Tuning

Latin America

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

Ana María Montaño López (ed.)

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Tuning Latin America Project

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Ana María Montaño López (editor)

Authors:
Ana María Montaño López, Fernando Abad, Leda Badilla, Mónica Castilla,
María Rosa Depetris, Magdalena Gamarra, Alejandro Genet,
Ana María Glower, Domingo Huerta, Mónica Matilla, Francisco Miranda,
René Noé, Mabel Ortega, María Josefina Ovelar, Yvette Talamás
and Horacio Walker

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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 inter-connected 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

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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.

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- 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

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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

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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

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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

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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

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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 Education 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*

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Features of the Education group

The Education group of the Tuning Latin America Project is fully committed to promoting processes involving curricular change within the 14 universities represented in order to improve the suitability and relevance of what they offer in teacher education, and to respond to the challenges facing education standards and fairness in Latin American countries.

The group considers that educating teachers requires developing in professionals the relevant discipline-specific and didactic competences, and with universal principles attached to the common good aimed at developing different societies while respecting the diversity of students with whom they interact. In order to do this, it is essential to perceive the professional as being immersed in a rapidly changing society, as being a living actor of transformation in an ongoing process, who learns to establish interdependent relationships of cooperation and who has a systemic view of education.

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Country	Participants	University	Degree Course
Argentina	Mónica Castilla Mónica Matilla	Universidad Nacional de Cuyo	University teacher education in Primary Education
	M.ª Rosa Depetris	Universidad Nacional de la Provincia de Bs. As.	
Bolivia	Ana M.ª Montaño	Universidad Nur	Degree in Educational Sciences specialising in Community Education
	Mabel Ortega Yvette Talamás	Universidad Mayor de San Simón	Degree in Educational Sciences
Chile	Horacio Walker	Universidad Diego Portales	Degree in Nursery Education
Costa Rica	Leda Badilla	Universidad de Costa Rica	Bachelor's Degree in Educational Sciences with emphasis on Educational Guidance
Ecuador	Fernando Abad	Universidad de Guayaquil	Degree in Educational and Computer Sciences
El Salvador	Ana María Glower	Universidad de El Salvador	Degree in Pedagogy
Mexico	Francisco Miranda	Universidad Autónoma del Estado de Hidalgo	Degree in Educational Sciences
Honduras	René Noé	Universidad Pedagógica Nacional Francisco Morazán	Teacher Education for Degree Level
Nicaragua	Alejandro Genet	Universidad Nacional Autónoma de Nicaragua	Degree in Educational Sciences and Mathematics
Paraguay	M.ª Josefina Ovelar	Universidad Nacional de Concepción	Degree in Educational Sciences
	Magdalena Gamarra	Universidad Nacional de Asunción	Degree in Educational Sciences
Peru	Domingo Huerta	Universidad Peruana Unión	Degree in Pre-School Education and Childcare, Primary Education, Linguistics and English, Music Education and the Arts

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Meta-profile
for the Subject Area of Education

The Subject Area of Education putting forward this proposal for the Education meta-profile has grouped together university degree courses in teacher education. Indeed, the employment and professional field in which most graduates pursue careers is in the school system. Nonetheless, programmes are also included for professionals who go on to pursue formal and informal careers in adult and community education. The four-stage methodological process according to which the meta-profile was built is described below:

First stage

The Generic and Specific Competences for Latin America were defined in this stage by means of an intense process of consensus building among the group participants with regard to what graduates from teacher education programmes should know, do and value. Each university submitted the initial list of generic and specific competences to scrutiny by employers, academics, graduates, and students in their final semesters. A final list was thereby obtained which was endorsed according to the criteria of these interest groups from all the participant countries.

Second stage

The main objective of the meta-profile for Education was defined as: *To educate professionals in academic, professional and social dimensions*

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for professional performance within different contexts and managerial roles, public and private services, universities, education research centres, and other emerging occupations.

A new, approved review of the generic and specific competences was conducted so as to prioritise the most significant. Afterwards, they were grouped into three dimensions: professional, academic and social (graph on page 24).

Third stage

The proposed meta-profile - in other words, the group of competences which had been prioritised and classified into dimensions - was examined at this stage in the context of a single degree programme from each of the participant universities. The comparison was carried out by applying a method that had been previously agreed upon by the group so as to set standards of consistency in the process. The «notable coincidences and absences» in the competences contained in the meta-profile in the programme analysed were identified and, lastly, some conclusions were reached with regard to fine-tuning the proposed meta-profile.

Fourth stage

Once the process had been completed and the data obtained, the results were analysed and reflected on, in order to identify the similarities and differences with the proposed meta-profile with a view to fine-tuning the preliminary proposal. The result of this process is detailed below.

Results of the comparison

Professionals with this Meta-profile in the subject area of Education will have obtained a professional qualification at the level of *Bachillerato*, *Profesorado y Licenciatura*, developing competences which include abilities related to three dimensions (professional, academic and social). This will also enable them to respond to the educational needs of the contexts in which they practise professionally, with a strong commitment to social transformation.

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2.1. Main Purpose of the Meta-profile for Education

When a society undergoes processes involving constant change and transformation, people look for new rules and patterns of behaviour. It is therefore essential to have models to follow, and to act according to such models in change processes. This requires a clear and precise understanding of the role we need to play as agents of change and transformation.

Hence, the main purpose of the meta-profile is: *To educate professionals in academic, professional and social dimensions for professional performance within different contexts and managerial roles, public and private services, universities, education research centres, and other emerging occupations.*

2.2. Relationship between the dimensions (professional, academic and social) and competences attached to the professional in Education

The table below shows the list of selected generic and specific competences grouped into the three dimensions considered relevant for professional practice.

Meta-profile competences grouped into Dimensions[1]

PROFESSIONAL Dimension	ACADEMIC Dimension	SOCIAL Dimension
GC1 Capacity for abstraction, analysis and synthesis.	SC18 Knowing educational theory and making use of it critically within different contexts.	GC22 Appreciation and respect for diversity and multiculturalism.
GC7 Ability to communicate in a second language.	SC2 Command of the skills needed for the disciplines in their specialist area of knowledge.	SC26 Social and educational interaction with different actors in society in order to encourage community development processes.

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[1] The classification in this table corresponds to the Generic and Specific Competence numbering on the Tuning Project's original list in Phase 1: GC, Generic Competence; SC, Specific Competence.

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PROFESSIONAL Dimension	ACADEMIC Dimension	SOCIAL Dimension
GC16 Capacity for decision-making.	SC16 Conducting research into Education and applying the results to the systematic transformation of educational practices.	GC5 Social responsibility and citizenship.
GC6 Capacity for oral and written communication.	SC5 Knowing and applying the theories on which generic and specific didactics are based to educational action.	GC18 Interpersonal skills.
SC7 Designing and implementing different assessment strategies and learning processes based on specific criteria.	SC1 Command of the theory and curricular methodology in order to guide educational action (design, putting into practice and assessment).	GC 17 Capacity for teamwork.
SC19 Reflecting on their practice in order to improve their educational performance.		
SC12 Achieving learning outcomes in different skills and at different levels.		
SC9 Selecting, producing and using teaching materials that are relevant to the context.		
SC13 Designing and implementing educational action which integrates people with special needs.	S.C. 45% G.C. 55%	
GC15 Ability to identify, consider and deal with problems.		
GC8 Skills in the use of information technologies.		
SC3 Designing and implementing teaching and learning strategies according to context.		

2.3. Characterisation of the dimensions identified in the meta-profile

Professional Dimension: This includes competences related to the characteristics largely identified with professional practice, which open up new possibilities of access to the job market within different contexts.

Academic Dimension: This includes competences associated with the creation, management and application of knowledge, using a critical approach that enables problems relating to their field of discipline-specific action to be solved.

Social Dimension: This includes competences linked to social and community development and addresses the needs of educational inclusion, diversity and interculturality, with focus on training and civic engagement, and respect for human rights and development.
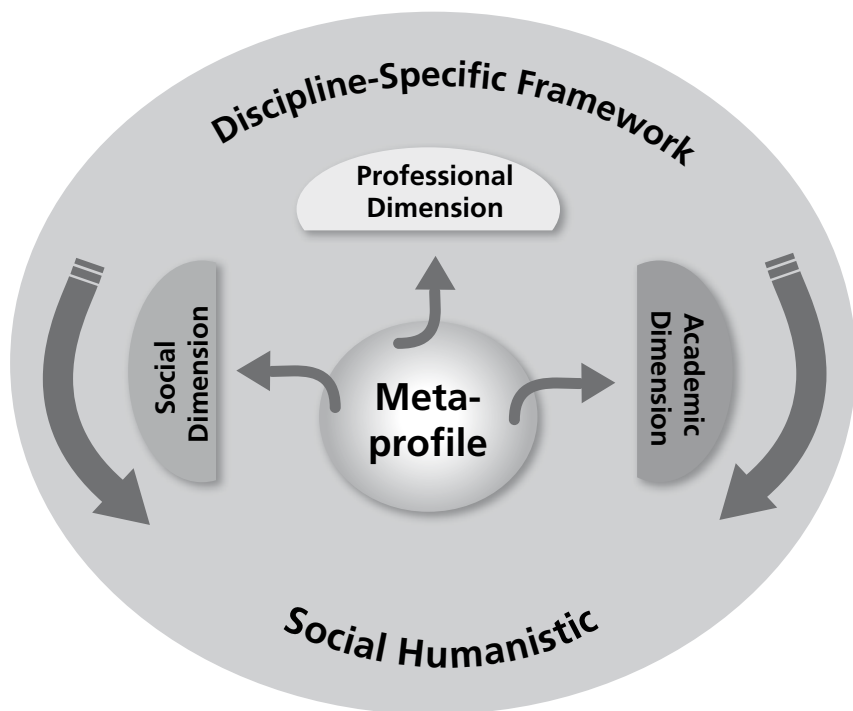
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Teaching, learning and assessment strategies for competences

The competence-based approach focuses on the student's educational development. This approach requires that students acquire and internalize the most important knowledge, skills and attitudes reflected in the three proposed dimensions during the educational processes that form part of different degree programmes. The learning outcomes achieved and competences developed focus on the requirements of both the discipline and society in terms of preparation for employability and the exercise of citizenship.

Graduates with the proposed meta-profile are people who are known to be committed to developing their own competences and those of society. They find professional and self-fulfilment in leading educational activities and services that connect their competences and aspirations with efforts aimed at raising the levels of participation of different sectors in society.

In this building process, lecturers focus on learning, and on developing the students' competences. Students take on an essential role in their own developmental processes. It is the students who turn into the leading actors of their own education by means of participation and collaboration with their peers. In order to do so, a structure of new and useful competences needs to be established in the education processes that teach students to be independent so that they can perform appropriately, not only in their immediate social environment but also in their professional future.

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It is the students themselves who, guided by this competence-based structure, manage to transfer theory to practice, and vice versa, within real learning contexts. It is the students who play an essential role in their own learning; they should therefore take on a leading role by using useful tools to solve problems which put their academic performance and future professional development to the test. Thus, by means of the competence-based academic structure, attempts are made to create learning areas through discovery, experimentation and application, the employment or use of specific realities and the development of critical thinking, dialogue, constant questioning and reflection. The assumption underlying these abilities and skills is that all individuals, with proper guidance, are able to develop knowledge, abilities and attitudes through which they will develop the meta-profile competences.

The following meta-profile competences were chosen as an exercise in guiding the task of planning the teaching, learning and assessment strategies - one generic and another specific:

GC6: Capacity for oral and written communication

Competence definition

This competence includes the set of abilities and skills required to understand and express oral and written discourses so as to achieve efficient and effective communication, enabling professionals to act confidently in professional practice.

Command of the competence relates to skills in understanding and expressing oral discourses, the ability to produce written texts and reading comprehension at inferential, interpretative and critical-value levels. Such a command will provide professionals with the essential tools to understand and make themselves understood in dialogues, presentations, argumentation, descriptions and instructions.

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Competence description

	Levels of command	Indicator	Descriptors
First level	Expressing ideas, judgments and concepts with clarity, fluency, coherence and persuasion; using different types of oral and written discourses appropriately whilst taking a constructive and critical attitude towards their content, and showing tolerance towards the interlocutor, and respect for conventions regarding intervention.	Expressing ideas verbally with clarity and persuasion; displaying the ability to listen; tolerance and respect within the communicative contexts in which they interact linguistically.	a) Lacking self-confidence when speaking and showing a certain degree of inattentiveness when listening. b) There is only verbal expression when asked to do so. c) Participation in short dialogues. d) Spontaneous intervention in conversations and listening carefully. e) Confident expression that is fluent, clear, spontaneous and respectful.
		Understanding written texts of different types; acknowledging the main and secondary ideas; inferring implicit content in order to assess the content of efficiently written messages.	a) Reading with some comprehension difficulties. b) Reading only when being monitored. c) Reading and understanding the basic message being conveyed by the text. d) Identifying the organisation of ideas in the text and inferring underlying meanings. e) Reading independently and identifying the internal and external organisation of the text and critically assessing its content.
		Producing different types of written texts related to their learning experiences which show logical, reflective thinking and use current rules of grammar and spelling.	a) Written expression with some grammatical and spelling difficulties. b) Producing written texts that refer to their learning experiences, checking and correcting them. c) Writing assessments and short reports correctly and coherently. d) Distinguishing and using the basic rules of grammar and spelling appropriately. e) Presenting written texts that have been suitably checked and corrected in the different learning situations.

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	Levels of command	Indicator	Descriptors
Second level	Thoughtful use of language to produce quality oral and written discourses; implementing appropriate strategies and resources to organise ideas, producing coherent texts and applying the relevant rules of grammar and spelling in the different types of texts produced.	Oral communication is clear, fluent and natural, expressing ideas logically and thoughtfully in communicative academic situations with the use of plain language and conventions regarding dialogue.	a) Showing the ability to listen and oral expression with spontaneity, confidence and relevance. b) Using the appropriate intonation, giving expressiveness to their verbal messages and capturing the listener's attention. c) Producing clear verbal messages in which command of expressive resources and a sense of logic are apparent. d) Ordering and giving coherence to the presentation of their ideas, revealing the possession of academic information. e) Conveying oral academic messages with confidence and relevance.
		Processing the information in the texts being read; differentiating between the aspects that are relevant to their search purposes, and making use of them in order to build the new knowledge needed for their academic and professional life.	a) Recognising the key topic of the text and the author's aim when there is limited information. b) Identifying the basic ideas in the text and using simple categories to give meaning to the texts being read. c) Selecting and organising information in written texts. d) Summarising the meaning of a text in different ways: summary, tables, maps. e) Identifying internal messages in the text and giving opinions and judgments.
		Writing informative, argumentative and descriptive texts; applying the current rules of grammar and spelling to express their knowledge coherently, clearly and thoroughly.	a) Identifying the external features of texts and adapting written work accordingly. b) Using a variety of information to write informative texts whilst following the current rules of spelling. c) Recognising, knowing how to locate and extracting information from different sources and using the relevant aspects to write texts. d) Presenting written arguments using a wide range of relevant vocabulary. e) Producing and presenting thorough, coherent and accurate work.

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	Levels of command	Indicator	Descriptors
Third level	Using language thoughtfully to produce quality oral and written discourses; implementing strategies and techniques to understand and build oral and written texts; seeking to use clear, fluent and coherent expression that favours the oral and written expression of academic and scientific texts.	Possessing communicative linguistic skills developed for improved personal and academic performance, revealed through the ability to listen and their efficient and effective verbal communication.	a) Confident, spontaneous and decisive expression. b) Confident, spontaneous, decisive, timely and relevant expression. c) Planning, organising and presenting ideas clearly when taking part in classroom presentations. d) Playing communication roles fittingly as a narrator, presenter and participant. e) Conveying academic and scientific messages coherently and accurately in public.
		Using reflective and critical thinking when interpreting, assessing and judging the content of the texts being read; processing the information in order to build complex and specialised learning outcomes.	a) Combining parts of the text to identify the key idea and making inferences at an intermediate level. b) Comparing, contrasting and categorising the text content in order to obtain the required information, and inferring embedded meanings. c) Using a high level of inference to understand and interpret texts, and assessing their content. d) Using formal or public knowledge to draw up hypotheses regarding texts, and assessing them critically. e) Critically assessing the content of texts, making hypotheses and inferences by using specialist knowledge.
		Building high-quality written texts expressing their ideas, experiences and arguments coherently, confidently and accurately whilst using the conventions of structure and presentation for academic and scientific texts.	a) Recognising, knowing how to locate and extracting information from different types of printed material as a basis for written work. b) Writing texts targeting the general public which display their expertise and comply with the corresponding regulations. c) Dealing with texts concerning academic communication (reports, monographs, papers) in which ideas are presented coherently and appropriately. d) Using informative and argumentative texts in order to write academic texts which present ideas coherently and appropriately. e) Producing scientific texts (monographs, theses, papers), whilst complying with the conventions of writing and presentation.

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Description of each GC6 achievement level with its respective strategies and learning outcomes

Achievement level	Teaching and learning strategies	Learning outcomes
Low level: Expressing ideas, opinions and concepts clearly, fluently, coherently and persuasively; using different types of oral and written texts suitably and adopting a constructive, critical attitude towards their content; showing tolerance towards the interlocutor and complying with conventions of intervention.	• Presentations. • Workshops. • Teamwork. • Master classes. • Oral and written presentations. • Plenary meetings addressing learning experiences. • Group discussions. • Producing critical essays. • Reading material.	• Clear and persuasive verbal expression of ideas; displaying the ability to listen, tolerate and respect the communicative contexts within which there is linguistic interaction. • Understanding different types of texts; recognising the main and secondary ideas; inferring implicit content to assess the content of written messages efficiently. • Producing different types of written texts relating to their learning experiences logically and thoughtfully, whilst applying current rules regarding grammar and spelling.

Achievement level	Teaching and learning strategies	Learning outcomes
Intermediate level: Processing information from oral and written texts comprehensively by implementing the appropriate strategies and resources to organise information and ideas; producing coherent texts and applying the relevant rules of grammar and spelling within different types of texts.	• Teamwork. • Presentations and workshops. • Master classes • Plenary meeting addressing learning experiences. • Producing critical essays. • Reading material. • Case studies. • Theoretical analysis.	• Clear and persuasive verbal expression of ideas; displaying the ability to listen, tolerate and respect the communicative contexts within which there is linguistic interaction. • Understanding different types of texts; recognising the main and secondary ideas; inferring implicit content in order to assess the content of written messages efficiently. • Producing different types of written texts related to their learning experiences logically and thoughtfully, and applying the current rules of grammar and spelling. • Clear, fluent and natural oral communication; expressing ideas logically and thoughtfully in communicative academic situations requiring the use of plain language and conventions of dialogue. • Processing information from the texts being read; discriminating the aspects that are relevant to their search purposes, and making use of them to build the new knowledge needed for their academic and professional life. • Writing informative, argumentative and descriptive texts; applying the current rules of grammar and spelling in order to express their knowledge coherently, clearly and confidently. • Producing different types of written texts related to their learning experiences logically and thoughtfully, whilst applying the current rules of grammar and spelling.

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Achievement level	Teaching and learning strategies	Learning outcomes
High level: Producing high-quality academic and scientific texts; implementing strategies and techniques in order to understand and produce clear, fluent and coherently expressed oral and written discourses.	Producing summaries on the basis of graphic organisers. Creative writing workshops. Scientific writing workshops. Producing monographs. Essay writing.	• Possessing communicative linguistic skills developed for improved personal and academic performance, revealed through the ability to listen and their efficient and effective verbal communication. • Using reflective and critical thinking when interpreting, assessing and judging the content of the texts being read; processing the information in order to build complex and specialised learning outcomes. • Building high-quality written texts expressing their ideas, experiences and arguments coherently, confidently and accurately, whilst using the conventions of structure and presentation for academic and scientific texts.

SC19: Reflecting on their practice in order to improve their educational performance

Competence definition

This refers to the ability to recognise, analyse and assess the impact of one's own actions in interactions with peers, colleagues, educators and other actors involved in education with whom one has a collaborative relationship.

Command of the competence relates to

Identifying achievements in order to share these with their colleagues and incorporate them into their practice. Innovation in practice is one result of such sharing and it also motivates others to do the same - the ability to acknowledge and learn from their mistakes.

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Competence description

	Achievement level	Indicator	Descriptors
First level	Maintaining a relationship of openness and interacting positively with their students, colleagues and other actors involved in education.	Permanent dialogue with different actors linked to their professional practice.	a) Difficulty in opening up to dialogue. b) Scarce dialogue, only when their opinion is requested. c) There is general dialogue and participation in different areas. d) Externalising ideas and encouraging discussion. e) Their criteria are taken into account in order to take decisions concerning professional improvement.

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	Achievement level	Indicator	Descriptors
Second level	Conveying ideas and projects to students, colleagues, superiors and other actors in education for timely feedback both in areas that are felt to be weak and those felt to be strong.	Incorporating criticism and self-criticism regarding their professional practice.	a) Rejecting criticism from different actors in education. b) Failing to look for suggestions to improve their practice. c) Constantly analysing their practice through criticism. d) Incorporating elements of criticism into their practice. e) Sharing the sequences of their practice.
		Participating in the pursuit of innovations that improve their practice.	a) Failing to show interest in modifying their professional practice. b) Seemingly interested in modifying their professional practice. c) Looking for innovations to improve their practice. d) Encouraging educational innovations to be put into practice. e) Implementing innovations that improve their practice.
		Encouraging the participation of colleagues from other disciplines in activities that improve their own educational performance.	a) Uninterested in linking their discipline to other, related disciplines. b) Promoting areas in which colleagues from other disciplines participate. c) Upholding the participation of colleagues from other disciplines that improve their educational performance. d) Communicating the advantages of incorporating colleagues from other disciplines so as to improve their educational performance. e) Showing achievements in their performance as a result of incorporating contributions from colleagues.
		Fostering proposals for professional practice among their colleagues by sharing experiences, materials, bibliography and other aspects.	a) Failing to gain commitment from their colleagues for professional practice that fosters proposals. b) Colleagues sometimes show interest in improving their practice. c) Gaining the interest, consideration and commitment from their colleagues to socialise experiences, materials, bibliography and other aspects. d) Gaining individual and group commitment to educational performance that fosters proposals. e) Managing to get colleagues to put proposals into practice that improve their performance.

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	Achievement level	Indicator	Descriptors
Third level	Ability to encourage permanent groups for on-going education by providing updates and advice on their practice and topics related to their professional performance.	Systematically participating in further training or other activities related to improving their professional performance.	a) Failing to participate in activities that improve their professional performance. b) Participate but this is irregular. c) Making proposals for professional improvement. d) Boosting the participation of colleagues in professional improvement proposals. e) Incorporating the changes resulting from action to make improvements to their practice.

Description of each SC19 achievement level with its respective strategies and learning outcomes

Achievement level	Teaching and learning strategies	Learning outcomes
Low level: Researching their own pedagogic practice: their communication with students, the interaction between them, their professional area, methodological strategies, resources and educational facilities and teaching and learning processes.	• Life history. • Experiential presentations. • Plenary meetings addressing learning experiences. • Interviews with professionals. • Analysis of videos. • Virtual forums. • Visits to Education Centres. • Research report writing guide for each student. • Presentations and workshops. • Teamwork. • Master classes. • Oral and written presentations. • Plenary meetings addressing learning experiences. • Group discussions. • Critical essay writing.	• Using strategies and tools to gather information that allows their own pedagogic practice to be seen. • Organising information using different tools, which are used to identify their weaknesses and areas that need improvement. • Prioritising their developmental and updating needs so as to improve their pedagogic practice.

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Achievement level	Teaching and learning strategies	Learning outcomes
Intermediate level: Designing educational innovations in response to the needs for improvement detected during research involving students, colleagues, superiors and other actors in education for timely and constant feedback.	• Collaborative work with colleagues. • Reflective group dynamics. • Case studies. • Research action. • Developmental projects. • Analysing videos of processes.	• Producing and implementing contextualised innovation processes that engage students, colleagues, superiors and other actors in education. • Assessing and allowing their educational performance to be critically assessed for timely and constant feedback.
High level: Incorporating the changes that improve their educational performance into their practice and ongoing training.	• Systemisation of experiences. • Conceptualisation of learning.	• Redefining their own professional practice on the basis of self-assessment and co-assessment. • Sharing their experiences and the results of implementing recommendations deriving from their self and co-assessment.

Some preliminary findings

The expression *preliminary findings* is used because each participant university is at a different stage in the innovation process. Despite the diversity of actors emerging from virtual and face-to-face communication, it is wise to summarise the achievements and possibilities which the Tuning Latin America process has allowed.

It was found that:

1. At the time of completing this study, two trends were identified when applying the competence-based approach in curricular design. One is where the competence relates to the subject matter. For example, GC6, the capacity for oral and written communication, relates to the subjects reading and writing at university, acquiring oral language, language and communication I and II. The second is where the competence steers learning strategies in different subjects such as algebra, practice, leadership, human values, qualitative and quantitative research methodologies and so on.

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This exercise enabled adjustments to be made to the selected competence definitions and achievement levels, depending on the extent of student progress, as differences became apparent between students in their first, mid and final semesters.

2. Among the relevant learning experiences, it is worth highlighting that the same competences produce different results and it is precisely here where the wealth of this approach lies. Each university, according to the approach taken to its degree programmes and the qualifications it awards, the needs identified, the social responsibilities, views and mission, among other factors, is able to define the subjects in which its teaching staff guides the learning and assessment strategies in order to attain the competences in a cross-cutting manner. The definition of levels can also vary from one university to another and one degree course to another.

3. The competence development approach can be used at universities that have a subject-based curricular design and those with competence-based curricular approaches at different development levels, depending on the achievement levels one wishes to reach in the relevant competences. Furthermore, the conception of competence development can be planned in the short term (in a highly specific subject), medium term (over 2 to 4 or 5 semesters) or long-term (throughout the entire degree programme).

4. Some modifications were made to the initial exercise using the results, and the competence was developed in the long-term so that it would serve as a benchmark and could be developed throughout a course of 4 to 5 years' duration, depending on the length of the degree programme.

5. During the development of the generic competences, it was observed that oral aspects were prioritised at certain times and writing aspects of different levels of complexity at others. In the specific case of Mexico, there is a notable emphasis placed on addressing this competence in the education of Educational Research - as is the case with the University of Chile, albeit with a different emphasis.

6. Flexibility can be seen in the processes, although the final results develop the same competences with features that are

fully contextualised within the areas of professional and personal performance.

7. With regard to curricula, we found:

   a) Huge diversity in the curricular design of courses and programmes for the education of teachers, in terms of: working hours, discipline-specific emphasis, content and qualification names. This diversity is not only noted among the different countries, but also within each university.

   b) The curricular structure and organisation at most universities offers programmes that focus on three core areas: one made up of the basic disciplines in education such as psychology of education, philosophy of education, anthropology of education, politics of education and so on. The second core area is made up of disciplines in pedagogic and discipline-specific fields such as didactics, curriculum, pedagogic theories, pedagogic management and coordination, in addition to specific disciplines. The third core area is made up of supervised practice, which is incorporated into the curriculum along with a specific number of working hours for professional practice, also known as internship and/or work placement or residence.

   c) Very few universities include a set of disciplines aimed at action in social, cultural, multicultural or popular education movements in their programmes for teachers.

   d) Some universities include learning activities that take action research into account, not only from different research perspectives but also from pedagogic approaches that place emphasis on the problematisation and critical analysis of professional practice.

8. With regard to the names of degree programmes:

   There is a wide range of names for degree programmes in the area of education in Latin America. This can be explained by the fact that demands to address specific groups (young people, adults, children, adolescents) and demands to address areas of emerging interest (diversity, interculturality, gender) have been incorporated into traditional teacher education programmes, and this has gradually

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broadened the diversity of curricular content and hence, programme names, giving rise to a range of qualifications.

Despite this diversification and fragmentation of programme, it is possible to identify some broad groups.

According to school system: a group of degree programmes was identified that is aimed at educating teachers by focusing on the development of professional competences in the countries concerned. A distinction can be drawn between degrees in pre-school and primary education, whilst another is aimed at secondary education. The former tend towards a general curriculum and the latter is more discipline-specific and specialised.

According to academic qualification: another group of degrees includes an academic qualification and a professional qualification. This is the case with degrees in education, pedagogy or education sciences, which cover a wide range of specialist areas such as educational administration, planning and assessment, education research, producing materials, educational guidance, curricular management, popular and alternative education. Degree programmes in Latin America are between 4 and 5 years in length. Hours of study range from 2,700 to 3,400 hours on the whole (there is an exceptional case of 5,000 hours at a state university in Bolivia). In some cases, there are so-called degree cycles, created with the specific aim of enabling qualifications awarded by non-university establishments to be upgraded to university degree level so that post-graduate studies can be pursued.

According to type: the types of degree courses are face-to-face, semi-face-to-face and virtual. There are also, to a lesser extent, bimodal and multimodal courses.

9. The results of the comparison exercise

The meta-profile was compared with programmes at fourteen universities, of which four work with the competence-based approach and ten do not. A high degree of coincidence can be observed with the meta-profile developed at the four universities using the competence approach. In the other cases, an analysis was conducted of the curricula, syllabuses and content in the graduate profile in each establishment to examine the presence or absence

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of the competences highlighted in the meta profile. The analysis shown below includes both types of programme.

Summary table
Meta-profile and programme comparison

	Professional Dimension			Academic Dimension			Social Dimension		
	C	NC	NR	C	NC	NR	C	NC	NR
Generic competences	40%	42%	18%	48%	11%	41%	45%	13%	42%

C = coincidence; NC = no coincidence; NR = no reference made.

	Professional Dimension			Academic Dimension			Social Dimension		
	C	NC	NR	C	NC	NR	C	NC	NR
Specific competences	33%	39%	28%	—	—	—	—	—	—

C = coincidence; NC = no coincidence; NR = no reference made.

In the professional dimension, 40% of the generic competences in the meta-profile coincide with the competences or content of the programmes analysed, 42% fail to coincide, and 18% are not present. 33% of the specific competences in the meta-profile coincide with the competences and/or content of the programmes analysed, 39% fail to coincide and the remaining 28% is not present.

In the academic dimension, 48% of the specific competences in the meta-profile coincide with the competences or content of the programmes examined, 11% fail to coincide and 41% are not present.

In the social dimension, 45% of the generic competences in the meta-profile coincide with the competences and content of the graduate profiles analysed, 13% fail to coincide and 42% are not present.

Furthermore, it should be pointed out that the meta-profile reflects a relative weighting of competences associated with the professional dimension. This is predictable given the professional nature of teaching. Nevertheless, this raises some questions regarding the place of the academic and social dimensions in educating teachers and educators.

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There is agreement that the command of «know-how» is simply instrumental and is insufficient for the purpose of educating teachers/instructors/educators.

The competences identified in the meta-profile which are not found in the majority of the programmes examined need to analysed, such as:

- SC19: Reflecting on their educational practice in order to improve their educational performance.

- SC7: Designing and implementing different learning assessment strategies on the basis of specific criteria.

- SC13: Designing and implementing educational action that integrates people with special needs (disability).GC16: Capacity for decision-making.

- GC7: Ability to communicate in a second language.

- GC1: Capacity for abstraction, analysis and synthesis.

- GC8: Skills in the use of ICTs.

The four universities which have adopted a competence-based way of working show between 70% and 90% coincidence between the meta-profile and their programmes, as they were designed according to Tuning project competences.

By virtue of the work carried out, it can be concluded that the meta-profile developed is a valid tool for the purpose of reflecting on and generating processes involving curricular transformation and innovation. We therefore consider it to be a valid contribution and could be a useful benchmark in guiding such processes, especially for those establishments and universities which have yet to incorporate them and decide to go ahead with educational processes based on a competence-based approach.

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4

Observations concerning student workload in the Subject Area of Education

The classroom is usually the most important, and often the only, scenario of the teaching-learning process, depending on the course type. Even though some work, reading, monographs and other assignments are left for students to do outside the classroom, these complementary tasks are not designed according to the actual time students spend to complete them.

Each subject or type of learning (such as internships, practice, laboratory, individual study project, end-of-degree project, etc.) is defined in terms of the number of hours of student academic work per week or semester. This work is usually measured according to the number of contact hours centred on the lecturer. The number of hours of independent study or work carried out by the student is not considered.

Therefore, getting an idea of the workload a student can cope with in a cycle (term, quarter, semester or academic year) is important as it enables:

- The appropriate planning of learning processes, taking into account face-to-face learning (in the classroom) and independent learning (outside the classroom).

- The additional effort made by the student in self-learning can be truly assessed and acknowledged so that the time needed by a subject in a programme can be established rationally.

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- Real importance and intensity can be given to interdisciplinary education and elective subjects.

- The development of generic competences as a cross-cutting complement for discipline-specific development (ability to learn, research capacity, ability to work independently, skills in the use of information technologies, capacity for written communication) which normally transcends the confines of classrooms.

- The lecturer's face-to-face work and the independent work centred on the actual student can be integrated into the curriculum.

4.1. Student workload and academic credit

Given the qualitative nature of the different curricular and pedagogic options in the Latin American experience, it is not possible to find a single criterion or homogeneous definition of university academic credit, understood as being a unit to measure of student workload in a programme. Hence, there are real problems establishing equivalences, recognising studies carried out at other establishments and in student mobility. There are even different concepts of what an academic credit is within the countries concerned, the predominant idea being that it corresponds to the *contact hours* students spend in the classroom, workshop, laboratory or practicum centre - in other words, a view centred on teaching and work carried out by teaching staff.

In some countries, 1 hour of weekly lectures in one semester is equivalent to 1 credit. In others, it is assumed that 1 hour of lectures requires another 2 or 3 hours of additional study, and so 1 credit is equivalent to 3 hours per week throughout one semester, including face-to-face work and student study time.

In a few countries (a few universities) the credit measures the estimated student time according to the professional and academic competences expected to be developed by the curriculum, including the academic hours with teaching support and other hours that have to be spent on independent study activities, practical work, exam preparation or other activities that are necessary in order to achieve the proposed

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learning aims, without including activities devoted to the sitting of final examinations.

Tuning Latin America asked the participant universities in all the areas to conduct a survey among academics and students on the workload deemed necessary by programmes for the subjects being taught, and the workload objectively needed in order to fulfil the learning activities, taking into account assignments performed outside the classroom.

The purpose of this survey was to provide the necessary input so that the boards of the Tuning National Centres and Technical Centre, via a research process, were able to develop a viable proposal for a Latin American Academic Credit to be adopted as a reference unit.

A credit reference system enables there to be improvement in personal, institutional, social and economic conditions of future professionals and educational experiences in a variety of institutional and geographic scenarios. It will also enable there to be agreement and establishment of a minimum number of credits that each programme should offer in order to award qualifications, so that the recognition of studies, processes of equivalence and standardisation of qualifications will be deemed viable.

Moreover, it will enable there to be student mobility between different educational establishments in a country and within Latin America, since the new system facilitates processes that standardise and validate subjects or qualifications abroad because most countries worldwide use academic credits in higher education. The European countries that have managed to coincide with the current European Union system (European Credit Transfer System-ECTS) in this aspect assume a 1:3 ratio between hours of class and student study time.

The system of credit references is easily adaptable to different types of learning activity. In the case of laboratories, for instance, 1 credit can assume that all the hours are working hours with teaching support, whereas in the case of professional practice, 1 credit can assume that all the hours are independent student working hours; the same occurs in distance-learning courses where independent student work has predominant value; the establishment in this case, for example, could determine that all credits correspond to independent student work.

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The university representatives in education considered that the implementation of the credit reference system will enable:

a) A basis for quantifying the cognitive and professional graduate profile to be used as a basic factor of the discipline or profession, interdisciplinary education and elective subjects.

b) Cross-cutting learning activities in generic professional competences as a complement to the discipline-specific ones.

c) Real criteria concerning face-to-face, teacher-centred work and independent student work to be obtained.

d) The recognition of qualifications, validation of discipline-specific, interdisciplinary and transdisciplinary studies within comprehensive and flexible, competence-based programmes.

4.2. Criteria that need to be met for adoption of the Latin American Credit Reference

Some aspects, nonetheless, need to be taken into account in order to ensure that it is successfully adopted, such as:

• Defining clear policies at an institutional level so that it can be adopted, monitored, assessed and adapted.

• Promoting curricular flexibility and offering students the chance to pursue specific areas in their degrees, or to complement their development with formative options in other areas of knowledge.

• Defining the scope that the use of CLAR might entail at universities as a way of measuring the amount of student working time and a tool to achieve programme aims.

• Estimating and foreseeing the academic, financial and administrative implications insofar as independent work requires constant monitoring and support in order to fulfil its purpose in two significant generic competences: «Ability to learn and keep constantly up-to-date» and «Ability to work independently».

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- Managing the structure of programmes clearly, and defining the core of basic elements, areas of emphasis and complementary and elective subjects in percentage terms.

- Calculating the appropriate number of hours that students should devote to subjects in a study cycle and the entire programme.

- In the case of private universities, calculating the value of enrolment in a programme according to the credit cost analysis considered in the programme.

- Offering students a wide range of elective subjects in order to further their personal interest in discipline-specific and interdisciplinary subjects.

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Future scenarios
for the Subject Area of Education

Analysis of the information produced has been grouped into seven previously established, categories and the interviewees have been coded according to the description below:

Country	Code	Interviewee
Argentina	A01	Adela Monge
	A02	Angel Plastino
	A03	Jorge Padua
	A04	Jorge Nuñez
Bolivia	B01	Reymi Ferrera
	B02	Marina Arriata
	B03	Guido de la Zerda
	B04	Juanita de Hernández
Chile	CH01	José Joaquín Bruner
	CH02	Mario Waissbluth
Costa Rica	CR01	Leonardo Garnier
	CR02	María Eugenia Dengo
Ecuador	E01	Dr Huerta Montalvo

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Country	Code	Interviewee
Honduras	H01	JAE
	H02	JDM
	H03	VRA
Mexico	M01	María de Ibarrola
	M02	Lorenzo Gómez Morín
	M03	Laura Frade
Nicaragua	N01	Luz Marina Ortiz
	N02	Miguel de Castilla
Paraguay	PA01	Consultant to Minister and others
	PA02	Gilberto Romero
Peru	PE01	Dany Briceño
	PE02	León Trahtemberg

5.1. Changes in future society over the next 20 years

As far as future changes are concerned, both interviewers and interviewees coincide in major issues related to technology, economics, environmental conservation, situations of poverty, education as a whole and higher education in particular.

Society, economics and knowledge

Society, technology and knowledge establish a link, since:

> «The importance of knowledge in the development of society will become increasingly apparent, knowing that there is a new form of knowledge production that is wholly influenced by technology. All organisations are affected by information and communications technology and so universities are too. This is nothing new, it is a trend that will continue to grow and pose new challenges» (A01).

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Technological acceleration will progress towards:

> «Technological mutation to overcome obstacles and problems, innovation by improving services or produced goods [which in turn] will lead to a society where technology will need to look for ways of producing more goods, without overly impacting the environment. However, technology in itself is neutral - it will depend to a large extent on the direction governments and corporations take regarding technological progress, which can either focus on providing greater comfort and services according to profits or develop systems that enable human needs to be met by using clean and efficient technology» (B01).

To this interviewee, technology enjoys independence in the sense that, as a phenomenon:

> «It has only just begun, but it will change the way we shop, communicate, study and so on, irrespective of the scenarios and socio-economic models implemented worldwide. Technology is currently following a model of extreme segregation and unfairness» (CH2).

Such a phenomenon may be regarded as science fiction and public property because:

> «We don't know where it'll end up but it's going very fast and it's extremely difficult to foresee what technology will be like in 20 years' time - it would seem like science fiction to us nowadays... there are already things we can see that seem to be science fiction. This, in education, will have a huge impact because there is access to information today, but if hard-line policies on intellectual property prevail, even though technology can open doors, the law can close them. This will be one of the major conflicts over the next 20 years.
>
> How are the rules of intellectual property going to adjust to technology that makes knowledge public property? ... and one

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important point is that the cost of all this is dropping, one of the positive effects is that access to culture, information, knowledge and everything else in the next 20 years, it really is all going to be public property» (CR01).

The interviewee above and the following interviewee agree in the sense that:

«Although there will be a greater flow of information, it will be at a cost, users will be able to download and receive what they pay for, but downloading capacity will be greater than broadcasting capacity, which can be seen by the fact that Internet reception speed can now be 3G but posting speed is just 1G. In other words, control over information will increase and will be in the hands of the private sector - only what is paid for will get widely broadcasted» (M03).

The fears and risks caused by the omnipresence of technological progress is also put into question because:

«There could be over-dependence on the technological paradigm. In other words, I can solve everything and anything with computers. That would be the first modification I would make to education in the future, which is somewhat dependent on the technological paradigm, and we think E-learning is the be all and end all» (E01).

The critical variables of globalisation, democracy, the state and productivity, and the specific variables of employment, population and income distribution also form part of future scenarios:

«The labour market and economy are going through times of extremely severe crises. It seemed that the whole economy would be regulated by scientific knowledge, but what has been achieved is extreme fragmentation between foreseeable work with high knowledge demands (scientific), available work… and training

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young people to join the labour market... some low-skilled jobs will disappear, which may be replaced by technology, having serious effects on unemployment among significant numbers of adults who do not readily adapt to change, More training for young people does not necessarily solve unemployment issues; there is a great deal of mobility, new professions are created, there are rumours of new pools of employment... there are many transformations that owe themselves to technology and scientific knowledge, the important thing is, however, that there are relatively long periods of disparity and lack of coordination» (M01).

Structural reforms in the economy's social sector are on the increase, and one change is «*the minimisation of the State and predominance of market forces. [Experts call this reacting by conviction]. In other words, what is happening is that, whenever faced by a socio-economic or political issue, there is mistrust in the role of the state to solve it and the market is therefore left to act. This will end up imposing itself as a common strategy for conflicts due to the sheer force with which the market influences the world*» (CH2).

As far as the organisation of work is concerned:

«New forms of work will be established...where virtual work and work on an hourly basis will become the norm. There will be greater emphasis on knowledge management, which will require the appearance of new degree programmes or re-conceptualisation of some existing ones. There will be a great deal of emphasis on values and environmental conservation. Change will be constant at all times and this will give rise to new paradigms which respond to the particular moment in history» (H01).

Professional mobility:

«Will continue to be selective according to professional development levels, particularly in those cases where there are needs failing to be met such as in nursing, medicine, dentistry and engineering. An optimistic scenario where the issue of mobility

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is resolved in the same way as the movement of goods and finances is not envisaged in the medium term. The most pressing issue for most countries will be unemployment. Moreover, the unemployment variable in the informal sector is critical because all the analyses being conducted on issues concerning professional scenarios are linked to assumptions related to the informal sector» (A3).

In contrast to the above, to this interviewee's mind:

«Society will not be all that different in terms of bureaucratic, hierarchical and power structures. The scenario will display greater use of knowledge in order to improve productivity in the economy, with greater production capacity in terms of added volume but also wellbeing for people, with distribution that is not quite as backward as now, but still unequal. The greatest impact will be caused by technology and the economy, but without radical changes. The use of technologies will influence every aspect of life and this trend will gain momentum. Social organisation and its practices will change very slowly, but not very substantially, over the next 20 years» (CH1).

In agreement with the above:

«New consumption needs. These will cause wider socio-cultural gaps and, consequently, gaps in education. Paradoxically, those who own the least will be even poorer than before. In 20 years' time, I believe violence and social insecurity will increase. Nationalism will be fuelled and globalisation will tend to become fragmented» (PE01).

Communication between cultures and population changes can be included as specific topics, where globalisation:

«Has not brought uniformity in cultures or improved communication between them; the emergence of all kinds of

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protest groups related to religion, region, ethnicity, gender, age, language and so on.

This will take place with force and even violence [as well as] basic, fundamental changes: population growth, the increase in life expectancy, the incorporation of women into all public areas, migration, violence deriving from drug-trafficking as a way of life, and many other aspects» (M01).

There is also mention that these changes will include:

«The physical support of tools, which will tend to be ever smaller and more complex... society will go through substantial changes; in structures and schemas, for instance, in our country the majority of the population is young, so it follows that, in the period we are referring to, there will be an eminently productive population-demographic bonus...» (PA01).

Education

The challenge that remains for future education is:

«Knowing how to use technological change to educate better... it should not be underestimated, but ... there are people who overestimate it. They provide education according to the technology... technology is an instrument, a tool, a means but not an end ... I don't educate for technology. The current technological revolution is a revolution involving mental processes; what is being boosted is the ability to perform mental processes at higher speed and with greater complexity than, it sounds really strange to say so, the human brain... this is the type of revolution that does have an impact on education, which we have probably barely begun to see... I mean technology frees the brain to do other things, what we now need to discover is: what are the other things we can do when we don't have to deal with the things we used to deal with? » (CR01).

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The logic of the changes future society faces:

> «It is already present at this moment in time. The important thing is to classify the nature of these changes... and UNDERSTAND that they will not follow the same logic or the same dynamics in the different countries, nor within the same country... technology and communications seem to know no limits... This technology invades practically all areas of human activity, all areas of production and services and, to a large extent, everyday life» (M01).

How is education seen in the face of these rapid changes from the interviewees' points of view?

Educating young people and adults poses a challenge given the speed at which knowledge is produced and updated, which calls for the need to:

> «Think about the concept of «ongoing education» …this is also a trend that will be heavily influenced by how knowledge is generated today…at…universities, we have an extremely important role to play in the present day, because we are indeed one of the most paradigmatic places where knowledge is generated. In the knowledge that it is not the only place but we appreciate that it is almost a privileged place with regard to generating and producing knowledge... it is a social phenomenon where there are actors, which is not only academic but there is also knowledge coming from social and cultural practices... universities can interpret and decode it and then give it back to society... it is important for universities to find their place as one of the actors, and not the only actor, in the generation of knowledge... I think it will be a challenge and ... it will also give rise to a scenario» (A01).

> Some topics were highlighted concerning the academic nature of education. For example, «I believe we should lower our guard in relation to this encyclopaedic, higher education project based on status, and heavily linked to market logic... I feel it is topic of debate at this point in time» (B02).

The following fact can be added to the above:

> «I don't know why there is prejudice against the role of education being in this scenario of knowledge, which does indeed change and need to be updated but ... soft skills are supposed to be learnt through life experience or are already in the genetic code: co-habitation, the joy of life, ethics - in other words, living with other people has been extremely difficult for the education system» (CR01).

The past and the present: the hinge between science and technology; the subjected subject and dehumanisation:

> «I don't think a forward-looking or future outlook can be envisaged if the past and present aren't understood...the changes between the present and future are loosely connected by a hinge which sometimes allows us to differentiate between them easily, and this is due to science and technology. We have invented software that is being modified, transformed... where the subjects are being fixed by science and technology. Control over science and technology has been lost. So changes are inevitable on that front... these changes are being directly driven, fuelled and led by education systems, they are convinced that science and technology is the future. Hence, there is a kind of passiveness on the part of the subjects, a kind of dehumanisation of society... I'm not very optimistic about the future in the sense that technology is going to improve the human condition because communications systems or technological or information systems are increasingly widespread, more sensitive and more open or democratic... I think that this kind of future could lead to a situation of dehumanisation of society and individuality, to a relationship with objects, with machines. I'm not very optimistic about such a future if we only see and explain the world through science and technology» (B03).

Response to such changes puts higher education in a position of social responsibility. This is because:

> «Society is changing extremely rapidly and higher education on the whole is failing to adapt to such changes - in some cases,

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dramatically. Universities are uncoupled from society, which is not the case in other countries. There is a worrying trend that there will be a shortage of professionals in the next 30 years in certain careers. Employment in certain careers could become an issue or a scarce commodity for graduates in the future» (A02).

It is therefore necessary to:

«Educate coming generations to appreciate the diversity of races, religions and peoples and live in peace with them, regarding themselves as *world citizens*. This is one of the major challenges facing educational establishments in the coming decades» (B04), since «what is certain is that changes will carry on taking place in both educational paradigms, due to the modification of schemas, patterns, aims and values in society, and the development of new degree courses that respond to such paradigms according to needs» (PA1).

Changes are necessarily linked to higher education and the internal strategies universities manage to put into practice. This is because:

«Large universities find it extremely difficult to change as, fortunately, they are democratic establishments and agreements must be reached and that makes it difficult, and the larger the university, the more difficult it is. It's already virtually a miracle that research has managed to be kept going for so long. At small universities, however, things are a lot simpler because there are fewer people and everybody is more likely to know each other and they should take advantage of the fact that they are small to pursue far-reaching innovations» (A02).

Imaginary scenarios will be characterised:

«By a major need to keep on updating due to the accumulation of information that will take place; pedagogic practices will need to be thoroughly updated. Students will be able to make progress

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by themselves and the role of teaching staff will be to direct them swiftly towards the world of information by showing them how to select and prioritise information... teaching how to deal with and assess the quality of information...methods will be more closely linked to multimedia education. Students will no longer want texts to read. Viewing information will need to be performed in a different way; multimedia computer graphics. Teaching staff won't be present to give students explanations but to provide the key tools so that students can understand different technologies» (A04).

In the field of education:

«New policies will emerge to address the challenges of such change. Hence, new teaching-learning models will arise in education that will involve new theories in the areas of pedagogy, psychology, didactics and methodology, technology and so on, and so the new generation of educators must have the necessary expertise and competences to responsibly take on the new challenges facing them» (N01).

Education models will no longer be of importance because of:

«Increasing freedom to provide a wide range of education processes. I mean, all education models are valid as long as they achieve the results the diversity of citizenship aspires to, even though, from a negative perspective, this diversity of citizenship is not clearly taken into account in accomplishing goals» (M03).

The environment

Environmental issues are also of the utmost importance in future scenarios:

«...concern for the *environment* has become paramount in the face of blatant signs of the degradation of nature and the scarcity

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of resources, which will affect our way of life in the future. Epicureans and Stoics had the same debate thousands of years ago, except that the size of today's world population will have devastating effects, depending on the prevailing criteria» (B01).

In the following quote, the interviewee questions opportunities in life in the coming years:

«Not only of people but also ecosystems... this is due to the model of society ... based on the over-exploitation of nature... This is an issue that is not being worked on nor seriously discussed... the chances of the regeneration and continuity of life ... are becoming increasingly limited and this has an unequal effect. Obviously, the so-called developing countries are more vulnerable because of their limited response capacity to the effects of climate change, for instance. What more can we expect..? To have good professionals, urban development ... when life itself is in jeopardy. I think that in the next 20 years ... the situation will be increasingly critical, don't you think? How should we prepare ourselves for this scenario from the point of view of education? For instance, the shortage of water...» (B2).

The following quote summarises this section:

«The world in which we live is a world characterised by rapid and profound change... many countries in Latin America twenty years ago were still under the yoke of dictatorships or had recently emerged from them. Today, despite all the failings in how they are run, democracy has been established in the vast majority of countries on the continent. There were no mobile phones or Internet twenty years ago. Now it would seem impossible to live without them. Rather than technology in itself, it is the effect it has had on shrinking the planet... into a neighbourhood, in that interconnection and interdependence are increasingly being strengthened. Even though we can't predict the future, one might expect both technological and social changes and even greater strengthening of the interdependence between the planet's inhabitants» (B04).

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5.2. Some possible scenarios in future society

The issues addressed by the participants directly relate to aspects of higher education in particular and education as a whole. They also relate to technological and social aspects.

Education and higher education

Demand for higher education in Latin America is on the increase because:

> «Recognition of this increasing demand and right to higher education presents a scenario for universities, which is also a trend. The other scenario is the value of public education, which is so deeply questioned, and the value of public education has been apprehended rather than questioned, because there is a tendency to commercialise and privatise the service provided by higher education» (A01).

Such demand is linked to the chance of:

> «Employment... I think that the higher the degree of instruction, the lower the employment rate, and that has been confirmed by several studies. The teaching profession, especially in human sciences - our universities - have not given thought to the fact that it is no longer possible to keep on investing in resources for professions that the country doesn't need, so I feel, with regard to higher education, it will be essential to... consider human resource development in more practical competences that respond more suitably to the context and cognitive needs of specific cultural and social contexts» (B02).

On the same subject and in methodological terms:

> «The increase and generation of diversification processes in pragmatic scientific methodology means that «any process» can be regarded as scientific provided it works, which has serious

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ethical implications. For instance, a medicine can be released onto the market because it works despite causing damage to the organism, but as it works at the time, the investment needed to determine whether it is harmful or not will not be made. The same occurs in the case of education - any education model «that works» will be sold, without taking into consideration the long-term educational impact» (M03).

Work scenarios will vary due to the:

«... rapid advances in ICTs - both in the availability and furnishing of offices or workplaces and the need to respond to other types of information storage, which will replace box files and other paper-based means. Teleworking could become a new style of working, alongside concurrent networking and other emerging working methods» (PA01).

The role of teaching staff:

«Needs to be worked on... I would implement teaching pedagogy that taught students to distinguish between information because it 's endless ... you have to know how to recognise the source of information and its validity, what is true and untrue ... culture and education will become the dominant core areas that reconnect the most powerful social groups with the least powerful. This democratisation of access to communications and information will diminish the importance of the relationship... a person with relatively low income can access the Internet... if they have support from school, they might be able to turn into an enabler, into a builder of knowledge, a relations manager via technology» (B3).

The employment crisis is linked to the environmental issue, if addressed from the standpoint of:

«The food sovereignty there used to be, which we are also losing ...those elements which are harmful to life itself. I believe that we

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are going to experience an even deeper employment crisis, which already began some 20 years ago and is increasingly critical ... these crises in European countries are a warning that we should not follow such a model. However, the policies and the whole population's mindset are set on someday being like a European country» B02).

When the organisation of work varies, degree programmes vary since there is:

«...a trend towards global culture which conditions economic, education, cultural and health systems. Knowledge becomes a highly important asset in organisations. New ways of organising work therefore lead to the appearance of new degree courses while others become obsolete» (H1)

Public spaces are under threat as there is:

«Greater liberalism in education processes, which entails the creation of different education models both in the public and private sectors, with scarce state participation in their regulation and without reaching true social consensus on what is taught and why it is taught, although this also diminishes the importance of education as a route to social transformation, I mean that if you can't access education, it doesn't matter because investment in education is usually higher than profits gained when it is assisted... the funnel effect in education will be more accentuated, few people with access to true, in-depth, critical and intelligent education, and a lot of people with access to low-quality education, which will contribute to creating cognitive abysses - in other words, not everyone will see the world with the depth required for its transformation» (M03).

The internationalisation of higher education is another:

«Scenario … and addressing the standards linked to forming a part. The rankings in which Latin American universities appear

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or otherwise are under discussion in these scenarios. I think that here, within the internationalisation process of higher education, is where there is now tension as to what is regarded as quality in Europe and what quality may mean to Latin Americans» (A01).

Internationalisation is also connected with selective mobility, in:

«A pessimistic scenario, which would exacerbate issues of migration, with protectionist policies implemented by recipient countries (except, of course, in the case of highly-qualified professionals)...migration will carry on being selective according to levels of professional development....I can't think of an optimistic scenario in the medium term that resolves the issue of mobility in the same way that is being achieved with the movement of goods and finances... the impact of digitalisation on the economy, politics, democracy, destabilisation, political and military strategies and so on, could be explored, as well as the increase of informal sectors in the economy. The least educated are shifting towards informal sectors of the economy; the drop in companies offering full-time employment...avoiding problems of health insurance, trade unions, taxes and so on» (A3).

The role of teaching staff in higher education is envisaged as being a guide, when drawing up programmes according to «time». This is because:

«Today, there are subjects that have evolved... Good teaching guides are needed. [For instance] the concepts in which engineering is now thinking need to be taught... when before we used to talk about stationary status, the time variable now gives momentum to problem solving. In the future, change will be daily. Industrial processes will need to be simulated, where the time variable will have an impact on innovation. Students today... on their computers, have free simulators to deal with problems analysed in engineering that twenty years ago were simply unimaginable. We are already in the process of changing the way we relate to knowledge» (A4).

Future societies

The interviewees envisage the future with:

> «Increasingly individualistic features; technology will make personal contact increasingly less necessary; «virtuality» will create societies will less sense of community, or at least a community with less intense relationships and contacts than at present and in the past. Paradoxically, future society will be more integrated, national barriers are being broken down, and a global consciousness is being developed. Values, customs and cultures are becoming uniform and although this has caused a widespread reaction from sectors against the «Westernisation» of the world, there is no denying that even so, integration is happening even in closed societies» (B1).

Negative thoughts emerge regarding the future of young people and adults' capacity for dialogue, since:

> «With this lack of future, of ideals for young people, I feel the issue of young people needs to be analysed, to see what future awaits these young people. What do these young people expect from the future? What are their hopes? And in higher education we, at the universities, receive young people as students but we have never stopped to think or talk to them about what their thoughts are» (B2).

Access to information also modifies:

> «The classical concept of social class in relation to the productive system has been revolutionised and broken down by the system of democratic access to information, science and technology via the Internet. But this seems deceptive to me in the sense that..., while it may be true that we all have access to information, not all of us possess the discriminatory filters to relate the concepts, knowledge and information that enable us to reassess everything involved in a research process concerning culture or information» (B03).

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Structural reforms are seen as follows:

> «.. I like progress. I believe the world is a better place than before, such as in issues of human and women's rights. More than ever before and there is still a long way to go, but what hadn't changed in 2,000 years has done so in 50... I like to see the world modernising and, at the same time, it scares me. The threat of communism led social democracy to carry out reforms in Europe and America and what is happening now is that without a credible threat of change to the system, carrying out reforms becomes a lot more complicated, as nobody is prepared to make concessions» (CR01).

Linked to the above quote, and on the subject of individualism, the following is stated:

> «Nation states are incapable of controlling their own economic, social and even political processes; decision making is made in agreement with international banking, telecommunications and outsourcing corporations and although there is highly individualised social liberalism, which allows tolerance, respect and co-habitation between different minorities and all the social groups pursuing historical claims... there is also individualism based on the principle of freedom, although this undermines the principle of equal rights and opportunities» (M03).

Social improvement would respond to:

> «The economic improvement of households - there will be changes in policies that address education... more investment in the future education of children, young people and the nation... learners must be prepared to meet the new challenges posed by society and new technologies, and so an inevitable scenario is the incorporation of ICTs into education development processes and, to the extent that teachers are mediators in the teaching-learning process, students [will be able to] meet society's new demands without too much difficulty» (N01).

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Social movements between the paradox of happiness and protest are manifested in the sense that:

> «...the social voice has gained in strength over recent years in the context of an abusive and capitalist, neoliberal model...people are calling for demonstrations in many parts of the world. This voice has gone from complaining at home to making demands and demonstrating on the streets. We are seeing the paradox of a society that is capable of declaring itself to be happy in its personal life but, at the same time, feels bullied by a prevailing model; [another possible scenario] is the eventual emergence of a radical change, triggering constant and serious confrontation between political coalitions and alliances. This could inspire an ideological code that is characterised by its disruptiveness; [another] possible scenario could provide a halfway point where the two ideological models – social democratic and capitalist – co-exist in a permanent state involving taking the strain» (CH2).

On the whole, the scenarios of change are represented by:

> «Technological change, the presence of computers and the Internet in formal education, the loss of humanism, deterioration of family bonds; the loss of emotion, solidarity and service; economic change, commercial intensity; greater educational opportunities; the migration of young people to cities in search of decent, well-paid employment; the predominance of sound and image over the word; the predominance of commercial values due to industrial mass production and commercial success; short-lived values that are nothing but entertainment, enjoyment and boredom; the predominance of frivolity, irresponsibility, gossip and scandal on the television» (PA2).

Other scenarios

The following quotes describe the different scenarios expressed in the interviews conducted:

> «.... the effects of climate change, the increased emergence... of problems relating to the availability of resources such as

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food, because climate change will have a direct effect on the population's food safety; developing peoples and countries are always going to be more vulnerable since this wave of agricultural technologicalisation is killing biodiversity and making farmers reliant on seed and agrochemical markets» (B02).

«... the formation of continental and regional blocs... the chance to create the personality of universities and regional blocs in relation to higher education because I feel it is precisely in this area where we are going to participate that needs to be defined» (A01).

«...political campaigns in the old democracies and ours where «experts» use arguments and mechanisms (some traditional, others new) to persuade the general public, all of which has taken on new tones such as in the cases of the destabilisation of countries and areas...

here there are some signs of professions and training experts.... in designing images, discourses and so on, in conviction – «deceiving» the public. If you used to trust «science», now you can buy experts who will assert truths one way or the other... another sub-theme of training and/or competences that will be needed from profession to profession» (A03).

5.3. Future scenarios and implications for professional areas

Implications for professional areas

Starting off from the future: «education in the 21st century is already - and will increasingly be – significantly different to how it was in the 19th and 20th centuries. In contrast to current education – which regards the future as a linear and predictable prolongation of the past – education in the 21st century will have to start off from the future in order to discover how and in what to train its young people for such an uncertain future world. What the market usually needs fails to coincide with what university graduates have studied, and conventional professions are being replaced by robots and intelligent software» (PE02).

Social consensus to respond to issues of what should be taught and what education is for?: «a lack of social, political, economic,

cultural and civil consensus on what should be taught and what for, which involves a range of conceptualisations, methodologies and teaching-learning processes - an issue that will make a substantial, cognitive difference. I mean, there will be few who will be able to understand, assimilate and address reality in a complex way, while the majority will look for simple solutions to problems and will lack the insight that leads to society solving the problems it faces together and in agreement. The scenario will be «simple» - it arises from an analysis of reality, while only a minority will be capable of analysing reality from a complex perspective which links different knowledge, disciplines, strategies and ways of thinking, such as local, national, state, international and supranational actors and, therefore, agreements could be reached» (M3).

Ethical principles and connecting to different times and spaces: «increasingly computerised education will be needed to network in different times and spaces: being in contact rather than isolated or solitary. This will create the need for professionals in education with interdisciplinary and transdisciplinary education - professionals with a command of technological resources and access to knowledge in order to guide and support the people who will be their students. The world will keep on getting smaller and so educators will need to be proficient in different languages. Professionals will need to be trained in a broad understanding and use of psychology in human and social development for support and tutoring, although I think, essentially, there will be professionals with explicit ethical principles» (PE1).

Person-centred programmes: «re-humanising requires new programmes to be designed that go beyond competences, a project that strives for the resurgence of basic notions, which are gradually being lost by mankind... finding ourselves again, thinking about who we are once again. What and why are we here? These are questions we no longer ask. This will involve closer, more personal education with smaller groups in order to foster acceptance and contention and offer support. In these new global scenarios, there will obviously be a growing need to speak more languages and for greater skills in order to decode the symbols, rites and cultures we have always been separated from, because our world is still exclusively Western and Christian» (PE01).

Flexible systems, syllabuses and programmes in response to the speed of change: «technological change and the generation of information are

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moving so fast that they will overtake the capability of education systems to keep up-to-date, particularly if syllabuses and programmes from the beginning of the 21st century are maintained. Nation states will need to guarantee compensation mechanisms to prevent technological illiteracy; new pedagogic approaches and new teaching models will be needed in order to meet the challenges posed by technology, information and the speed of change. Education systems will have to be far more flexible in order to offer formation that adapts to constant change and responds to a more global view, and there will be a need for highly discipline-specific, professional education programmes, albeit with wide-ranging prospects for implementation. New teaching models that are suited to new learning methods will also be needed» (M2).

Changing scenarios: «...and the way in which professionals should address the national and international context using set standards that give significance to the profession; functioning in a globalised and highly competitive world; using and handling technology in order to automate a range of processes; using new paradigms arising from society's different needs, interests and issues» (H1).

Education accreditation processes: «the need for common languages in order to understand the diversity of education and assessment processes and certification that is valid at a local and global level; the weight carried by assessment as an essential criterion for political decision making» (M01).

Technological culture: «new ways of teaching and learning sciences, taking the generation of students we now face as a starting point; a generation possessing technological «culture». Teaching staff should take advantage of this generation's features so that learners come out stronger and with greater and better capacities, abilities and skills that prime them to make a significant and positive impact on the society in which they are immersed» (N1).

In the area of education: «... what is needed in pedagogic formation is relatively constant in relation to socio-economic scenarios. Basic issues must first be solved and then secondary needs. What will indeed be a force for change – which has recently begun – will be technology in education» (CH2).

Theory and practice: «one of the constant criticisms of higher education is that you are removed from life for six or seven years in

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order to prime you for life and then you're let loose into the big, wide world. Another thing that might be lost with this strategy of full-time teaching staff is that professionals will lecture on theory, but if full-time teaching staff get no practice, what happens then? What is needed is teaching staff with dual practice. Then we would be talking about learning real and essential things to ensure relevance, however, in order to learn-by-doing, you need a theoretical basis all the same - there is nothing more practical than sound theory as an initial basis» (E01).

The key elements of knowledge: «what I can see is that every time I am faced with the challenge of how to distinguish between knowledge in order to convey it, and I've got a digital library, I've got a real library, and you simply don't have enough time to deal with the entire library... there are no key elements of knowledge like there were in old libraries; a scenario of endless complexity has opened up, where interdisciplinary and transdisciplinary relations may well need to be developed and... I feel that if each professional, educator or lecturer is enclosed within their concepts and area of knowledge, it's a mistake; the challenge is to break down these discipline-specific walls surrounding our areas of knowledge... and design more intelligent strategies addressing knowledge exchange, because we are at a time when isolated concepts in themselves have died out» (B03).

The major changes that were not to be: «... which were forecast by the OECD, World Bank or the Monetary Fund have not occurred, nor will they occur in the next 20 years. Moreover, governments won't have a greater say in possible scenarios either, since there have been few significant changes in the last 20 years - no more than small rises and falls in percentages» (CH1).

Shared skills for networking: «professional changes are basically to do with whether we can identify unshared competences, but shared skills so that competences and knowledge can be shared, which will enable interaction between lecturers, academics and professionals from other fields and geographic areas. Enabling the development and consolidation of collaborative networks to produce and develop knowledge... a degree of consolidation is needed. Where there is the issue, for instance, of language proficiency...our students ought to study two or three languages...and also competences, from the point of view of comprehensive student development that enables them to participate in networks, building and developing both generic and specific skills, but while maintaining and preserving their

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own cultural, political and social personality and identity. I believe that multiculturalism is a global trend and I also think this should be reflected in the networks we build, from the point of view of universities».

Promoting research whilst respecting interests: «international networks, which is the issue of international mobility that includes students and education research staff - this is the way to build evolution...it is a way to build integration...knowledge must be sustained... in this tug-of-war between respecting one's own identity and shaping another identity. I wouldn't say more universal, but more of a community identity based on interests, because the interests and expectations belonging to each country or region must not be ignored. At the same time, the people's ideology needs to be seen and reflected» (A1).

Innovation method as a scientific method: «many universities... made research an absolute priority because it's their only output. Not so much for the tangible results but because, from a philosophical point of view, it is called the scientific method, which today is the innovation method. Universities with no research units won't produce innovative engineers. People who are capable of creation in science are capable of educating people who will be creative and innovative» (A02).

The importance of international law: «the impact of these future scenarios can be characterised by the increasing influence of international law on national legal institutions and reaching international agreements and commitments of global importance, like, for instance, treaties concerning the environment, drug-trafficking, terrorism, development and human rights. In the field of higher education, it's not a question of the future - it is already fact. Teaching staff exchanges, the opening of university branches from other countries, university cooperation agreements and agencies aimed at research are trends that will grow in strategic importance in the future» (B1).

Education for life: «I have noticed that a lot of what is happening, the problems in rural areas, is also closely linked to a lack of relevant education... culturally....education should be for life - not only life in the sense of the competences given to a person for self-government, what that person can do when faced by challenges; it is a concept of education for life - education to preserve the healthy life of people. We

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live in a social and cultural setting, but it is also environmental; there are a lot of projects in Latin America developing territorial management and higher education... the people living in a place have to learn to mange their territory...it is a living space …I think that one challenge facing education is also to dismantle the idea that cities are the only living spaces because this is no longer the case» (B02).

Values in the logic of capital: «This whole crisis happening at the moment... this logic of capital that forms part of modernisation projects in education, instils individualism and egoism into young people, doing without their community and family; a key issue continues to be, what is education for? The models have specifically focused on pedagogy - how to teach, how to use ICTs, which materials or how to make a classroom more innovative, but the issue of what education is for has taken a back seat» (B02).

Greater need and specialisation in Social Sciences: «and in Sociology in particular, to study processes in a world undergoing a rapid process of change, which forces us to investigate and interpret the effects of numerous planetary crises in a country as poor as Nicaragua and to develop strategies that enable education to respond to the disadvantaged population» (N02).

Incorporating distance-learning systems: «based on technology, which modify knowledge acquisition processes and the nature of everyday conditions in educational relationships and the «rules of school grammar; use of time, the discipline-specific organisation of knowledge; expanding educational spaces far beyond the school building; modifying the actors and roles taking part in education» (M01).

Recognising a range of possible, new educational situations: «making use of other spaces for certain educational processes that are now exclusively attributed to schools - education in sports, arts, finances, road safety and so on; moreover, recognising the specificity of the educational needs of groups within countries with different cultures, languages and religions» (M01).

Constantly updating the access and use of computer tools: «in order to keep up-to-date in the progress of sciences related to the professional area, the implications mentioned could be: constantly updating education, changes in our beliefs, updating paradigms or

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acquiring new technological competences; in the area of Education Sciences, specialisation will increase according to each discipline, which will require more technical teaching staff» (PA1).

Producing employment creators: «who are not traditional professionals but rather entrepreneurs, who are the true driving force behind employment creation; the education system is acting as a brake because, right from initial education through to higher education, very few key abilities and skills are acquired for business entrepreneurship, such as being familiar with the world of buying and selling, creating and participating in networking, being creative and tolerating failure; entrepreneurs who know how to overcome failure. However, our education system encourages students to play safe, to take no risks, to avoid making mistakes and withdraw on their first failure so as not to lose face in the eyes of lecturers and colleagues» (PE02).

5.4. Professions and professional approaches that can be envisaged

The professions and professional approaches that can be envisaged are as follows:

Professions that are already consolidated related to education were for a long time, and still are, teaching professions, with differences between levels and types according to the aims of their work» (M01).

The discipline-specific fields in the areas of social sciences and humanities: «precisely because the technological change is so drastic that the impact, reading, interpretation and contribution of the humanities to this scenario is essential…seeing these changes from a transdisciplinary viewpoint. I believe this is precisely the way to collaborate in the development of different problem areas» (A01).

> «Professions linked to technology need to respond to the whys and wherefores without losing sight of the humanistic dimension of all professions» (CR02).

> «Knowledge in new technological practices and management is foreseen. Professions that will be needed are in the area of

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Social Sciences; all professions are necessary, provided that their programmes are suited to the times and competence-based professional demands that ensure quality in the teaching-learning process» (PA01).

Teaching professionals and researchers: «who understand that reality needs to be addressed from complexity; it will not be easy - more systemic, flexible and open understanding is needed to address complexity; the world gradually changes; intercultural, political, economic and environmental relations will have to open up more to be able to address such complexity; closed discipline-specific knowledge will fail to provide us with any tools to collaborate in dealing with different problem areas» (A01).

«The profession of researcher in the field of education...will be consolidated in keeping with its weight, and the social, political, cultural and economic recognition given to researchers in all areas of knowledge linked to the global importance of the knowledge society and economy» (M01).

Specific professions: «exist in Latin America - in some countries there are unmet needs in nursing, medicine, dentistry and engineering professions. There are some signs of new professions and the education of experts such as psychologists and graduates in public relations, specialists in imaging and discourse. Fewer but more highly qualified workers are needed now» (A03).

Grouping related establishments for increased specialisation: «grouping an essential and necessary pool of knowledge to offer new areas of study in a collaborative sense. There is a need for academies and universities to join forces. We all have the same categorisation processes. There are standards we all have to comply with. If there were highly integrated universities, there would be new degree courses. Niches need to emerge where new skills are developed. Extreme specialisation can be foreseen in degree courses. Face-to-face enrolment will drop owing to virtualisation» (A04).

Creative processes linked to technology: «production will need to be considered from the complexity of quality control processes.

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Creative processes will increasingly need to come into play in order to build machinery. These aspects will especially need to take creativity into account» (A04).

Professions deriving from computer science: «applied to specific economic and social activities. The application of information technology in almost all aspects of human activity will create, and is indeed now creating, sub-specialities or professions; we will witness the emergence of hybrid professions, such as biotechnologies, agro-environmentalists, environmentalist lawyers, environmentalist educators and so on» (B01).

Degree courses with ethical components and productive undertakings: «all degree courses should have a strong ethical and bioethical component - that is, the ethics of people and bioethics, which is the environmentally-friendly treatment of nature, whatever the profession; the core theme of bioethics must focus on respect and care for nature, which is our home, our habitat. So I think a study should be conducted on the region's productive potential and we should start exploring the possibility of launching local, productive undertakings, and establishments, universities and even schools should create resources, which should not be exploited but rather managed, so that people can live sustainably» (B02).

New professions with multidisciplinary approaches: «professions have died out,...I am a professional in something, I'm going against the grain in relation to these future scenarios; new professions are all about multidisciplinarity, with a complex, global view of knowledge and its practices, where the subjects will have to constantly rebuild what they know in order to move forward, which entails a set of skills and expertise in a wide range of areas that we may be able to grasp the basic concepts of. However, we do also feel that part of our profession involves learning or interrelating with other areas of knowledge. I believe this will be the profession of the future» (B03).

> «There will be multidisciplinary professionals, proficient in universal languages, English, computer science and nanotechnology, who link different, potentially complementary areas of expertise» (H01).

> «There will be new professions combining many of the disciplines that are taught separately today; courses will be more

interdisciplinary and multidisciplinary, with a strong technological component. Programmes which divide into segments and compartmentalise reality will give way to work with subjects that merge from reality. There will be lecturers who can train job creators; seeing that globalisation transcends time, geographic barriers and political and social ideals but, at the same time, enables cultural elements such as music, language and cuisine to merge, there will be the need to train teaching staff for the linguistic challenges of globalisation in a world in which more than 6,000 different languages are spoken» (PE02).

The emergence of hybrid professionals: «will be represented by adding administrative roles and such like, which may be created owing to the growing use of technology in teaching-learning methodology. Current professions will continue to exist, but it is possible to foresee the emergence of new, hybrid professionals who are a combination of educational psychologists, social workers and basic educators in order to fulfil the roles requiring them to be more in tune with families and communities so as to better deal with learning issues concerning special educational needs. New, semi-professions may emerge to deal with these types of situations» (CH01).

Professional career types in education will include special needs educators: «no major changes are observed in relation to professional career types in education; the role of special needs educator is expected to grow in importance due to its skills in addressing children with special educational needs… [since] it combines the essential skills needed to deal with our levels of inequality, poverty and vulnerability far more than a normal teacher» (CH02).

«Nursery school educators will take a more active and valued role in society, given the importance of pre-school education» (CH02).

«Many other professions aimed at addressing the issues raised in the area of education are seen as being important, including experts in ongoing adult education, experts in addressing cultural, ethnic, local or regional inequalities and the areas of programmes, teaching, assessment and the production of resources and materials» (M01).

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Prior definition of type of employment: «a serious problem is the huge disparity between the professions required and the formal labour markets; currently, there are no possibilities for most of these new proposals. Thought will need to be given to education that also modifies its forecasts and expectations in relation to the types of employment students will be able to attain» (M01).

Teachers-mediators: «it is difficult to foresee that careers solving problems we still haven't managed to put into dimension. As regards education, the mediator will be essential for professionals in education: mediators between information and knowledge; mediators between the pedagogy of technology and the development of thinking skills; mediators between physical school (if it is still in existence) and the information and knowledge environment on the Internet» (M02).

The following specialities in education and pedagogy are highlighted:

> «*Education in Social Development, Robotics, Online Education, Teaching*» *(N01).*

> «Pedagogy, Neuro-education (Educational Psychology), Educational Sociology, Educational Communication and Educational Philosophy» (M03).

> «Educators with formation in family support, personal and group development; educators in social communication; education professionals specialising in creativity and innovation development; community educators specialising in community work and social management» (PE01).

Overcoming the prejudice that universities bring status: «people's mindset needs to overcome the idea that university is the ultimate educational establishment and if you get a qualification there, you'll enjoy status. This is a colonial prejudice and it is extremely distressing to see young people ...from very remote communities... because their parents have assigned them the mission of being lawyers, and not farmers like them ... because being a lawyer carries status, because this thing about being a doctor comes from colonial times - at no time have they thought about whether these young people are going to

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get work, but they will probably have status; colonialism has branded farmers as the lowest of the low; if we reverse this situation, and farmers are, in fact, the highest of the high because thanks to them, we eat, it would be prestigious to be a farmer, and if we develop interculturality and say that farmers, lawyers or doctors have the same rights, that they are equally highly regarded, then there would no longer be these prejudices, which have a direct impact in the form of excessive demand for certain careers» (B02).

5.5. Competences required of future professions

The competences specified by the interviewees relate to:

«Competences linked to shared learning, competences in interpersonal and group communication, [in addition to] leadership and commitment, understood as referring to all the skills, including personal skills, which might contribute to transformation and change. It cannot be done or would be difficult to take forward without firm personal commitment and leadership. Basic competences include, for instance, embracing the challenge involved in the use of ICTs in teaching and research, and in the teaching and learning phenomenon. One of the competences is the ability to learn alongside others since the educator is no longer the holder of knowledge. It's amazing what's happening. And I think they are basically aimed at this and also, at the willingness to keep on learning and carry on developing» (A01).

«I would move forward as a group; individually, it's difficult. Individual action is most definitely a thing of the past; it's good that people are charitable, that they help their fellow citizens in every way they can, but social change is more important than a thousand social deeds, and social change should be so simple, like putting forward new building regulations» (E01).

Generic, horizontal competences: «because the degree of abstraction in all the sciences is so high that without basic training, it is difficult to grasp. Regarding research as a priority, not so much for its tangible results but from a philosophical point of view, the scientific

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method is now the method of innovation. Universities with no research units won't produce innovative engineers. People who are capable of creation in science are capable of education people who will be creative and innovative» (A02).

Abilities to absorb, process and combine knowledge, and the ability to learn and understand: «with regard to competences in general (mathematics, science, computer science and so on), it can be said that university education is reliant on organisational arrangements, graduate and post-graduate courses, networks, academic and administrative leadership; global corporations, the business partners and executives of investment banks, and law and global consultancy firms carry out their work in English and share a cosmopolitan culture. The majority have been educated at the same elite establishments and acquired the same competences. They work in similar economic environments and feel at home in cosmopolitan cities. This group is emerging because global trade takes place at a scale and complexity that depends on reliable networks and on personal connections, on «relationship capital» based on personal contacts and communications via computers and telephones» (A03).

Competences enabling large amounts of information to be assessed: «so as to be able to deal with the communications technology that will be available, which is going to advance considerably - not just e-mails and telephones, but considerable advances will be made in virtualisation, in people's location, in the use of augmented reality and virtualisation, which are two different things. Augmented reality means inserting information which is merged with what we are seeing at a particular moment, and this provides an enriched view of the surroundings. But it must have some basic elements to be able so as to be able to weigh up the information. There are inescapable elements that students need to be taught and which they cannot afford not to know, but they have to know them properly» (A04).

«The following competences are highlighted: searching, filtering, selecting, prioritising, ordering and conveying information, as abilities that are integrated and used to develop intelligence networks for the purpose of structuring information and dealing with problems. People will be needed who are a kind of «knowledge broker» (CH01).

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Competences to generate knowledge: «professorships should be understood as knowledge manufacturers. That's how it works in the rest of the world. Teaching staff holding professorships generates knowledge - knowledge which is patented and published, and this is the knowledge conveyed to students. And there is huge disparity among universities - those which put their money on developing knowledge in their subjects and those which don't. It should be understood that all educators are teachers-researchers. There may be teachers-researchers, I mean, a lecturer may give a lecture on a specific area of their knowledge; perhaps they are lecturers who are conducting research elsewhere. This virtuous cycle is essential» (A04).

«The competences that could be expected are, for example: investigative competences to produce cutting-edge knowledge and innovative competences so as to use this knowledge in order to produce new technology for the fields of medicine, communications, cybernetics and so on»(H03).

Competences for knowing how to live: «one of the professional competences is precisely knowing how to live with others, on the planet, in the global village - knowing how to live in harmony with capitalism, but if we were to retrieve the counter-argument put forward by the epistemology of the South, we would say that knowing how to live with others means living in community, living in harmony with nature, «living well», which is a very profound concept… professionals must clearly understand the philosophy of living well, they must know how to do so; bioethics is a key topic, whether they are teachers, biologists, psychologists or lawyers - this universalistic and encyclopaedic idea of disciplines that treats people as if there were all the same needs to be shattered. A competence is interculturality, meaning that each discipline must know how to understand which population it is dealing with and how new degree courses, with new proposals and new social and cultural categories, are going to be developed. I feel that, depending on the extent to which students are able to attain these more plural competences, they will also be able to respond to more plural and complex contexts. That's how I see it» (B02).

Communicational competences: «I feel these need to be developed a lot more. Why? Because children - learners - spend an increasingly

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amount of time in front of two types of monitors - their televisions and their computers, their communication skills are therefore getting worse day by day; they maintain social, cybernetic relationships online but they are out of touch with the real world, and so I think it is of paramount importance that these communication skills are linked to an intelligence capacity. For example, we are teaching intelligence as a relationship of dominance over the increasingly complex problematisation of the world - the ability to adapt and relate concepts, facts that students/learners can solve. I believe that if we add the communication capacity to this competence, we could solve a large number of problems» (B03).

> «I like to think about this in terms of language because the first thing they have to learn is language, in its oral, reading and writing forms, which are different worlds. Mathematical language, artistic language and affective language is how this development - and I am mainly thinking here about the first cycle (primary, secondary, and pre-school) - I mean, at this stage of life, teachers are able to help the development of these languages. The important thing is to use language. In the second part of primary education, perhaps language use should be made more sophisticated, and this is when some of the content that will gradually form part of underlying knowledge, skills and competences should be introduced» (CR01).

> «A high level of reading comprehension - being able to discern the relevance of information quickly in relation to the knowledge needed to solve problems; the ability to interpret, summarise and incorporate new knowledge in rapidly changing environments; the ability to share and compartmentalise work. Teams will be transdisciplinary, and so professionals will be needed with more competences to access and store knowledge that is different from that attached to their discipline, but necessary in order to solve global problems» (M02).

Competences for teaching: «the change relates to valuing the teaching profession far more highly... achieved by rigorously selecting the people joining the teaching profession and suitable remuneration. This is clearly exemplified by the case of Finland. Therefore, professionals in education should be people of integrity and most

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definitely with better profiles than the current ones. Among the competences that will be required, the following will be important: leadership, empathy, passion for education, resilience and the ability to resolve conflicts and crises. In Latin America, professionals in education need to have a high level of reading comprehension and a command of arithmetic. If Latin America continues to have such a high number of professionals with difficulties in reading comprehension, it is unlikely there will be professionals who will know how, or have the ability, to teach» (CH02).

A **set of abilities to:** «develop technological aspects alongside humanists in order to maintain and preserve the environment; develop awareness, I mean, one's own knowledge; develop personal transformation; uphold humanism in the face of technology; incorporate new content as swiftly as it emerges, into the different disciplines, largely in the field of Education» (CR02).

A **set of competences**: «that are specific to the theories and methodologies pertaining to the professions: teaching, research, assessment, management, materials design and so on, but with emphasis on identifying real situations and not theoretical esotericism; mathematics and communications; proficiency in both languages in everyday and academic expression, particularly language: reading, writing, speaking, listening; proficiency in other languages, the language of technology and English (as a lingua franca); for diagnosis and problem solving, critical judgment, argumentation, reasoning, imagination, inventiveness; tolerance and respect for diversity in immediate situations and the social, political and cultural situations of their time; commitment, responsibility, ethics; the ability to organise their resources with a view to producing income and work for themselves and others» (M01).

A **set of generic competences**: «related to self-directed processes; participation in different academic, artistic, cultural, scientific, political and economic activities; adapting to change deriving from social, economic, political, cultural, educational and technological transformations by implementing competent adaptation alternatives; addressing educational issues and difficulties from a multidisciplinary perspective, enabling complex action (that is, it includes knowledge from philosophy, epistemology, neurology, sociology and economics); using diversity to access knowledge and information in order to disseminate the knowledge produced through personal and collective

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means and participating actively in various social and professional networks; making contributions and participating actively in order to reach the social consensuses required to meet the educational needs of forthcoming generations; participating in multidisciplinary teams by contributing expertise from their professional field and taking up contributions from other professionals» (M03).

«Advanced procedural knowledge in both treating information and using computer tools; the competences needed will be: communication, leadership, a systemic outlook, teamwork, the use of ICTs, ongoing and situational learning, the use of languages and ethical and moral values; preparing professionals by using optimal developmental processes where emphasis is placed on performance rather than learning content» (PA01).

«Experimentation in the area of computer science; linguistic competences, symbolic logic; the use of new technologies; efficient communication, teamwork; specialisation in areas such as food production, research and so on; specialists, therapists, degrees specialising in electronic engineering; highly competitive professions, qualified to respond to the challenges of globalisation; having a global outlook regarding the different scenarios where there should be intervention; implementing innovations in traditional professions; incorporating competences related to computer science, the Internet and digital communications; teamwork; speaking foreign languages such as English, Mandarin, Portuguese; computer language; a conception of the global citizen» (PA02).

«Effective use of resources in order to investigate, research, explore and understand educational processes and phenomena in the socio-political and cultural context where they are being developed.

Always learning to learn and unlearn.

Showing sustained socio-emotional and ethical support that induces a sense of bonding and empathy with the social environments in which there is intervention or interaction.

Creative and innovative ability to consider and implement alternative solutions to situations involving educational activities.

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A highly skilled social communicator who sets up networks and relationships among a variety of interlocutors» (PE01).

«A forward-looking outlook, capacity for innovation, passion and courage; social and communication skills; capacity for entrepreneurship; being capable of tolerating failure; capacity for mobility and adaptability in relation to changing places to live and work» (PE02).

5.6. Possible but highly unlikely scenarios

A natural condition of human beings is resistance to change, which can be translated as fear, in the sense that fear is what fuels it:

«Change sometimes generates fear because people sometimes feel threatened by not knowing what is going to happen in the new situation. ...fears emerge about losing your personal space. It also means leaving and losing your comfort zone in order to embrace new challenges. So if this should be regarded as unlikely to happen, what are the stimuli for change? What measures will organisations take? What resources can be implemented, as an organisation, to generate energy, support such changes and face the challenges posed by the new situation? » (A01)

The demand for higher education raises questions linked to political and institutional issues which are possible but, at the same time, unlikely. For instance:

«What can be done to make more students enrol, stay and graduate at university? Universities need to think about the barriers that need to come down, and the new spaces that need to be opened up so that this may be possible. So I think resistance to change is one of these trends. Also, the economic resources that will be needed for specific action related to working on the basis of these new scenarios, and how to transfer this to these new scenarios» (A01).

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The size of institutions, to this interviewee' mind, is a factor that makes change impossible:

> «Large universities find it extremely difficult to change as, fortunately, they are democratic establishments and agreements must be reached and that makes it difficult, and the larger the university, the more difficult it is. It's already virtually a miracle that research has managed to be kept going for so long. At small universities, however, things are a lot simpler because there are fewer people and everybody is more likely to know each other and they should take advantage of the fact they are small to pursue far-reaching innovations. Small universities, if they set their minds to it, could develop 4-year degree courses» (A02).

Educating professionals in different fields of knowledge demands quick and constant reviewing. In this particular case:

> «What needs to be reviewed in universities is primary and secondary teacher education. For universities to move forward in these aspects, in incorporating increasingly complex knowledge in education, students should come mentally prepared. I don't mean educated, but they should come primed so that they can use connection tools, information selection criteria and understand texts, so that they can use logic. Students are getting to their fourth year without understanding the subject of logic because when someone asks, how do you access information? They are asking a question that is, in fact, an encryption of what we actually want. This encryption must have the appropriate logic so that the search engines' response is what we are looking for - if students don't understand logical processes, they can't move forward. And there's something that just crossed my mind» (A04).

Subjects relating to logic are connected to language and the capacity for inquiry, making knowledge possible:

> «If we train people who think they know it all and don't have the ability to understand that what they know is just the tip of the iceberg. People, students need to know how to deal with their degree of ignorance. They need to know what they need to

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ask, that they are limited and they need to be shown degrees of complexity. I can't teach them the world of operations research in 15 lectures once a week. I can, of course, teach them things that go beyond that... but we mustn't be pretentious and think we know it all... but simply teach them how to get to the first landing on a long staircase with many more landings, and it will depend on many different areas of specialisation, and you can't teach everything to every student. Everything would be very hand-crafted» (A04).

Another possible scenario is that:

«The culture of hedonism, complacence, comfort, indifference and selfishness will prevail, and the values enabling the use of technology and values associated with common sense are unable to prevent socio-environmental breakdown, with terrible consequences for humanity, sparking internal and international conflicts» (B01).

One the rationales we are subjected to is as follows:

«The logic of capital, because all this... globalisation, which is said to be a higher phase of imperialism and capitalism, has revealed a fabricated world from which we are unable to escape, and it is shocking how transnational corporations have the power over the planet to administer natural resources and communications and so much influence on all kinds of policies, including education policy. So I think we should think about other projects for civilisation from other epistemic, philosophical and ontological angles. It's a dream but...it's hard to say when this will be possible in the future» (B02).

As regards the knowledge society, the following can be pointed out:

«I can envisage the democratisation of knowledge and creation of society through knowledge as being a scenario that is probable but, nonetheless, impossible. I'm not sure if I'm going

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to say why. I think it would be interesting... I don't believe in the knowledge society because it already seems to me like a probable scenario because.... it seemed that knowledge societies would be confined to post-industrial societies where poor countries' raw materials are no longer needed; such societies ... are presented as pure, articulated on the basis of concepts and technology when, in truth, these seemingly pure and aseptic societies at the lofty heights of technology,...have become equally ruthless with pre-industrial capitalist societies since they need the raw materials, they need the natural resources and what they are doing is moving their science and technology to the poorest, most defenceless regions of the world, where there are natural resources. This positive, almost naïve interpretation of knowledge societies as the supreme stage of human development is translating more into a primitive stage of human development» (B03).

An important change to education is referred to as follows:

«A highly unlikely [scenario] would be education mediated by the external and internal communities of schools, replacing professions as bearers of certified knowledge which is monopolised by a select few. Teachers, as we know them, would disappear in professional terms. Means of knowledge production and ownership would be distributed in such a scenario. Society would lack bureaucracy owing to the absence of knowledge mediation. All the current players with knowledge distribution powers would collapse and be in the hands of society at large. Knowledge is no longer certified or professional because it comes from experience and social struggle» (CH01).

From a social point of view:

«An unlikely scenario is one with a low level of social segregation - especially for countries with the highest levels of inequality in the world. It would, perhaps, be more likely that countries with a high level of social segregation would fall to a medium level. The competences are the same as those applied to other scenarios,

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given that teacher education requires abilities that have no need to vary significantly» (CH02).

The above quote relates to a situation where:

«It is highly likely that an essential scenario would be one in which the governments of highly developed capitalist countries allowed and encouraged the autonomy and independence of the most impoverished countries in Africa, Asia, Latin America and the Caribbean. Sanctions against Cuba should be dropped, for instance» (N02).

Possible educational processes relate to «the automation of all educational processes with a greater predominance of computers, video conferences and virtual spaces, where the presence of professionals becomes necessary (H1), and «a society of virtual education» (H2).

Educational societies are envisaged as being:

«Harmonious, where different establishments, beyond the school system, participate effectively and efficiently in the education of forthcoming generations and the development of the present generation; [or] a truly chaotic and disjointed society where alienation and organised crime prevail» (M01).

It is to be expected that:

«A global agreement would be reached on access to communications technology, information and knowledge. In other words, there will be no technological illiteracy. Equal opportunities to participate productively in new forms of work and co-habitation will be guaranteed by all nation states. Collective capacity, in this sense, will be the key to solving the most pressing global problems» (M02).

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Yet another scenario is seen in the following terms:

> «Consensus building in all fields at local, national and international level, which will lead to the resolution of the economic, political, social, cultural and educational issues that they are all facing together. Individualism will get to the point where there will be a decrease in public assets and an increase in private assets. The right to freedom and civil rights will be fully exercised - each individual will be whoever or do whatever they feel fit but, by doing so, equality and social fairness will decrease, social rights will be undermined, and full access to healthcare, education and employment will decrease» (M03).

As far as this interviewee is concerned, the possible but unlikely scenarios relate to:

> «The disappearance of face-to-face lectures and the production of texts written on paper; competence-based learning in all degree courses; professionals with change-making attitudes, qualifications and respect for diversity» (PA01).

A possible but highly unlikely scenario is:

> «That there is world peace, poverty is reduced and all human beings are treated as citizens with rights and responsibilities, but also with access to opportunities of greater wellbeing and happiness. I also feel that the knowledge and resources for this to happen could be accessible to everyone. What is needed? There needs to be greater redistribution and fairness. All of this is desirable and possible, but highly unlikely to my mind. It wasn't possible when society was smaller and resources were scarcer, nor do I think it will be possible in a society with greater resources. The problem lies in humankind. If we don't change our basic dimensions - I mean in our humanity - these scenarios will always be unlikely» (PE01).

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5.7. Important professions and competences for the Area of Education

The interviewees describe professions and competences in unlikely scenarios.

Teaching, learning to think: «in this scenario, professions and competences should have learnt to think – it is important to teach this, in teaching regarded as a way of building knowledge. Teacher education in sociology should be undertaken. The hard sciences should also look for new ways of communication. And, above all, there should be more open-minded teaching staff, the need for professionals with better education» (A01).

Different degrees in the field of education: «I believe that degrees in Education, at all levels, will become important in this scenario - degrees in Social Communication, International Relations and degrees linked to Conflict Prevention and Resolution would be important. Technical degrees connected with environmental protection would also be very important and, lastly, degrees in Economics» (B01).

The professional competences required are: «the ability to apply systemic thinking, which enables reality to be analysed by querying traditional mental models and transforming them into conceptual frameworks with a development model whose aim is human rather than economic wellbeing.

Being able to convey information, knowledge and values in keeping with a society based on values of cooperation, harmony, respect for the environment and commitment to social justice.

Being able to create appropriate technologies which guarantee human needs are met fairly, without affecting the environment; being able to produce economic models which are not based on consumerism» (B01).

The discipline of life itself: «...we could recover the cultural wisdom that professionals would need to have holistic skills; professionals would not need to be pigeonholed within disciplines and the foundations of this wisdom ought to be life itself» (B02).

Planetary awareness as a competence: «there is a competence that has not been addressed, which is planetary awareness, the fact that we are no longer citizens of our province or our city, but rather, we are citizens of the world; and this is not only an effect of the modernisation process but is also an awareness that we are citizens of the Earth, which is linked to a more balanced relationship with nature» (B03).

Understanding modernity as rationality: «modernity could be explained as an insight into rationality and planetary awareness. I would explain it as an emotional awareness - that is, as an awareness of our sensitisation towards humanity, which is on Earth, I believe that this competence is the most essential and important, your awareness as a citizen on Earth and from Earth, you are a citizen of Earth, you are not a citizen of the world but rather, you are from Earth. So I think that ... it differs greatly from this universal process that modernisation, I repeat, stamped on the history of the West from the 19th century onwards...» (B03).

Humanistic professionals: «professionals cannot cover only one area - there is a trend towards educating professionals, such as engineers and computer experts, and losing sight of philosophy and a humanistic view of knowledge. So, I think professions need to regroup. I mean, they have to think again about the human condition of their science ... about the Earth, as a whole. So, to me, future professionals should be familiar with ethics, philosophy, pedagogy and psychology, as well as mathematics. This compartmentalisation or separation of the sciences, disciplines or areas of knowledge is upheld and it's a struggle; there is a practical, positivist concept of gaining space, controlling and subduing nature - we have to strike a balance. A new profession is unable to emerge without an ethical concept being forsaken for a practical and functional concept of development, progress, wealth and the exploitation of nature» (B03).

Less simplistic teaching staff: «we need far more sophisticated teaching staff. Yes, of course... the Freire-type criticism of banking education is completely legitimate. In other words, a teacher who managed to convey knowledge that was of paramount importance at the time, I don't think the importance this had at the time can be ignored... teachers were needed who were familiar with the historical background and could explain it. Not now. Teachers who are familiar with the historical background are not good professionals - they need to be historically sensitive, they need to know that there are several

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theoretical frameworks; one only needs to take a look at the fuss being made by our colleagues at universities, who are at each other's throats with regard to the approach. Yes, I feel that more sophisticated teachers are needed» (CR01).

Professional work is being modified: «new ways are emerging of organising work from home, in other countries or anywhere professionals wish; all that is needed is an Internet connection and there you go. Competences will move around a world where anthropological relationships become short-lived» (H01).

The possibility of self-learning: «taking responsibility for one's own learning; constant checks on professional activity; an education system that gives encouragement, depending on each individual's professional development» (H02).

The importance of all areas: «I have no opinion on this issue because I consider that all areas are possible» (N01).

The social fabric linked to poverty: «sociology to rebuild the social fabric destroyed by poverty; sociology to build a culture of peace; sociology to build a new balance and paradigm with regard to the relationship between human beings and nature; sociology for the good life and good living of human beings» (N02).

> «Knowledge, attitudes and commitment will be needed to rebuild the social fabric» (M01).

Professions including competences with: «a high level of reading comprehension: so as to be able to discern the relevance of information relating to problem-solving knowledge requirements swiftly; the ability to interpret, summarise and incorporate new knowledge into rapidly changing environments; the capacity for shared and compartmentalised work. Teams will be transdisciplinary so they will require professionals with more developed competences to access and store knowledge different to that attached to their discipline but, nonetheless, necessary for the purpose of dealing with global issues» (M02).

Taking science's ups and downs into consideration: «science does not develop in an even upward curve, but rather, has stages of rapid

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advances combined with plateaus of calm, and so it will depend a great deal on how it presents itself in reality to determine the professions and competences required» (PA01).

The role of automation: «professions are increasingly linked to automation, and so I feel competences linked to automation and information processing will be highly important» (PE02).

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Final conclusions

Progress has been made in agreeing on the collective definition of the generic and specific competences for degree-level teacher education courses in Latin America.

A set of priority competences has been identified that highlights the key focal points and emphasis that teacher education should have in the region.

Progress is being made to find learning and assessment action that puts this competence-based meta-profile into operation.

The Latin American Credit System proposal is used, based on the CLAR (Latin American Credit Reference), which guides us, brings us together and calls on us to continue embarking on new strategic action related to collaboration and compatibility, which prevents isolation.

Progress has been made towards a glimpse of what is expected to emerge in the coming 20 years in the Area of Education and, in particular, higher education in Latin America.

As actors in the Tuning project, competences have been acquired in order to encourage change and innovation in curricular design based on an educational process that focuses on student learning and generating learning in and among academics.

Progress has been made in a highly participative process that enables the assumptions each university is developing to be submitted for discussion and a joint outlook to be refined with the aim of setting a

regional benchmark that can be used by universities and education faculties.

The foundations have been laid for a convergence process between Education faculties which enables, on the basis of a competence-based meta-profile, the formation of educational professionals who are equipped with essential, common skills, and who are capable of performing suitably within the Latin American context.

A solid network of Latin American universities has been established that enables networking within the region and a mature relationship with European counterparts.

A process of integrating Tuning into Latin America, Europe, Africa and Russia has begun, which tends to be growing worldwide.

Very strong inter-institutional, interpersonal and social ties have been established with a shared view of social transformation based on ethical principles and a culture of peace.

The future of the discipline entails challenges and changes towards transdisciplinarity and significant emphasis on the use of ICTs. New spaces and ways of approaching processes involving student learning and teaching need to be created by teachers.

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List of contacts
from the Subject Area of Education

Coordinator of the Area of Education: **Bolivia (Ana María Montaño López)** Universidad NUR amontano@nur.edu	
Argentina **Mónica Castilla** Universidad Nacional de Cuyo monicaelicastilla@gmail.com	**Argentina** **María Rosa Depetris** Universidad Nacional del Noroeste de la Provincia de Buenos Aires mrdepetris@unnoba.edu.ar
Argentina **Mónica Matilla** Universidad Nacional de Cuyo monamatilla@yahoo.com.ar	**Bolivia** **Yvette Magaly Talamas Dabdoub** Universidad Mayor de San Simón yvettetalamas@gmail.com
Chile **Horacio Walker Larraín** Universidad Diego Portales Fundación horacio.walker@udp.cl	**Costa Rica** **Leda Badilla Chavarria** Universidad de Costa Rica leda.badilla@ucr.ac.cr
Ecuador **Fernando Abad Montero** Universidad de Guayaquil fernando_abad1940@hotmail.com	**El Salvador** **Ana M.ª Glower de Alvarado** Universidad de El Salvador anamaria.glower@gmail.com

Slovenia **Klemen Miklavič**	Honduras **René Antonio Noé Martínez**
University of Ljubljana klemen.miklavic@gmail.com	Universidad Pedagógica Nacional Francisco Morazán renenoe@gmail.com
Mexico **Francisco Miranda López**	**Nicaragua** **Alejandro Genet**
Universidad Autónoma del Estado de Hidalgo fmirandalop@hotmail.com	Universidad Nacional Autónoma de Nicaragua-Managua agenet@unan.edu.ni
Paraguay **Magdalena Gamarra**	**Paraguay** **María Josefina Ovelar**
Universidad Nacional de Asunción magdagamarra@gmail.com	Universidad Nacional de Concepción mjovelar@yahoo.com.ar
Peru **Domingo Enoé Huerta Huamán**	
Universidad Peruana Unión dhuerta@upeu.edu.pe dohuer@hotmail.com	

For further information about Tuning

General coordinators of Tuning	
Julia González	**Robert Wagenaar**
juliamaria.gonzalez@deusto.es	r.wagenaar@rug.nl

Pablo Beneitone (Director)

International Tuning Academy
Universidad de Deusto
Avda. de las Universidades, 24
48007 Bilbao
Tel. +34 94 413 9467
Spain
pablo.beneitone@deusto.es