



ORGANISATION FOR ECONOMIC  
CO-OPERATION AND DEVELOPMENT

## **TUNING-AHELO CONCEPTUAL FRAMEWORK OF EXPECTED AND DESIRED LEARNING OUTCOMES IN ECONOMICS**

**Tuning Association, on behalf of a Group of Experts  
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## INTRODUCTION

The OECD has taken the initiative to carry out a feasibility study for assessing student learning outcomes for higher education. According to the OECD this “Assessment of Higher Education Learning Outcomes (AHELO) is a ground-breaking initiative to assess learning outcomes on an international scale by creating measures that would be valid for all cultures and languages”. The initiative should be understood against the background that more students than ever are participating in post-secondary degree programmes. At the same time, society in general and the avenues for employment are undergoing rapid change. While many traditional jobs disappear or change in content and form, new job prospects materialize, requiring new knowledge and skills. These developments require changes in the way education is offered and perceived. Post-secondary institutions all over the world are expected to respond to these demands. These institutions are well aware of the fact that they have a singular and collective responsibility to prepare their graduates for citizenship as well as for a dynamic job market. Their graduates are expected to be flexible, internationally oriented and willing to keep up-to-date in a life-long learning context.

The AHELO feasibility study contains four complementary strands of work: a generic skills or transferable competences strand; an Economics strand, an Engineering strand and a value-added measurement strand that will reflect on possible methodologies to capture learning gain during a student higher education experience net of incoming abilities from a research perspective. A contextual dimension will be embedded in each of the first three strands to assess the feasibility of capturing contextual information on institutional settings, teaching practices and environment characteristics that may affect learning, as well as indirect proxies of quality. This report is related to the second strand, the Economics strand.<sup>1</sup>

At present Higher Education institutions (HEIs), encompassing research universities, universities of applied sciences (polytechnic schools) as well as colleges, are undergoing a transformation process. The traditional ‘staff-centered’ and ‘knowledge-oriented’ approach is slowly giving way to degree programmes which take the student as the centre of the teaching and learning process. In practice this implies that, besides knowledge acquisition, more attention is given to the application of subject-specific skills as well as to general academic skills. The aim is to make students as competent as is feasible in a given timeframe for their future role in society, by differentiating the educational offer and by making optimum use of the interests and capabilities of the students. In these programmes the focus is on competence development and the achievement of so-called intended, expected or desired Learning Outcomes of the learning process.

Since 2001 a methodology has been developed – originally in the framework of the European Bologna Process<sup>2</sup> – by a large group of universities and their departments united in the initiative *Tuning Educational Structures in Europe*<sup>3</sup>, to the challenges indicated above. From its launch, Tuning has been strongly supported – financially and morally – by the European Commission.

Tuning is a university driven initiative, which was originally set up to offer a concrete approach to implement the European Bologna Process at the level of higher education institutions and subject areas. The name *Tuning* was chosen to reflect the idea that universities do not look for uniformity in their degree programmes or any sort of unified, prescriptive or definitive curricula but simply for points of reference, convergence and common understanding. Tuning avoids using the expression of subject area ‘standards’

due to its connotation in many higher educational settings of a straitjacket although it acknowledges that in other countries the expression is understood differently. Anyhow, the protection of the rich diversity of higher education is paramount in Tuning. In no way does it seek to restrict the independence of academic and subject specialists, or undermine local and national academic authority.

The Tuning approach consists of a methodology to (re-) design, develop, implement and evaluate study programmes for each of the Bologna cycles, which are the bachelor, master and doctorate. It can be considered valid worldwide now, since it has been tested in several continents and found fruitful. In 2007 the Tuning approach was validated both as a methodology and as an application at subject area level by groups of high level peers for a range of disciplines. It is applied now in more than 30 subject areas, in a large number of institutions spread over nearly all European and Latin American countries as well as some countries in (Eur)Asia (*e.g.* Kyrgyz Republic, Georgia). In other regions of the world, for example Australia, India and Japan, awareness has been raised about the Tuning approach. At present, the Tuning methodology is tested in three US states<sup>4</sup>.

Furthermore, Tuning has served and is serving as a platform for developing reference points at subject area level. These are relevant for making programmes of studies comparable, compatible and transparent. Reference points are expressed in terms of Learning Outcomes and competences. Learning Outcomes are *statements of what a learner is expected to know, understand and /or be able to demonstrate after completion of a process of learning*. According to Tuning, Learning Outcomes are expressed in terms of the *level of competence* to be obtained by the learner. Competences represent a dynamic combination of cognitive and meta-cognitive skills, knowledge and understanding, interpersonal, intellectual and practical skills, and ethical values. This definition is in line with the international ISO 9000 norm which defines competences as “demonstrated ability to apply knowledge and skills”. Fostering these competences is the object of all educational programmes, which build on the *patrimony of knowledge and understanding* developed over a period of many centuries. Competences are developed in all course units and assessed at different stages of a programme. Some competences are subject-area related (specific to a field of study); others are generic (common to any degree course). It is normally the case that competence development proceeds in an integrated and cyclical manner throughout a programme. Tuning has organized several consultation processes including employers, graduates and academic staff / faculty and students in different parts of the world to identify the most important competences that should be formed or developed in a degree programme. The outcome of these consultation processes is reflected in sets of reference points – generic and subject specific competences – identified by each subject area.

According to Tuning, the use of the Learning Outcomes and competences approach implies changes regarding the teaching, learning and assessment methods which are used in a programme. Tuning has identified approaches and best practices to form specific generic and subject specific competences. It has also raised awareness about the feasibility of Learning Outcomes by relating the Learning Outcomes approach to student workload. In this respect, Tuning has played a major role in transforming the European Credit Transfer System, in the *European Credit Transfer and Accumulation System (ECTS)* a system based on these two elements.<sup>5</sup>

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

The assignment given to the Tuning Association by the OECD-AHELO project has been to define a conceptual framework of expected/desired learning outcomes in engineering and economics following the Tuning approach. This document offers the framework for **Economics**.

This framework provides a preliminary output of the AHELO feasibility study. The report, in which this framework is presented and explained, is based on the following structure:

1. The context of the project
2. Economics and its teaching
3. Overview of typical degrees offered in the subject area of economics
4. Overview of typical occupations of economists, with a first cycle (bachelor) degree and a second cycle (master) degree
5. The role of learning outcomes, (cycle) level descriptors and qualifications frameworks
6. Overview of prior work on the learning outcomes approach in the field of economics
7. Clarification of the approach used in defining learning outcomes statements
8. Overview of agreed learning outcomes statements
9. New approaches required in teaching, learning and assessment for outcome-based learning
10. Concluding remarks
11. References
12. Endnotes
13. Membership of the expert group

Defining this conceptual framework has been the responsibility of a group of experts. This group was composed with great care. Beforehand, it was agreed that the group should cover a range of continents and some 13 countries, as well as different schools of thought. These experts should have a good overview of the field as well as the issues involved. A distinction was made between full members and corresponding members. The difference between the two is that the full members actually met in Brussels on the 4<sup>th</sup> and 5<sup>th</sup> of May 2009 to discuss the report. Both full members and corresponding members have received all documents and were invited to reflect and advise on all materials.

The following organizations were contacted: The Royal Economic Society, The Economic Society of Australia, China Association of Comparative Economic Studies, The Korean Economic Association, The Joint Committee of Finnish Economic Associations, Association Française de Sciences Economiques (French Association of Economic Sciences), Indian Economic Association, Conferencia Española de Decanos de Economía y Empresariales (CONFEDE – Spanish Dean Conference of Business and Economics), Swedish Institute for Social Research (SOFI), the Turkish Economic Association, The International Association for Feminist Economists (IAFFE), Verein für Socialpolitik (Scientific society of the German-speaking economists). Members of the AHELO Group of National Experts (GNE<sup>6</sup>) were instrumental in assisting the Tuning Association to identify appropriate experts from México, The Netherlands, Japan, Italy, Belgium and Australia. The group also benefited from the inclusion of the Editor of the *Journal of Economic Education*, who is also Editor of the SSRN Economic Research Network Educator and the Chairman of the Quality Assurance Agency (QAA) Committee for Economics.

The report has been the work of three of the expert's group members: the appointed rapporteur William E. Becker, the chair person of the group: John Beath, and the Tuning project coordinator for Economics: Julia González. The other participants of the group have made excellent contributions and suggestions, shared their knowledge about other parts of the world and other perceptions on the field of economics. They contributed specially in the identification, selection and structuring of agreed learning outcomes.

## 1. CONTEXT OF THE PROJECT

The environment for tertiary education is changing under the impact of a number of forces: The need for universities to take up their role in the knowledge-based society; the impact of information and communication technologies; the need to innovate, foster and manage diversity as well as to search for quality; the adaptation to new needs; the development of new skills in order to fit to new, emerging occupational contexts. The challenges of this change also include the speed at which this is taking place.

Reforms in management, organisation and financing are occurring in all types and sizes of education institutions. The reforms that are taking place in the educational strategies of the HEIs are dramatic, affecting their understanding of themselves and their mission. In particular, the shift “from teaching to learning organisations” is a deep change with significant impacts. It brings with it the change of perspective from a “knowledge-oriented approach,” where the key element is the teacher, to a “learner-oriented approach”, where the value lies in the capacity to foster degree programmes that take the student as the centre of the process and enhance the development of his or her capacities.

The new programmes are expected to foster knowledge and understanding of the different and complex areas of an ever changing society and work force. They also need to develop the capacity to manage this knowledge, to use it in practical contexts, to be able to judge the lacks and mismatches, to create solutions, to communicate results and to focus on a number of subject-specific as well as transversal competencies that will make the learners capable of meeting the academic and professional challenges for the future. The aim is to develop programmes of quality that deliver what they promise, are relevant to social needs and above all develop the capacity of learners to make the optimal use of their time, interests and capacities. These programmes focus on competence development and the achievement of the intended, expected and desired learning outcomes.

Although a number of countries still focus on the knowledge base, the use of learning outcomes to assess the quality of provision is becoming increasingly important or of serious interest to those involved in tertiary education, especially for educators tracking the Bologna Process in Europe, but also in the United States, Australia, Latin America, New Zealand and South Africa. Many in higher education have expressed their agreement to clearly adhere to or consider the unifying direction of the Bologna Process with its focus on standards at the regional (Europe and Latin America), country (Australia) or individual institutional levels. HEIs are working to reform their educational strategies to reflect a student outcome-based approach. The intensity, the extent and the depth of this reform process has the potential to make it one of the most dramatic ever to be experienced within tertiary education.

The global economic crisis has led some to question the current paradigm within the discipline of economics. It is important to recognize, however, that the science of economics has always been subject to development and change. This is another contextual characteristic that needs to be taken into consideration when considering the teaching and learning of economics. The current crisis seems to reveal the need not only to think more carefully about economic systems and their structures but also about the fundamentals of the discipline: the roots and the understanding of the concepts, models and methods employed by economists. If one takes a longer historical look at the subject, one is struck by its dynamic nature. Economics is continually under change through both advances in its scientific methods and new perspectives on institutions and systems studied. The challenges from the 2008/2009 economic and financial crises, for example, might provide the impetus to widen the scope of economic models to include

aspects of trust, greed, and the herd instinct, and to lead economists to be much more open to the contributions of other disciplines (such as psychology in experimental economics and behavioral economics, sociology in a recognition of the importance of social capital, and political science and law for means to implement regulations).

Changes in the teaching-learning strategy of HEIs and changes in economics form the basis of this report. There are a number of very specific elements covered in this report, such as:

- Different aspects of economics, regions and schools of thought. In the case of the present project, the identification of program-level learning outcomes for the first cycle bachelor's degree (following secondary school) has been the outcome of discussion by a number of experts from different approaches and selected regions of the world;
- Expression of student learning outcomes in competences. In the language of the Tuning Project, learning outcomes mark the specific level at which a competence is attained;
- An accepted understanding of the cycle levels in tertiary education to give structure to the understanding of the degrees;
- Using the Tuning approach, which is based on establishing consensus and which has been developed, constructed and widely accepted by over 94 academic communities<sup>7</sup> in 57 countries<sup>8</sup> throughout the world; and
- The challenges that emerge when we attempt to describe higher level student learning outcomes or competencies in an evolving field.

The overall aim of the project is to reach agreement, ideally at the global level, regarding the descriptors for the key competencies (expected or intended learning outcomes) for the first cycle (bachelor's degree). In developing these descriptors and learning outcomes we take into account different degree profiles and relevant occupations.

## 2. ECONOMICS AND ITS TEACHING

Economics has made a spectacular evolution from the art of managing a household or an individual enterprise, through a vision on how to run national economies and multinational companies, and it is presently searching for patterns in global economy interdependencies.

As seen in the work of the recipients of the Nobel Prize in the science of Economics, economic reasoning or the economic way of thinking about problems, issues and events typically starts with the identification of objectives to be achieved and recognition of the constraints or resource restrictions that must be confronted in any attempt to achieve those objectives. Models of (or methods for connecting) objectives and constraints are then formulated, where the models identify relevant institutional details in a static (ignoring time) or dynamic fashion, and with or without the incorporation of sources of uncertainty. Models might be based on or involve theoretical considerations, social norms, history of economic thought, or empirical inference, with reflections on shortcomings in the analysis based on mathematical limitations, data availability or other impediments. Analysis might be aimed at explaining the allocation, distribution and use of resources and their consequences for economic and social well-being at the individual or firm (micro) level or the aggregate (macro) level, recognising local, national or international dependencies. The complete *Journal of Economic Literature* (JEL) Classification Codes show hundreds of topics that are studied within the framework of Economics under 18 A through R headings:

- A - General Economics and Teaching
- B - Schools of Economic Thought and Methodology
- C - Mathematical and Quantitative Methods
- D - Microeconomics
- E - Macroeconomics and Monetary Economics
- F - International Economics
- G - Financial Economics
- H - Public Economics
- I - Health, Education, and Welfare
- J - Labour and Demographic Economics
- K - Law and Economics
- L - Industrial Organisation
- M - Business Administration and Business Economics; Marketing; Accounting
- N - Economic History
- O - Economic Development, Technological Change, and Growth
- P - Economic Systems
- Q - Agricultural and Natural Resource Economics; Environmental and Ecological Economics
- R - Urban, Rural, and Regional Economics
- Y/Z - Miscellaneous Categories and Other Special Topics

From secondary schooling in the natural sciences, students and their teachers are conditioned to ask what are the core of non-controversial principles that have stood the test of time and form the standards for content knowledge in biology, chemistry, physics and the like? Similarly, standards have been written for secondary school teaching of economics (see for example The National Assessment of Educational Progress Economics Framework project Web site). Becker (2007) points out, however, that contrary to secondary school ideas about standards, the natural sciences are alive with heated debates that can be seen

even in the popular press. For instance, *Wall Street Journal* articles by Begley (2005a; 2005b) detail such controversy.<sup>9</sup> Begley's examples of controversy in the natural sciences that are not being taught in introductory science classes go on and on but can be summarized with the quote from physicist Lawrence Kraus of Case Western Reserve University: "Every scientific theory is constantly under scrutiny and has unknowns at the edges." This message needs to be kept in mind when considering higher education student outcomes in economics.

Becker and Andrews (2004) provide examples to show that higher education involves much more than the teaching of traditional doctrine. It is the academic inquiry that elevates higher education above mere training. They argue that at universities, instruction has the potential to be enhanced because it can be made a part of an integrated and aggressive campaign of inquiry. Active researchers can engage students in the challenging ideas, questions and methods of inquiry at the forefront of their disciplines, whereas docents (a teacher who acts as a museum type tour guide with minimal subject knowledge) can be expected only to teach that which they have been taught or learned from textbooks. The teaching and learning of the science of economics in universities must reflect the science of economics as a dynamic and ever improving method of inquiry.<sup>10</sup>

For example, consider the introductory discussion of opportunity cost, specialization and trade that goes back to David Ricardo (1772 – 1823). Ricardo's notion of trade based on comparative advantage requires that the production technologies and resources of unlike trading partners remain fixed in place – for example, a parcel of land is ideally suited for a crop in one country (say wheat in Britain) and another piece of land is suited for something else in another country (say grapes for wine production in Portugal). Unlike climate and geography, in today's world both capital and technology are not fixed; they quickly can be moved from one country to another. As a result, even if the U.S. has an advantage in the electronic processing of insurance forms today, that technology (as well as related technologies, as we have seen) can quickly be moved to India for even greater cost savings. To say that the U.S. has a comparative advantage in processing forms (as Britain would have a comparative advantage in wheat and Portugal an advantage in wine production in Ricardo's days) requires the assumption that this electronic technology is fixed to the U.S., which students know from TV viewing and Web surfing is nonsense. Furthermore, the concept of comparative advantage cannot be used to explain why Germany imports Peugeot cars from France at the same time it is exporting Volkswagens to France. Economist Paul Krugman in part received the 2008 Nobel Prize in economics for work on this problem. The important point is that economics is not static and does not ignore the dynamics of a changing world. What students see in the real world cannot be ignored in teaching and testing student learning of two-century-old ideas in economics.<sup>11</sup>

Another example (of many) involving so called core concepts and staples from introductory economics that need to be taught with caution are demand, supply and free market analysis that is associated with the 18<sup>th</sup> Century British philosopher Adam Smith (1723 – 1790). Smith introduced the concept of "the invisible hand," whereby the net effect in the free market of individuals acting out of self-interest to maximise their own utility (satisfaction) would tend to benefit society as a whole. In 1994, John Nash received the Nobel prize in economics in part for showing that the outcome between two persons considering a trade was optimal only if the net gains in individual utility (satisfaction) was maximised, which required cooperation. Nash's proof was mathematical and beyond the reach of the typical, entry-level university student (but a possible challenge to the highly motivated); yet, the blonde-in-the-bar clip from the 2001 movie "A Beautiful Mind" makes students well aware that in some way economics has advanced beyond Smith. What the movie does not correctly show or enable students to see is how economics has progressed in the past 250 years and how these advances in game theory can and are being put to practical use. That is the job of those responsible for awarding degrees in economics.<sup>12</sup>

### 3. OVERVIEW OF TYPICAL DEGREES IN THE SUBJECT AREA OF ECONOMICS

Degrees in economics in the first cycle after secondary school typically can be divided into three groups: **general** degrees in economics, **specialised** degrees in economics and **combined** degrees with other disciplines. The specific titles attached to these will vary from country to country but are frequently referred to as bachelor's degrees, which in Europe, following the Bologna Process, is now advanced as a three-year degree. For some students the bachelor's degree is their exit point from higher education, although for increasing numbers of students it is now being followed by advanced training on a master's degree.<sup>13</sup>

**General degrees** can be thought of as having **three** basic components: theoretical principles, methods and applications. The typical degree programme is one in which students learn a coherent set of economic ideas that covers both micro- and macroeconomics and the workings of the economy at the national and international levels and acquire appropriate quantitative techniques to allow them to reason analytically using these principles and to collect and analyse economic data. With this toolkit of theory and methods, they would then study sets of topic areas in which economic analysis can be, and is, applied. As the complete set of JEL codes on page 5 above makes clear, there are many of these topic areas, but common examples would be health economics, industrial organization, labour economics and the like. By studying how to apply a coherent set of economic principles, ideas and methods of reasoning to a variety of topics, students should become aware of how this body of knowledge can be used to design, guide and interpret commercial, economic and social policy. An outcome of this is likely to be that students will be able to discuss and analyse individual actions, corporate and other institutional behaviour and government policy.

**Specialised degrees** in economics contain the first two elements of the general degree (theoretical principles and methods), but with particular concentration on a specific topic area as the third component. Examples of these would be degrees in econometrics, finance and financial economics, public finance, international or development economics *etc.* Indeed, in degrees such as econometrics and finance, there is usually an additional specialised mathematical and statistical methods component, such as stochastic calculus, time series analysis and the techniques to analyse cross-sectional and panel data. In others, such as public finance, the additional detailed study might involve relevant institutional and legal frameworks. In some cases the degree title might be associated with a thematic issue and might have a multi-disciplinary element.

**Combined degrees** are those in which economics is combined with another subject, which may be from the sciences or arts/humanities, typically depending on the faculty in which the student is studying. Such degrees usually have a significant amount of the first two elements of the general degree, but the range of topic areas covered in the third element is quite limited. It should also be noted that first-cycle degrees in business administration and in management also have an economics component. This is always a minority element but in some cases it might account for up to 30% of the degree programme.

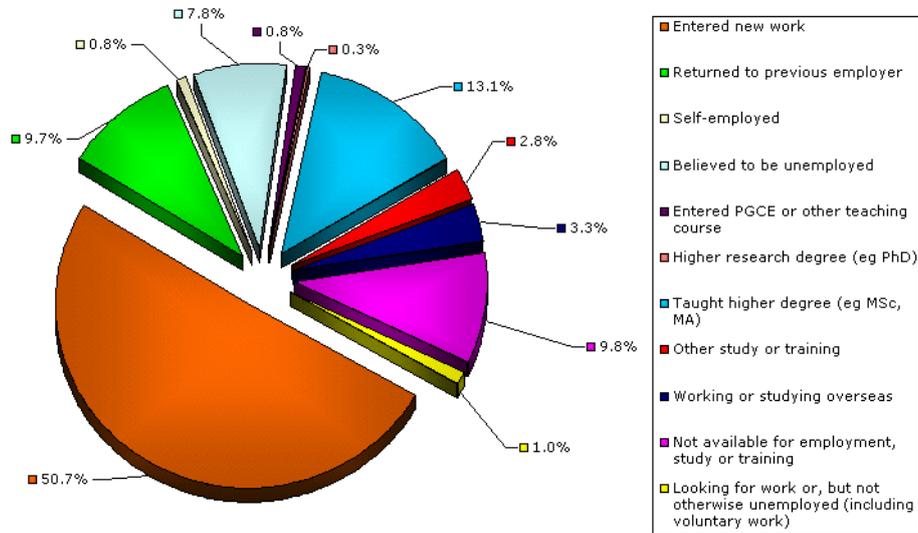
#### 4. OVERVIEW OF TYPICAL OCCUPATIONS OF ECONOMISTS WITH A FIRST-CYCLE (BACHELOR'S) DEGREE AND A SECOND-CYCLE (MASTER'S) DEGREE

A student who completes a first-cycle (bachelor's) degree in economics would be unlikely to find employment as an economist immediately on graduation. Those entering straight into the job market would be likely to take up a general administrative post, either in the business and commercial sector or in the government sector. For example, the larger industrial and retail firms and banks run their own graduate training schemes where the graduate acquires a range of managerial skills on the job. The fraction of graduates falling into this category of moving straight into employment varies from country to country but appears to be decreasing over time.

Graduates with a first-cycle degree might also move on to further structured training, either within the higher education sector or through some licensing body that has powers to award a professional qualification. Examples of the latter would be accountancy and law. Examples of the former would be the acquisition of a qualification to teach or the pursuit of a second-cycle (master's degree) qualification in economics, which in Europe following the Bologna Process is now typically a two-year degree.<sup>14</sup> Successful completion of the master's degree should enable the recipient to work as an economist, in industry and commerce, in banking and finance, in the national or supra-national governments, and in international agencies.

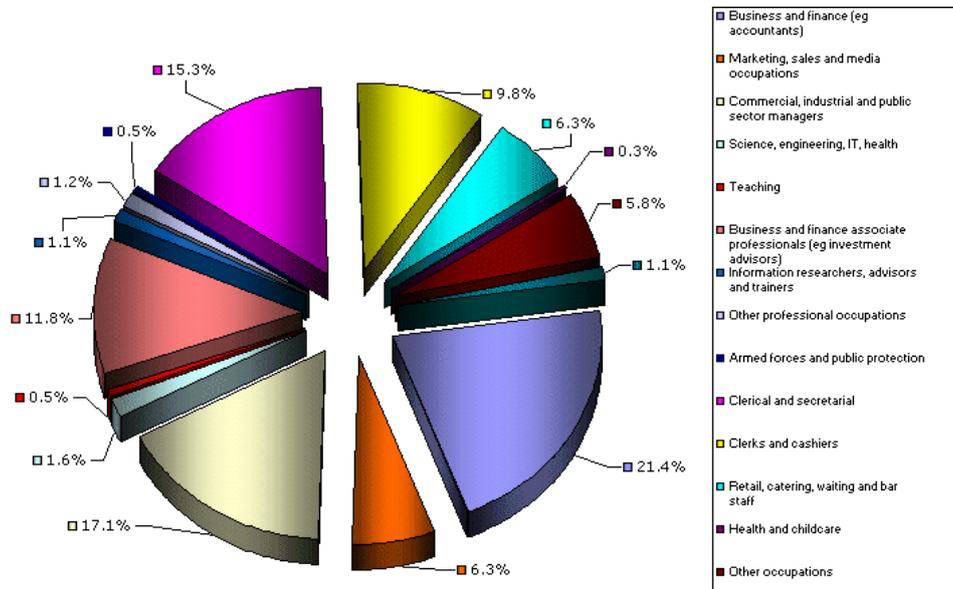
There is no systematically collected **international** data on the careers of graduates with economics degrees. However, in the UK, the Higher Education Statistics Agency (HESA) does require universities to supply it with annual data on the first destinations of their graduates, and this data is published by HESA in summary form. However, from time to time HESA publishes more detailed reports on the careers of graduates. The two pie-chart diagrams below show an analysis of the data in the case of the 2002 cohort of graduates in economics. The first shows that in the UK, around sixty percent of the 2002 cohort went straight into employment, either for the first time or returning to a previous employer. Another seventeen percent went into some form of higher degree or further training (for example to qualify as a schoolteacher (PGCE)). Ten percent were reported as being not available for employment. Almost certainly most of these were taking what in the UK is known as a "year out" in order to travel or take up some short-term volunteering work with NGOs working in developing countries. The remainder were recorded as unemployed, though it is not possible to say how long this lasted for as there is no follow-up survey on this.

### Destinations of UK Economics Graduates 2002



The pie-chart below follows up on the sixty percent who went into employment and indicates the wide range of careers involved. This simply makes the point that, in the UK at least, there is no standard path taken by those graduates with a bachelor degree when they enter the labour market.

### Careers of employed economics graduates in the UK (including self-employed) who graduated in 2002 (Source: UK Higher Education Statistics Authority)



## 5. THE ROLE OF LEARNING OUTCOMES, (CYCLE) LEVEL DESCRIPTORS AND QUALIFICATIONS FRAMEWORKS

Globalisation in higher education has led to the call for descriptors and agreed frameworks. The environment of higher education has been described as counting on a combination of elements such as: the rise of the 'network' society, the restructuring of the economic world system, the political reshaping of world order, the growing real but also virtual mobility of people, capital and knowledge, the erosion of the nation-state and the very complex cultural developments, with an increasing cultural exchange and elements of cultural differentiation and segregation<sup>15</sup>. These elements have also had a profound impact on HEIs, bringing a number of challenges for them: creation of new and more demanding strategies, growing numbers of people who try to access higher education throughout the world, tension in the national regulatory and policy frameworks, the emergence of borderless education and as a consequence the growing need for an international regulatory framework and the capacity to understand, transfer and recognize qualifications.

Thus, the emergence of the global society with high levels of mobility by citizens from different parts of the world and the need to continue learning and to do so not only in formal and non-formal contexts but also to have this recognized in different geographical settings have brought about a movement for the development of trans-national education. A powerful force in this development has been the political will of regions, such as those in Europe, which have decided to create a common higher education area. They developed jointly the Bologna Process as a dynamic tool to bring about a common framework for teaching and learning within higher education.

Linked to the defining of descriptors and frameworks is the concept of Learning Outcomes. This concept is a comparatively new notion in educational policies. Starting in the 1990s, it has gained momentum and today can be considered to be a prime agent of change in Higher Education. Driving forces and sources of inspiration have been, among others, in particular the Quality Assurance Agency (QAA) for the United Kingdom and the Tuning process for Europe and beyond.

In the framework of the Bologna process, the importance of Learning Outcomes has risen more and more to the forefront of the political agenda. Whereas in the original 1999 Bologna Declaration and the Prague Communiqué of 2001<sup>16</sup> there was no reference to Learning Outcomes, in all ensuing ministerial Communiqués they figured prominently in their discourse.

At the Berlin Bologna follow-up conference which took place in September 2003, degree programmes were identified as having a central role in the process. The conceptual framework, on which the Berlin Communiqué is based, shows - on purpose - complete coherence with the Tuning approach. This is made evident by the language used, where the Ministers indicate that degrees should be described in terms of workload, level, Learning Outcomes, competences and profile.

As a sequel to the Berlin conference, the Bologna follow-up group took the initiative of developing an overarching *Framework for Qualifications of the European Higher Education Area* (QF of the EHEA) which, in concept and language, is again in full agreement with the Tuning approach. This framework has been adopted at the Bergen Bologna follow-up conference of May 2005. The QF of the EHEA has made use of the outcomes both of the Joint Quality Initiative (JQI) and of Tuning. The JQI, an informal group of higher education experts, produced a set of criteria to distinguish between the different cycles in a broad

and general manner. These criteria are commonly known as the “*Dublin descriptors*”. From the beginning, the JQI and Tuning have been considered complementary. The JQI focuses on the comparability of cycles in general terms, whereas Tuning seeks to describe cycle degree programmes at the level of subject areas. An important aim of all three initiatives (QF of the EHEA, JQI and Tuning) is to make European higher education more transparent. In this respect, the concept of Qualifications Frameworks is a major step forward because it gives guidance for the construction of national qualifications frameworks based on Learning Outcomes and competences as well as on credits. We may also observe that there is a parallel between the QF of the EHEA and Tuning with regard to the importance of initiating and maintaining a dialogue between higher education and society and the value of consultation -- in the case of the QF of the EHEA with respect to higher education in general; in that of Tuning with respect to degree profiles.

In the summer of 2006 the European Commission launched a European Qualifications Framework for Life Long Learning (EQF for LLL). Its objective is to encompass all types of learning in one overall framework. This framework is the outcome of the so-called Copenhagen Process, which focuses on the Vocational Educational and Training sector. The EQF meta-framework intends to act as a translation device between the Member States’ national qualifications systems. It aims at providing employers and educational establishments across Europe the opportunity to compare and better understand the qualifications presented by individuals. The core of the EQF system is its 8 reference levels, covering the range from basic to the highest level qualifications. This framework has as its objective that every new qualification issued in the EU has a reference to the appropriate EQF reference level, “so the benefits to mobility and lifelong learning that the EQF brings will be visible and available to every EU citizen”. National Qualifications Frameworks (NQFs) are presently being mapped to the QF for the EHEA and/or the EQF for LLL.

In the context of providing descriptors for the first cycle as well as the key competences (expected or intended learning outcomes) for that cycle, the use of meta-frameworks and their points of reference is critical because they:

- Are the fruit of debate and agreement by a large group of academics and stakeholders from different regions,
- Have been considered indicators of pertinence and relevance and are made to mark significant landmarks in the educational processes,
- Offer a sense of common direction and a context for the development of a common understanding and articulation,
- Provoke reflection and mutual learning around critical issues related to the outcomes at specific moments in the educational process, and provide recognition of the need for equity, and
- Provide a comprehensive context for the indicators giving meaning and value to them.

Although the concepts on which the QF of the EHEA and the EQF for LLL are based differ, both are fully coherent with the Tuning approach. Like the other two, the LLL variant is based on the development of level of knowledge, skills and (wider) competences. From the Tuning perspective both initiatives have their value and their roles to play in the further development of a consistent European Education Area.

It is important to note that this Tuning-AHELO experts’ group has concentrated exclusively on the first cycle or Bachelor level -that is, Competence level 6 of the European Qualifications Framework for LLL.

In the London Communiqué of 2007 the education ministers of 46 European countries confirmed the line taken at the Berlin and Bergen Bologna follow-up conferences:

*“We underline the importance of curricula reform leading to qualifications better suited both to the needs of the labour market and to further study. Efforts should concentrate in future on removing barriers to access and progression between cycles and on proper implementation of ECTS, based on Learning Outcomes and student workload.”... “Qualifications frameworks are important instruments in achieving comparability and transparency within the EHEA and facilitating the movement of learners within, as well as between higher education systems. They should also help HEIs to develop modules and study programmes based on Learning Outcomes and credits and improve the recognition of qualifications as well as all forms of prior learning.” Finally: “We urge institutions to further develop partnerships and cooperation with employers in the ongoing process of curriculum innovation based on Learning Outcomes.... “With a view to the development of more student-centred, outcome-based learning, the next (stocktaking) exercise should also address in an integrated way national qualifications frameworks, Learning Outcomes and credits, lifelong learning and the recognition of prior learning.”<sup>17</sup>*

Today it is no exaggeration to note, that the Bologna process has fostered the transition of HE focus on knowledge possession to understanding performances, from a teaching- to a student-centered approach via Learning Outcomes. As Stephen Adam puts it:

*“It is arguable that the main end product of the Bologna reforms is better qualifications based on Learning Outcomes and certainly not just new educational structures. For this sort of bottom-up reform it is recognised that there is a need for fundamental changes at the institutional level where academics are responsible for creating and maintaining qualifications”.*<sup>18</sup>

In spite of this common political agenda, the existing Learning Outcomes for European Bachelor (and Master) programmes, which have been agreed on by the 46 members of the EHEA and which are referred to as so-called “Dublin Descriptors” (see above) have been very difficult to operationalize. This is mainly due to the fact that they are generic in nature and do not address different Learning Outcomes at the disciplinary level. Given the considerable diversity of the education systems in the member states of EHEA, this departure might be understandable. For some years now, however, there has been a growing demand for developing sectoral qualifications profiles and Learning Outcomes by academics and employers alike. Also on the political level, the ministers of education in their recent Leuven/Louvain-la-Neuve Communiqué have for the first time stressed the eminence of Learning Outcomes on the disciplinary level:

*“We reassert the importance of the teaching mission of higher education institutions and the necessity for ongoing curricular reform geared toward the development of Learning Outcomes... Academics in close cooperation with student and employer representatives, will continue to develop Learning Outcomes and international reference points for a growing number of subject areas... This should be a priority in the further implementation of the European Standards and Guidelines for quality assurance”.*<sup>19</sup>

The use of Qualifications Frameworks is not limited to Europe. Already in the 1990s Australia developed its “comprehensive national system of cross sectoral educational qualifications capable of supporting the increasingly diverse needs of students in education and training”. This Australian Qualifications Framework (AQF) was implemented on 1 January 1995 and based on nine levels of qualifications and associated titles in tertiary education. The AQF was and is the principal assurance mechanism for Australia’s education and training qualifications. However, the 1995 AQF is not based on Learning Outcomes. In May 2008 an AQF council was established, which took up as one of its first task to

strengthen the existing AQF by basing it on Learning Outcomes. On the 18<sup>th</sup> of May 2009 the AQF Council published a consultation paper in this respect.<sup>20</sup>

Other non-European countries with Qualifications Systems based on the concept of Learning Outcomes - that is knowledge, skills and competences - are New Zealand and South Africa.

The National Qualifications Framework (NQF) of New Zealand is designed to provide nationally recognised standards and qualifications and recognition and credit for a wide range of knowledge and skills. The framework, which contains 10 levels, makes a distinction between so called “achievement standards” and “unit standards”. The Ministry of Education develops all achievement standards. Each standard registered on the NQF describes what a learner needs to know or what they must be able to achieve.<sup>21</sup>

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In the introduction of this report the *Tuning definition* of Learning Outcomes was given. It is worth repeating it here:

*“Learning Outcomes are statements of what a learner is expected to know, understand and /or be able to demonstrate after completion of a process of learning.”<sup>22</sup>*

There are many definitions of Learning Outcomes<sup>23</sup>, but this one has obtained wide acceptance.

The UNESCO definition identifies both outcomes and student Learning Outcomes, the concept of the latter being linked to the assessment question: “LO, together with assessment criteria specify the minimum requirements for the award of credit.”

It is also worthwhile noting, that one has to differentiate between

- intended Learning Outcomes, ILO – written statements in a course/programme syllabus
- achieved Learning Outcomes, ALO – those results that students actually have achieved

A Quality Education can be assumed when a student has acquired knowledge, skills and wider competences as described through the Learning Outcomes. Learning Outcomes are commonly further divided into different categories. The most common sub-division is between subject specific and generic (sometimes referred to as transferable or transversal) outcomes. If designed properly, Learning Outcomes will promote communication between teachers and students, information on courses and programmes, study guidance, study planning, assessment of learning as well as teaching methods, feedback mechanisms as students, employers and other stakeholder will assess the quality of the education at hand in relation to Learning Outcomes. In all the discussions there is however an underlying caveat that Learning Outcomes should not be used as a tool for standardization of curricular content at the national/European/OECD level but rather as one of the most important tools for academic and professional mobility, a view which has been unanimously shared by the members of the AHELO Group of National Experts.

As has been shown above, the concept of Learning Outcomes has been and is being used in a multitude of different settings: it has been instrumental in the development of qualifications frameworks, in the LLL discussion, in developing the European Credit Transfer and Accumulation System, for curricular reform, in the area of quality assurance and most importantly, as the primary vehicle for the recognition of qualifications and the corresponding academic and professional mobility.

## 6. OVERVIEW OF PRIOR WORK ON THE LEARNING OUTCOMES APPROACH IN THE FIELD OF ECONOMICS

Since the depression years of the 1930s, and especially following World War II, the teaching and learning of economics in colleges and universities have been of concern around the world. For example, six decades ago a subcommittee of the American Economic Association found that “the content of the elementary course has expanded beyond all possibility of adequate comprehension and assimilation by a student in one year of three class hours a week” (Taylor, 1950, p. 56). Such criticism and conjecture about student learning of economics gave rise to the development of the Test of Understanding of College Economics (TUCE), which from its initial version in 1968 (JCEE, 1968) to its current fourth edition in 2007 has been a United States normed, multiple-choice test of a small number of concepts in micro and macroeconomics.<sup>24</sup>

Despite the early warnings of Australian scholar Judith Yates (1978) that concept testing as found in the TUCE ignores the higher learning aspect of an economic education, the TUCE has become the benchmark for empirical research on the introductory course.<sup>25</sup> Of greater concern and with disregard for its considerable and severe shortcomings, reference to the current TUCE is creeping into statements on student competencies, as seen for example in performance competencies written by the faculty in the department of economics at the Louisiana State University:

- **Performance Indicator for General Education Economics Students:**

Scores on the “Test of Understanding of College Economics” (TUCE).

- **Assessment Methods for General Education Economics Students:**

Administer macroeconomic and microeconomic versions of TUCE exam to a random sample of 100 students having completed Economics 2010 and 2020 each spring and fall term. The TUCE exam is prepared by the National Council on Economic Education <<http://www.ncee.net>>.

Hansen, Salemi and Siegfried (2002) went so far as to propose the use of just 20 concept standards (similar to what one would find in a high school curriculum) as the bases for accessing “economic literacy” to be achieved by introductory economics courses or subjects offered by colleges and universities. Becker (2007) argues that such an effort to impose grades one through twelve schooling ideas in university subjects implies a significant lowering of the goals of higher education.

Even a cursory review of articles over the past 40 years in the *Journal of Economic Education* shows that while the introductory economics course or subject has received a tremendous amount of attention, the undergraduate major leading to a first-cycle bachelor’s degree in economics has received relatively little attention. Only recently has W. Lee Hansen (1986; 2001) opened the door to scholarly inquiry into the components and proficiencies to be demonstrated by those receiving the bachelor’s degrees in economics. Hansen’s (2001, pp. 232-233) six competencies are:

1. Access existing knowledge: Retrieve information on particular topics and issues in economics. Locate published research in economics and related fields. Track down economic data and data sources. Find information about the generation, construction, and meaning of economic data.

2. Display command of existing knowledge: Explain key economic concepts and describe how these concepts can be used. Write a précis of a published journal article. Summarise in a two-minute monologue or in a 500-word written statement what is known about the current condition of the economy and its outlook. Summarise the principal ideas of an eminent economist. Elaborate a recent controversy in the economics literature. State the dimensions of a current economic policy issue.
3. Interpret existing knowledge: Explain and evaluate what economic concepts and principles are used in economic analyses published in daily newspapers and weekly news magazines. Describe how these concepts aid in understanding these analyses. Do the same for nontechnical analyses written by economists for general purpose publications (*e.g.*, *Challenge*, *Brookings Review*, *The Public Interest*).
4. Interpret and manipulate economic data: Explain how to understand and interpret numerical data found in published tables such as those in the annual *Economic Report of the President*. Be able to identify patterns and trends in published data such as those found in the *Statistical Abstract of the United States*. Construct tables from already available data to illustrate an economic issue. Describe the relationship among three different variables (*e.g.*, unemployment, prices and GDP). Explain how to perform and interpret a regression analysis that uses economic data.
5. Apply existing knowledge: Prepare an organised, clearly written five-page analysis of a current economic problem. Assess in a four-page paper the costs and benefits of an economic policy issue. Prepare a two-page memorandum that recommends action on an economic policy issue.
6. Create new knowledge: Formulate questions that illuminate a new economic issue that needs to be researched. Prepare a five-page proposal for a research project. Conduct a research study, presenting the results in a polished 20-page paper. Conduct a group research project that prepares a detailed research proposal and/or a finished research paper.

Carlson, Raymond and Ramsey (2002) were the first to publish a description of an attempt to implement Hansen's competencies or proficiencies to be demonstrated by students. They describe the framework their department of economics at Illinois State University adopted to incorporate Hansen's proficiencies into the curriculum. Major changes include the identification of tools students should be able to use to complete specific activities, significant changes in prerequisites for upper-division courses, and the development of a capstone experience. Myers, Nelson and Stratton (2006) report on their attempts to implement Hansen's proficiencies at the University of Akron. Their plan encompasses both formative and summative assessment in the curriculum, captures data in student portfolios and provides a capstone experience for all majors. Although Hansen is now an emeritus professor of economics at the University of Wisconsin (Madison), the UW has not formally implemented his proficiency-based major and no other major research university or prestigious liberal arts college has either.

In addition to the above, a search was made for the Brussels Tuning-AHELO meeting (4-5 May 2009) of programmes expressed in learning outcomes as they were specified by the departments of economics in their webs and consideration was given to their student learning outcomes. A number of examples were discussed: at Georgia State University for both individual courses or subjects and the bachelor's degree as well, with the notable exception of students being expected to demonstrate their communication skills, these Georgia State "Bachelor's Degree in Economics (B.A., B.S., and B.B.A.), Learning Outcomes" seemed to emphasise concept mastery. Similarly, the learning outcomes for the bachelor's degree at Washington State University seem to stress concept mastery. Although the emphasis is at the level of knowledge and understanding, they show a variety of emphasis: "to be able to understand the relevant benefits and costs to consider when comparing policy choices". However, also other elements emerge: "to

learn and be able to apply basic theories, concepts and analytical methods of microeconomics and macroeconomics” or “to be able to communicate, using appropriate writing and oral conventions, basic economic theories, concepts, analytical methods and policy choices”(Georgia State University)

On the other hand, the learning objectives for students of economics at Radboud University (The Netherlands) go beyond concept mastery “active command of academic language regarding economics”, “be able to evaluate economic theories and models...” to expectations of: “linking economic theory with practice”, “be able to set up and conduct economic studies” “formulation of policy advice” to expectations of “implementing change” “ability to work together on a team , in a professional and goal-oriented manner” “able to communicate in a clear and professional way” “able to reflect on their own social and intellectual development and to identify and explore new learning goals and approaches enabling the Radboud bachelor’s degree holders to “present themselves at all times as responsible and academic professionals.” While the learning outcomes for students of economics at the University of Essex are unique in their use of “key words,” “key phrases” and explicit examples of what students are expected to know and do.

Our review revealed little in the way of explicitly articulated standards or statements on student learning objectives for economics at the older and well-known major research universities and prestigious liberal arts colleges in the United States. For some reason, these institutions have not seen the need to formally state and co-ordinate what their students are able to do upon completing courses or subjects and earning a bachelor’s degree in economics. It may be that both faculty and students at these established institutions know what to expect “through participation in informal knowledge exchange networks” (O’Donovan, Price and Rust, 2008, p. 210). Alternatively, it may be simple momentum or lack of initiative to specify that which is expected. That leading economists at these institutions have been writing about economic education for well over a half century, however, makes clear that desired teaching and learning outcomes at the bachelor’s level have not and are not being ignored.<sup>26</sup>

In Europe, however, while the process of identifying learning outcomes is taking time, both the new and the old-line research universities have or are in the process of developing learning outcomes. It will take some time and effort but the political will is undeniable and constantly emphasized at the political level: from the Berlin communiqué when the issue emerged to the later declarations as explained above.

A major feature of the quality assurance process in the UK has been the development and implementation of subject benchmark statements by the Quality Assurance Agency for Higher Education (QAA). Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of programmes in a specific subject or subject area – and they have been developed for every subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated. While subject benchmark statements have been published that deal with second-cycle (master’s degree), the bulk of them refer to the standard first-cycle degree in the UK: the bachelor's degree with honours.

Subject benchmark statements can be used for a variety of purposes. Primarily, they are an important external source of reference for HEIs when new programmes are being designed and developed in a subject area. They provide general guidance for articulating the learning outcomes associated with the programme but are not a specification of a detailed curriculum in the subject.

Subject benchmark statements may also provide support to HEIs in pursuit of internal quality assurance. They enable the learning outcomes specified for a particular programme to be reviewed and evaluated against agreed general expectations about standards. Subject benchmark statements are sufficiently non-prescriptive that they allow for flexibility and innovation in the design of a new degree

programme and may facilitate academic discussion and debate upon the content of new and existing programmes, within an agreed overall framework. Their use in supporting programme design, delivery and review within HEIs is supportive of moves towards an emphasis on institutional responsibility for standards and quality.

Another use for a subject benchmark statement is for those seeking information about the nature and standards of awards in a given subject or subject area. This may have greatest value to prospective students and employers of graduates in the subject area.

However, in developing benchmarking statements, the QAA was aware of the fact that in a number of subject areas degree programmes need also to be accredited by professional, statutory or regulatory bodies and so HEIs were advised that they themselves had the responsibility to consider in detail the relationship between the benchmark standards and those produced by such bodies for individual disciplines.

The subject benchmark statement for economics was originally published in 2000 and was subsequently revised in 2007 as part of a periodic review by the QAA of all subject benchmark statements. The review and subsequent revision of the subject benchmark statement was undertaken by a group of subject specialists drawn from and acting on behalf of the subject community and, like its predecessor, went through a full consultation with the wider academic community and stakeholder groups.

The revised subject benchmark statement for economics provides a vision of the context of the subject, and of what a student can expect to learn in an honours degree in economics. Equally, it acknowledges that joint degrees and multidisciplinary degrees with economics will have developed their own distinctive structures, and will only cover a suitable subset of a single honours degree in economics.

The subject benchmark statement also frames the subject-specific and generic (transferable) skills that economics graduates would be expected to have acquired by the end of their degree programme. Finally, it sets out some principles of learning and assessment methods, as well as providing a statement of threshold and typical attainment levels. The subject benchmark statement for economics was developed by a broad group of academic economists, acknowledged at the end of the document, and brought together by the Royal Economic Society and the Conference of Heads of University Departments of Economics (CHUDE).

Special consideration was given to the “QAA subject benchmark statement for economics 2007” in the Brussels Tuning-AHELO meeting (4-5 May 2009). Those in attendance thought that it did a good job of defining the nature of economics and articulating the knowledge and skills that a bachelor’s degree recipient should possess.

Europe is definitely moving in the direction of Learning Outcomes and these efforts made by the European countries are also being watched closely and acted upon by managers and faculty of universities in Australia, Japan, Mexico nineteen countries in Latin America who have taken part in a successful Tuning Project for LA and even in the United States. In Australia, for example, there has been a national requirement for universities to have statements about graduate capabilities since 1992. Evidence of both clear implementation strategies and the achievement of such learning outcomes has been slow in coming, although higher-level program goals are beginning to appear in response to more economics and business faculties participating in international accreditation initiatives, particularly the Association to Advance Collegiate School of Business (AACSB) as seen at the University of Sydney Web site. In the United States, universities are accredited but individual academic departments or areas of study need not meet uniformly agreed upon standards for student performance, although the Lumina Foundation has just launched an experimental pilot Tuning Project for biology, chemistry and education for a few universities in some Midwestern states

It is in this context that this OECD Tuning-AHELO Project for economics takes on special importance.

## 7. CLARIFICATION OF THE APPROACH USED IN DEFINING LEARNING OUTCOMES

The approach followed for the definition of learning outcomes for economics needs to be understood according to the following coordinates:

- It followed the process used in the Tuning methodology;
- It focused on learning outcomes; and
- It adopted the scheme of the Qualifications Framework for EHEA.

In relation to the Tuning methodology, this approach was really helpful in dealing with a field such as economics. For this academic field the learning outcomes discussion dated back to the founding of the *Journal of Economic Education* in 1969, and a National Council on Economic Education sponsored a conference devoted to advancing the use of student learning objectives held at Indiana University in July 1973 for representative economists from major research universities, including Duke University, University of Wisconsin, the University of Minnesota, Vanderbilt University and the like. Yet, there has been no overarching agreement reached by international organisations on what worldwide learning outcomes should be. Unfortunately for this Tuning-AHELO Project in economics the more ideal model of having two meetings for the experts' groups – one brainstorming session and one meeting to discuss the draft report – could not be followed due to time restraints. As an alternative, it was decided to lay emphasis on discussion during the one meeting that was scheduled and focus on the key points of the framework. The period prior to the meeting was used to study and reflect on the identified relevant materials and to add necessary information. The scheme followed in the discussion focused on the definition of the field of economics, the main profiles for degrees and occupations, and a reflection to agree on the expected desired learning outcomes.

In terms of learning outcomes many definitions are present in the literature and in the implementation of the educational reforms but all show a significant similarity:

- “Learning outcomes are explicit statements of what we want our students to know, understand or be able to do as a result of completing our courses” University of New South Wales, Australia (Declan Kennedy, 2007);
- “A learning outcome is a statement of what a learner is expected to know, understand and be able to do at the end of a period of learning and of how that learning is to be demonstrated” (Moon, London, 2002);
- “Learning outcomes describe what students are able to demonstrate in terms of knowledge, skills and attitudes upon completion of a programme” Quality Enhancement Committee, Texas University (Declan Kennedy, 2007); and
- “A learning outcome is a statement of what the learner is expected to know, understand and/or be able to do at the end of the period of learning” (Donnelly and Fitzmaurice, Dublin, 2005).

Given the similarities in the definition, it can be concluded that the concept has a high level of international understanding. The specific definition used would be that of the Tuning Project glossary which was taken by the ECTS User's Guide (2005) because it has been formerly agreed upon by the 46 countries in the Bologna Process:

“Learning outcomes are statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning”.

In relation to the Qualification Framework for EHEA this is the framework with the highest consensus in relation to the definition of first (bachelor) level, and its differences with the Second (master) level. In this context, it is relevant to analyze what is marked as specificity and the difference at each of the two levels in terms of the following five indicators:

**Knowledge and understanding:** the specificity of the level seems to be grounded in “informed by knowledge at the forefront of their field of study....supported by advanced text books” while at the second level the knowledge and understanding “provides a basis or opportunity for originality in developing ideas...often in a research context”. It is obvious that both levels are interactive and that most of the higher education institutions will incorporate research elements in the undergraduate programmes, however, what is considered is that the specific level will relate more to advancing the capacity to handle advanced knowledge in the specific field.

**Application of knowledge and understanding:** The specificity of the first cycle seems, in this case related to the capacity for “devising and sustaining arguments and solving problems in their field of study”. The mastery of the second cycle is defined more by the capacity to handle multidisciplinary context and solving problems in new and unfamiliar environments. The level in this context could be understood as breadth and depth because when realities or problems are analyzed a significant amount of elements are found to play a role.

**Ability to make judgments:** The aim of this indicator coincides in both cases and relates to the capacity to have “informed judgments that include reflections on relevant social, scientific or ethical issues”. The difference lies in that while for the first level this gathering of information concentrates in its own field mainly, in the second level, there is a complementary requirement, which concerns “integration of knowledge” and the handling of “complexity” and the formulation of judgments with “incomplete or limited information”. Again the borderline is in the “new and unpredictable” that is beyond the specific field, whose mastery seems clearly the level of the first cycle.

**Ability to communicate:** Again it is the level of communication, which seems to be at stake. The target of the communication coincides in both cases: “specialist and non-specialist audiences”. The specificity of the first cycle relates to the communication of “information, ideas, problems and solutions” and it would be the efficiency and clarity of this communication that may be at the core of the educational process, the second level deals with “their conclusions and the underpinning knowledge and rationale”. The core of the communication moves further because it is relating to more original conclusions and to the roots and background elements, which explain them.

**Learning skills:** Here the level relates to the degree of independence and autonomy. So while for the first cycle the goal for achievement is marked at “learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy” for the second degree, the learning skills need to develop “in a manner that may be largely self-directed and autonomous”. It is the capacity to manage their own learning processes and be able to advance that seems to be

at stake. A noteworthy point to take into consideration is that there is no reference in this list of learning skills to the capacity to learn in, with and through groups. The Tuning consultation with stakeholders has shown that there is an important equilibrium required in terms of autonomy in learning and the capacity to learn with others and particularly in leading others in the learning process. This aspect is not considered in the EQF for EHEA.

It must be concluded that frameworks are clearly limited but they allow for debate and clarification, particularly in terms of providing reference points in tertiary education.

## 8. OVERVIEW OF THE AGREED LEARNING OUTCOMES STATEMENTS

Similar but not identical to Hansen's proficiencies, the "Dublin descriptor" for a first-cycle bachelor's degree has five elements: **knowledge and understanding** of the field of study, the **ability to apply** these in reasoned argument and problem solving, the capacity to **gather and interpret data** and reflect on its implications, **communicative skills**, and developing the capacity to **pursue independent learning**. Using these as a set of reference points, the following sets of learning outcomes for economics were identified at the Brussels Tuning-AHELO meeting (4-5 May 2009).

### Subject knowledge and understanding

- A consistent and coherent command of the language of economics. This should include the ability to clearly define standard terms and explain basic concepts in both micro- and in macroeconomics;
- A consistent and coherent command of the principles of economics, both micro and macro, and the ability to structure economic arguments in a coherent and convincing way (rhetoric);
- The ability to explain how economic agents (individuals, households, firms, governments, *etc.*) make decisions and make choices and to use this to solve problems related to economic decisions;
- The ability to explain the basic workings of an economic system and the role of policy in such a system; and
- The ability to articulate critical features and shortcomings in a model or method of analysis.

### Subject knowledge and its application

- The ability to apply economic reasoning and methods effectively to the study of specific topic areas. (For example, markets, public finance, environment, health, labour markets, international trade *etc.*); and
- The ability to use economic reasoning to formulate and evaluate economic advice and policy. This would involve advice to both the private and public sectors.

### Effective use of relevant data and quantitative methods

- The ability to show significant knowledge of the sources of economic and social data including an understanding of where and how to find them, and to know about the methods used to create or collect such data.

## **Effective communication**

- The ability to communicate and explain effectively economic arguments both to those with disciplinary knowledge and to non-experts. Such communication should be both oral and written, and might involve the use of local computer and projection technology as well as the Internet.

## **Acquisition of independent learning skills**

- The ability to think reflectively and critically about a range of issues in economics. This might be demonstrated through expression of an understanding of the history of economic thought or of the capacity and limitations of alternative approaches to modelling or other means of analysing or studying economic problems; and
- The ability to pose and to carry out the investigation of a specific problem in economics. This would involve the formulation of a topic for study, knowledge of suitable methods for its investigation and the ability to draw conclusions from the investigation. Such conclusions might include areas for further investigation.

The following four specific skills need to be explicitly included in any assessment of the learning outcomes possessed by economics first-level or bachelor degree recipients:

- **Abstraction**

From the study of economic principles and models, students should learn to see how one can abstract the essential features of complex systems and provide a useable framework for assessment and evaluating of the effects of policy or other exogenous events. Through this, the typical student will acquire proficiency in how to simplify while still retaining relevance. This is an approach that they can then apply in other contexts, thereby becoming more effective problem-solvers and decision-makers.

- **Analysis, deduction and induction**

Economic reasoning is highly deductive, and logical analysis is applied to assumption-based models. However, inductive reasoning is also important. The development of such analytical skills enhances students' problem-solving and decision-making ability.

- **Quantification and design**

Data, and their effective organisation, presentation and analysis, are important in economics. The typical student will have some familiarity with the principal sources of economic information and data relevant to industry, commerce, society and government, and have had practice in organising it and presenting it informatively. This skill is important at all stages in the decision-making process. It is a central and crucial skill for an economics graduate because an employer will reasonably expect an economics graduate to be able to structure, analyse and explain information presented in some numerical form. The raw data are frequently presented as tables (or datasets with a tabular structure) and the processed data as a graph, an average, a correlation and so on. Numeracy, statistical and computing skills are necessary to handle this sort of information. Presentation skills are needed to communicate such quantitative information in usable ways, and particularly to give critical and coherent summary representations of data that cannot be readily absorbed raw. As well as formal manipulative and presentation skills required to deal with statistical data, economists learn not to be misled by numbers. They question whether the

numbers represent what they claim (*e.g.* unemployment, price indices), they understand statistical significance (*e.g.* the margin of error in a poll or survey) and they are aware of at least some of the difficulties in sampling a population. In addition, with some understanding of econometrics, they recognize that conclusions drawn from data might be ambiguous.

- **Framing**

Through the study of economics, a student should learn how to decide what should be taken as given or fixed for the purposes of setting up and solving a problem, *i.e.*, what the important “parameters” are in constraining the solution to the problem. Learning to think about how and why these parameters might change encourages a student to place the economic problem in its broader social and political context. This “framing” skill is important in determining the decision-maker’s ability to implement the solutions to problems. An appropriate assessment instrument needs to probe this learning outcome.

## 9. NEW APPROACHES REQUIRED IN TEACHING, LEARNING AND ASSESSMENT FOR OUTCOME-BASED LEARNING

The change in higher education from a teacher-centred to a learner-centred model has an obvious impact on the approaches to teaching, learning and assessment, even more so in the situation when learning outcomes are the focal point of the learning or the assessment. As part of the discussion in relation to economics, it is crucial to reflect on how teaching, learning and assessment can be best organised in order to allow students to reach the intended learning outcomes of a course of study. One issue that emerges in relation to the approaches to teaching, learning and assessment on a world-wide scale is that every country, and every institution, has its own peculiarities and features deeply grounded in its national and regional culture. Each has its own written and unwritten rules about how to prepare students best for society. It becomes clear that each system and even each team has developed its own mix of techniques and kinds of learning environments, all of which are well founded, but which need to be mutually understood. It may be the case that the same name is given to different methods (*e.g.* “seminar”, “lecture”, “tutorial”) or, conversely, different names correspond to similar activities.

A wide range of teaching techniques is used in HEI’s. The set of teaching techniques strongly depends on the instructional form of education (face-to-face education or distance education). One way of gaining some insights into the teaching techniques used is to look at what learning activities students are also required to do in a programme or part of a programme of study. As with teaching, learning activities called by the same name can differ quite widely.

To complete the cycle of learning one must also look at how students’ achievement of learning outcomes is assessed. When the development of graduating program-level competencies or learning outcomes are the core of the evaluation, the assessment of content requires specific systems and tools. Evaluation requires not only a personal reflection at the level of the individual teacher but also a joint perspective from the educational team to make sure that the desired core of the learning processes, as specified in the degree profiles, is fulfilled. Particularly, the learning outcome-based approach requires a variety of appropriate methods of assessment. It requires a clear scrutiny so that the evaluation approaches are all-inclusive, reliable and valid and therefore consistent with the outcomes the student must attain and demonstrate. Some argue that this will require not only academic peer review of standards but also the involvement of educational, testing and practitioner specialists. Meaningful evaluation based on and consistent with student outcomes is resource intensive and thus costly in the economic sense.

Assessment is not just the rounding off of the teaching and learning period but to a large extent a central steering element in those processes, and directly linked to learning outcomes. At one time, in some countries the oral examination was the most used method of assessment, while in others it was the essay.

It is clear that almost any form of assessment can have a diagnostic function for both student and lecturer. By seeing what has *not* been achieved, what has been achieved with little effort, what is excellent, and so on, both the teacher and the learner know where more work is needed or where effort can be diverted. The formative value of assessment, the importance of feedback systems cannot be denied in a context in which the learner is looked upon as the main force in the educational process. Having clear targets to reach (learning outcomes), well defined and jointly (teacher and learner) understood is an important part of the quality of an educational programme. These learning outcomes need to be also well related to social needs and employment demands and in tune with the academic requirements at the level of

the international community. But, there would not be quality in education without a proved progress line and a methodology to attain the goals. Assessment, in the context of learning outcomes, forces a necessary look at the target and provides not only the measure of its achievement, but, more important, the elements which are lacking and the path to achieve them.

Finally, when discussing assessment issues across different cultures, it is important to probe the different ideas about what should be taken into account. For example some systems prize the capacity to retain and relate knowledge, others hard work, others high achievement, others high potential, others creativity. This underlying value system is easily forgotten in a straightforward description of what modes of assessment are used, but in a “mobile world” is one which should be better understood.

## 10. CONCLUDING REMARKS

The group of scholars who met in Brussels on 4-5 May 2009 considers the results of its mission as an initial step in the setting of guidelines and as a helping hand for the future work on establishing common understanding and building momentum to arrive at a joint worldwide criteria on the learning outcomes for a higher education in economics at the first cycle.

They considered their work as ground breaking, in terms of collective work for economics at an international level. While there is a substantial body of research on educational method, and the very important work that has been carried out in this field needs to be acknowledged, what is new, however, is the collective work of academics trying to define in a “bottom up” approach the learning outcomes required for degree programmes at bachelor. In the context of the growth of transnational education, these reference points are important for recognition and mobility.

With this work, economics is incorporated into the debate which is being carried out in many parts of the world and which is a response to the search for quality in higher education. The work on learning outcomes is not the unique path for quality but it is powerful and growing due to the belief of academic groups who consider that educational programmes should have clearly defined aims, well understood, not only by academics but also by society as well as by the learners themselves, the main actors of their educational process. It is the quest for quality and transparency which has led the “Tuning movement” among academic communities, together with the awareness that international reference points are a need in a global society. This academic movement has been running parallel to the political action of the ministers of education of a significant number of countries. In Europe, the support has been undeniable since the structures were already in existence, due to the Bologna Process. In other countries, Australia, New Zealand, the ministries backed the process. In 18 Latin American countries, the ministries joined in the process parallel to the academic groups and at different levels contributed and welcomed the results taking them to their laws.

The fact that the academic work is done by consensus also creates a significant climate amongst the academics, bringing important elements of learning and development in programme degree design and implementation, and contributing to the building of a common language where understanding is fostered.

However, the development of learning outcomes is not an easy or rapid process. Beyond the first step of identification and agreement, comes the steps of specific profiling and focusing for specific programmes since variety is clearly at the core of this approach. Other steps require still more time, this is the case with creating the adequate learning and teaching processes and finding the appropriate way for learning outcomes assessment. This involves large numbers of academics and learners in the institutions who need to be trained for this development.

In this context, the state of the art found for the field of economics is rather initial. A large number of countries have accepted the learning outcomes approach and therefore economics as any other academic field needs to be translated into the language. There are examples such a QAA at country level also the universities are beginning to show their identification of learning outcomes in economics on their web-pages, and obviously teams in these institutions are in the processes of identification and finding the right educational processes to make the programmes consistent and of quality. But the work of implementation

is very much at the beginning and there is no collective reflection being done at the transnational level. It is the contribution of this report to open the ground in this respect.

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- <sup>1</sup> AHELO Web site: [www.oecd.org/ahelo](http://www.oecd.org/ahelo)
- <sup>2</sup> Bologna Process Web site: [www.ond.vlaanderen.be/hogeronderwijs/bologna/](http://www.ond.vlaanderen.be/hogeronderwijs/bologna/)
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- <sup>6</sup> The AHELO feasibility study is jointly steered by governments, HEIs and agencies through the Programme for Institutional Management in Higher Education (IMHE) Governing Board – which brings together these different groups with a common interest in improving institutional management and effectiveness. However the technical nature of the project has led the IMHE Governing Board and the Education Policy Committee to delegate decisions on the methods, timing and principles of the AHELO feasibility study to an AHELO Group of National Experts.
- <sup>7</sup> Nearly 100 academic communities applied the Tuning methodology in 58 countries: Thematic Network Humanitarianet, EUCEET III (European Civil Engineering Education and Training III), ECTN4 (Chemistry in European Higher Education Area), ATHENA 3, LE: NOTRE 2 (Landscape Education – New Opportunities in Teaching and Research in Europe – TOWARDS WIDER OBJECTIVES), DIETS (Dietitians Improving Education Training Standards across Europe), HERODOT II (European Network of Geography in Higher Education), Dissemination Project (European Education in Geodetic Engineering Cartography and Surveying), EULLearNDis (European University Lifelong Learning Network Dissemination), Stakeholders Tune European Physics Studies - European Physics Education Network, Aqua-TNET (Thematic Network for Aquaculture, Fisheries and Aquatic Resource Management), MRENet (Socrates Thematic Network redefining the Curricula for the Multifunctional Rural Environment - agriculture, forestry and rural society), ENHSA II (The European Network of Heads of Schools of Architecture), LEFIS – APTICE (Legal Framework for the Information Society II), EIE-Surveyor (Reference Point for Electrical and Information Engineering in Europe), CLIOHnet 2 (Consolidating links and innovative Overviews for a New History agenda for a Growing Europe), EUSW (European Platform for Worldwide Social Work), ENOTHE (European Network in Occupational Therapy in Higher Education), PhoenixTN (European Thematic Network on Health and Social Welfare Policy), EUROPET (European Pediatrics Thematic Network), Religion in a Multicultural Europe, CiCe3 (Children’s Identity

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and Citizenship in Europe II), HENRE II (Higher Education Network for Radiography in Europe), University Studies of Agricultural Engineering in Europe, LE:NOTRE+PLUS (Project for long-term and university wide Sustainability), AEHISIS (Aligning a European Higher Education Structure in Sport Science), TNP3 (Thematic Network Project in the Area of Languages III), ESTIA-NET (Opening Up Electrical Engineering, Computer Technologies and Applied Sciences to successful women careers), ECTN3: THE NEW GENERATION OF CHEMISTS, DentEd III (Tuning learning units, competences, quality assurance and ECTS in EU dentistry), BIOTECHUNTE (Biotechnology University Formation for Enterprises Development), TREF (Teaching and Research in Engineering in Europe), SO.RE.COM.THE.NET (Social Representations and COMMunication THEMatic NETwork), The "POLIFONIA" Thematic Network for Music, European Network for the Development of Nursing Practice , MEDINE (Medical Education Thematic Network), ETN DEC (European Thematic Network for Doctoral Education in Computing), INTER-ARTES (Quality Network in Higher Arts Education in Europe), LEFIS (Legal Framework for the Information Society), CLIOHNET (Creating Links and Innovative Overviews to Enhance Historical Perspective in European Culture), MedNatNet (Medical Natural Sciences Network), ECET (European Computing Education and Training), THENUCE (European Thematic Network in University Continuing Education), 'Bologna' Thematic Network 'Innovation in Higher Arts Education in Europe', EUPEN (European Physics Education Network), STEDE (Science Teacher Education Development in Europe), USAEE (University Studies of Agricultural Engineering in Europe), ENHSA (European Network of Heads of Schools of Architecture, EGECS (European Education in Geodetic Engineering - Cartography and Surveying), E4 (Enhancing Engineering Education in Europe), BIOTECHNET (BIO-TECHnology Thematic NETwork), VET 2020 (Development of European educational strategies : Design of veterinarian profiles identified by market needs for the year 2020), THEIERE (Thematic Harmonisation in Electrical and Information Engineering in Europe), AFANet-SOCRATES (Thematic Network for Agriculture, Forestry, Aquaculture and the Environment), Nursing SAG - Tuning Europe, Physics SAG - Tuning Europe, Chemistry SAG - Tuning Europe, Mathematics SAG - Tuning Europe, European Studies SAG - Tuning Europe, Business, Administration SAG - Tuning Europe, Earth Science SAG - Tuning Europe, Educational Science SAG - Tuning Europe, European Studies SAG - Tuning Europe, Engineering SAG - TEMPUS Tuning Georgia, Nursing SAG - TEMPUS Tuning Georgia, Physics SAG - TEMPUS Tuning Georgia, Chemistry SAG - TEMPUS Tuning Georgia, Mathematics SAG - TEMPUS Tuning Georgia, European Studies SAG - TEMPUS Tuning Georgia, Business Administration SAG - TEMPUS Tuning Georgia, Earth Science SAG - TEMPUS Tuning Georgia, Educational Science SAG - TEMPUS Tuning Georgia, History SAG - TEMPUS Tuning Georgia, Nursing SAG – ALFA Tuning Latin America, Physics SAG - ALFA Tuning Latin America, Chemistry SAG - ALFA Tuning Latin America, Mathematics SAG - ALFA Tuning Latin America, European Studies SAG - ALFA Tuning Latin America, Business Administration SAG - ALFA Tuning Latin America, Earth Science SAG - ALFA Tuning Latin America, Educational Science SAG - ALFA Tuning Latin America, Medicine SAG - ALFA Tuning Latin America, Architecture SAG - ALFA Tuning Latin America, Law SAG - ALFA Tuning Latin America, Civil Engineering SAG - ALFA Tuning Latin America, Psychology - Tuning Sectoral Framework, Law - Tuning Sectoral Framework, International Relations - Tuning Sectoral Framework, Sociology - Tuning Sectoral Framework, Business Administration SAG - Tuning Russia, Mathematics SAG - Tuning Russia, European Studies SAG - Tuning Russia, Biology SAG - Tuning USA, Chemistry SAG -Tuning USA, Education SAG - Tuning USA, Graphic Design - Tuning USA, History SAG - Tuning USA, and Physics SAG - Tuning USA.

<sup>8</sup> Argentina, Austria, Belgium, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Guatemala, Honduras, Hungary, Iceland, Ireland, Italy, Kyrgyz Republic, Latvia, Lithuania, Luxembourg, Malta, Mexico, Moldova, the Netherlands, Nicaragua, Norway, Panama, Paraguay, Peru, Poland, Portugal, Romania, Russia, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United States, United Kingdom, Ukraine, Uruguay, Venezuela.

<sup>9</sup> MIT's Frank Wilczek (who shared the 2004 Nobel Prize in physics) is quoted by Begley saying that some alleged laws of physics are disputed, giving as an example the concept that mass is conserved, a staple from introductory courses. Wilczek is quoted saying "But that couldn't be more wrong. Massive particles such as protons are built of quarks and gluons, which have zero mass (unless they are moving). Mass is far

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from conserved.” From high school physics we learn that for every action there is an equal and opposite reaction; yet, Wilczek is quoted by Begley saying that is not universally true: “It fails for magnetic forces between charged particles.” Begley tells of high school biology teachers presenting without question that auxin promotes plant growth, when the reality is far more complex as seen in the raging controversy over how, if at all, it does so. She reports that only recently did Indiana University’s Mark Estelle and colleagues find that auxin attracts and binds plant proteins that silence growth-promoting genes. It is the enzymes that then devour the silencers that allow growth genes to turn on. Astronomers argue over the dark matter that pervades the universe. Thus, an up-to-date textbook should state that dark matter exists but its composition remains an enigma.

10 Historically, and as seen in the popular press, economists have been classified into schools of thought: classical economics, Marxian, Chicago school (Freshwater), Saltwater schools (MIT, Harvard, Berkeley), French Heterodox, Austrian School, Keynesian economics, post-Keynesian economics, behaviour economics, etc. Today mainstream or orthodox economists (as opposed to their heterodox critics) do not fit into any one particular school of thought on the many topics in *The Journal of Economic Literature* Classification Codes. It is the nature of their models, empirical support and what is emphasized that distinguishes them from those who simply adhere to an ideology.

11 A viewing of Paul Krugman’s Nobel Laureate acceptance lecture and the Nobel committee in its announcement of its prize might convince skeptics that some consideration of the gravity model of trade, the Leontief paradox, the Linder hypothesis, and other components leading to and part of the New Trade Theory is not beyond the reach of young students once they have just a rudimentary understanding of comparative advantage and returns to scale. At a minimum, from viewing these clips, students should be able to acknowledge that economists recognize the shortcomings of comparative advantage and have alternative models that are consistent with like countries trading like goods based on consumers’ desires for diversity and producers search for increasing returns to scale.

12 A Pareto equilibrium is an unobservable theoretical concept that cannot be observed in the real world, which makes it difficult for students to appreciate in considering the work of Smith and Nash. If the instructor is willing to move beyond chalk and talk teaching methods, however, this is not a problem. For example, the blonde-in-the-bar clip from “A Beautiful Mind” can be used as a motivational tool to establish the connection between Adam Smith’s invisible hand and John Nash’s recognition of the role of cooperation with heterogeneous student bodies consisting of both entry-level university students and advanced graduate students. This clip can be sandwiched between Charles Holt’s (1996) trading-pit simulation (in which a Smithian equilibrium results from students pursuing their individual self-interest as demanders and suppliers) and Pickhardt’s (2005) extension of Holt and Laury’s (1997) classroom simulation in which a less than optimum non-cooperative equilibrium tends to dominate a Nash cooperative equilibrium, which is the Pareto optimum. (Anderson and Engers (2002) correctly point out that the Nash equilibrium portrayed in the movie -- all the men including Nash ignore the blonde -- is not a sustainable equilibrium because given the strategies of the others Nash himself could score by going for the blonde, as pointed out by one of his male friends in the bar. Given sufficient desirability of the blond, no heterosexual male will be willing to let her walk, unescorted, so any one of them could expect to score given the strategy of the other males.)

13 Although the Bologna Process first-cycle bachelor’s degree is normally to be a three-year degree followed by a two-year master’s degree there are many exceptions to be found in Europe. For example, the Erasmus School of Economics awards both a one and a two-year master’s degree.

14 In The Netherlands universities such as the Erasmus School of Economics offer both a one-year and a two-year master’s degree, with the former intended for those who want to get a job upon completion and the latter intended for those who plan to go on for a PhD.

15 Van Damme, Dirk (2001), “Higher Education in the age of globalisation: The need for a new regulatory framework for recognition, quality assurance and accreditation” Introductory Paper for the UNESCO Expert Meeting, Paris, 10-11 September.

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- 16 Web site: [www.bologna-bergen2005.no/Docs/00-Main\\_doc/010519PRAGUE\\_COMMUNIQUE.PDF](http://www.bologna-bergen2005.no/Docs/00-Main_doc/010519PRAGUE_COMMUNIQUE.PDF)
- 17 London Communiqué: Web site: [www.dcsf.gov.uk/londonbologna](http://www.dcsf.gov.uk/londonbologna)
- 18 Adam, S. (2008), "Learning Outcomes based higher education: the Scottish experiences", paper presented to the Bologna Seminar, Edinburgh, February.
- 19 Communiqué of the Conference of European Ministers Responsible for Higher Education, Leuven and Louvain-la-Neuve, 28-29 April 2009: "The Bologna Process 2020 – the European Higher Education Area in the new decade", pp. 3-4.
- See also the conclusions of the official Bologna Seminar (2008) "Development of a Common Understanding of Learning Outcomes and ECTS", Porto, June  
[http://portobologna.up.pt/documents/BS\\_P\\_Report\\_20080915\\_FINAL.pdf](http://portobologna.up.pt/documents/BS_P_Report_20080915_FINAL.pdf)
- 20 Web site: [www.aqf.edu.au/aboutaqf.htm](http://www.aqf.edu.au/aboutaqf.htm)
- See also a publication of National Qualifications Authority of Ireland (2006), *Review of Qualifications Frameworks – International Practice* in which an overview is given of existing Qualifications Framework, including the ones from South Africa, Australia and New Zealand. Web site:  
[www.nqai.ie/docs/framework/researchreports/review%20of%20qualifications%20frameworks.doc](http://www.nqai.ie/docs/framework/researchreports/review%20of%20qualifications%20frameworks.doc)
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- 22 González J. and R. Wagenaar (eds.), (2008), *Tuning Educational Structures in Europe. Universities' contribution to the Bologna Process. An Introduction. 2<sup>nd</sup>. Ed.*, Bilbao-Groningen, p. 16.
- See also European Commission (2009), *ECTS Users' Guide*
- Web site European Commission:  
[http://ec.europa.eu/education/lifelong-learning-policy/doc/ects/guide\\_en.pdf](http://ec.europa.eu/education/lifelong-learning-policy/doc/ects/guide_en.pdf)
- 23 Harvey, L. (2004-9), *Analytic Quality Glossary*, Quality Research International, Web site:  
[www.qualityresearchinternational.com/glossary](http://www.qualityresearchinternational.com/glossary)
- 24 Through all four editions the TUCE has been the product of the currently named Council for Economic Education, which was previously named the National Council on Economic Education and originally named the Joint Council on Economic Education. The most recent TUCE-4 has 30 multiple-choice questions in macroeconomics and 30 in microeconomics, where the content if not the questions themselves tend to repeat from previous versions. TUCE authors Walstad, Watts and Rebeck (2007) claim that these questions reflect the core of what is being taught in introductory economics but their sample of "43-44 colleges and universities" do not include any of the highly ranked National Research Council Ph.D.-granting departments or any of the prestigious U.S. liberal arts colleges identified in popular press listings such as those found in *U.S. News & World Report*.
- 25 Alan Krueger (Princeton University) is listed as an advising member of the TUCE-4 "national panel of distinguished economists" but Princeton was not one of the universities in the sample of participating institutions. Krueger and McIntosh (2008) state "A longstanding complaint of Krueger, as well as others (Becker 2004; 2007) is that introductory economics courses have not kept up with the economics profession's expanding emphasis on data and empirical analysis" (p. 180). Unlike the old concept-based TUCE, SRI International's Center for Technology in Learning, under a grant from the U.S. Department of Education's Institute of Education Sciences, is working on an "evidence-centred design" for undergraduate economic education testing that seeks to assess the cognitive processes employed by economists in their reasoning. Whether this SRI initiative proves successful remains to be seen but what we have learned from the four editions of TUCE is that standardized tests tend to lock in yesterday's ideas in a cycle in which the test defines what is to be taught and what is then taught defines what goes on the test.

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In addition to the TUCE, other well known United States standardized tests in economics include the secondary school level multiple-choice Test of Economic Literacy (TEL) and the Advance Placement test. The AP has both a fixed (multiple-choice) and free response (essay) component. To achieve reliability across graders, the free response questions must be compatible with a rigid scoring rubric, making the alleged free response component of the test similar to the fixed response component in assessing cognitive processes and thus it cannot overcome the shortcomings of the fixed response questions. For graduate school applicants, there is the Graduate Record Exam in Economics. Completion of this exam is voluntary and not required by all the major Ph.D. granting universities. Simple testable knowledge of economics is not as important as quantitative skills in assessing candidates for these Ph.D. programs.

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Becker and Becker (2009) highlight some of the many well known and highly regarded economists who are presently contributing to the teaching and learning of economics through publications in the *Journal of Economic Education*. Becker and Kennedy (2005, 2006) document how leading academic economists treat teaching and research as complementary activities. The Nobel laureates in economics who contributed autobiographies to the edited fifth edition of *Lives of the Laureates*, by Bret and Hirsch (2009), give additional testimony on how the interaction between their research and teaching led to their award-winning innovations in economic thought and practices.