

**Aqua-tnet**  
**Annual 'state of the art' report**  
**November 2010**

Annual report about the state of innovation in the higher education area in the field of Aquaculture, Fisheries and Aquatic Resource

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## 1. Master programs in aquaculture, fisheries and aquatic resource management

### **INTRODUCTION**

The Master programme represents the second cycle in the Bologna process, which the majority of European universities now have implemented.

### **STATE OF THE ART IN MASTER EDUCATION**

In 2009 the report "Survey of Master degrees in Europe" by Howard Davies (EUA Publications) was published. This report gives a good overview of the state of the art or master degree programmes in Europe. Important findings from this report have been presented in the 2009 State of the Art Report.

A newly performed trend study (Trends 2010: A decade of change in European higher education) published by the European University Association shows that introduction of the Master degree has been positive and it has proven to be a very flexible degree. However Master programs are defined differently depending upon national and institutional contexts. This corresponds well with what has been documented among Aqua-tnet members.

Another interesting finding in the study was the fact that there were strong indications that many institutions expect that their Bachelors shall continue to the Master level. Enhanced cooperation with other higher education institutions (HEI) and internationalization was also reported to be a major issue in future HEI developments.

### **STATE OF THE ART IN MASTER EDUCATION - the Aqua-tnet domain**

Within the Aqua-tnet domain work package 1 that deals with the Master education has been working with the following main subjects in working year 2:

- Database
- MSc thesis requirements
- Protocols for thesis/work experience in industry and research institutions.

#### *Database*

A lot of effort has been invested into development of the database of Master programmes and courses because this is intended to be a major tool to enhance European cooperation among the Master programmes. Also for student mobility it will be important because the students will have a portal where it is easy to find information of interesting courses and programmes within whole Europe. A first draft of this database has been developed and feedback from core group members has been given. Again the confusing use of terminology was observed and this has been taken into account when designing the database

#### *MSc thesis requirements (report)*

A questionnaire has been developed to investigate how the scope and format of a master thesis/diploma thesis varies from country to country within the network. Further it evaluates if the organization of the thesis work in the different countries can be an inhibiting or a stimulating factor for international cooperation and student mobility. The results distilled from the information provided by the WP1 group members on their respective Master programmes show that there are large differences between how the Master thesis work is organized in the different countries and this might inhibit cooperation. A review report from the contributions provided by the various WP1 members, which is meant to be representative for the situation within the network, is in progress.



*Proposal for establishment of protocols for thesis work experience*

A discussion ongoing among the work package members and with the project's stakeholder forum shows that there are large differences in the use of protocols and prior agreements for thesis work and work placements in research institutes and in the industry. These protocols are meant to specify the responsibilities and rights of the university sending the institute, of the host (research institute or industry), and of the student him/herself. In some countries (for instance France) very well-defined routines and protocols are being used for this, while in other countries virtually no procedures exist. The industry as a major stakeholder in this connection indicates that it is of major interest for them to have good procedures and accompanying documents. Several industrial actors have their own protocols/forms that students have to sign before entering the industry either for master thesis work or for work placement. Generally, however, the need is recognized for a code of good conduct in this respect.

The work package aims at further exploration of the existing procedures and protocols among its members (translated into English if it is in a different language), in order to come to a global document recommending a standard procedure.

## 2. PhD curriculum development

### **INTRODUCTION**

*Doctoral education is a major priority for European universities and for EUA (European University Association). It forms the first phase of young researchers' careers and is thus central to the drive to create a Europe of knowledge, as more researchers need to be trained than ever before if the ambitious objectives concerning enhanced research capacity, innovation and economic growth are to be met"* (Professor Georg Winckler - EUA President 2005-2009)

### **STATE OF THE ART IN PhD CURRICULUM DEVELOPMENT – general EC level**

Doctoral programmes are not only the third cycle of higher education, but also constitute the first phase of a young researcher's career. The core component of the third cycle is the advancement of knowledge through original research, and this makes the third cycle unique and different from the first and second cycles. The doctoral training phase constitutes the main link between the European Higher Education and Research Areas, and high quality doctoral programmes are therefore crucial in achieving Europe's research goals.

Findings in the Trends V report (EUA, 2007) indicate that while the third cycle came late to the Bologna process (or vice versa), the speed of change in recent years has been quite extraordinary. Institutions need to take responsibility for the further developments in this crucial cycle to sustain and enhance Europe's research and innovation capacity.

Also the European Commission supports university action to modernise doctoral programmes, involving stakeholders from industry. Growing numbers of mobile researchers, and in particular doctoral candidates, receive support under the Marie Curie Actions, Erasmus, Erasmus Mundus and the European Institute of Innovation and Technology (EIT).

Bologna reforms contribute to putting European higher education on the global map. Many courses, particularly at master and doctoral level, are now taught in English. This factor, and many other factors, help European universities to become global players. Relations with other continents are supported through a series of bilateral cooperation programmes: EU-USA/ Canada, EDULINK, and ALFA for Latin America and the new Nyerere Programme for Africa. A new multilateral framework for supporting cooperation with industrialised countries has been launched by the Commission in 2007. Of special importance in this context is the EU's flagship programme for worldwide academic cooperation, Erasmus Mundus. Highly integrated European Masters and doctoral courses, consolidated international academic partnerships, and competitive scholarships are making a powerful contribution to improving the attractiveness of 'destination Europe'.

In one of its last documents the EUA stipulated some further indicators for a successful PhD curriculum at any European university.

### **STATE OF THE ART - PhD's in the aqua-tnet domain**

Within aqua-tnet a specific Work Package is dedicated to PhD curriculum development. Many universities in Europe have departments and research groups that are specialised in research topic related to the aqua-tnet domains. Yet in many cases these departments and research groups do not form big clusters, indicating that there might be a lack of critical mass in a particular university. Hence the aqua-tnet project is aiming to provide the European PhD student operational in the aqua-tnet domains, information in relation to the taught as well as the research phase.

In the previous aqua-tnet phase, doctoral students in the aqua-tnet network have been consulted in relation to their needs for PhD training. One of the findings was that training in generic domains,



under which we consider a wide range of research, workplace and life skills that are not specific to any one discipline, including languages, communication, scientific methodology, IT and management, is highly recommended and appreciated. These types of courses are likely to be available at a local or neighbouring university. On the other hand there is also a very diverse need for training in specific, tailor made PhD subjects. In the latter cases there is often a problem of matching supply and demand of these types of courses at the local level, and most often this match is not available. In order to bring European students into contact with the possibilities of ongoing PhD research and courses in the AquaTNET domain, the AquaTNET project has set up a PhD portal (<http://aquatnet.djangofoo.com/>). In this portal the following information can be found.

In relation to the research phase, the aqua-tnet project offers an internet based database of finished PhD's in the aqua-tnet domain. This offers the students the opportunity to have direct and easy access to finished PhD thesis and presentations from across Europe.

In relation to the taught phase the aqua-tnet project has set up an internet based database of PhD courses available in Europe. These courses are typically short training courses that are made specifically for PhD students. They are hence open for mobility and comply with the idea that a match should be made between supply and demand of specialised course in Europe.

This inventory of available courses allowed making a first analysis of these types of courses and to identify gaps. This analysis is not finished but will be continued in the follow up project, AquaTNET3. However it was noticed that PhD courses at the interface of disciplines are hardly available at this moment. Hence the development of these types of courses should be stimulated, as very often scientific progress is being made at these interfaces.

In the aqua-tnet domain a lot of research institutes are operational. They often have of lot of experience in research in the aqua-tnet domain, but are only to a variable extent involved in PhD training. The aqua-tnet project aims at increasing the links between universities and research institutes, offering PhD students more opportunities for mobility between research environments.

### 3. Mobility in aquaculture education in Europe

#### **INTRODUCTION**

As highlighted in the previous Aqua-tnet State of the art report (2009), education and training has been a priority policy in the EU since long and an added impetus had already been given since the adoption of the Lisbon Strategy in 2000. In 2010, even more emphasis has been placed on mobility, with the launch of the Europe 2020 strategy (3 March, 2010). Two of the Europe2020 seven Flagship Initiatives, “Youth on the move” and “An agenda for new skills and jobs”, as well as the Bologna Process 2020 Communiqué (Louvain, April 2009) underline the importance of mobility of European students, early stage researchers and staff as it strengthens the academic and cultural internationalization of European higher education and enhances the quality of programmes and excellence in research, needed for reviving the economy of the European Union. Therefore, mobility shall be the hallmark of the European Higher Education Area.

#### **STATE OF THE ART IN MOBILITY – EU perspective**

It has been sufficiently demonstrated that longstanding EC programs such as Leonardo da Vinci and particularly Erasmus (3 million students by 2012) have contributed substantially not only to mobility in the area of training but also to better integration among regions and areas of Europe. The more recent EC program “Erasmus Mundus” (December 2003) is the worldwide extension of the Erasmus programme, aiming at increasing academic cooperation between various countries, outside Europe as well. The mobility programs in Europe have become a classic and popular way of obtaining foreign exposure, new experiences and are also part of the curriculum among university students. This mobility experience is seen as an added value both by students and teachers across Europe and therefore, any university considers the inclusion of foreign experience when quality programs are programmed or evaluated.

However, not all students can experience a mobility period, partly because it is still not a free program, and students or their family have to contribute to the costs. In the near future, more grants should be available in order to guarantee that economic reasons are not a barrier for mobility.

Europe 2020 is the EU's growth strategy for the coming decade. The Youth on the Move is the Europe 2020 Flagship Initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the EU. It's the response to issues at overall EU level such as high youth unemployment and many young people not achieving their full potential in training and education limiting their prospects on the labour market. In the future, EU countries will work together more closely to ensure that

- more students have the opportunity to enrol in higher education
- universities improve the quality of the courses they offer – to make them more attractive for students and more responsive to their needs
- by 2020, all young Europeans have a chance to study or train abroad at some point during their education
- the number of young people dropping out of school is reduced and there are more opportunities to learn later in life
- we tackle youth unemployment and promote more workplace and entrepreneurial learning experiences
- more possibilities for self-employment
- more young people have the opportunity to work abroad

There will be several measures in the coming years, but the Commission will put forward its first proposal – to encourage young people spend a period studying or training abroad – on 15 September 2010.

### **STATE OF THE ART IN MOBILITY – From academic level to long-life learning**

While original mobility initiatives in Europe were mainly focused on university students and research students through the Erasmus program, and through the Leonardo program also on training vocational movers or graduate students, the next phase EU initiatives are also related to the expansion of learning possibilities for all sectors and age-groups of society. This initiative is developed through the Life-long learning strategy that, other than university students, should include:

- Traineeship abroad for students, workers or free-movers, including language training;
- Educational staff (teaching abroad or receiving training and recycling abroad);
- Institutional exchanges (agreements between institutions to exchange members);
- Multilateral projects (involving, institutions, companies, stakeholders or sectors of the society) interested in developing projects with common interests.

### **STATE OF THE ART IN MOBILITY – The need of institutional commitment**

Although student mobility in Europe is a success story, the next step for European partners should be a higher involvement of the institutions themselves to promote and expand mobility. As the initial motors of mobility were the interest of the students and the dedication and contacts of the teachers, facilitating the exchanges, it is increasingly necessary that mobility issues should be an integral part of the overall educational offer of the institutions. If this will be the case, more opportunities will be available, and the opportunities will involve more layers of the society leading to better integration among countries and societies. Therefore, this needs on the one hand institutional commitment making an effort of including mobility in the study structure and finance, and on the other hand a general recognition that such actions are a premium for the institutions that follow this aim.

### **STATE OF THE ART IN MOBILITY – From Europe based mobility to Global mobility**

The European Union considers higher education as an essential part of the development and success of today's knowledge society and economy. In order to progress in knowledge and innovation, particularly as global competition becomes more intense in all sectors, key issues such as student and working individual's mobility across countries is essential for improving training and for providing more chances for jobs and growth. In the last years it has been observed that such initiatives of mobility are increasing in other parts of the world, and therefore, an action between EU and other regions such as America and Asia-Australia on the global exchange for higher education is envisaged.

At present, global mobility is still restricted to mainly United States and Europe as the main hosting regions and Asia, particularly China, as the main region for sending students. Besides these global flows, English speaking countries receive most of the movers both globally and also among European countries.

Another global trend is the increase of the regional flows and the foundation of new regional initiatives for student exchange. Thus, existing regional networks such as the following examples are already taking place: The NOVA university network among the Nordic EU countries (involving Norway, Sweden, Denmark, Iceland, Finland) in the area of Aquaculture and Aquatic Sciences. The interregional networks such as the latino-american community (central and south America with Spain, Portugal and Italy), with flows facilitated by the common languages (Spanish, Italian and Portuguese). The Asia-Pacific flows involving most countries of the south-Asia area from India to Japan with increasing number of flows and country to country exchanges.



Therefore, there are more opportunities to set-up agreements with these interregional networks in order to increase globalization and give new opportunities for EU students to know and experience higher education exchanges in Asian countries and also the increasing demand of training and education from these countries. It should be recommended that Europe could take the lead of trying to develop such global exchange network system. Thus, the experience in Erasmus and the new Higher Education Area could facilitate the establishment of these networks, including accreditation systems and common structures and models for teaching and training. The Aquat-net projects have a long and sound experience in this matter and can be easily taken as a success story and model example to develop these new initiatives.

#### **STATE OF THE ART IN MOBILITY – The need to booster funds to gain equity**

As said in previous reports, the current initiatives have desirable objectives, but it is necessary that the EU institutions, the national governments and the local institutions provide economic funds, and a dynamic structure to accomplish and facilitate these initiatives as much as possible. The experience of aquaculture mobility across Europe indicate that students and staff participate in the mobility strategy but that more financial help should be available both for academic and vocational training. Otherwise the mobility issue may risk involving only part of the university students (those with familiar or local extra help) and be limited to the university environment without relevant participation of vocational or enterprise workers.

While this is clear in developed countries such as in Europe and North-America, this aim should also be pursued in the developing countries. Agreements involving either the information assessment, facilitation of placements, facilitation of lodging and accommodation, contacts with local companies, etc., could be initiated without major problems among universities or technical colleges as a start. In addition, basic agreements on accreditation and work/study recognition between partners could be achieved. Again, the Erasmus scheme and the experience of Aqua-tnet may serve as a good start, and therefore some educational institutions may take the lead at this starting point.

## 4. New Generic Skills and Competences Approaches in Europe

### **INTRODUCTION**

Modern economies require the use of continually greater skills, and a more educated workforce is being sought by all governments in the advanced industrialised economies. While most jobs require occupation-specific skills to do them, generic skills are ever more needed in a range of jobs (1). Plus, as stated by the commissioner for Education, Training, Culture, and Youth of the EC, the fast change in job markets means that there is the need to continue to teach specific skills, but graduates will increasingly need a set of more generic skills (such as problem solving, language skills, analytical skills, etc.) in order to increase their job opportunities and maintain employability (2).

### **INTRODUCTION AND STATE OF THE ART IN GENERIC SKILLS – general EC level**

Across sectors, transversal and generic skills will be increasingly valued on the labour market (3). To provide job opportunities for all and create a more competitive and sustainable economy, Europe needs a highly skilled workforce able to meet current and future challenges (4). With the current economic crisis public and private budgets are under strong pressure, existing jobs are disappearing, and new ones often require different and higher level skills. Education and training systems should therefore become much more open and relevant to the needs of citizens, and to those of the labour market and society at large (5). Investment in education and training is crucial as a way out of the economic crisis, both as part of long-term structural reforms and to lessen its immediate social impact (4).

At the European level, the Bologna Declaration and Lisbon Strategy have resulted in extensive discussion of generic skills training, such as the 2006 workshop held in Brussels by the European Universities Association and the COIMBRA group of universities. Both addressed generic skills training needs at doctoral level and emphasised the role of generic skills training in preparing doctoral students for employment and mobility (6, 7).

Higher education in Europe (and the world) is in a phase of change. First, the EU is preparing the Europe 2020 strategy, the next phase of the Lisbon Strategy and Education and Training (due to the importance played in stimulating growth and jobs) are key elements for this follow-up strategy (2, 5). Second, the Bologna follow-up Group (BFUG) is now establishing the priorities for the European Higher Education Area (EHEA) for the decade up to 2020 (2, 8). Third, the EC is developing a European Skills, Competences and Occupations taxonomy (ESCO), which will describe the most relevant skills, competences and qualifications needed for several thousand occupations, and skilled agriculture and fishery workers is listed in the scheme. Once finalised, ESCO will be the first classification of its kind available in all EU languages (9). And, fourth, the UNESCO is preparing its global strategy on higher education (2).

Several current socio-economic and environmental developments are likely to demand new better-adapted skills, such as the globalisation and increased international trade, the transition towards a low-carbon economy; the application of new technologies, and changes in work organisation (10). These developments will also impact on the fisheries and aquaculture sectors and the European Fisheries Fund (the Financial Instrument designed to secure a sustainable European fishing and aquaculture industry) already acknowledges and provides financial aid for all persons engaged in fisheries and fisheries-related occupations to train on and upgrade their professional skills (11).

### **PERSPECTIVES FROM AQUATNET 2**

As mentioned previously the above-mentioned considerations about generic skills apply as much to the fisheries and aquaculture sectors as any others. Plus, as set out in the ‘New Skills for New Jobs’ initiative, major challenges remain in the provision of generic skills. The most important is the possible mismatches between skills levels and job requirements. The document point to the fact that the Vocational and Education Training (VET) systems needs to respond more rapidly and flexibly to the expected increase in qualification and skills needs (5).

In order to identify current learning and skills training needs a survey was carried out as part of the present project to students (BSc, MSc, PhD and other), academics (graduates and university teachers) and stakeholders (industry and other employers). Preliminary results from the questionnaires survey indicate that all groups regarded most of the generic skills in analysis as important. As example, students were asked to classify the importance of a set of 39 generic skills (for every skill they were asked to reply to the question “this skill is important?” on a scale ranging from strongly disagree to strongly agree). With the exclusion of webpage design students agreed or strongly agreed with the statement regarding all other generic skills; regarding them as important. However the top-rated skill varied among students from different levels. PhD students regarded statistical methods as the most important generic skill, followed by data management, knowledge of English (if not the first language) and scientific writing. MSc students regarded knowledge of English (if not the first language) as the most important skills, followed by statistical methods and scientific writing. BSc students were of the opinion that office software (word processing, e-mail, spreadsheet, presentation) was the most important skill. Differences also exist among different groups, for instance, teachers classified experimental design as the most important skill.

Another important issue for the successful provision of generic skills regards the way this information is transmitted. As such the survey also investigated effective teaching methods. Students (PhD, MSc and BSc) and teachers regarded practical exercises (computer-based, laboratory and fieldwork) as the most effective means of delivering generic skills. PhD students were also of the opinion that work experience is an effective way of delivering training.

The development of generic skills has been motivated by the belief that there are skills which all graduates should possess, and which would be applicable to a wide range of tasks and contexts beyond the university setting. As such surveying stakeholders (industry and other employers) and graduates – survey in progress – is of the most importance, since it will provide information which will contribute to increase our knowledge about which skills are needed beyond the university environment.

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## 5. Learning innovation in higher education

### **INTRODUCTION**

This report addresses the ‘state of the art’ of Information and Communications Technologies (ICT) use in teaching and learning in higher education, particularly in the field of aquaculture, fisheries and aquatic resource management. The increasing power of computers and particularly their interconnections through the Internet, is changing the social and economic landscape and presenting new opportunities and challenges for learners, educators and academic institutions. The opportunities for higher education institutions to use the Internet and digital tools to reach out to both on-campus and a wider constituency of off-campus students have increased enormously. This fact has become increasingly important due to current budget constraints affecting most universities. At the same time, education is now framed within a wider policy of support for [lifelong learning](#) that encourages wider access to education and places new emphasis on the value and role of [informal and non-formal](#) learning, especially in the context of continuing adult education.

### **STATE OF THE ART IN LEARNING INNOVATION – general EC level**

The European Parliament identified in 2006 key competencies “which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment.”

- 1 Communication in the mother tongue
- 2 Communication in foreign languages
- 3 Mathematical competence and basic competences in science and technology
- 4 Digital competence
- 5 Learning to learn
- 6 Social and civic competences
- 7 Sense of initiative and entrepreneurship
- 8 Cultural awareness and expression

The key competences are all considered equally important, because each of them can contribute to a successful life in a knowledge society.

“Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.”

A progress report by the Commission in 2008<sup>1</sup> reported that the impact of ICT on education has not been as great as expected and that much of the potential to develop a learning continuum supporting lifelong learning has not yet been realised. Nevertheless there are many examples of innovative and best practice, and the EC is supporting further development through the Lifelong Learning Programme (Key Activity 3: Information and Communications Technologies). In addition, a European Quality Framework for ICT in Learning is being developed with the aim of helping education and training providers to assess and improve ICT use. (<http://eqsfproject.ning.com/>)

### **STATE OF THE ART OF LEARNING INNOVATION – University level**

The traditional roles of higher education are being challenged. The role of academic institutions as guardians and deliverers of knowledge (through lectures and library collections) is under pressure not only by the open-access to other institutional providers but also the increasing volume of user-generated materials available. In addition, the role of institutions as setters and validators of standards in education is challenged through increasing internationalisation of standards and the development of validation systems that do not equate qualifications with having undertaken formal courses. Current institutional models will perhaps become increasingly unsustainable, and both

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<sup>1</sup> Commission staff working document: The use of ICT to support innovation and lifelong learning for all – A report on progress SEC(2008) 2629 final

institutions and individual lecturers will have to re-evaluate their role, the value they can add, and how their activities can be financially rewarded. Nevertheless, EC policy stresses the importance of higher educational institutions, seeing them as critical partners in bringing about the knowledge driven society envisaged by the Lisbon Declaration. A key component of this is undoubtedly the direct contact that students have with cutting-edge research and the spirit of enquiry which is central to the innovation process. Much of this comes through face-to-face contact in lectures, seminars and supervised projects. Indirect contact through written materials and indirect communications has often been perceived as less engaging and therefore second-best by both students and teachers, perhaps accounting for the relatively slow uptake for ICT identified by the 2008 Commission study. However, most universities are continuing to implement institutional-level learning management systems and these are having an increasingly important role in delivering student support (including access to learning materials) and maintaining quality. They are also providing a range of Web 2.0 style tools for more innovative teachers to explore. In particular there is growing use of video conferencing to broaden participation in learning (e.g. to make lectures accessible in remote locations, or to bring remote teachers or experts into the classroom). The recording of lectures (either video or as audio podcasts) is also becoming more common, allowing students to review lectures, or access them remotely. The sharing of teaching materials more broadly between institutions or on open-access platforms (for instance MIT in the USA and Open University in the UK, or services such as YouTube EDU or Wikiversity) is receiving greater attention with considerable debate about the protection and valuation of intellectual property rights verses the desire to make learning as accessible as possible. Various initiatives are also looking at the potential for using mobile devices for teaching or learning support. Although devices are becoming more sophisticated and prevalent, formal uptake appears to be limited. This is likely to change as penetration improves and easy to use software platforms are developed. Perhaps the greatest rate of change at present is being driven by developments outside of Universities.

#### **STATE OF THE ART OF LEARNING INNOVATION – Communities of Practice**

Arguably the most dynamic area for ICT in lifelong learning is the emergence of “Communities of Practice” – loosely organised web-based communities of people with shared interest, willing to learn from each other by sharing knowledge and experience. Such communities lack the structured learning that is provided by formal education, and quality control is dependent on peer review and comment. However, they engage people active in the field and therefore capture a great deal of relevant expertise. Such communities typically use popular Web 2.0 services such as YouTube, Flickr, SlideShare and discussion groups based on the Ning platform or somewhat older Google or Yahoo groups. The involvement of academics and students in these communities is opening up the potential for real integration of lifelong learning in a way that is running well ahead of formal developments in this field. This is raising serious questions about the maintenance of academic quality standards and concerns about privacy implications particularly of students revealing personal information in public forums.

#### **STATE OF THE ART OF LEARNING INNOVATION – Future Pedagogies**

There is growing critique of the educational system in general, including many aspects of higher education, that they are based on models of social, cultural and industrial practice that are becoming outdated in a rapidly changing world of globalisation and advancing technologies (e.g. O’Hara, 2007). Elements of this argument for instance are the heavy focus on curriculum content when this is both increasingly accessible and constantly updated online. Arguably more important is the development of lifelong learning skills particularly research, critical evaluation and synthesis, although integration of more nuanced human science methodologies such as phenomenology, hermeneutics, appreciative enquiry, narrative or scenic enquiry, contemplation, reflective practice, symbology and meditation could also be important. Allied with this is the argument that we need to move away from authority-based pedagogies to collaborative pedagogies which facilitate learning through the

interaction of different people, outlooks and knowledge domains. Indeed it is argued that the subject-specialist focus of much of our education system, particularly when geared to vocational targets, is failing to equip society for the massive changes that are taking place and the challenges that we face. What is needed is not pedagogy for training young people to pass exams and fit into present industries but one that equips them for transforming human society towards better health, sustainability and peaceful cooperation. In order to achieve this, greater emphasis needs to be placed on understanding ourselves, the emotional dimension of human decisions, how deep-rooted cultural beliefs and norms influence conceptual models and both social and intellectual interactions and other drivers of human behaviour and learning. It is argued that future pedagogies should focus on longer more than shorter term goals and equip students with both the skills and the outlook to continue learning and playing a creative role in society. A more evolutionary expression of this is the increasing emphasis that is now being given to generic or transferable skill training within academic institutions. Whilst this has usually been implicit within both taught courses and the training of researchers, it is now becoming more explicit. However such skills are rarely separately assessed as in most cases a framework for this has not been developed. Another area receiving increasing attention is the use of game based learning, drawing on the high degree of engagement many young people have with computer games, especially those involving immersion in simulated 3D environments. Such games can involve considerable problem-solving skills which is leading some proponents to suggest they could be used well beyond education, as an interface to solving real-world problems. Many other innovations in pedagogy are covered by the concept of “active learning” in which students play a role in constructing the course content, e.g. through problem and task-based learning and the construction of web sites or making presentations. Many tutors use these approaches to greater or lesser degrees, although in general lectures where the students are relatively passive remain the primary tool.

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Learning, Innovation and ICT

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User Guide: A Quality Standards Framework for ICT in Learning

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## 6. Lifelong Learning in Europe

### INTRODUCTION

The global financial crisis of 2008 brought to the forefront the need to find solutions to the extraordinary changes which occurred as a result. The EU responded to these challenges by restructuring some objectives and restructuring agendas, particularly in its “Europe 2020: Strategy for smart, sustainable and inclusive growth” (COM (2010) 2020).

### STATE OF THE ART IN LIFELONG LEARNING – general EC level

President Barroso set out the Commission’s vision of an integrated stronger Europe in the above policy document. Europe 2020 presents five headline targets which are to be achieved by three mutually reinforcing priorities: “smart, sustainable and inclusive growth”. These priorities are themselves underpinned by seven Flagship Initiatives, which are achievable and are set out in admirable detail. Within five of these (*Innovation Union, Youth on the Move and A Digital Agenda for Europe; An Industrial Policy for the Globalisation Era; and An Agenda for New Skills and Jobs*), education and training (with an emphasis on lifelong learning) play an important role.

The Lifelong Learning Programme consists of four sectoral programmes of which three, Higher education (Erasmus), vocational training (Leonardo da Vinci) and adult education (Grundtvig) are of relevance to this WP.

The European Qualifications Framework (EQF) has also been set up to promote workers' and learners' mobility between countries across Europe, and facilitate their lifelong learning, as it aims to act as a translation device to make national qualifications more readable (and thus aid workers' mobility). In June 2009 the [European Credit system for Vocational Education and Training](#) (ECVET) was adopted. This is the new European instrument to promote mutual trust and mobility in vocational education and training.

### STATE OF THE ART IN LIFELONG LEARNING – University level

ECVET, mentioned above, will also complement the [European Credit Transfer and Accumulation System](#) (ECTS) by linking vocational education and training with higher education. Much work is being carried out on this ongoing development.

Another important and new development concerned the European University Association (EUA)(an organisation representing more than 800 universities across Europe) which launched the first European Universities’ Charter on ***Lifelong learning***. The Charter is a call for European universities and governments, together with the social partners and other stakeholders, to support the lifelong learning agenda, and to assist Europe’s universities in developing their specific role in this context. The Charter places all types of higher education – formal, non-formal and informal – in the framework of lifelong learning.

European Universities commit to:

1. Embedding concepts of widening access & LLL in their strategies
2. Providing education to a diversified student population
3. Adapting study programmes to enhance widening participation
4. Providing appropriate guidance & counselling service
5. Recognising prior learning
6. Embracing LLL in quality culture
7. Strengthening the research/teaching links in LLL perspective
8. Consolidating Bologna reforms designed to promote flexible learning environments
9. Developing partnerships at all levels to provide relevant programmes

## 10. Acting as role models of LLL institutions

### Universities call on governments to commit to:

1. Recognising the university contribution to LLL as a major benefit to individuals & society
2. Promoting social equity & an inclusive learning society
3. Including LLL objectives in their national QA systems
4. Supporting the development of appropriate guidance/counselling
5. Recognising prior learning
6. Removing legal obstacles that prevent potential learners from responding to LLL opportunities
7. Ensuring the necessary autonomy & incentives
8. Encouraging partnerships, especially at regional level
9. Informing and encouraging citizens to take advantage of LLL opportunities offered by universities
10. Similarly acting as role models in relation to their own employees.

### **STATE OF THE ART IN LIFELONG LEARNING – AQUA-TNET**

AQUA-TNET has a dedicated Work Package for Lifelong Learning (WP6 – Positioning Lifelong Learning), which aims to identify effective mechanisms, such as the European Qualification Framework (EQF), for partner universities to contribute to the updating of skills & qualifications of the workforce. WP6 is currently carrying out surveys to identify whether and how research institutes and industrial partners wish to participate in structured and validated lifelong learning systems and to quantify the range and level of lifelong learning carried out by educational institutions. Based on the results of these surveys the challenges and opportunities for the delivery of appropriate lifelong learning programmes will be identified.

In addition, through the carefully selected range of other Work Packages, Aqua-tnet is implementing Lifelong Learning aspects on various fronts within the sector of aquaculture, fisheries and aquatic resources. Crosscutting WP7 (Multilingual Issues in International cooperation & Lifelong Learning) contributes to language skills with the specific objective to facilitate international mobility; WP5 (Innovation in teaching methods) is mapping currently available ICT related learning material within the sector and develops and applies methods to improve its use among network partners and beyond. They are developing an online tutor for improving teaching methods using ICT tools, with teacher training workshops and online guidance. WP3 deals with mobility, a very important aspect too of Lifelong Learning.

## 7. Linguistic Diversity/Multilingualism in Europe

### **INTRODUCTION**

In 2003, the EU Action Plan for mobility (2000/C 371/03) prioritised the need to develop multilingual skills, with a specific objective for every EU citizen to speak at least two foreign languages in addition to their native language. Communication in foreign languages was placed as the second most important skill in "*Key Competences for Lifelong Learning*" (DG Education, 2007). To help achieve these objectives, President Barroso created the Multilingual Portfolio on 1 January 2007, with the remit to develop a coherent and comprehensive language policy, to define the contribution of multilingualism to economic competitiveness, growth and better jobs, *inter alia*.

### **STATE OF THE ART IN LINGUISTIC DIVERSITY/MULTILINGUALISM – general EC level**

Multilingualism Commissioner Orban during his brief and dynamic term of office, carried out many initiatives (including the Multilingual Strategy Paper (COM(2008)566). However, these were abruptly halted when on February 2010 the Multilingualism Portfolio was absorbed into the Education Directorate which now covers Education, Culture, Multilingualism and Youth. It is not yet possible to forecast whether the fairly abrupt realignment of multilingualism will be successful and result in a cross-fertilisation of ideas. Certainly the need for linguistic competence, let alone competent multilingualism, has not disappeared because there has been a sudden upsurge in language learning as a whole. Far from it. Linguistic competence does seem to be improving, though rather slowly – apart from the United Kingdom, the only EU country where language learning as a core part of the curriculum is fast disappearing.

### **STATE OF THE ART IN LINGUISTIC DIVERSITY/MULTILINGUALISM – University level**

Student mobility is a major aim of the European Higher Education Area (EHEA). "*Mobility shall be the hallmark of the European Higher Education Area, because, among other positive values, it encourages linguistic pluralism, thus underpinning the multilingual tradition of the EHEA*". Yet lack of language skills continues to be "a major barrier" to student and staff mobility within the European Higher Education Area (Trends V, p.43).

The Multilingual Strategy Paper (COM(2008)566) suggested that higher education institutions play a more active role in promoting multilingualism among students and staff as well as the wider local community. Perhaps the trend in non-English-speaking countries towards teaching through the medium of English instead of through the national or regional language is one way of promoting multi-lingualism. This is a trend which has been highlighted by the enlargements in 2004 and 2007, with the EU official languages increased to 23, which has made the linguistic challenge greater than ever. It is at least possible that this trend may have "unforeseen consequences" for the vitality of those languages which have been relegated to second-team status, however.

### **STATE OF THE ART IN LINGUISTIC DIVERSITY/MULTILINGUALISM – AQUA-TNET**

The Multilingual Strategy Paper (COM(2008)566) also states that "*A better understanding of the potential of new technologies to attract and train language learners is needed*". A European-wide study carried out by AQUA-TNET on the provision of language in marine science institutions showed that students would welcome more online provision of language learning. To meet this new challenge, WP7 is using materials from an LDV project, PESCALEX, which has developed inter-linked online language learning modules in English, French, Greek, Hungarian, Norwegian, Polish, Spanish, Turkish which will open up a wider range of opportunities for short exchanges and/or work



experience placements. WP7 is also involved in conducting a more in-depth language needs survey, in conjunction with WP4, as well as developing a new language learning game to be used as part of exchange induction procedures. The next state-of-the-art report will comment on progress made on these aims.