the discipline, as mentioned above). For both the same methodology was used which sought, not to present the way each country and institution assesses the competences in keeping with the curriculum, but rather, consensus among the entire group linking expertise, abilities and skills associated with each competence, with the proposed methodologies to achieve them and verification of the competence according to a specific career level.

The analytical model chosen was holistic, reviewing the meta-competence as a whole as it is developed within the curriculum, and not as an end product resulting from the sum of the different subject content in the curriculum. Each of the competences chosen by the group, both specific and generic, are described in relation to their learning scope, and the level of development reached by the different learning cycles (in relation to timescales) according to their purposes detailing the results or evidence of learning that the students should demonstrate. Similarly, the methodologies associated with the strategies, activities or didactic devices used to teach and learn intended learning outcomes were determined for each competence. Lastly, the assessment strategies were specified relating to the learning cycles established by group consensus as basic, intermediate and professional.

The proposal is presented in the form of a table which can be read vertically, to determine the sequential complexity among the different levels of learning, or horizontally, to determine the links between the cycle, teaching methods, learning results and the evidence displaying the expected level of the competence.

Regarding the specific competence Ability *to plan architectural and/or town-planning developments creatively and critically which fully meet the requirements of human beings, the environment, society and its culture, whilst valuing the context and considering the aesthetic and technical demands*, the group structured the relationship between the teaching methods, expected learning, ways of assessing and level of competence as follows in terms of the cycles associated with an architect's period of study. The cycles are associated with the completion of stages in the curriculum. They can be sequential In the case of achieving specific competences within a level, or transversal across the whole curriculum.

Cycles	Teaching methods	Learning	Assessment	Level
Basic	Project workshop: the teacher (tutor) accompanies the student's learning. Experimental exercises to reinforce perception. Starting from the recognition of a problem within a context, it is then researched and a spatial answer given. Trial and error method.	**Integrated objectives stated according to level.** Reading the context. The student's self-knowledge. The systemisation of creative processes, and each student uses those they consider relevant to their project. Working according to processes, rather than results. **Incorporating design thinking into the task.**	The teacher monitors the continuity of the project stages, with individual presentations by the student. For the end result, the process is assessed by the teacher and the project result assessed by the teacher or a panel of experts. The students' abilities are assessed and verified, as is the way in which each student makes the design project their own. **Tutor. Co-assessment. The teacher guides and assesses the process.**	Being aware that architecture and town planning are a complex cultural phenomenon in qualitative form. Taking knowledge from all of the discipline. Knowing oneself. Critical discourse, critical thinking.
Intermediate	Simulations of professional praxis. Starting from the problem within a context, it is researched and a spatial answer presented.	Each student has the autonomy to develop their own design methodology to provide answers, by means of the project, to problems relating to the environment and society.	Numerous assessments. Portfolio (student background).	Interpreting the project and defending it in front of others. Fully applying all knowledge to the project. Knowing others, understanding and applying.
Advanced	Turning what has been learnt into practical application.	Confronting real problems, with concrete answers.	Tutorials and outside consultancy. Numerous assessments (internal and/or external). Self-assessment, by the actual student.	Professional practice and/or end-of-degree assignment.

For the generic competence Command of the means and tools to communicate the town-planning and architectural ideas and projects orally, in writing, graphically and/or volumetrically, the group made a similar proposal to that implemented for the specific competence, reaching the following result:

Cycles	Teaching methods	Learning	Assessment	Level
Basic	Freehand drawing: sketches, diagrams, constructions, outlines. Digital photography. Knowledge of software. Experimenting with means and tools for communication and representation. Modelling laboratories. Teaching the graphic code of architectural language with specific conventions. **Knowledge of geometry.**	Introducing the student to a community and corporate world view. The link between the idea and the way of conveying it. Self-learning. Simultaneity between the design process and use of communication and representation tools. The brain-to-hand connection. Hands-on learning. **Explanatory notes on the process of transforming the idea into a project.** Representation of the space in all its dimensions.	Communication and representation tools (conception, process and communication) displayed in the project. **Public displays and presentations of the ideas.**	Conveying the ideas with means and tools, according to the nature of the issue. Learning the basics of the language used by architecture.
Intermediate	Advanced use of technical conventions.	Study models.	Verifying the command of analogical and digital tools to represent architecture in different scales in the architectural and/or town-planning project. The capacity for abstraction, criticism and contextualisation. Incorporating **the different means and tools to communicate the project.**	Command of the tools and methods to communicate, represent and defend an architectural project (technically and orally).

Cycles	Teaching methods	Learning	Assessment	Level
Advanced	The ability to summarise. Command of the technical conventions to express oneself.	Knowing and interpreting the different technical languages used by the interdisciplinary professionals intervening in the definition of a project in order to define and specify the implementation of the project fully.	Coherence between the project, technicians and the public, to whom it will be presented. The use of technical graphics which enable the project to be understood in all its technical and conceptual dimensions. Viva voce presentation of their degree or end-of-degree assignment before the teacher and panel of experts.	Applying, in a «professionalising» project, all the codes belonging to architecture to communicate in an interdisciplinary way with other professionals associated with the project, the client, and the government agencies in charge of its approval.

The group of participant architects in Tuning LA began by analysing, from the meta-profile and meta-competences underpinning it, the knowledge, skills and abilities associated with the competences all architecture students should display. The group then specified for each training cycle (basic, intermediate and professional or in-depth) the levels the students should have in each of these elements, as a parameter to be assessed individually. These are as follows:

5.1. Knowledge, skills and abilities of the Architecture student associated with competences

When comparing the views of the participants from the different countries about the knowledge, skills and abilities that an architecture student should display in a competence based curriculum, it was possible to reach the following conclusions:

5.1.1. *Knowledge associated with the competences:*

Advanced knowledge in the architect's field of study and work requires critical understanding of theories and principles in:

- *Fundamental knowledge:* This provides the student with the theoretical and practical knowledge that is fundamental to the professional field of architecture. It covers knowledge of geometry, drawing techniques, digital media and model making. It creates awareness and understanding and appreciation of urban and architectural heritage through knowledge of the historical dimensions of the city and architecture within a universal, regional and local context. It also includes knowledge of principles and concepts which have driven architects' thinking and actions throughout the course of time, within the corresponding cultural framework. Additionally, it includes training in the knowledge of the current cultural laws and rules in force in a country referring to heritage.

- *Project planning knowledge:* This allows the development of creative and critical thinking in order to identify regional issues in different scales, and design skills to prepare proposals that take into consideration the built-up and natural environment, and socio-economic and cultural conditions. It is oriented towards training the student in the ability to synthesise a wide range of specialist, cultural, contextual and technological information, and to know and apply the rules governing professional praxis, which serves to substantiate the project.

- *Representation skills:* These are geared towards the development of abilities to represent architectural space two- and three-dimensionally, and architectural projects in particular throughout their different stages of development, from preliminary ideas to advanced developments. This is informed by knowledge of geometry, drawing techniques, digital media and model making, as well as strategies to develop the argumentation, support and communication of ideas and projects.

- *Technological Knowledge:* This provides the student with an understanding of the properties and uses of materials and construction and structural systems, and their participation in the conception and development of architectural projects. It also includes the knowledge and application of principles and rules of comfort, sanitation, accessibility and sustainability in habitable spaces, and safety during the course of building work, all within a framework of respect towards the environment and sustainable development.

- *Environmental and town planning knowledge:* This teaches the student the understanding of regional/spatial, town planning and

environmental aspects relating to what is subject to professional intervention. It demands understanding of the interdisciplinary dimension involving issues concerning the city, region and environment. The student learns to design plans and projects on regional/spatial and town planning, urban design, and landscaping. It includes learning the regulations in force in the countries involved in the project.

- *Socio-humanistic knowledge:* This raises the students' professional awareness, which includes the ethical, socio-cultural and labour dimensions, the sense of social responsibility and a healthy spirit of entrepreneurship. It strengthens the competences needed to manage public and private plans and projects.

NOTE 1: Each higher educational establishment shall demonstrate, through a solid, articulate, dynamic and flexible curriculum, their membership in relation to the demands of the context, coherence in the aspects it consists of and the pedagogic and didactic strategies that enable it to achieve the profile proposed regarding the development of its students' competences, in accordance with the institutional mission and project.

NOTE 2: Curricular aspects: each professional university programme in architecture must be consistent with the theoretical, practical and methodological foundations of architecture, and the principles and purposes orienting the development of architects from a comprehensive approach. This should take into account, among other aspects, the competences and expertise an architect is expected to possess.

Furthermore, it should be consistent with the regulations governing professional practice in the country.

NOTE 3: In some of the curricular proposals and development plans for architects, these groups of skills are associated with areas in the discipline, shaping the curriculum both vertically and transversally.

NOTE 4: In some of the participant countries, knowledge concerning the environment, ecology, sustainability and maintainability make up an independent group of courses, with their learning objectives defined independently within the overall intended learning outcomes of the programme.

5.1.2. *Skills associated with competences*

All professional development programmes in architecture will seek to assess and display the advanced skills accrediting the required know-how and innovative qualities required to solve complex and unpredictable problems in the field of architecture and town planning.

The scope of the skills comprises:

- The architectural field of design, which includes the study, preparation and coordination of architectural and town-planning projects in different scales and contexts and the ability to convey them to others.

- The field of technology or construction, which includes the management and coordination of the work needed to materialise the architectural or town-planning projects. It includes matters concerning budgets, administration, scheduling, management, work supervision and auditing.

- The field of town planning in relation to participating in regional/spatial and urban development plans, urban design and landscaping projects. This corresponds to the competences associated with undergraduate programmes in architecture.

- The field of heritage constructed in different scales and contexts.

- The field of management in public institutions and private entities relating to regional and city administration, and carrying out and managing architectural and town-planning developments; preparing the studies and administrative applications prior to the issuing of town planning and development permission; preparing valuations and technical reports relating to architecture and constructions.

- The field of research and teaching in architecture.

- Other fields in the architect's profession.

5.1.3. *Attitudes associated with competences*

All professional development programmes in architecture will seek to foster and develop attitudes among students which enable them to manage complex, technical or professional activities or projects by assuming decision-making responsibilities in unpredictable working or study contexts; and to manage the professional development of private individuals and groups. The scope of these attitudes includes:

- Ethical behaviour, based on knowledge of the regulations, and conceived as the basis of professional practice within the framework of social responsibility.
- A creative and critical attitude towards conceiving space.
- A reflexive, complete and inclusive attitude ensuring the capacity to understand and solve problems relating to building habitable space in different scales and contexts.
- Investigative motivation, which enables the student to build up expertise in fields relating to the discipline of architecture.
- Acknowledgment and value of diversity, participation in interdisciplinary and multidisciplinary working groups incorporating problems relating to habitable space.
- Responsibility and respect for the environment and natural, cultural and heritage constructed in several scales and contexts.
- Willingness to accept and use scientific and technological innovation and to develop creative attitudes.

5.1.4. *The relationship between learning cycles and the competence assessment level*

There was unanimous agreement among the participants with regard to workshop methodology being a space to achieve the comprehensive training of an architect based on an architectural (design) project – hence, the changes of approach in designing a curriculum in architecture. The Project or Design Workshop is, and will be, the

cross-cutting focal point throughout the entire programme, where the specific expertise of the areas of the discipline, or complementary aspects, will conclude by consolidating the professional competences.

The workshop methodology has explicitly maintained a number of constants throughout the course of time. Work is carried out by small groups of students aiming to find a solution to a human problem whose answer lies in architecture or town planning. The group of students is under the supervision of a tutor, who gives either personal or group guidance on the answers each student provides according to their own project methodology. The group is helped by a number of advisers from different specialist fields – either the actual discipline of architecture and town planning or other interdisciplinary fields which may help to enrich viewpoints on the debate before approaching the project.

Both independent work by the student and tutoring are therefore implicit to workshop methodology; research pursuing benchmarks, together with reading the context, knowledge of the specific regulations regarding the location, and the answers each student gives as the creative process gradually turns into a specific architectural and/or town-planning project.

The project workshop is integrated, whereby the student, either independently or with guidance, combines the knowledge gained in the project with other, different design areas or disciplines, such as town planning, technology, history and theory, representation and expression, sustainability and the environment. The answer to the initial problem requires the student to have an open attitude so as to find resources outside themselves – by means of design analysis, reading the context and searching for reference points —or within themselves— by confronting their own training in all areas – arguments and answers in order to craft a comprehensive project covering all aspects: theoretical, technical, material, urban, social and symbolic.

Thus, the workshop allows the student to demonstrate, naturally and essentially within the learning process of architects, their hands-on knowledge relating to the subject, their ability to turn the project into a display of career competence, where knowledge and the capacity to perform or explain meet; and to reach the proposed solution to a problem within a specific context. Hence, the workshop is the stage par excellence to verify and assess competences in the learning processes of architecture students.

5.2. Proposals for meta-competences in disciplinary frameworks

In addition to the different ways of assessing competences, the Tuning Project raised the issue of deciding how the thematic areas or disciplines could be grouped together according to sectors, these being defined by UNESCO (Social Sciences, Health Sciences, Engineering and Natural Sciences), by considering the common aspects in each sector or discipline —in this case architecture— and eventually attempting to formulate three or four competences to be shared among the sector or discipline framework.

Firstly, the diversity of approaches presented by the different countries became apparent when it came to placing architecture within one of the sectors: in Brazil, it is classified within social sciences; in Mercosur (Argentina, Uruguay, Chile and Bolivia), Ecuador, Panama and Guatemala, it is within the technology sector framework; in Cuba, Costa Rica and Colombia, in the engineering sector.

Architecture in Latin America (and the world in general), as a discipline of synthesis and integration aimed at the intervention and transformation of the environment, should have a sector which reflects its creative nature, and which should also include projective thinking of different design scales as the key to identifying and classifying disciplines similar to design methodology. It is a discipline involving creativity that provides answers to human spatial needs, whether individual or collective, and therefore encompasses knowledge from all four sectors of the sciences: Social Sciences, Humanities and the Arts, Exact and Natural Sciences, Engineering and Health Sciences. It is therefore an area which cannot be framed exclusively within one of UNESCO's four sectors, adopted by Tuning, but in a different sector, which is the Sectoral Framework of Design and Project Planning; or a sector grouping the disciplines together whose origin lies in creativity. 'Design is an abstract activity which implies programming, «projecting and translating the invisible into the visible, and to communicate this' according to the definition of Jorge Erascara.

We understand the debate arising from the proposal to incorporate architecture into one of the recognised sectors of knowledge; however, we do not place ourselves in one of the proposed sectors. To use the project as a way of thinking that produces new knowledge as praxis, tools, methodology and a product is to recognise the project in its essence as being integrated into other sectors and areas. The proposed framework —Design and Project Planning— incorporates all the areas of a creative nature that require a design process to supply a useful and

spiritual solution to human problems and needs; such as architecture, industrial design, graphic design, interior design, costume or fashion design, craftsmanship, landscaping, visual communication, advertising design and environmental design, to name a few.

Meta-competences:

Meta-competences for the Area of Architecture defined in the Tuning Latin America Project phase 2	New design planning sector	Sectors associated with which architecture shares competences			
		Engineering	Healt	Exact sciences	Social sciences
3. The critical and self-critical ability to transform ideas into spaces, forms and constructions.	X	X	X	X	X
1. The ability to plan works of architecture and town planning critically and creatively which fully meet the requirements of people, society and its culture, whilst valuing the context and considering the aesthetic and technical demands.	X				
4. Command of the means and tools to communicate both architectural and town-planning ideas and projects orally, in writing, graphically and/or volumetrically.	X	X		X	
2. The ability to define and materialise the technology, constructive and structural systems, environmental conditioning and suitable installations for the demands of the architectural and/or town-planning project, in accordance with regulations and local context.	X	X			
10. The capacity for entrepreneurship and innovation.	X	X			X
8. The ability to manage, schedule, budget, oversee, financially control and supervise the execution of architectural or urban developments in their different scales.	X	X			X
9. The ability to act ethically within the framework of the discipline, society and sustainable development.	X				X
5. The ability to integrate and lead interdisciplinary teams.	X	X			X
6. The ability to apply project design research methods to meet the demands of the human habitat creatively, in different scales and complexities.	X	X	X	X	X
7. The ability to learn and keep constantly up-to-date.	X	X	X	X	X
Consolidation of affinities	10	8	3	5	6

6

Conclusions

The conclusions drawn by the group of Latin American architects are presented below following the four meetings held to achieve the proposed objectives in this stage of the Tuning Latin America Project, in Bogota, Guatemala, Santiago and Brussels. The recommendation is to understand them, not as part of a finished product nor as final conclusions, but as the reflection of a dynamic process —like education itself— in an ever-changing world of transformations where, in addition to changes in the basic paradigms of education (moving from teaching by the teacher to learning by the student), they have involved substantial changes to institutions, administrative structures, the distribution of resources, curricula and the members of academic communities.

It is therefore hardly surprising that rather than conclusions, they are reflections on the path to be followed, either individually by each institution educating architects, or better still, in a participative way, in the form of national debates on the subject, on regional stages, or in wider-ranging projects such as the Tuning Project. It is hoped the following conclusions are understood to be within the framework of reference.

- The exercise developed in this phase of the Tuning Latin America Project, on the meta-profile and meta-competences that support it, is a development on the previous phase of the project, in which the generic and specific competences for the Latin American architect were addressed. This was the new feature of the subject at the time (2006), and the declaration then that none of the

participant institutions was working on their curricula or competence based curricular proposals, but rather, taught and qualified their professionals according to the socially accepted and valued evidence of their career. In other words, even though the competences were not stated in a training profile, they were, in fact, apparent in the student outcomes.

In the initial phase of the project reaching consensus on the specific competences of architects was by no means an easy task for the group of participant architects, since the origin and trends in teaching and learning in each of the participant countries were dissimilar and diverse. While some of the architecture programmes came from schools of engineering, others were derivations or concepts from schools of social sciences, humanities and the arts, and in other cases, programme preparation was individualised. Similarly, the orientation of programmes, on the consensus that all the countries offered undergraduate programmes for general architects, also had different approaches towards technology, design, town planning, with some focusing on heritage or landscaping, and others on architectural project and town-planning management.

It is therefore hardly surprising that an agreement on specific competences in such a diverse group produced a wide range, represented by the twenty-seven (27) competences initially developed. Putting these into practice showed how difficult it was to specify a profile, but even more so, the difficulty in verifying, with a methodology using levels, indicators and descriptors, each of these 27 competences.

The proposal made by the coordinators in this phase of the Tuning LA Project to go beyond the competences towards meta-competences forced the group to reflect on the professional practice of architects in the Latin American context, and also explore the essential foundations of developing architects using the different curricular proposals by widening career horizons in a globalised world – without losing sight of the curricular objectives for the context of the Latin American region.

The ten (10) meta-competences resulting from an intense and interesting exercise of integration between the initial generic and specific competences —that is, a synthesis of nearly 55 competences into just 10— was possible thanks to the methodology defined by

the group, and the initial premise driving the discussion: if the 55 generic and specific competences were identified in the teaching and learning of architects, it was because all of them, regardless of their origin, contributed to the career of a professional – in this case, an architect. They could also therefore transcend their initial classification to be analysed as specific to the architect. This thought brought about the redefinition of the most highly-valued competences in the profile of a general architect above and beyond each country's specific features, giving rise to the meta-competences as learning goals which, in turn, group together the initial competences, encompassing the career of the architect within wider contexts and with wider coverage.

The meta-competences developed in this way, and the architect meta-profile deriving from them, is a significant step forward in encouraging the structuring of curricula within the discipline, respecting each programme's autonomy in terms of approach, while contributing standardisation principles deriving from prior common agreements based on competences – and the knowledge and expertise that an architect must have, together with the attitudes and abilities to use them in order to undertake a specific architectural and/or town-planning project.

- The teaching and assessment methods go beyond the traditional systems of knowledge verification, where it is the teacher who teaches according to their own method. In the workshop strategy, where the evidence of project strategy is directly assessed in the actual project, the student has the full capacity to present proposals and arguments relating to their own learning processes, incorporating the knowledge gained from teachers or the investigation itself, and developing skills and abilities to express their ideas and projects architecturally.

- Pedagogic strategies are attitude-oriented due to the project methodology workshops: from the start of their courses, students design objects, buildings and spaces, all of which have the peculiarity that they do not exist materially, but that they do contain, as a complement to the complex planning process, a method of representation and communication. It is in the workshop that the architecture students' competence is globally assessed, as they gradually advance through the levels and indicators from the first to final year of the programme.

- Architecture is a discipline involving creativity (it is not an exact science, nor engineering, nor humanities, nor a social profession, despite having a part of them all); the architect is an individual generating culture, and so they cannot be indifferent to their context. According to this statement, it is not possible to reach consensus on the on-site and autonomous workload a student devotes to preparing a project, but only an estimation. It is therefore difficult to draw a comparison between planned time and the time actually devoted to a creative or planning process. This raises the question: how can an architect's creative process be introduced into the credit system? The answer and possibility provided is the direct link between the level of competence expected and its respective learning period.

- Throughout the different stages of the Tuning Project, it was clear that there was a lack of an objective allowing the establishment of an alliance between the competences defined and assessed, and the assessment of academic credit as a unit of time to achieve them. The concept of credit as a unit of time measurement turned into something more complete, where the concept of quality in relation to competences was also to be included, and an answer could be given to the question as to how to standardise different curricula, whilst orienting knowledge towards skills and attitudes.

- When referring to mobility in Latin America, we are ultimately referring to the diversity of contexts and cultures. Therefore, academic mobility entails being open to gaining new experiences and valuing those gained. In the case of architecture, the architecture student's *portfolio* is a tool that enables the full verification of learning and the evolution of competence levels and indicators throughout the course of the training process. Portfolios as an assessment tool, are frequently used in architecture programmes. The contain evidence of the projects the student has undertaken from preparation to completion. They may contain evidence from all the projects in the programme (programme portfolio); from individual projects (design or project portfolio); or a portfolio of academic work representing a range of work done by the student; or a capstone portfolio demonstrating the synthesis of the student's achievement during the programme. The portfolio, along with the criteria for completion, is the instrument which allows the student to demonstrate the achievement of competences within the programme and as a preparation for work in the real world of architecture.

- Current developments with regard to humanity demonstrate that our society cannot manage to predict the future on a timescale longer than 5 years; 10-year plans need to be supplemented by exceptions when implementing them because the changes, transformations and modifications occur increasingly rapidly. We are unable to predict international changes in a parametric world, where something happening in one place has repercussions in another. In this scenario, the question of how we are going to educate people who will begin their productive cycle in 20 years' time shows how difficult it is for institutions and States as the entities responsible for education. Perhaps the most relevant answer is: we will educate our students like we were educated.

- Human commitment to transforming its needs in infrastructure will remain and continue; new interpretations of social, economic, urban and political changes will emerge, which will eventually alter the position of the architect in society, although their professional profile will persist. Four strategies are therefore proposed for the education of architects in an unpredictable future:

    1. Throughout the 5-year degree period, opening the greatest number of windows for general architects (without going into specialist profiles) according to the fields of activity in each location: searching for special employment opportunities; interdisciplinary understanding, and transdisciplinary action.

    2. The education of architects should be fundamentally based and focused on creativity. Future architects will need to be educated in capacities to predict the unpredictable (transformability) and be familiar with changes, with responsibility towards the environment as a priority of sustainability, and skills to enable them to adapt to changing contexts. These capacities will enable them to navigate better in the future.

    3. An emphasis on innovation, the ability to surpass the standard, to provide unconventional answers and explore options that go beyond those already explored; that is, being capable of innovating and producing new proposals, expanding possibilities, with an eagerness to experiment.

    4. An emphasis on new technologies, new materials, new construction methods, new practices and the architect's links with

new production methods, society and the State; new notions of the environment and energy, as the necessary conditions for life.

With these 4 strategies, schools can sail into a non-defined future, and ensure their participation in times to come.

Lastly, there is a major contradiction between the potential importance of architecture in today's world and the scarce social recognition the professional architect receives owing to a problem with communication, where the architect has been incapable of showing and conveying the scope of their professional competences to society. This is because they have confined themselves to displaying their ability as designers and not their potential to transform their surroundings and the world.

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