

LIFELONG LEARNING PROGRAMME

## International Internship AGORA (I2AGORA)

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## Guidelines for diagnosing and remedying obstacles

Deliverable D5.1.2

WP5 – Synthesis of results-the "Magic cube" of internship programs

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# 1 INTRODUCTION

The prime objective of the I2AGORA project was to open up synergic potential between EU projects, focusing on virtual mobility. Therefore, survey, systematization and synthetisation of previously implemented and running relevant projects were carried out following a 3x3 dimensional approach - a „Magic Cube" of Virtual Internship Programs – involving:

- vertical dimensions – periods of internship in chronological order, (pre-, implementation and post-internship activities)
- horizontal dimensions – pedagogical patterns, technological tools and methodological models, as elements of the „educational" approach,
- layers of actors/stakeholders: students, universities, enterprises and *intermediaries/multipliers*

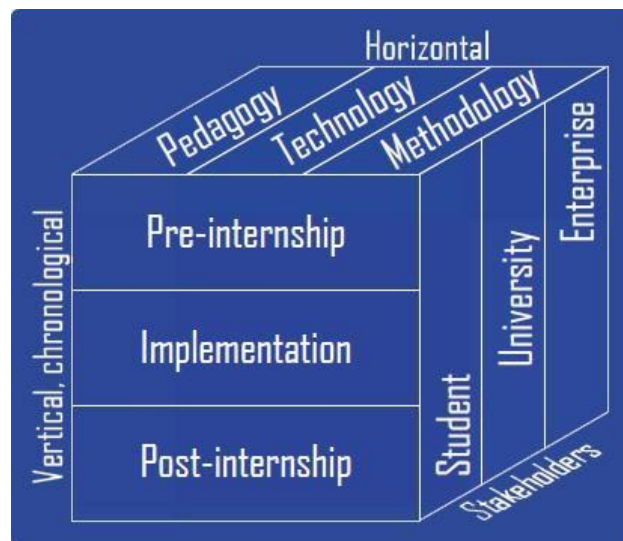


FIGURE 1. „MAGIC CUBE" OF VIRTUAL INTERNSHIP

This document gives some major lessons learned and recommendations based on an inventarisation of 25 EU programmes<sup>1</sup> dealing with Virtual Mobility (see for more info on the programmes I2Agora Report 5.1). The document is complementary to Report 5.1 and does not give profound analysis of the lessons learned and recommendations. However,

<sup>1</sup> See for the programmes: <http://i2agora.odl.uni-miskolc.hu/i2agora/mod/data/view.php?id=37>

the results are intended to be used in future design, implementation and running Virtual Mobility projects as guidelines for diagnosing and remedying obstacles<sup>2</sup>.

Moreover, in Appendix I an example is given of a local adaptation of the 3x3 Magic Cube approach, the Virtual Environmental Consultancy of the Open University, the Netherlands (see also I2Agora report D3\_3\_I2Agora\_OUNL).

## 2 VIRTUAL MOBILITY PROGRAMMES

There are a number of challenges facing wide-spread Virtual Mobility mainly on organisational, pedagogical and technological level. Another large challenge is the possibility of sharing knowledge amongst the leading European universities and the added value of the European dimension of awareness of mobility of international students. A general success factor is that students, in general, are glad taking part in Virtual Internship; it improved their overall project management skills, they learnt about dealing with teams, meeting deadlines, activity and resource planning. Moreover, Virtual Internships provide a practical preparation for new ways of working like tele-working, where companies organise themselves in smaller independent units spread across a wider region, where the use of tools like videoconferencing, and collaborative workspaces will be commonplace.

Most important lessons learned and recommendations of the programmes are presented here. Some of them already specifically mention a specific dimension and will be highlighted later on again.

### 2.1 WITH REGARD TO VIRTUAL MOBILITY IN GENERAL SEVERAL ASPECTS ARE MENTIONED:

#### WITH REGARD TO VIRTUAL MOBILITY PROGRAMMES IN GENERAL THE FOLLOWING MAJOR LESSONS WERE LEARNED:

##### General

- Virtual mobility gives added value to preparation, mentoring and work placement processes. In order to get this value, it should be noticed that virtual mobility (ICT supported activities) must be carried out carefully.
- Virtual Mobility still faces a number of difficulties. In short, we can identify as the main problems to be solved the issue of credit transfer in relation to student workload, assessment, administrative procedures and the language.

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<sup>2</sup> This document is based on lessons learned, recommendations and good practice as described in the final conclusions of the programmes. More detailed information can be found in the original documents of the programmes. See for the programmes:

<http://i2agora.odl.uni-miskolc.hu/i2agora/mod/data/view.php?id=37>

- There is still a view, strongly held by many, that e-learning is about 'distance' learning or that it is second best to face to face. The challenge is to demonstrate that technology can support and enhance learning and teaching in the classroom, in the workplace or at home.
- Administrative and bilateral agreement tools are important. Case studies show that after the adoption of the tool, many changes in the work procedures had occurred, work was speeded up, mistakes were avoided, the number of mobile subjects grew from year to year, and finally people shared a positive and common view by considering the tool very functional, useful and effective.
- Peer-to-Peer communication facilitates placements. Evidence is presented that this peer-to-peer communication can alleviate some of the obstacles to students either seeking a placement or enjoying a successful placement experience. This is situated in the context of e-learning and placement support.
- A database of work-based learning opportunities for students, providing rich detail of work role and organizational setting is important for internships.
- Exchange of best practice between the participating actors and regions.
- Training component is largely underdeveloped compared with other subjects and elements in the curriculums.
- Manual for good practices in internship process in different languages is preferable in order to disseminate results.

#### Cooperation

- Better and more efficient cooperation within a strong network.
- Brings together (Higher) Education Institutions with stakeholders from industry and public authorities.
- The opportunity to further cooperate with network partners in the frame of regional, national and European funding programmes (e.g. INTERREG IIIc, Leonardo da Vinci Programme).
- Good way to develop extensive interregional contact-database.
- International project gives the chance to work together fighting reciprocal stereotypes and prejudices which concerns international internships.

#### QRC

- The main idea in (QRC) Quality Reference Centres is to preserve the infrastructure already developed and just add to it the additional task of checking the quality of practical places offered by the enterprises.
- It can be noted that the QRC system is only working with a wide network of numerous QRCs all around Europe as it is impossible to find matching one-to-one pairs with students and host organisations restricted to only 5 regions of Europe.

#### Specific from international exchange programmes

- It is important that the whole process is facilitated carefully. The exchanges and placements are mostly dependent on student's motivation to go abroad.
- Key issues to consider when engaging in Virtual Erasmus courses are localisation, agreements and accreditation and credit transfer.
- Both incoming and outgoing students need support.

- Support is needed during all stages (before-during-after).
- A blended approach is recommended.
- Good cooperation between International Office, IT-services, Faculty & Teachers is essential.
- Use former exchange students and students associations for feedback & support of new exchange students.
- Use the benefits of technologies & web2.0.
- It is important to not just support the exchange, but to support the students' learning process as a whole.
- Also support the student throughout the whole process and not just before and after.
- Peer support is important.
- The pilot/ preparation course has deepened the learning experience of some students remarkably.

## 2.2 PROGRAMME: MOST IMPORTANT RECOMMENDATIONS

WITH REGARD TO VIRTUAL MOBILITY PROGRAMMES THE MAIN RECOMMENDATIONS WERE:

### General

- Management, administration and organisation: to ensure the seminars are well organised, begin planning the event well in advance. Think about preparing speakers and content; structure and content of sessions; roles and responsibilities; online discussion, chat and resources.
- The specific knowledge of discipline requires that the mentoring qualifications should be completed by mentors. Educational and guidance in mentoring can be given in general.
- Online teaching should not focus on cost-efficiency per se. Rather, it should focus on offering tailor-made solutions for demanding professions.
- Students require more guidance and communication from and with their teachers.
- The technological infrastructure needs to be optimal and should be adapted to the level of IT skills of learners and teachers.
- It is important to provide appropriate training and support.
- Master students, as professional users, expect high quality products, from content, technical support to teachers.
- There must be a clear and transparent set of aims and conditions.
- Undergraduate and postgraduate students from Higher / Further education institutions will directly benefit from on-line support provision whilst on their work placements/study exchanges abroad.
- Tutors will be also benefit from the guidelines and protocols for supporting mobility through an online environment, helping them to set up their own support mechanisms.
- Development of a European standard of quality assurance according to the real needs of many of the people and institutions involved should be analysed.

- Multicultural and multilingual aspects: the mixed use of local languages and a common lingua franca, e.g. English or French is recommended in educational activities.
- At the end of an international mobility experience, certification is necessary in order to highlight and increase the value of the participant's participation in the experience. Certification is necessary in order to register the participant's development, indicate results achieved and describe the competences.
- It is encouraged to make learning content available to the public under a Creative Commons or similar license, if legally possible.
- Didactical models, student motivation and working methods are important.
- To organize Virtual Mobility providers of Higher Education (HE) and of Continuing Education (CE) should guarantee a number of prerequisites namely:
  - The identification of a clear set of knowledge, skills and competencies that should be accepted in HE and in CE institutions;
  - The identification of courses learning outcomes;
  - The use of successful assessment methodologies that combine several techniques (i.e. tests, portfolios, interviews, etc.);
  - The clear description of the competences acquired according to the European Qualifications Framework (EQF) and related National Qualifications Framework (NQF)
- Weblogs as a support tool for international mobility students
  - Ongoing contact increases confidence.
  - Blogs can be used as an effective psychological and social support tool for international mobility students.
  - Technical tools needs good preparation.

### Cooperation

- During the project it became clear that it was going to be a challenge to identify and win appropriate companies for the pilot placements. Therefore company connections should be taken care of.
- All parts must see the benefit of gaining new knowledge through cooperation.
- Basic work at regional level and common rules at European level facilitates organizational partnerships.
- To ensure an effective communication, the international partnership must decide which vehicular language to use. This will help to avoid misunderstandings, facilitate the constant update of the organisations involved in the project.

### Specific from international exchange programmes:

- Support on content of courses, selection of courses and learning culture.
- Information on placement on companies and clarifying adequate tasks.
- Information on cultural matters and everyday life.
- Communication with university friends during and after stay abroad and reflection on experiences.
- Better integration of experiences gained abroad at the home university.
- Financial support and language courses (e.g. online or seminars).



- Even though much is changing, also much remains to be done for the European physical mobility students of today. Main conclusions and recommendations for stakeholders of VICTORIOUS were the following:
  - For universities: Providing good information and making it easy to find is a soluble problem for all universities. It needs an oversight mechanism to make it integrated information. Better use should be made of technology for essential business services, such as matriculation and course choice, and alongside that, better integration of the services that do exist, e.g. single passwords efficiently administered. It is clear that outgoing students need some form of training and support, so that they are prepared for mobile study. For incoming students training and support at the outset (induction) so that they understand how to get the best from the facilities and systems.
  - For European, national and regional agencies. At the present time there is no effective database of courses and so students must draw help from their university and/or search for themselves for suitable visit locations. A system of single digital identity for all students (and staff) would greatly facilitate movement between universities and access to legitimate digital resources. Access to the internet was one common problem for mobile students. Universities should be encouraged strongly to participate in international schemes (such as e.g. EDUROAM).
  - For students and their associations. Students need to become more wide-thinking in their planning for a visit, and consider what difficulties might arise in studying in another university in another country. The student associations can help them in this by providing websites that offer advice, perhaps enable students to share experiences and solutions, and by pressing universities and educational agencies to consider more robustly the needs of mobile students. Student associations will also need to consider their role in supporting virtually mobile students, in terms of knowing who and where they are, what their needs are and how to cope with students who 'belong' to more than one university simultaneously.

### 3 VERTICAL DIMENSIONS: PHASES

Within the main plan periods of internship, different phases and activities can be identified that were described in I2Agora report 5.1 and given here in Appendix II.

#### 3.1 PHASES: MOST IMPORTANT LESSONS LEARNED

##### ALL PHASES

- Virtual mobility is a complex phenomenon that requires a high level of organisation.
- It is very important that Practical Placement is identified by some timeline and the objectives are clear to all stakeholders.
- It is important to consider optimizing different stages in order to implement the whole process efficiently.
- The project should be carried out with a high degree of cooperation.
- Administrative and bilateral agreement tools are important.

Specific from international exchange programmes:

- All phases are important for successful exchange. Support for students and tutors is important in order to facilitate learning skills and intrapersonal (coping, stress tolerance, cultural difference tolerance etc.) skills

Pre-internship

- Begin planning well in advance.
- Getting the staff development framework right early on was found to be important to maintain momentum and foster enthusiasm.
- Careful planning of the placement as a result of discussion between 3 stakeholders.
- In the beginning of the preparation stage there is a need for face-to-face meetings.

During internship

- Operational factors to consider include the fact that the students really appreciated meeting each other early in the process and having the opportunity to visit the company together.
- There should also be a possibility for the students to meet face-to-face at some stage.
- Feedback from mentor and peers to stimulate reflection is desirable.

*Exchange*

- In the beginning of the exchange there is a need for discussion.
- Students were rather passive in the middle of the exchange, at the end the discussion started again.
- Quality Reference Centres cannot be aware of regulations in all EU member states in order to be able to inform the students going abroad. However, it is useful to communicate some general information to the students before they leave. In example insurance policies in different countries.

Post internship

- Specific evaluation tool for the pilot courses was developed.
- The Follow-up is often a neglected phase of the projects. For international internship projects, in order to contribute actively to integration in life long education, training, and work, the partners should consider the follow-up in relation to:
  - project replication and/or the identification of new projects related to it.
  - support provided for participants once back in the origin country.
- Evaluation of the student and of the placement.

### 3.2 PHASES: MOST IMPORTANT RECOMMENDATIONS

General

- Virtual internship can be planned in many ways, but when planning you have to make sure that the institution involved can integrate the internship into their formal teaching programme, so that it gets high priority with teachers as well as with students.

- Training guarantees a high level of quality in all the phases of the international internship. All the parties involved should be aware professionalism of their operators, is an indispensable condition for the quality of an international internship. Organizations should allocate an adequate budget to the continuous training.
- For some participants, the international internship represents not only the first experience abroad but even the first time they come into contact with the job market. To make sure the participants undertake an successful experience it is necessary to identify their personal and professional objectives and how they can be reached.

#### Pre- internship

- Gaining on line expertise and using on line social interaction at the slightly earlier stage may help interactions at the later 'on the job' stage.

#### During internship

- Quality assurance: Stakeholders cooperation is important in order to get common quality in European internship.
- Each QRC shall set up quality management procedures while a placement is taking place. This is characterized by continuous communication between the QRC and student and, if necessary, the host organization.

#### Post internship

- In order to increase mobility in European level organizations should have quality assurance in order to achieve practical trainees. Both in the universities and companies.
- Certification is necessary in order to register the participant's development, indicate results achieved and describe the competences.

## 4 LAYERS: STAKEHOLDERS

Stakeholders can be divided in three large groups: students, university or HEI, and employers or clients.

### 4.1 STAKEHOLDERS: MOST IMPORTANT LESSONS LEARNED

#### GENERAL OR CONCERNING SEVERAL STAKEHOLDERS

- Better and more efficient cooperation within a strong network.
- Brings together (Higher) Education Institutions with stakeholders from industry and public authorities.
- Good way to develop extensive interregional contact-database.
- It is important to rely on dedicated teachers but also make Virtual Mobility an opportunity for all parties involved.
- The delegation of responsibility should be clearly delineated.
- It is important to provide clear information to all parties involved.
- The management at each institution taking part should support the project.

- Communication is the most important issue between stakeholders in different situations.
- Students and faculty must be prepared and committed to meet deadlines.
- Peer-to-Peer communication facilitate placements.
- Virtual meeting(s) with the course organizers and coordinators were held to support the internationalization of the course activities.
- Critical success factor Commitment of all actors
  - Managerial support for tutors, mentors and co-workers
  - Prior written contract between all actors
  - Preferably the internship is part of a sustainable internship programme
- Critical success factors Integration of the human factor
  - face-to-face contact moments if possible
  - use technology that resembles face-to-face setting,
  - space for non-task-related communication

### Students

- Students, in general, are glad taking part in Virtual Internship; it improved their overall project management skills, they learnt about dealing with teams, meeting deadlines, activity and resource planning.
- Students must be competent, well prepared and able to work independently.
- Students should have the ability to work within a group structure and accept differences within the group.
- There should be a possibility for the students to meet face-to-face at some stage.
- Students don not think that common entrepreneurship skills are the main interest in work placement, though it should be one of the main issues when thinking of mobility in business.
- Critical success factor: Preferred student characteristics:
  - High metacognitive skills, maturity
  - Experience with virtual communication
  - Highly motivated

### University

- Virtual meeting(s) with the course organizers and coordinators were held to support the internationalization of the course activities.
- Without support from senior managers, lecturers can be diverted to other priorities.
- If different universities are involved that are in different stages in their process of internationalization, it is useful that the more experienced universities present the organization of mobility at their institutions on a very general level and could serve as counsellors to those universities which are still at the beginning.
- Critical success factors of qualitative e-coaching
  - Clear agreements about goals and roles
  - Following an established communication protocol

## Client/ employer

- It is important to clarify with the company the students' specific objectives and responsibilities, and obtain company commitment to honour appointments, supply promised information etc.
- The role of the employer should be clear and engagement in the project of the employer should be clear.
- A more selective approach to third parties was required.
- Entrepreneurs must engage in students training and universities must find ways to make micro-enterprises interesting for the students as entrepreneurs have no guaranty that students that work with them have the transversal competencies and the necessary attitude they are looking for.

## 4.2 STAKEHOLDERS: MOST IMPORTANT RECOMMENDATIONS

### General, or concerning several stakeholders

- The enthusiast can really kick start a project and provide valuable experience to other colleagues. However, it is important to widen the base of expertise and motivate others as soon as possible.
- Special emphasis should be put on work placements since several universities have pointed out that they would need more support in order to establish a work placement system.
- Virtual seminars and summer schools in an international setting require a network of partners in a consortium.
- Promotion and supporting participation: creating a dissemination plan can help you coordinate your activities to make sure you reach your target participants in an effective way

### *Exchange*

- When organizing placements, the Quality Reference Center should always know the host organisation that it is "sending" a student to.

### Students

- It is recommended that the students selected should be between the average and the top percentile of the class
- students should be highly motivated and willing to accept responsibility for the outcome of the project

### University

- Staff should practice with the chosen ICT infrastructure away from students
- Staff should provide samples and examples of electronic searches, moderated online discussions, videoconference presentations and discussions
- Involve the project leader and all key academic staff at every stage
- The role of faculty is to guide and not to lead
- Tutor attitude is key to students' acceptance

## Client/ employer

- Selecting companies to take part in Virtual Internships with students from another country will involve eliciting possible project work from these companies, and then beginning to match these with the expectations and interests of the college with whom you are working in another country.
- Provide a good backup mentor in the same institution if possible
- Ask realistic things from employers in terms of ICT use
- Stakeholders should be carefully selected
- For the dissemination of the results the regional work of partners is important.

## 5 HORIZONTAL DIMENSIONS: PEDAGOGICAL APPROACH<sup>3</sup> & METHODOLOGICAL MODELS

### 5.1 MOST IMPORTANT LESSONS LEARNED

#### Learning content

- The Virtual Internship needs to be an integrated part of the curriculum.
- Content modules developed should have the possibility of professional accreditation. The link to professional bodies' and accreditation organisations is critical from both student and employer perspectives.
- Provide students with learning contents, exercises, group tasks, etc. anytime and anywhere.
- The task to be completed need to be recognized as serious and meaningful work by all involved.

#### Aims and goals

- Whatever the technology, learning, is the primary and vital element and the reason that the majority of colleagues want to be involved. Emphasise the pedagogical or e-learning advantages first and foremost.
- There must be a clear and transparent set of aims and conditions.
- Every effort needs to be made to indicate how the work being undertaken is of relevance to studies, future jobs and personal interests. The degree of difficulty of the task is also important and you need to find the right balance here.
- A quality system that supports the role of the placement provider in offering an appropriate learning environment for the work based learning to be undertaken enables HEI's effectively to integrate the curriculum with work based skills development.

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<sup>3</sup> More information on Pedagogical Patterns can be found in I2Agora report D5\_1\_3 "Guidelines and Pedagogical Patterns based on good practice examples"

## Methods/ support

- It is important to combine virtual activities with face-to-face experiences
- Combination of methods (experimental learning) and tools can help to develop quality experiences, which can be recognized and validated.
- The educational methods to be used should be chosen by taking into consideration the cultural background of the participants.
- For each individual student different ways of learning must be noticed while doing internship/work placement planning.
- In general, students require more guidance and communication from and with their teachers.
- For most students the problems were not with the technology but with reflection itself.
- Individual student portfolio documenting helps students to identify learning goals and needs for work placement. Evaluating skills and goals provides high- quality placements and learning experience.
- The identification of professional and personal objectives and the methods and instruments to reach them, is possible only through the work of qualified staff.
- Training component is largely underdeveloped compared with other subjects and elements in the curriculums.
- Critical success factors Qualitative tasks
  - In line with student's expectations
  - Achievable and challenging
  - Authentic and of importance to the company
  - Suitable for distance work
- Exploring three types of learning situation (academic exchange, company placement and home university) across four institutions showed a wide diversity of pedagogical paradigms. This finding led us to formulate the assumption that students experience a variety of shifting teaching-learning paradigms and meet didactical barriers when going to study abroad to another university or through the process of changing from the academic environment at the home university to the environment of practical learning within a company.
- Web 2.0 products do have significant potential for innovative and exciting learning; the potential has not yet been tapped.

## Assessment

- The assessment procedures are not easy to design. They should be built not only on study results and products but even more on the study process.
- The specific knowledge of discipline requires that the mentoring qualifications should be completed by mentors. Educational and guidance in mentoring can be given in general.

## Internship agreement

- In order to ensure to the student a maximum benefit from the internship, a specific agreement has to be written and signed by all partners. It includes the assignments, the rights and the obligations of each party. Mainly, the following items must be well defined:

- the objectives for the student by the academic tutor
- the guide of good practices
- the activities and the results to achieve
- the schedule of conditions which includes the list of the tasks, the duration of each step and the identification of the supervisory staff
- the means made available by the company to accomplish the tasks
- Internship form
  - Formally structured
  - Preferably long-term
  - Avoid a strict one-on-one setting

## 5.2 MOST IMPORTANT RECOMMENDATIONS

### Learning content

- Clear identification of courses learning outcomes.
- It is recommended that the student placement subject within the curriculum be a compulsory component with duration of at least three months.
- It is encouraged to make learning content available to the public under a Creative Commons or similar license.

### Aims and goals

- There must be a clear and transparent set of aims and conditions.
- The identification of a clear set of knowledge, skills and competencies that should be accepted in Higher Education (HE) and of Continuing Education (CE)
- The clear description of the competences acquired according to the European Qualifications Framework (EQF) and related National Qualifications Framework (NQF).

### Methods/ support

- e-mail, forums, chat and conferencing systems that allow students to regularly contact each other, and it also allows for a quick response and feedback from teachers, which helps them to improve their work and adjust their study habits on time.
- Learners would like to see real time technical and/or pedagogic support available, either through the system or by email/SMS or other means, to deal with issues as they arise.
- A set of recommendations for minimum standards about what students can expect in terms of support, advice and lecturer comment.
- Staff development needs constant review to ensure that the technological innovation can go hand in hand with the appropriate pedagogy. Both strong pedagogical skills and effective ICT skills will enable academic staff to make creative modifications to their teaching approaches as technologies develop.
- Objectives for didactical support can be set only after analyses of specific support needs within the actual exchange and placement situation. Differences in learning styles of students should be considered as the main variables in the identification of support needs. Didactical support should help a student to overstep learning barriers.



- Tutors will also benefit from the guidelines and protocols for supporting mobility through an online environment, helping them to set up their own support mechanisms.

#### Assessment

- The use of successful assessment methodologies that combine several techniques (i.e. tests, portfolios, interviews, etc.).
- The specific knowledge of discipline requires that the mentoring qualifications should be completed by mentors. Educational and guidance in mentoring can be given in general.

#### Internship agreement

- The agreement must contain full data about the content and duration of the activity.
- Practice must be defined, as part of curriculum, in terms of clear features. Practical placement should be considered as part of curriculum. The content of practice must include the skills to be acquired, as reflection of certain knowledge.
- For successfully studying online, the students, especially those from foreign countries and with differing cultural and linguistic backgrounds, will always need information about:
  - Welcome
  - Tutor's portfolio
  - Syllabus
  - Prerequisites
  - Course structure
  - Course specifications
  - Overview of course materials
  - Learning objectives
  - Time schedule, including date(s) of exam(s)
  - List of recommended literature
  - List of recommended Internet links
  - Rules for communication, such as feedback rules, or netiquette
  - Information on group building processes

## 6 HORIZONTAL DIMENSIONS: TECHNOLOGY

### 6.1 TECHNOLOGY: MOST IMPORTANT LESSONS LEARNED

- Virtual Mobility will only succeed if teachers, students and technical staff are trained beforehand.
- The technical support system should respond to technical problems within 24 hours.
- Learners would like to see real time technical and/or pedagogic support available, either through the system or by email/SMS or other means, to deal with issues as they arise.
- Technical support should inform both students and staff about technical problems and possible solutions.

- The ICT infrastructure to be used needs to be user-friendly and appropriate to the project.
- One of the major technology aspects to consider is the sound and vision quality of the videoconferencing equipment.
- The level of IT skills of all the participants should be checked and, if necessary, additional training should be given.
- It is a 'mistake' to assume that because many students use social networking they know how to transfer those skills to educational use.
- Using blogs with work placement mentors is probably a step too far for many employers.
- Making a facility such as Elgg available to students does not make it part of the learning experience.
- Email is the most important tool for students. In some countries there is limited access to internet or no access at all. Then it should be noticed that guidance can be given via phone, i.e. text messages and calls. In some cases students had to write letters to home university during exchange.
- Manuals and common rules should be updated regularly. Modular system of Manuals allows the manual to be easily updated, according to new experiences and best practices and to new legal requirements which may affect international internship projects.
- Technical terminology needs a glossary in order to enhance the common knowledge and understanding.
- Critical success factors, tools as an aid (and not a barrier)
  - accessible for all actors involved
  - user-friendly and reliable
  - Test tools beforehand and provide guidelines and support
  - Communicate explicitly about the tools that will be used and to which end they will be used

## 6.2 TECHNOLOGY: MOST IMPORTANT RECOMMENDATIONS

- The technological infrastructure needs to be optimal and the envisaged activities should be adapted to the level of IT skills of learners and teachers.
- Initial training should go beyond simply showing how to use the technology.
- Take care that those who are especially less confident with technology don't get the impression that very high level IT skills are required when as in this case, they were not.
- The technology should work well, without any bugs.
- Choose a technical infrastructure that fits the activity you want to do.
- Use common and standardized versions of all software.
- Provide sufficient training and orientation.
- Make sure there is a suitable helpdesk facility available for everyone who needs it.
- You cannot make assumptions about student knowledge of web 2.0.
- Do not force the use of a platform or tool which is only to be used for a single application.
- Do not depend on complicated propriety software and solutions.
- Not only IT skills of students should be surveyed to put in effective support for any cohort but also both staff & student other skills should be surveyed.

- Further methods for group discussions in weblogs, to support this way of learning to a greater extent needs to be developed.
- Tutor attitude is key to students' acceptance.
- All tools are not effective in all disciplines. There is indicated that different students have different needs. Therefore there is need to organize the process towards personal exchange.
- Between organisations there is need to facilitate common practices in order to simplify the administrative work. Online technologies have great potential in the support of international mobility students; not only on the administrative level, but also – and most interestingly – on the pedagogical level.
- Students should have accurate skills in general in using ICT during internships. Not possible to evaluate this accurately because of the lack of ICT tools and platforms mentioned in the evaluation materials.
- The informal meetings, the phone calls, sms and e-mails, with the use of blogs and forums are useful:
  - To create an open and cooperative atmosphere in the group
  - To stimulate the participant's curiosity and group spirit.

## APPENDIX I. 3X3 MAGIC CUBE MODEL FOR VIRTUAL ENVIRONMENTAL CONSULTANCY

(see I2AGORA report D3.3 for detailed analysis of the educational module of the Open University's School of Science)

### 3X3 MODEL FOR VIRTUAL ENVIRONMENTAL CONSULTANCY – OUNL – SCHOOL OF SCIENCE

#### I. VERTICAL DIMENSIONS

– *periods of internship in chronological order*

The different periods of internship in chronological order can be distinguished:

- pre-internship activities
  - well-defined authentic assignments have to be obtained
  - Student intake with the BSc coordinator
    - Application forms
    - Pre-knowledge required
  - 1) students of the discipline/academic programme with minor or major in Environmental Sciences or Sustainable Development;
  - 2) students of the selected disciplines/academic programme Environmental Sciences: majors: Policy, Natural sciences & Health. More over the course is open to all student programmes of other institute/university with a minor or major in Environmental Sciences or Sustainable Development.
- during internship activities
  - Internship work

Students work on their projects and are guided by the group itself (computer supported collaborative learning; CSCL), by their project tutor: an environmental science lector at the university, and by the contact person at the employer, who serves as a mentor.
- post-internship activities
  - Quality assessment: Quality is assured in a protocol and in assessment (grading) instruments at each intermediate and final product (project work plan; personal development plan, intermediate report; (intermediate and final) self-reflection report; final report); cumulative assessment of all products by one final assessor.
  - Overall quality is assured by the QA protocol of the School of Science and the OUNL which ensures the DPCA-cycle.

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## II. HORIZONTAL DIMENSIONS

### – Learning in the VEC

The VEC offers a networked learning environment that resembles an authentic professional situation, in particular the consultancy and advisory business to private and (non) governmental organisations, as one of the major businesses in the professional arena of environmental science graduates. In order to optimize the learning process pedagogical patterns, technological tools and methodological models have been developed.

- pedagogical patterns
  - In the VEC there are several guidance & assessment systems
    - Feedback on the disciplinary content is given by the university tutor, a coach at the client and peer-students
    - Feedback on working performance of the students, is given by the university tutor, a coach at the client and peer-students
    - Feedback on learning/ reflection of the student is given by a university tutor
  - The client are asked to be present ant the final thesis presentation
- Several technological tools (ICT communication tools, electronic platform) are used in the VEC
  - The general OUNL Blackboard based “studienet” serves as a portal.
  - For daily work and study, as well as contact with tutors, the specific
  - Documentum e-room project group ware is used
  - There is a specific ICT feedback system for students and tutors
- Methodological models
  - The virtual research internship aimed in the VEC aims at developing scientific skills; competence based and collaborative learning are at the basis of the VEC
  - Work assignment are for private organization and (non)-governmental organization
  - Grouping: team-work (networked learning)
  - Proximity can be local, regional as well as international

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### III. LAYERS OF ACTORS / STAKEHOLDERS:

Students, universities, enterprises and *intermediaries/multipliers*. A very important aspect of the VEC is the knowledge transfer of the different stakeholders. Of most importance is good communication for collaborative working and learning.

The actors/ stakeholders all have different prearranged tasks and roles in the different phases, for example:

- Student: student, employer VEC, give feedback on peer students, give feedback on the course, etcetera
- Universities: educational design, tutor, give feedback on learning and reflection, contact with the clients, etcetera
- Clients: make assignments, provide data, mentor, give feedback, examiner, quality assurance, etcetera

## APPENDIX II PHASES

Within the main plan periods of internship, different phases and activities can be identified that were described in I2Agora report 5.1 Some main characteristics are described here.

### MAIN TOPICS TO CONSIDER DURING ALL PHASES ARE:

- It is important to consider optimizing different phases in order to implement the whole process efficiently.
- Pedagogical Challenges
  - appropriate pedagogical framework
- Technological challenges
- Quality control
- Project process
  - should be carried out with a high degree of participant control, combined with some strictly enforced deadlines.
- Problem solving

### PRE-INTERNSHIPS; MAIN TOPICS TO CONSIDER:

- Design
- Use the partners' experiences as well as current scientific findings in order to identify all relevant concepts, principles, and elements that influence the design and quality of online courses.
- Planning
- Preparation (application/seeking information)
- Placement (agreements)
- Recognition (ETCS in advance, learning objectives)
- Agreements and legislations
- Exchange: logistics/ transport (international and local travelling) and accommodation
- Linguistic & socio-cultural preparation in advance of work placement abroad.

### DURING INTERNSHIP

- Briefing from the company (via videoconferencing) to include a presentation of the company and the company's briefing for the market research project; Organisation of the group (e.g. selection of a "project leader" within the group)
- Discuss students expectations and to understand if it is possible for the participant to obtain the professional and personal development desired.
- Execution
- Student (group's) initial planning of the assignment;
- Planning of the project by the students and the relevant teachers when necessary
- Seminar/ meeting with student(s) to review project management
- Organisation of the group (e.g. selection of a "project leader" within the group)
- Proposal for how to carry out this project (hypotheses/information needed/methods, etcetera);
- Discussion of the (group's) proposal;

- Lecture, possibly in combination with a visit to another company; Group work at Local participating business College
- Weekly status meetings with faculty in local institution/ tutor/ mentor
- Collection of information and the preparation of the report
- Provide advice or counselling concerning the actual writing of the report
- Assessment (mid-reports, corrective actions if needed)
- Final Report (videoconference to) make presentation of the written report
- Tutoring: Tutor is in a Home organisation. He helps with practical issues during all phases. During the placement tutor is actively in contact with the student.
- Mentoring: Mentoring is important for discipline learning during placement. Mentor is staff from higher educational institution and is in contact with student and tutor (i.e. tutor in working place). Mentoring ends when the placement is complete.

During exchange phases:

- Keep in touch (make sure they arrived, re-check by email if things are running well, regular communication about academic matters)
- Provide support (First aid, if problems should arise; Update of learning agreement; Communication with stipend agency; exams for home university that urgently have to be taken; Assistance if they want to stay longer)
- Make sure there is a mentor/supervisor
- Academic tutor at home university
- Follow-up

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#### POST INTERNSHIP

- Validation
- Quality Control Process
- Evaluation of the work placement process from different perspectives (mentor, student, company)
- Student participation in evaluation by reflection and reporting from placement.