Aspects of the State of Geography in European higher education

TUNING Geography: a report of findings and outcomes

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1. An introduction to TUNING

1.1 General comments

The educational systems in most European countries have been in the process of reform. The new paradigm in higher education (including teaching geography) suggests a transformed student-orientated learning environment. To meet these needs it will be important to derive appropriate curriculum, suitable study materials, teaching approaches to meet learner needs and relevant opportunities to use them. Monitoring and evaluating the learning-teaching-assessment process will then concern all higher education institutions eho are keen to design a modern and competitive learning environment for their students.

TUNING has been closely connected to the Bologna process (Sorbonne-Bologna-Prague-Berlin) with the aim to create an integrated higher education area in Europe. The Lisbon agenda provided the background goal to create a competitive and high quality social, economic and higher education European area.

1.2 Why TUNING?

The introduction of a three cycle programme obliged public (and private) higher education institutions in most European countries to review and redesign their existing programmes and course contents. For the first time many institutions were forced to consider each qualification element in the Bachelors-Masters-Doctorate cycle as a separate entity that should provide access to the labour market.

Academics and university bodies are charged with the responsibility to prepare and design courses and programmes that can best prepare students for their future as members of society. In order to do this TUNING has become the starting point for them to review and understand the situation of their subject in terms of how the educational structures and the subject content provide reference points that should be met by the discipline. These reference points can then be used as the most relevant elements in the design, construction and assessment of qualifications. Under the Bologna process these reference points should be closely related to learning outcomes. In TUNING, the course, programme and qualification learning outcomes are described as the set of competences including knowledge, understanding and skills that a learner of Geography should be expected to know, understand and be able to demonstrate after completion of their process of learning.

There remains however little real consideration or understanding of the relevance and importance of generic (Haug, 2001) and subject-specific skills and competences that should be provided during degree courses. A comparative analysis of the expectations and outcomes of university study has been undertaken through the TUNING Project (Conference of European Ministers, 2001). This has indicated that there are some gaps between the perceived needs of employers, compared with the outcomes of graduates and opinions of academics.

1.3 What does TUNING mean?

The term TUNING was chosen by the project coordinators to reflect the idea that we need to inform a European higher education that is special through its difference and diversity. So the goal of TUNING has not been establish a fully harmonised and prescriptive European degree programme. Instead it has sought to establish some

disciplinary points of reference, develop a common language that will encourage convergence and understanding.

TUNING reflects the idea that universities usually explore specific needs and exploit local specialisations in establishing their degree programmes. These academic curricula are not usually formulated on a prescriptive approach, but instead on fundamental disciplinary principles and concepts. TUNING thus seeks to protect the autonomy of academics and university but to inform them in order to improve the quality of their activities. It proposed to do this by establishing greater understanding of the system and curriculum required to meet the Lisbon objectives. In order to achieve this TUNING establishes a common language and points of reference for the system and the curriculum content in order to establish a European Higher Education Area.

TUNING activity is based on creating an academic disciplinary profile for degree qualifications. This is based on consultation with academics, students, graduates, employers and professional subject associations, as the most important stakeholders in the higher education system. Through understanding the relative points of view of various stakeholders in the higher education system, rapid and informed changes in education, including the teaching of Geography in higher education, can take place. These groups also provide the links between higher education and society.

1.4 What is TUNING?

TUNING Educational Structures is a university-centred approach that aims to provide a process to deliver the Bologna agreement. It has been focussed on subject areas and delivered via networks of higher education institutions.

TUNING addresses several of the Bologna action lines and especially the adoption of a system of easily readable and comparable degrees. It encourages higher education to adopt a system based on three cycles (Bachelors-Masters-Doctorate) and the establishment of a system of credits. It works by examining the competences that a subject or discipline would seek to address during an education course. These competences therefore describe learning outcomes. They are what a learner knows or is able to demonstrate after the completion of a learning process. These outcomes can be represented in terms of both subject specific competences and generic or subject-independent competences. Under TUNING university staff, students and employers were consulted on the competences they expect from graduates. Competences (**seek definitions)** are a combination of cognitive and meta-cognitive skills, knowledge and understanding. They also consist of interpersonal, practical and intellectual skills and ethical values.

Competences can become points of reference for curriculum design and evaluation. They are designed to allow flexibility and autonomy in the construction of curricula. At the same time, they can provide a common language for describing what curricula are aiming at and the resultant competences and their related learning outcomes should correspond to the final qualifications that are awarded on completion of a learning programme. As such they can thus be used a reference points or benchmarks for the subject, the programme and the courses.

1.5 The TUNING Project

In the summer of 2000, a group of universities designed a pilot project called "TUNING educational structures in Europe" to take up the challenge of the Bologna process. They applied to the European Commission for grant support in the framework of the Socrates programme. More than 100 institutions participated in phase one of the project (2000-2002), representing EU and EEA countries. The project was coordinated by the University of Deusto, Spain and the University of Groningen, The Netherlands.

TUNING was an independent university-driven project, funded by the European Commission. It included the participation of more than 130 institutions from EU and EFTA countries and dealt with 9 subject areas.

The main aims and objectives of the TUNING Project for each subject were:

- to bring about Europe-wide convergence in higher education by defining commonly accepted professional and learning outcomes,
- to develop a professional subject profiles and desired learning outcomes and competences in terms of generic competences and subject-related competences including skills, knowledge and content,
- to encourage transparency in educational structures and innovation through sharing experiences and the identification of good practice,
- to create European networks able to present examples of good practice
- to develop and exchange information in relation to curriculum development and develop a model curriculum structure expressed in reference points
- to link the TUNING network of universities with other appropriate qualified bodies
- to elaborate a methodology for analysing common elements and areas of specificity and diversity, and for finding ways to tune them,
- to act in a co-ordinated manner with all the actors involved in the process of tuning educational structures,

TUNING has already been undertaken in a series of subject areas including Business Administration, Education Sciences, Geology, History, Mathematics, Physics and Chemistry. The process incorporates four lines of action:

i. generic competences
ii. subject-specific competences (skills, knowledge and content),
iii. the role of European Credits as a transfer and accumulation system (ECTS) and
iv. the approaches to learning, teaching, assessment and performance in relation to quality assurance.

The process of TUNING has partly been the result of work carried out by Socrates-Erasmus Thematic Networks over many years and the ECTS pilot projects. As a result, many Thematic Networks and their constituent partners have been directly involved in the TUNING project.

In the first phase of the TUNING Project, graduates, employers and academics from 7 subject areas were surveyed about generic and subject-specific skills and competences. These subjects were Business, Chemistry, Education Sciences, Geology, History, Mathematics and Physics. The research involved academics from 101 university departments in 16 European countries. Through these organisations and by means of agreed questionnaires, a total of 7,125 responses were obtained comprising 5,183 graduates, 944 employers and 998 academics.

In a second phase in 2003, TUNING has later been widened to include new EU states and additional subjects, Languages, Humanitarian Development, Law, Medicine, Mechanical Engineering and Veterinary Sciences. Through the thematic networks, these subjects were also represented on the TUNING Steering Group along with three members from accession countries. The Geography Thematic Network, HERODOT, was not part of these TUNING activities as the network was only founded in March 2003. However, new thematic networks from the outset were very strongly encouraged by the European Commission to take an active part in TUNING their subject areas.

In the TUNING Project, two different sets of competences were evaluated, those that were subject-related and those that were considered generic. Subject-specific competences were those deemed to be crucial to any degree in that discipline. They were closely related to specific knowledge, understanding and skills of a field of study. They provide an identity to a subject degree programme. Generic competences are important competences which are considered to be general to any degree. They are generic abilities which are required by graduates and include attributes like the capacity for analysis and synthesis.

1.6 The nature of this report

TUNING has been developed through a pre-determined process for a fixed number of subject areas (European Commission, 2002). This report represents the first phase of involvement for HERODOT in the TUNING of Geography in Europe. Geography was not initially selected to be directly involved in the project, as the HERODOT network had not matured sufficiently at the time to be able to fully participate in the TUNING project. As a result HERODOT was not eligible for funding to accelerate the completion of this research. Initially support was not formally available to network members, even though the HERODOT coordinator had been strongly encouraged by the EC to amend the network work programme accordingly.

The research undertaken to this date mainly represents a review of the first two action lines and a preliminary introduction of the importance of the other components. The emphasis has been on establishing and researching generic and subject-specific competences in order to provide a framework for the establishment of a subject profile. The third action line, ECTS, has largely not yet been addressed and the fourth action has in part dealt with by the recently published *State of Geography in Europe* report (Donert, 2007) and through a series of HERODOT publications presenting aspects of best practise in learning and teaching and curriculum reform (Donert, 2005, 2006; Donert & Charnzynski, 2005; Donert, Charnzynski, & Podgorsi, 2007).

2. Survey Methodology

2.1 Introduction

TUNING was described as a basic task of Thematic Networks, so the costs of carrying out TUNING activities would have to be covered from within network budgets. In order to enable this, ten Tuning Counsellors were identified by the European Commission among the university professors who were active in the Tuning project. These Counsellors advised existing and new Thematic Networks on how to implement the Tuning methodology. The TUNING Counsellor nominated for the HERODOT network attended and addressed the launch meeting of the Thematic Network in 2003, ran a TUNING Workshop at this event and guided the TUNING working group, which was created within the Thematic Network. The TUNING working group set out a plan for the implementation of the four Tuning lines of approach, with an initial emphasis on line 2 and the definition of subject-specific competences. This section describes the TUNING methodology for the research that has taken place.

The aims of the TUNING methodology are to design, develop, implement and evaluate study programmes for each of the Bologna study cycles, namely Bachelors, Masters and PhD. The TUNING methodology has been tested in different continents and so is considered by its protagonists as being valid worldwide.

2.2 The TUNING approach

The TUNING Project established a clear and well documented methodology (Tuning Project, 2002) on which this research has largely been based. There is therefore no attempt to comment on or to critique either the methodology or the TUNING process.

The TUNING methodology seeks to understand the impact of curricula and courses in order to establish a framework through which they can be compared. It is anticipated that this will allow subject experts to be able to discuss the outcomes in terms of:

a) generic competences and transferable skills
b) subject-specific competences
c) the European credit Transfer System (ECTS) and the role it plays
d) approaches to teaching, learning and assessment and
e) aspects of quality enhancement.

The TUNING methodology consisted of researching the state of the subject in terms of competences, approaches and activities at European level. This was then reflected upon and discussed and reviewed through the subject network to provide some understanding, context and conclusions. The TUNING activities should allow geographers to compare their programmes and ‘tune’ them with respect to European needs without losing autonomy.

2.3 Competences

Until recently education was largely teacher oriented. There is now a growing tendency to consider students to be at the centre of the learning system. As a result learning outcomes and learner acquisition of competences plays a crucial role in the development of educational courses.

TUNING distinguishes between learning outcomes for students to acquire and competences that can be used by academics to develop their programmes. Competences are thus obtained and developed during the learning process by the learners. These competences should relate to a series of desired learning outcomes, which are stated and then developed by academics in course creation. The student learning outcomes can then be used as the tool for curriculum development. Competences represent a combination of attributes, which are related to knowledge, skills and responsibilities that describe the degree to which a person is capable of performing them. Competences can be assessed during a course programme as they are demonstrable as the capacity to perform a specific task.

TUNING involved assessing two categories of competences, generic competences which are dealt with in section 2.21 and subject-specific competences (section 2.22).

2.31 Generic competences

According to the TUNING project survey (Gonzàlez & Wagenaar, 2003) the terms 'transferable skills and generic competences are considered to have the same meaning. They relate to those competences which are common and can be identified in any degree programme. TUNING identified three types of generic competences and transferable skills. There were:

a) instrumental competences
b) interpersonal competences and
c) systemic competences.

The instrumental competences were those that have an instrumental function. They are considered to provide a competitive advantage. They included:

- *Cognitive* abilities, capacity to understand and manipulate ideas and thoughts.
- *Methodological* capacities to manipulate the environment: organising time and strategies of learning, making decisions or solving problems.
- *Technological* skills related to use of technological devices, computing and information management skills.
- *Linguistic* skills such as oral and written communication or knowledge of a second language.

Interpersonal competences are based on individual abilities and social skills. The Individual abilities relate to the capacity to express feelings, as well as critical and self-critical abilities. Social skills are concerned with interpersonal skills, team-work or the expression of social or ethical commitment. These are concerned with processes of social interaction and co-operation,

Systemic competences were those skills and abilities concerning the whole learning system. They imply a combination of understanding, sensibility and knowledge that allows learners to see how the different parts are related and combine together. They include the ability to plan so that improvements can be made to the system and to design new aspects. Systemic competences require as a base, the prior acquisition of instrumental and interpersonal competences.

Generic competences were established by the TUNING Project team following considerable discussion and debate. Initially a total of 85 potential competences were identified as relevant by institutes of higher education, professional bodies and companies. These items were then classified as instrumental, interpersonal or

systemic and used as a working list by the TUNING survey team in order to produce and test a pilot questionnaire.

Suggestions and additions were then made by the nine initial subject groups, in order to create a definitive questionnaire of 30 competences for the TUNING Project. A list of revised generic competences was received by email from the coordinators of the TUNING Project. These competences were further edited by members of the HEROODT network in order to make small amendments based on meetings and advice from the appointed TUNING consultant. A revised list of 31 generic competences was created and is compared with the original list and prepared for use in Appendix 1.

A definitive version of the questionnaire and customised letter to employers, graduates and academics, in English, was agreed by the network TUNING working group and the participant institutions in the survey (Appendices 2 and 3). The final questionnaire was then made available via the HERODOT Web site community and circulated to survey participants to be translated into the languages of their countries.

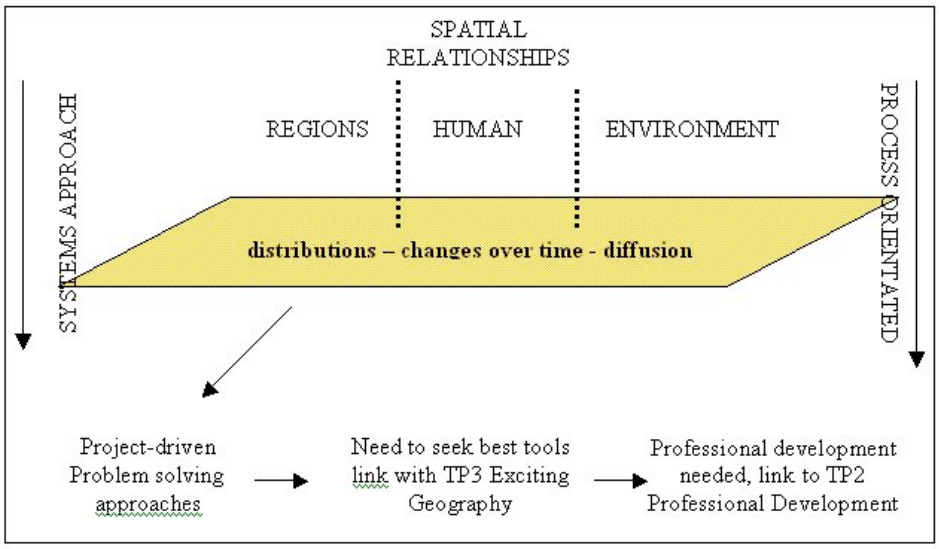
2.32 Subject specific competences

As part of the TUNING Project, subject specific competences were discussed, developed and described for nine subjects as part of the TUNING Project. These were Business Administration, Chemistry, Educational Science, European Studies, Geology, History, Mathematics, Nursing and Physics. The HERODOT network was tasked by the European Commission and the TUNING Project to identify competences that would be unique to the study of Geography in higher education.

2.33 Defining what is special about Geography education?

In order to produce a questionnaire survey for TUNING Geography, subject-specific competences needed to be produced. Therefore the first stage was for geographers from many different European countries to describe, define and agree on what they considered to be special about learning Geography. More than 20 members of the HERODOT network met at the launch event of the network. They discussed and attempted to describe and agree on the unique components that Geography as a discipline exhibits. The outcomes are represented visually in Figure 2.1.

Figure 2.1: Unique components of Geography in higher education



Geography in the curriculum required consideration of the spatial skills that are fundamental to the subject (Golledge & Stimson, 1997). Defining unique aspects of Geography reinforced the opinion that spatial relationships and distributions were essential descriptive terms. An understanding of processes and systems were also represented in the unique nature of the subject, as were the relationships between people and their environment as was the fact that spatial relationships change over time.

As part of the TUNING workshop, HERODOT members then went on to consider what Geography-specific skills and competences that studying the subject offers students. They did this in order to consider how Geography promotes lifelong learning and supports employability. The term geographical literacy was used to try to represent this unique component and a definition was attempted (Table 2.1).

Table 2.1: Defining geographical literacy

images, maps sketches etc.	visual communication	**GEOGRAPHICAL LITERACY**
Spatial statistical organisational etc.	information and numerical communication	
awareness, attitudes citizenship, empathy responsibility	personal, social and cultural communication	

Defining geographical literacy eventually led to an agreed set of twelve subject-specific competences (Table 2.2). It was considered that these defined the unique nature of Geography studies in higher education. They were expressed as the expected subject-specific outcomes and achievements of Geography graduates. These components of Geography represented an attempt to define geographical literacy through the examination of geographical issues at different scales, which

could for example be expressed locally through traditional approaches to Geography such as fieldwork studies and different forms of observation and data gathering.

Table 2.2: Twelve statements of geographical literacy for Geography graduates (in no specific order)

To comprehend the reciprocal relationships between physical and human environments
To comprehend the significance of spatial relationships at various scales
To understand and explain the diversity and interdependence of regions, places and locations
To draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context
To apply an understanding of geographical concepts
To interpret landscapes
To collect, compare, analyse and present geographical information
To appropriately use geographical terminology
To communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means
To use diverse, specialised techniques and approaches in Geography
To comprehend the nature of change
To appreciate representations of geographical space and different geographical representations

2.4 Competence survey

A survey, with an accompanying letter, to 'tune' Geography was then devised, circulated and agreed and translated by members of the HERODOT network working group. This section describes the competence survey that was carried out in order to establish the academic profile of Geography in higher education.

2.41 Survey sample

Four groups of different stakeholders were involved in the TUNING survey of Geography. These were academics, employers, graduates and professional organisations. Members of HERODOT were invited by the network coordinator to take part in and organise the TUNING survey for their country.

In the TUNING Project the work was shared between large numbers of universities. Typically 10-15 universities were asked to collect a small sample of replies for each country. In this research, only one or two universities participated in each of the 12 countries where data was gathered. The size of the country and size of institution were not considered in survey approach or sampling. The sample design was random though some clustering of responses from participant universities was to be expected.

Suitable sample sizes were considered to be a significant issue, especially as no resources were formally made available to undertake this research. This implied a very strong commitment from those involved in terms of time and effort and in some cases financially as well. Small amounts of funding were made available to network partners from the HERODOT budget to pay for postage and printing. The advice, from the TUNING Project coordinators and TUNING counsellor to the HERODOT Project, was that a sample of 20-30 completed surveys per participating country would provide a good sample of responses.

With this in mind, each participating institution was invited to collect questionnaire results from 30 employers. The selection criteria was that they should be known to

the university as those who have employed its graduates in geographical jobs or those that would consider employing graduates from their department and thus interested in the work of Geography graduates. Based on this, participating universities could select any employers they wished to. The questionnaires were posted and emailed to employers with a translated letter that introduced the aims of the survey.

There was some concern at the relatively low number of employers who responded to the request in most countries. In some cases, getting a suitably balanced employer survey sample proved a major difficulty as many of their graduate geographers were only being employed by schools and universities as teachers. In other cases, many employers responded said that they did not know what a Geography degree was or what it should consist of. This resulted in major difficulties in getting a sample from several of the participating countries. In some of these cases special arrangements were made to ensure that a comparable sample could be achieved. This was done through personal communication, site visits and organising special meetings and events with employers.

Each participating university was also asked to collect questionnaires from up to 30 academics nationally. These were distributed on email and returned electronically. Each of the institutions involved also sought to obtain at least 30 responses at random from recent Geography graduates. The chosen graduates should have completed their course of study and graduated within 5 years of the survey. The graduates were sent the questionnaire with a prepared, translated letter explaining the survey asking them to return the questionnaire to the university concerned.

2.42 Countries involved

At the time of the initiation of the survey, HERODOT consisted of 64 members from 29 countries. Approximately 25% of these partners were involved in teacher education, rather than in Geography and a further 15% were not higher education institutions, but professional bodies, NGOs and private companies.

Eighteen HERODOT members were involved in distributing the survey. Eventually 985 completed surveys were received from twelve countries. A further 107 responses had to be discarded as they were incomplete. The distribution of country participation is shown in Figure 2.2 and a more detailed breakdown is provided in Table 2.3.

Figure 2.2: TUNING survey sample by country

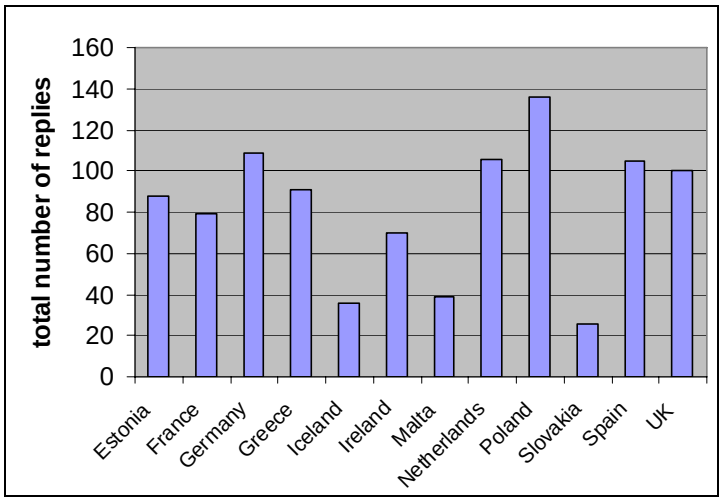


Table 2.3: TUNING Geography survey sample by country

country	**academics**	**employers**	**graduates**	**total**
Estonia	23	25	40	88
France	13	6	60	79
Germany	47	20	42	109
Greece	26	15	50	91
Iceland	6	6	24	36
Ireland	15	13	42	70
Malta	4	12	23	39
Netherlands	32	34	40	106
Poland	34	40	62	136
Slovakia	11	0	15	26
Spain	45	30	30	105
UK	45	30	25	100
Total	301	231	453	**985**

2.43 The TUNING questionnaire

As in the TUNING Project, the research on generic competences was undertaken using a questionnaire. The questionnaire was designed to decide which of the generic and subject-specific competences were more important and to what extent.

The objectives for this competence questionnaire were to:

- establish a basis for wide discussion of the competences
- gather information on competences in Geography in different countries
- identify commonality and diversity between competences between survey groups and different countries
- to encourage debate in the subject discipline.

Questionnaires and letters were produced and distributed for each of the three target groups, graduates of Geography, employers of Geography graduates and also academic geographers employed in higher education. They were translated into the home language for each of the countries concerned.

The generic part of the questionnaire required two types of response, Firstly the perceived importance of the competence and the level to which the competence was

developed by the university degree. To indicate this, respondents used a Likert scale of 1 (none) to 4 (strong). Secondly respondents were asked to produce a ranking of the ten perceived most important generic competences in terms of the level that should be reached at the end of a Geography degree programme. The ranking allows survey participants to distinguish between the most important competences, whereas the 4-point Likert scale may not have allowed them to discriminate significantly between competences. On the basis of ranking the perceived most important competences were assigned 10 points, followed by the next as 9 and so on until the last was assigned one point. If the competence was not ranked then no points were assigned to it. Thus a ranked score for each competence was compiled.

By gathering information on the perceived importance and level of achievement of generic competences, the value and relevance of the competences can, according to Martilla and James (1977), be explored. This is presented in Section 3 and analysed in section 4.

The subject-specific part of the questionnaire sought to obtain information on what were considered to be the most important subject-specific competences in an undergraduate (Bachelors) programme and postgraduate (Masters and PhD programme) A Likert scale of 1 (none) to 4 (strong) was used to score each of the twelve subject-specific competences to examine the relative relevance and importance at different cycle.

The survey results were gathered by the universities involved between November 2004 and November 2005. The individual and cumulative scores were entered into a pre-prepared Excel spreadsheet, before returning the completed file on email to the network coordinator. The responses from each country were coordinated centrally by the HERODOT network coordinator and graphical and data analysis was undertaken centrally.

3. Survey Results

3.1 Survey participants

Universities from twelve countries participated in the TUNING Geography survey. As there more than 100 universities involved in the TUNING Project the work was able to be shared between many universities. In this research, only one or two universities participated in each country. Table 3.1 compares the Geography sample sizes with those from the phase 1 TUNING research. While the total number of surveys undertaken were fewer than several subject areas, the balance between the target groups was more even. Indeed the number of employers and academics surveyed for Geography was significantly greater than for any other sample (Gonzàlez et al., 2003).

Table 3.1: TUNING sample sizes by subject and target group (after Gonzales and Wagener, 2003)

Subject	Graduates	Employers	Academics	Total surveys
Business	921	153	153	1227
Geography	**453**	**231**	**301**	**985**
Geology	656	138	145	939
History	800	149	221	1170
Mathematics	662	122	122	906
Physics	635	85	121	841
Education Sciences	897	201	134	1232
Chemistry	612	96	102	810

The total number of completed questionnaires by target group and country are presented in Table 2.3. The profile of the academic, employer, graduate and total respondents is shown in Figures 3.1, 3.2, 3.3 and 3.4 respectively.

Figure 3.1: Geography TUNING survey sample; academic respondents by country

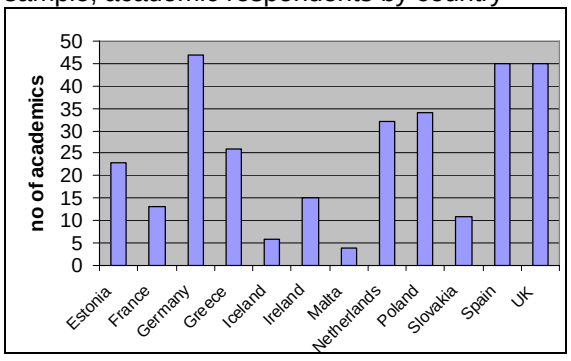


Figure 3.2: Geography TUNING survey sample; employer respondents by country

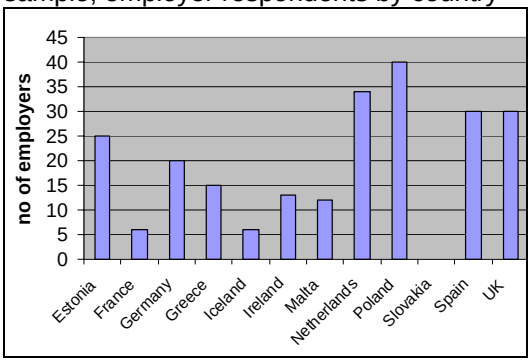


Figure 3.3: Geography TUNING survey sample; graduate respondents by country

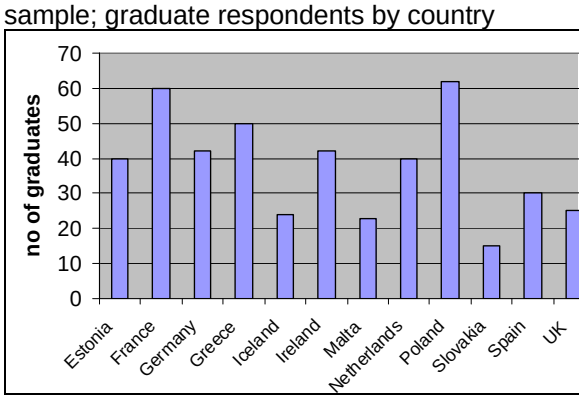
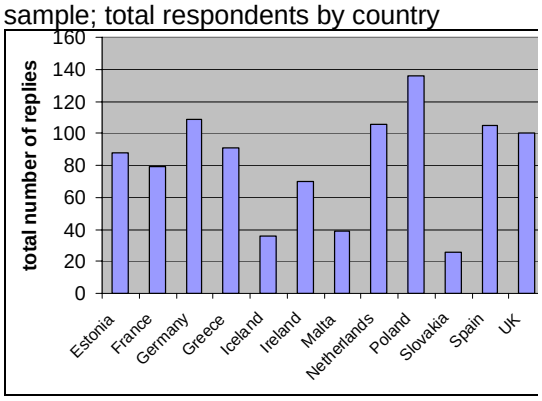


Figure 3.4: Geography TUNING survey sample; total respondents by country



In small countries, for example Malta and Iceland) the number of completed surveys (of academics especially) was very small due to the low number of potential lecturers to survey. In the case of Malta the academic sample was a 100% survey. The employer sample was smaller than the other groups. Getting employers to complete and return the questionnaire proved to be challenging in many countries. The number of graduates interviewed was larger than the other groups in almost all countries.

The questionnaire findings relating to these samples is presented in sections 3.2 (subject specific competences) and 3.3 (generic competences).

3.2 Subject specific competences

3.21 Total scores, Undergraduate and Postgraduate

Information on the value of the subject specific competences is presented in Table 3.2.

Table 3.2: Mean subject specific competence scores for Geography (n=958)

	subject competence	undergraduate score (mean)	Postgraduate score (mean)	% P-U difference
1	Comprehend the reciprocal relationships between physical and human environments	3.47	3.34	-4.1%
2	Comprehend the significance of spatial relationships at various scales	3.37	3.32	-1.7%
3	Understand and explain the diversity and interdependence of regions, places and locations	3.36	3.33	-0.9%
4	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context	3.18	3.34	4.9%
5	Apply an understanding of geographical concepts	3.41	3.42	0.1%
6	Interpret landscapes	3.13	3.02	-3.7%
7	Collect, compare, analyse and present geographical information	3.46	3.54	2.3%
8	Appropriately use geographical terminology	3.34	3.24	-3.0%
9	Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means	3.32	3.45	3.9%
10	Use diverse, specialised techniques and approaches in Geography	3.10	3.35	7.4%
11	Comprehend the nature of change	3.11	3.25	4.1%
12	Appreciate representations of geographical space and different geographical representations	3.09	3.15	2.0%

It should be clear that all of the subject specific competences were considered to be important in both undergraduate and postgraduate terms. They all had a mean importance score in excess of 3 (out of 4). At undergraduate level, competence 1 (comprehend the reciprocal relationships between physical and human environments) was ranked highest. At postgraduate level it was competence 7 (collect, compare, analyse and present geographical information).

Competences can be further analysed by plotting postgraduate and undergraduate scores (Figure 3.5). Several of these scored highly at both undergraduate and postgraduate level, whereas others were more importance in one level or another. A number of other competences were of lower importance at both levels. These are summarised in Table 3.3.

Figure 3.5: The importance of postgraduate and undergraduate subject-specific competences

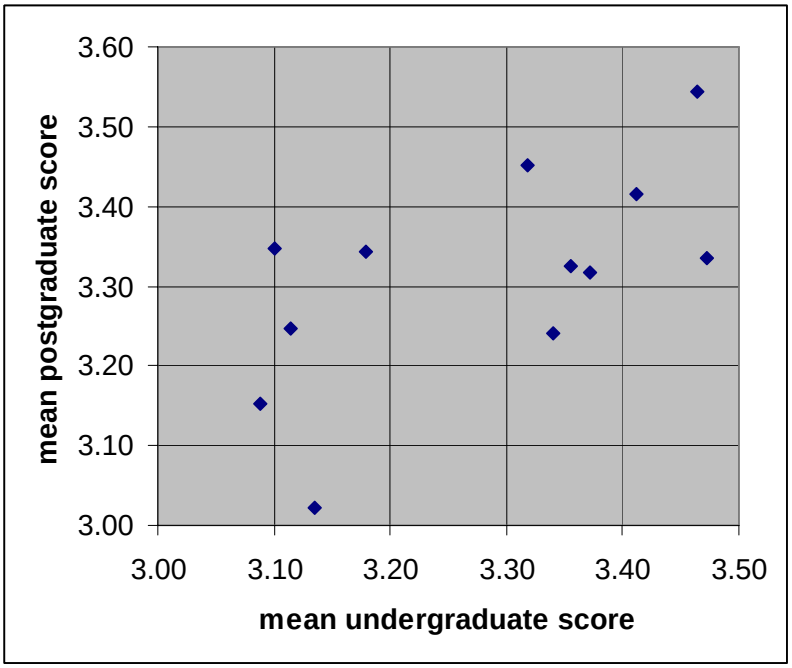
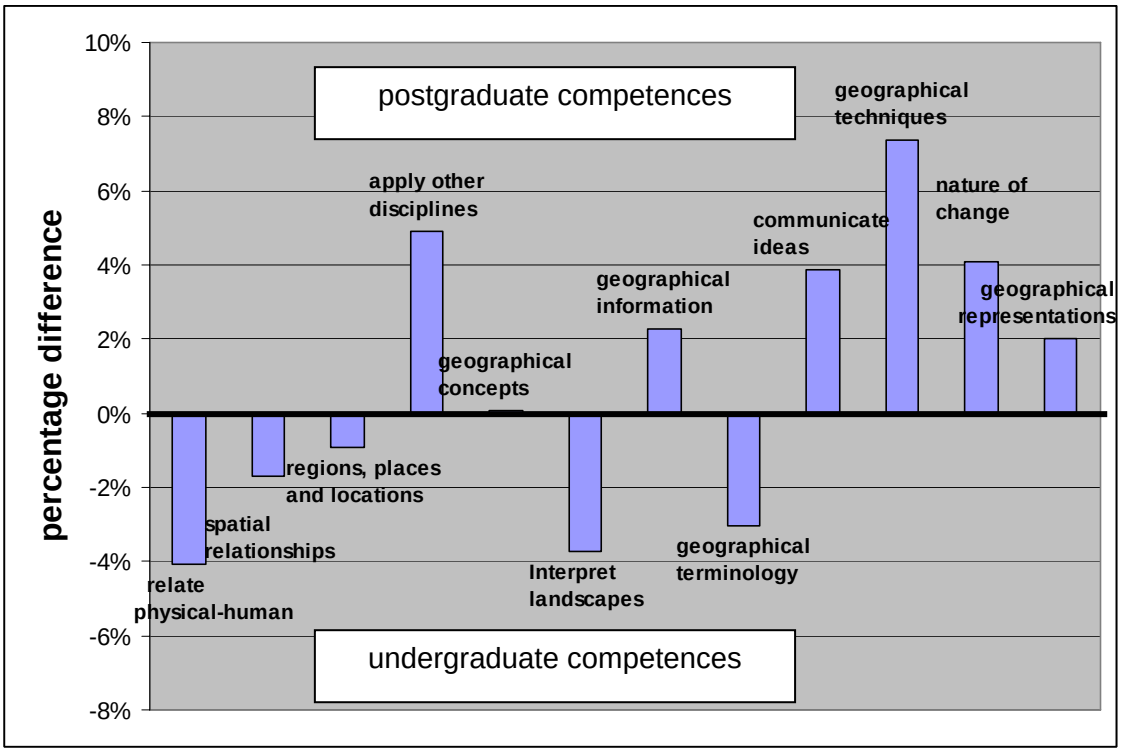


Table 3.3: The relative importance of subject specific competences

High importance at both levels	High importance at undergraduate level	High importance at postgraduate level	Low importance at both levels
Comprehend the significance of spatial relationships at various scales Understand and explain the diversity and interdependence of regions, places and locations	Comprehend the reciprocal relationships between physical and human environments Appropriately use geographical terminology	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means Use diverse, specialised techniques and approaches in Geography	Interpret landscapes Comprehend the nature of change Appreciate representations of geographical space and different geographical representations

The percentage difference between the mean importance of subject-specific competences at postgraduate and undergraduate can also be explored in Figure 3.6.

Figure 3.6: The difference in importance of subject-specific competences scores (postgraduate – undergraduate)



These values can also be examined by ranking their importance. This information is provided in Table 3.4. These results are presented in Figure 3.7 for undergraduate and Figure 3.8 for postgraduate courses.

Figure 3.7: Ranked subject specific competences in undergraduate courses

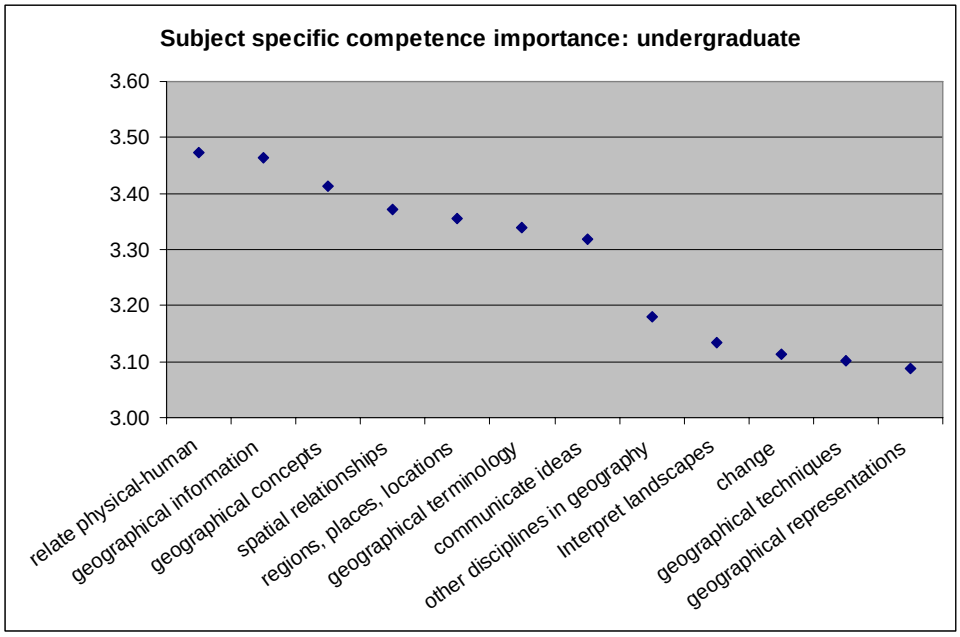
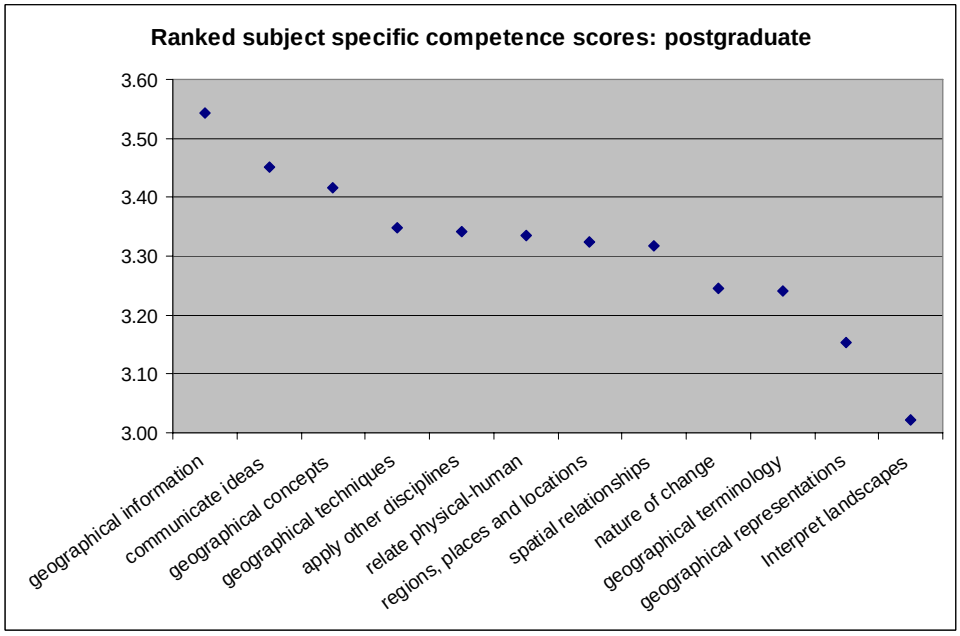


Figure 3.8: Ranked subject specific competences in postgraduate courses



At undergraduate level competence 1 (Comprehend the reciprocal relationships between physical and human environments) and competence 7 (Collect, compare, analyse and present geographical information) were said to be most important. At postgraduate level competence 7 was again most important with competence 9 (Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means),

Table 3.4: Ranked subject specific competences

	Undergraduate ranking (U)	Postgraduate ranking (P)	P-U; [+ (yellow) – (green)]
1	Comprehend the reciprocal relationships between physical and human environments	Collect, compare, analyse and present geographical information	Use diverse, specialised techniques and approaches in Geography
2	Collect, compare, analyse and present geographical information	Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context
3	Apply an understanding of geographical concepts	Apply an understanding of geographical concepts	Comprehend the nature of change
4	Comprehend the significance of spatial relationships at various scales	Use diverse, specialised techniques and approaches in Geography	Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means
5	Understand and explain the diversity and interdependence of regions, places and locations	Comprehend the reciprocal relationships between physical and human environments	Collect, compare, analyse and present geographical information
6	Appropriately use geographical terminology	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context	Appreciate representations of geographical space and different geographical representations
7	Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means	Understand and explain the diversity and interdependence of regions, places and locations	Apply an understanding of geographical concepts
8	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context	Comprehend the significance of spatial relationships at various scales	Understand and explain the diversity and interdependence of regions, places and locations
9	Interpret landscapes	Comprehend the nature of change	Comprehend the significance of spatial relationships at various scales
10	Comprehend the nature of change	Appropriately use geographical terminology	Appropriately use geographical terminology
11	Use diverse, specialised techniques and approaches in Geography	Appreciate representations of geographical space and different geographical representations	Interpret landscapes
12	Appreciate representations of geographical space and different geographical representations	Interpret landscapes	Comprehend the reciprocal relationships between physical and human environments

A number of other subject specific competences were proposed by participants and these are listed in Appendix 4.

The greatest differences between undergraduate and postgraduate scores were supposed to indicate distinguishing characteristics for that specific level of study. In the case of postgraduate courses *diverse and specialised techniques and approaches in Geography* (competence 7) and *drawing those from other disciplines in a geographical context* (competence 4) exhibited the largest difference. In undergraduate terms there were no differences.

Statistically there was no significant difference between the total scores of any of subject-specific competences at undergraduate and postgraduate level. However these results masked differences between the different survey groups.

3.22 Differences

The differences between postgraduate and undergraduate subject specific competence scores was calculated as this would provide an opportunity to identify which of these competences, if any could be used as level identifiers. The results are shown in Table 3.5.

Table 3.5: Subject-specific competences: percentage difference from mean postgraduate score

	subject competence	academics	employers	graduates
1	Comprehend the reciprocal relationships between physical and human environments	-2%	9%	-12%
2	Comprehend the significance of spatial relationships at various scales	2%	6%	-8%
3	Understand and explain the diversity and interdependence of regions, places and locations	3%	8%	-8%
4	Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context	13%	11%	-3%
5	Apply an understanding of geographical concepts	9%	1%	-6%
6	Interpret landscapes	1%	2%	-10%
7	Collect, compare, analyse and present geographical information	7%	9%	-4%
8	Appropriately use geographical terminology	4%	5%	-12%
9	Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means	8%	13%	-3%
10	Use diverse, specialised techniques and approaches in Geography	16%	11%	0%
11	Comprehend the nature of change	7%	14%	-3%
12	Appreciate representations of geographical space and different geographical representations	5%	16%	-7%

Graduates generally scored all aspects of postgraduate study below that of Bachelors courses. This is likely to be because of their lack of awareness of the study requirements. Academics and employers however considered that there were some differences between undergraduate and postgraduate studies. They agreed that postgraduate work implies that competence 4 (Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context) and competence 10 (*Use diverse, specialised techniques and approaches in Geography*) were more important in postgraduate courses. Employers also suggested that competence 12 (*Appreciate representations of geographical space and different geographical representations*) and competence 9 (*Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means*) were also much more important whereas academics suggested that competence 5 (*Apply an understanding of geographical concepts*) was more important for postgraduate study.

3.3 Generic competences

3.31 total scores

The mean importance and level of generic competences are presented in Table 3.6.

Table 3.6: The mean importance and level achieved during a degree of generic competences

Type		importance	level
In	Capacity for analysis and synthesis	3.63	3.10
In	Planning and time management	3.43	2.63
In	General knowledge in the field of study	3.15	2.99
In	Knowledge of the profession in practice	3.20	2.25
In	Oral and written communication in the national language(s)	3.50	2.90
In	Knowledge of other languages	2.51	1.80
In	Use of information and communications technology	3.51	3.02
In	Information management skills	3.51	3.05
In	Problem solving	3.41	2.75
In	Decision-making	3.32	2.55
Ip	Critical and self-critical abilities	3.32	2.59
Ip	Teamwork	3.38	3.14
Ip	Interpersonal skills	3.34	2.85
Ip	Ability to work in an interdisciplinary team	3.21	2.54
Ip	Ability to communicate effectively with non-experts (in the field)	3.22	2.37
Ip	Appreciation of diversity and multiculturality	2.95	2.68
ip	Ability to work in an international context	2.72	2.25
Ip	Commitment to work related ethics	3.10	2.51
S	Capacity for applying knowledge in practice	3.58	2.84
S	Research skills	3.27	3.10
S	Capacity to adapt to new situations	3.20	2.49
S	Capacity for generating new ideas (creativity)	3.30	2.48
S	Leadership	2.76	2.16
S	Ability to work on own initiative	3.47	2.79
S	Project design and management	3.21	2.70
S	Ability to work on their own	3.48	3.12
S	Responsibility	3.41	2.71
S	An entrepreneurial spirit	2.53	1.89
S	Concern for quality	3.24	2.75
S	A systematic approach to accuracy and precision	3.28	2.81
S	Dealing with uncertainty	2.94	2.36

Table 3.7 lists the generic competences in rank order of importance and by achievement during Geography degrees. These lists have been colour-coded based on the type of generic competence. Most of the important competences for a Geography degree are instrumental in nature. In terms of achievement, degrees provide teamwork skills as well as the ability to work independently. The capacity for analysis and synthesis and applying knowledge in practise were said to be the most important competences, with information technology and information management skills.

Table 3.7: Ranked generic competences during a Geography degree

Competences ranked by order of importance	**Rank**	**Competences ranked by level of achievement**
Capacity for analysis and synthesis	1	Teamwork
Capacity for applying knowledge in practice	2	Ability to work on their own
Use of information and communications technology	3	Capacity for analysis and synthesis
Information management skills (ability to retrieve and analyse information from different sources)	4	Research skills
Oral and written communication in the national language(s)	5	Information management skills (ability to retrieve and analyse information from different sources)
Ability to work on their own	6	Use of information and communications technology
Ability to work on own initiative	7	General knowledge in the field of study
Planning and time management	8	Oral and written communication in the national language(s)
Problem solving	9	Interpersonal skills
Responsibility	10	Capacity for applying knowledge in practice
Teamwork	11	A systematic approach to accuracy and precision
Interpersonal skills	12	Ability to work on own initiative
Critical and self-critical abilities	13	Problem solving
Decision-making	14	Concern for quality
Capacity for generating new ideas (creativity)	15	Responsibility
A systematic approach to accuracy and precision	16	Project design and management
Research skills	17	Appreciation of diversity and multiculturality
Concern for quality	18	Planning and time management
Ability to communicate effectively with non-experts (in the field)	18	Critical and self-critical abilities
Ability to work in an interdisciplinary team	19	Decision-making
Project design and management	20	Ability to work in an interdisciplinary team
Knowledge of the profession in practice	21	Commitment to work related ethics
Capacity to adapt to new situations	22	Capacity to adapt to new situations
General knowledge in the field of study	23	Capacity for generating new ideas (creativity)
Commitment to work related ethics	24	Ability to communicate effectively with non-experts (in the field)
Appreciation of diversity and multiculturality	25	Dealing with uncertainty
Dealing with uncertainty	26	Knowledge of the profession in practice
Leadership	27	Ability to work in an international context
Ability to work in an international context	28	Leadership
An entrepreneurial spirit	29	An entrepreneurial spirit
Knowledge of other languages	30	Knowledge of other languages

Instrumental
Interpersonal
Systemic

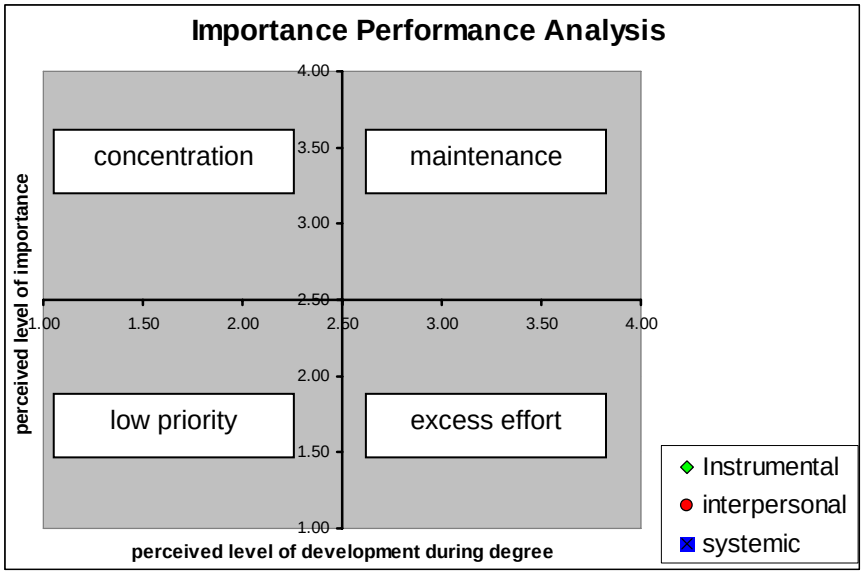
3.32 Importance Performance Analysis (IPA)

IPA is a very versatile tool which has been widely demonstrated in the literature, for example in employee satisfaction (Novatorov, 1997) and in tourism policy (Evans & Chon, 1989). In education IPA has been used for students' perceptions (Wright & O'Neill, 2002) and perceptions of a university campus (Pike, 2004). IPA was used by the TUNING Project to encourage university departments and academics to reflect and discuss the relative weaknesses and strengths of their programmes in order to help them to establish policy for curriculum development (Gonzàlez et al., 2003).

By determining the perceived importance and the level of achievement of generic competences, the relative importance and performance of the competences can be analysed and any gaps and achievements identified. Martilla and James (1977) considered that four kinds of competences could be categorised (Figure 3.9):

- Concentration: these competences were considered important but there was relatively low achievement during the degree. The aim here should be to focus on these areas.
- Low priority: competences that were not considered important and where achievement was low. These areas can be considered to be of low priority.
- Excess effort: competences that were not considered important, but where achievement was high during the degree. These area and
- Maintenance: competences which were important and exhibited high achievement. The goal here should be to maintain this level of performance.

Figure 3.9: Importance performance analysis matrix (after Martilla and James, 1977)



The technique considers both importance attributes to the individual as well as the perceived product performance for a series of competences. In IPA, importance and performance are analysed separately, rather than summed. The strength of IPA is the ability to enable decision-making due to the simplicity and power of the matrix. The goal is to identify the competences located in the concentration quadrants and those which need to be maintained.

Figure 3.10: Importance Performance Analysis of generic competences by type

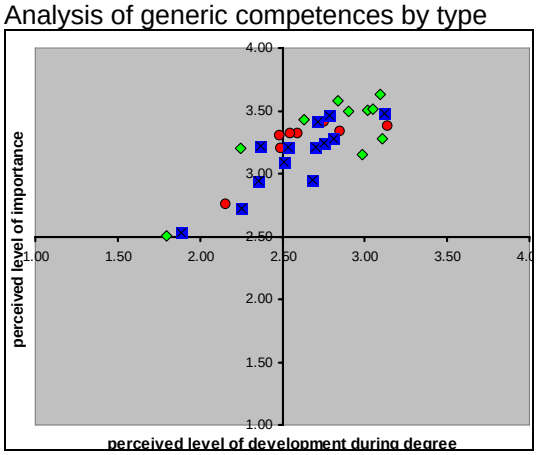


Figure 3.11: Importance Performance Analysis: Academics

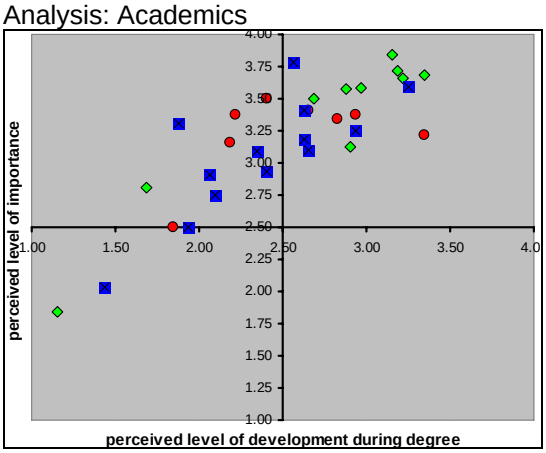


Figure 3.11: Importance Performance Analysis: Employers

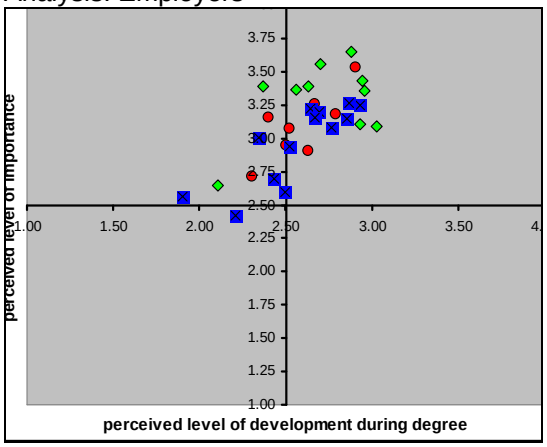
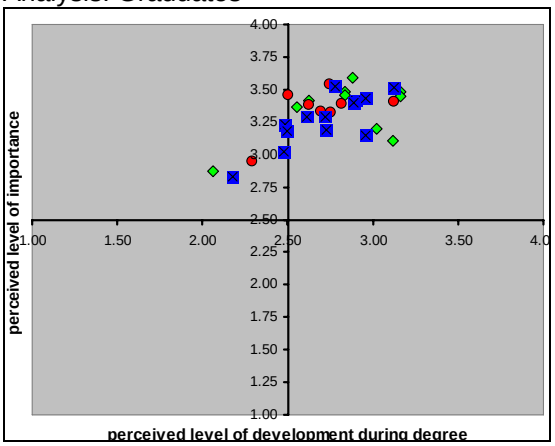


Figure 3.12: Importance Performance Analysis: Graduates



Figures 3.10-3.13 show the IPA charts for whole sample, academics, employers and graduates respectively. Academics have provided a much broader evaluation of the competences in terms of performance whereas graduates tended to be more clustered in their analysis. Academics placed more competences in the concentration quadrant than the other groups. Graduates placed the least number of competences in this sector. From these charts the competences which need concentration were assessed and these are summarised in Table 3.8.

Academics considered that more interpersonal skills needed to be developed, whereas employers identified that instrumental competences were not well developed during a Geography degree. Graduates considered more systemic competences as requiring development. Some competences appeared in more than one group, like the capacity for generating new ideas and the ability to communicate with non-experts.

Table 3.8: Important generic competences that are perceived not well developed during a Geography degree

Academics	Employers	Graduates	Whole sample
Planning and time management	Capacity for analysis and synthesis	Knowledge of the profession in practice	Knowledge of the profession in practice
Critical and self-critical abilities	Capacity for applying knowledge in practice	Capacity to adapt to new situations	Capacity to adapt to new situations
Capacity to adapt to new situations	General knowledge in the field of study	Decision-making	Capacity for generating new ideas (creativity)
Capacity for generating new ideas (creativity)	Research skills	Ability to work in an interdisciplinary team	Decision-making
Ability to communicate effectively with non-experts (in the field)	Capacity for generating new ideas (creativity)	Ability to communicate effectively with non-experts (in the field)	Ability to work in an interdisciplinary team
Ability to work on own initiative	Project design and management	Dealing with uncertainty	Ability to communicate effectively with non-experts (in the field)

Instrumental
Interpersonal
Systemic

3.33 Ranked generic competences

The ranked generic competences for academics, employers, graduates and total scores are shown in Table 3.9. They have been colour coded by type. In all cases most of the instrumental competences were more important than interpersonal ones and systemic competences

Table 3.9: Generic competences ranked in importance in a Geography degree

a) Ranked competences: Total score	Rank	b) Ranked competences: Academics
Capacity for analysis and synthesis	1	Capacity for analysis and synthesis
Capacity for applying knowledge in practice	2	Capacity for applying knowledge in practice
Teamwork	3	Oral and written communication in the national language(s)
Information management skills (ability to retrieve and analyse information from different sources)	4	General knowledge in the field of study
Problem solving	5	Problem solving
Knowledge of the profession in practice	6	Information management skills (ability to retrieve and analyse information from different sources)
General knowledge in the field of study	7	Research skills
Research skills	8	Ability to work on their own
Planning and time management	9	Teamwork
Use of information and communications technology	10	Capacity for generating new ideas (creativity)
Oral and written communication in the	11	Planning and time management

national language(s)		
Interpersonal skills	12	Use of information and communications technology
Capacity for generating new ideas (creativity)	13	Responsibility
Responsibility	14	Critical and self-critical abilities
Ability to work on their own	15	Interpersonal skills
Ability to work on own initiative	16	Ability to work on own initiative
Critical and self-critical abilities	17	Ability to work in an interdisciplinary team
Ability to work in an interdisciplinary team	18	Concern for quality
Capacity to adapt to new situations	18	Capacity to adapt to new situations
Concern for quality	19	Knowledge of the profession in practice
Knowledge of other languages	20	Project design and management
Decision-making	21	Knowledge of other languages
Ability to communicate effectively with non-experts (in the field)	22	Commitment to work related ethics
Project design and management	23	A systematic approach to accuracy and precision
Commitment to work related ethics	24	Ability to communicate effectively with non-experts (in the field)
A systematic approach to accuracy and precision	25	Decision-making
Leadership	26	Leadership
Ability to work in an international context	27	Appreciation of diversity and multiculturality
Appreciation of diversity and multiculturality	28	Ability to work in an international context
Dealing with uncertainty	29	Dealing with uncertainty
An entrepreneurial spirit	30	An entrepreneurial spirit

c) Ranked competences: Employers	Rank	d) Ranked competences: Graduates
Capacity for analysis and synthesis	1	Capacity for analysis and synthesis
Capacity for applying knowledge in practice	2	Capacity for applying knowledge in practice
Knowledge of the profession in practice	3	Teamwork
Information management skills (ability to retrieve and analyse information from different sources)	4	Problem solving
Teamwork	5	Knowledge of the profession in practice
Ability to work in an interdisciplinary team	6	Information management skills (ability to retrieve and analyse information from different sources)
Planning and time management	7	Research skills
Research skills	8	Planning and time management
Problem solving	9	Use of information and communications technology
General knowledge in the field of study	10	General knowledge in the field of study
Interpersonal skills	11	Critical and self-critical abilities
Use of information and communications technology	12	Ability to work on own initiative
Ability to communicate effectively with non-experts (in the field)	13	Decision-making

Responsibility	14	Interpersonal skills
Capacity for generating new ideas (creativity)	15	Oral and written communication in the national language(s)
Commitment to work related ethics	16	Capacity for generating new ideas (creativity)
Ability to work on own initiative	17	Capacity to adapt to new situations
Ability to work on their own	18	Responsibility
Critical and self-critical abilities	18	Knowledge of other languages
Knowledge of other languages	19	Concern for quality
A systematic approach to accuracy and precision	20	Project design and management
Project design and management	21	Ability to work on their own
Oral and written communication in the national language(s)	22	Ability to work in an interdisciplinary team
Concern for quality	23	Ability to communicate effectively with non-experts (in the field)
Capacity to adapt to new situations	24	Commitment to work related ethics
Leadership	25	A systematic approach to accuracy and precision
Decision-making	26	Ability to work in an international context
Ability to work in an international context	27	Leadership
Appreciation of diversity and multiculturality	28	Appreciation of diversity and multiculturality
Dealing with uncertainty	29	Dealing with uncertainty
An entrepreneurial spirit	30	An entrepreneurial spirit

Instrumental	
Interpersonal	
Systemic	

Comparing the ranking of importance of each group provides some interesting information. A Spearman's Rank correlation analysis was performed on the ranked competence data. The results are shown in Table 3.10. The results demonstrate that the three samples showed a significant correlation at the 0.01 level. In other words there was no significant difference between the ranked competences from the academics, employers and graduates data samples.

Table 3.10: Spearman's Rank correlation of ranked generic competences

Spearman's rho			Employers	Graduates
	Academics	Correlation Coefficient	.728(**)	.802(**)
		N	31	31
	Employers	Correlation Coefficient		.790(**)
		N		31

** Correlation is significant at the 0.01 level (2-tailed).

The correlation between Academics and Graduates is strongest (correlation = 0.802), followed by Employers and Graduates (correlation = 790). They have some common

groups of competences at both extremes of the ranking. Entrepreneurship, uncertainty, multiculturality and international aspects were ranked lowest. The capacity for analysis and synthesis and applying knowledge in practise, appeared highest in all data sets. Of the interpersonal skills, teamwork and problem solving were ranked highest by all groups. There was least agreement over the relative importance of the systemic competences.

Correlations

		Academics	Employers	Graduates
Academics	Pearson Correlation	1	.690(*)	.857(**)
	Sig. (2-tailed)		.013	.000
	N		12	12
Employers	Pearson Correlation		1	.686(*)
	Sig. (2-tailed)			.014
	N			12
Graduates	Pearson Correlation			1
	Sig. (2-tailed)			
	N			

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

3.4 Discussion

3.41 TUNING, competences and skills

The TUNING Educational Structures in Europe project stated that the only reliable way to compare learning and study programmes offered by (higher) education institutions is to look at learning outcomes and competences (Gonzàlez & Wagenaar, 2005). They suggest that by defining the right learning outcomes, standards can be set. To make programmes more transparent and comparable at a European level, it is necessary to develop learning outcomes and competences for each recognised qualification. These learning outcomes should be identifiable and assessable in the programme that opts for such a qualification.

The idea of examining competences in higher education Geography is not new. For example, the *Devising Key Skills in Geography* was a higher education project that sought to make explicit the teaching of key skills. Surveys of Geography students were completed on entry to higher education (Birnie, 1999) and Hall (1999) examined skills that were gained through Geography. His research showed that a far greater number and wider range of key skills were being explicitly developed than implicitly developed. These explicitly developed skills were a combination of subject-specific and generic skills. The subject-specific skills included field skills, GIS and laboratory skills.

In the UK there has for some time been a focus in higher education Geography on key or 'transferable' skills (Kneale, 1999). Disciplines like geography, which are not directly vocational, operate in an increasingly competitive higher education market.

So, the main goals were to examine ways to improve student employability and lifelong learning (Clark & Higgitt, 1997). Therefore geographers sought to establish curriculum that would develop student employability. Projects were carried out to encourage subject-centred and transferable skills to be integrated into the curriculum (Chalkley & Harwood, 1998). The result of such work was the opportunity to use generic and subject-specific competences to establish reference points for curricular design and evaluation through benchmarking Geography (Chalkley & Craig, 2000).

3.42 Subject specific and subject-related competences

In the framework of TUNING Geography, HERODOT members took into account the profile of Geography as an academic discipline in order to judge and comment on what is fundamental to Geography in higher education. They produced and defined a set of features which define what makes Geography special. So although each academic programme is distinctive and based on the judgements and decisions made by academic staff, TUNING Geography has attempted to relate it to a series of specific features which are seen as being central to Geography. In other words a profile has been derived as to what is special and specific about Geography as an academic discipline and qualification.

The Geography profile is both academic and professional. Therefore, degrees are expected to meet the requirements of the academic community in local, national and international perspectives and the professions which geographers contribute to. The Geography profile is thus produced as a statement for description and discussion between stakeholder groups such as professional bodies, students and employers. It also represents some common points of agreement which are a non-prescriptive framework from which comparisons can be made.

It is important at this point in time to distinguish between subject-specific and subject-related competences. The subject-specific concepts provide the unique disciplinary basis on which a framework for degree qualifications in that subject can be created through learning outcomes. They are crucial for the identification of degrees, for definition and comparability. Subject-specific knowledge and skills are also central to the creation of courses and curricula. On the other hand, subject-related competences relate directly to the discipline but are not unique as they apply to several or all subject areas.

3.421 Subject-specific competences

In higher education, Geography, programmes seek to foster a number of specific subject competences in terms of subject-specific skills, knowledge and understanding. These subject specific competences relate directly to the desired outcomes and achievements of Geography, its graduates and geographers in their professions. They in turn lead to specific methods and techniques pertaining to the discipline. They are closely connected to the spatial dimension and the unique interpretation that geographers bring in terms of understanding place, location and time, as well as the interdisciplinary and multidisciplinary nature of the subject. Subject-specific competences must also associate with subject-specific techniques, methods and the terminology used, together with the complex issues which geographers examine that are associated with the spatial representation of information.

A review of the subject-specific competences produced by TUNING Geography would suggest that there are three types. Firstly, some geographical skills might

expect to be core learning outcomes for a geographer. They therefore would expect to be strongly developed in undergraduate programmes, for example these would include:

- appropriate use of geographical terminology
- collect, compare, analyse and present geographical information
- communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means and
- interpreting landscapes,

As these form a nucleus of subject-specific competences, it is expected that they would be revisited in any courses as and when needed.

Secondly, some of the Geography specific competences could be described as differential. They imply different levels of knowledge and understanding. This would for example provide opportunities for them to have distinct levels of achievement in undergraduate and postgraduate courses, Differential levels of achievement could result when studying about:

- the reciprocal relationships between physical and human environments,
- the significance of spatial relationships at various scales,
- the diversity and interdependence of regions, places and locations,
- applying an understanding of geographical concepts and
- the nature of change.

These competences might therefore expect to have a high level of importance in both undergraduate and postgraduate courses, with differential learning outcomes to distinguish levels of achievement.

The remaining Geography competences could be interpreted as incremental as they relate strongly to variation, specialisation, experiential activities and lifelong geographical learning. We might therefore expect them to be more important and have a higher profile at postgraduate level. These incremental competences include:

- draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context
- use diverse, specialised techniques and approaches in Geography
- appreciate representations of geographical space and different geographical representations.

The results from TUNING Geography confirmed that all of the geographical competences were considered by academics, graduates and employers to be important in both undergraduate and postgraduate courses. In general, core, differential and incremental categories were confirmed. A further category of less significant competences could be recognised. These competences were:

- interpret landscapes
- comprehend the nature of change and
- appreciate representations of geographical space and different geographical representations.

3.422 Subject-related competences

Successful completion of an undergraduate programme is the main entry requirement for a postgraduate one, though there are exceptions in the case of professional experience and APEL (prior learning). Being aware of what undergraduates should be able to understand, know and do is thus important for graduate entry. As a result of TUNING, Gonzàlez and Wagenaar (2003) suggest a number of characteristics which graduates from undergraduates courses should also

be able to do with subject-specific knowledge and understanding. These subject-related competences were:

- show familiarity with the foundation and history of his/her major (discipline);
- communicate obtained basic knowledge in a coherent way;
- place new information and interpretation in its context;
- show understanding of the overall structure of the discipline and the connection between its sub disciplines;
- show understanding and implement the methods of critical analyses and development of theories;
- implement discipline related methods and techniques accurately;
- show understanding of the quality of discipline related research;
- show understanding of experimental and observational testing of scientific theories.

This potentially provides a comprehensive list of subject entry components which universities offering postgraduate level courses in Geography should consider, revise and use.

At postgraduate level, the subject-related competences proposed by the TUNING project were more specialised, They strongly recommended, for example, that a graduate from a postgraduate course of study should be able to carry out independent (applied) research. They thus suggested the inclusion of the completion of a final project or thesis as one of the preconditions for awarding the degree (Haug, 2001). The subject-related postgraduate learning outcomes advocate that the graduate should:

- have a good command of a specialised field within the discipline at an advanced level. This means in practice being acquainted with the newest theories, interpretations, methods and techniques;
- be able to follow critically and interpret the newest development in theory and practice;
- have sufficient competence in the techniques of independent research and be able to interpret the results at an advanced level;
- be able to make an original, albeit limited, contribution within the canons of the discipline, e.g. final thesis;
- show originality and creativity with regard to the handling of the discipline;
- have developed competence at a professional level (Gonzàlez et al., 2003).

These subject-general competences represent the specialised and contemporary nature of postgraduate work. They also focus on more profound academic knowledge and understanding with critical, interpretive and original components.

3.423 Summary

In the case of TUNING Geography-specific and subject-related competences three conclusions can be made:

- Members of the HERODOT network were very keen to participate in proposing, discussing and defining subject-specific competences and skills within Geography. They should now have the opportunity to digest and consider the findings of this report.
- Agreement was reached on Geography-specific competences which were then tested in 12 countries for undergraduate and postgraduate courses.
- Subject-related competences derived by the TUNING project need to be reviewed and evaluated by geographers so that they can be interpreted and used to establish an identifiable academic profile for Geography degrees.

Despite the fact that a common framework in undergraduate programmes is possible and acceptable in some subject areas, it should be asked whether in Geography it is possible to:

- Identify, formulate and authorise a set of desired subject-specific learning outcomes for Geography in higher education?
- identify and validate a basic core curriculum for undergraduate Geography?
- establish the basis of common, albeit diverse, degree programmes delivered across several institutions that would encourage the use of experts and increase the mobility of students and staff?
- produce subject-specific learning outcomes which distinguish between Bachelors and Masters courses?
- connect with other subject areas in order to establish and promote interdisciplinarity and multidisciplinarity?

Dealing with subject-specific issues In postgraduate courses is more complex. The competences and learning outcomes will probably need to be considered in terms of required levels of achievement as courses are usually based on highly specialist knowledge and understanding and deeper and more diverse expertise and know-how. Postgraduate studies in Geography are also so varied in their purpose, function and approach that it would not be productive to produce a common framework at this point in time. This is the same conclusion as that which was reached by all the subjects in the TUNING project. In Geography however there exists a number of significant international partnerships which have already successfully developed joint Masters programmes. An example is in GIS through the UNIGIS consortium. The work of these international groups, where consensus has already been reached in terms of educational philosophy, learning outcomes, levels, delivery and learning methods, assessment and quality assurance, could form a basis for a full review of postgraduate courses.

3.43 Generic competences

As with the phase 1 TUNING subjects, this TUNING Geography in higher education has identified academic competences like the capacity for analysis and synthesis and applying knowledge in practise as the most important ones. The academics, graduates and employers were also generally in relatively close agreement over the importance and performance of many of the other generic competences.

There were some considerable differences in those generic competences that were identified as being in need of further development in Geography courses. Academics tended to focus on the need to further develop interpersonal skills, such as critical and self-critical abilities, the capacity to adapt to new situations and the capacity for generating new ideas (creativity). On the other hand, employers highlighted the need for more instrumental skills such as the capacity for applying knowledge in practice, planning and time management, knowledge of the profession in practice and information management skills (ability to retrieve and analyse information from different sources). Recent graduates were more concerned with systemic competences as in the ability to work in an interdisciplinary team, to communicate effectively with non-experts (in the field) and in dealing with uncertainty.

These differences evidently indicate the diverse perspectives from which the degrees were being viewed from in terms of preparing future graduates for the workplace. It is to be expected that academics will tend to be concerned with more reflective and intellectual competences. Employers, on the other hand, are likely to be far more pragmatic and process-orientated. Recent graduates, however, tend to be practical

and realistic, in order to concentrate on making the most of their qualified place in the system.

Generic competences or transferable skills are important in preparing students in terms of employability and citizenship, they help provide definition to professional profiles, TUNING provided a list of generic skills to test, but there is no specific agreed set of common skills that a graduating geographer can be defined by.

The enhancement of graduate employability becomes a key issue in higher education as the number of graduating students in Europe expands. In the UK, Gallimore (2007) highlights how Geography has a strong belief in the importance of developing and integrating employability into its courses. As a result, through the national subject centre for Geography and related disciplines, attempts have been made to formulate an employability strategy and disseminate advice, information and support in order to promote the employability of graduates. The products include reports and research, a toolkit and a Wiki (GEES, 2007). Gedye and Chalkley (2006) have developed a detailed learning and teaching guide for departments who are interested in integrating employability within Geography. In supporting graduates and informing employers, employability profiles have also been produced as part of a resource pack for Geography and Environmental Science (GEES, 2006).

A number of conclusions can now be summarised based on generic competences in higher education Geography. These are:

- there was a statistically significant correlation between the ranked generic competences given by academics, employers and those given by graduates.
- the use of Importance Performance Analysis enabled the identification of gaps between expectations and performance.
- IPA can also be used in the future in monitoring the effectiveness of any changes over time, which might be made as a result of this research.
- the most important competences developed are perceived as: capacity for analysis and synthesis, capacity for applying knowledge in practice, oral and written communication in the national language(s), information management skills (ability to retrieve and analyse information from different sources) and the ability to work on own initiative
- the least important generic competences were perceived to be knowledge of other languages, leadership, an ability to work in an international context and an entrepreneurial spirit. The perceived insignificance of international aspects, enterprise and management is worthy of further investigation.
- in terms of achievement, Geography courses were perceived to be best at developing the use of information and communications technology, Information management skills, a capacity for analysis and synthesis, research skills, the ability to work on their own and teamwork
- the competences with least achievement were knowledge of other languages, an entrepreneurial spirit, leadership, knowledge of the profession in practice, the ability to work in an international context and dealing with uncertainty.
- there was significant correlation between the ranked lists of competences produced by academics, employers and recent graduates
- most instrumental competences were considered more important than most interpersonal than most systemic competences.
- the most and least important competences were agreed on by academics, employers and graduates. The greatest differences occurred where employers and graduates considered knowledge of the profession as being

much more important than academics, whereas the reverse was the case for oral and written communication in the national language(s).

3.44 Country differences

In their wide-ranging study of European business schools Amdam, Kvålshaugen & Larsen (2003) laid great emphasis on the importance of diversity between countries and even within them. TUNING research in Europe undoubtedly emphasises not simply the diversity, but also its importance. However, the TUNING Project in attempting a pan-European analysis did not focus significantly on country effects. They did however identify some strong country influences based on the items rated by graduates (Gonzàlez et al., 2003). The competences where the country impact was strong were knowledge of a second language, the ability to work autonomously, the will to succeed, a capacity for applying knowledge in practice, initiative and entrepreneurial spirit and the ability to work in an interdisciplinary team. These differences indicate some of the cultural diversity that exists in perceived educational philosophy and goals.

In TUNING Geography, at a glance country differences would not appear to be very significant. The research was however not able to fully or properly deal with this aspect due to the relatively small sizes of the country samples available. Considerable additional work would be required to research this aspect.

3.45 Reference points, benchmarks

TUNING is an approach which allows the development of reference points for subject disciplines. These reference points can be formulated into a profile or benchmark or set of standards which can be used for making programmes comparable and compatible. A benchmark might also relate to the desired or pre-requisite abilities of learners who are seeking access to a course or programme. Benchmarks should thus be established for agreed qualifications and based on agreed learning outcomes and competences.

A benchmark is not meant to be a comprehensive profile, but instead it should seek to provide a common language from which courses and programmes can refer to. In the UK, subject benchmark statements have been used for several years. They have provided an accepted description of the nature and characteristics of higher education programmes. They also exemplify general standards for the award of qualifications at a given level and articulate the attributes and capabilities that those possessing such qualifications should be able to demonstrate (Quality Assurance Agency, 2000). Learning outcomes are thus developed to encourage flexibility in courses as different pathways can lead to the same result. On the other hand benchmarks focus on the end product.

A benchmark therefore is likely to be expressed as accepted learning outcomes or statements of what learners are expected to know, understand and be able to do after a course, module or programme. Curriculum development should then be based on the benchmark, whereby it is envisaged as a cyclical process, consisting of theoretical reflection, conceptual analysis, curriculum development to include piloting and testing and then action research of the impact and effectiveness of the resultant teaching-learning processes in courses and programmes.

Some subjects as part of the TUNING process have developed their level descriptors which are also expressed in terms of competences and in some cases the profile for

benchmarking has also been developed. In Geography there are a great diversity of degree programmes. It will thus be very challenging to come up with a single agreed European standard. However the aims and outcomes of qualifications in terms of employability can and should be defined as there are a number of strong similarities in the contents of and approaches to the subject (Donert, 2007). Based on the results of this research the following aspects ought to be stressed:

a) the TUNING project established an agreed set of competences which can be used to review and inform curriculum development
b) employers believed Geography degree courses should focus more on instrumental skills and especially the capacity for analysis and synthesis, for applying knowledge in practice, knowledge in the field of study and research skills.
c) recent graduates considered that systemic competences need more development, and specifically the ability to work in an interdisciplinary team, communicating effectively with non-experts and dealing with uncertainty
d) consideration of opportunities for systemic skills including project work, case research, real-world problem solving and work experience

4. Conclusions

4.1 Limitations

As with all international surveys of this kind, the process and procedures are prone to a number of potential sources of error and bias. It is important to consider these as they may be limiting factors in interpreting the survey outcomes.

The questionnaire was distributed nationally by participant universities. As a result the survey samples were probably clustered around and within their own institutions. As results were also obtained for 12 different European countries, this added a further component of clustering. Clustered survey designs are widely used in research though clustered sampling affects the sampling error of the results produced. In this case it poses limitations in attempting any country-by-country analysis. However, as described in section 3.4, this was not the aim of the survey. Getting diverse European opinions was more important than deriving national comparisons.

Subject-specific competences were assessed by the perceived importance of a series of competences in undergraduate and postgraduate terms. Three different types of variables were analysed with generic competences:
importance items: competences rated on importance by respondents
achievement items: competences rated based on achievement and
ranking: based on the ranking of the five most important competences provided by graduates and employers, a new variable was created for each competence.

It is the case that these indicators are bound to contain errors of translation, interpretation and understanding of terminology as well as survey limitations in terms of awareness and perception.

4.2 Final conclusions – next steps

4.21 Geography and TUNING

The TUNING project had identified three major characteristics of the different subject areas it had assessed. They were commonality**,** diversity and dynamism. Some subjects were able to find commonality in terms of a common core at undergraduate level, establishing the basics of a study-degree programme. These could be taught at any institution. There is no evidence of this in the case of Geography.

Most subject areas exhibit great diversity. This is certainly the case of Geography degrees in higher education in Europe. This multiplicity needs to be encouraged as it provides a marketable advantage in the European higher education area. Such flexibility also offers a discipline vitality and dynamism, which Geography also demonstrates.

Within disciplines widening and deepening the knowledge of learners may be reflected in differentiating Bachelors and Masters degree programmes. The TUNING project reports comments also on the significance of knowledge access and transfer (Gonzàlez et al., 2003) demonstrated through the interconnection of subject related and generic competences. The instrumental, interpersonal and systemic competences help to make available disciplinary knowledge, understanding and skills.

4.22 TUNING and the Bologna process

The use of learning outcomes meets the central goal of Bologna in encouraging student-centred learning approaches. It implies that the critical learning components (knowledge, understanding and skills) of a study programme are focussed upon. These are related to the needs of the subject and to more generic needs of society in terms of preparing for employability and for citizenship and responsibility. The resultant courses will reflect a combination therefore of available expertise of academic staff and the needs of society.

4.23 TUNING phases of development

The TUNING Project coordinators identified four phases of development. These are used here to reflect on the situation of Geography TUNING and possible next steps for the HERODOT network to consider.

TUNING Phase 1 was concerned with providing information about the present situation in different institutions. This related to the type of courses and future perspectives. Relevant papers and documents were studied to elicit information and identify potential competences and learning outcomes. The Geography thematic group also mapped the territory of their discipline.

TUNING Phase 2 was characterised by HERODOT meetings with intense discussions and an exchange of opinions in order to reach consensus concerning the list of subject-related competences for Geography. Part of this dealt with whether it was possible to define a core curriculum for Geography. Members sought to picture an ideal situation rather than to focus on the differences and complexities of their present situation. As part of this phase a Geography questionnaire was produced and piloted. This consisted of a series of competences described as specific to Geography and generic to higher education as a whole.

This report provides feedback for the start of Phase 3, whereby the outcomes of the TUNING questionnaire can be reviewed and discussed by members of the HERODOT network. In the case of the TUNING project, subjects were then able to compare their findings in order to identify what was common, diverse and dynamic in their subject areas. TUNING subject reports are now available for download through the project web site (http://www.tuning.unideusto.org/tuningeu/).

Finally, in TUNING Phase 4, a general agreement and acceptance should be made of the nature and outline of the subject in higher education establishing the framework on which subject courses can be reviewed and improvements made. On this basis some next steps for the network can now be proposed.

4.24 Conclusions

This report represents the outcomes of the first phase of the TUNING of Geography, which has been undertaken under the advice and guidance of the Educational Structures in Europe Project. It provides information on Line 1 and 2 of TUNING, namely in establishing and then researching generic and subject-specific Geography competences. As a result of this work, further research and discussion will seek to identify points of reference for Geography in terms of generic and subject-specific competences for undergraduate (Bachelors) and postgraduate (Masters and Doctorate) cycle graduates.

Thematic networks like HERODOT have been encouraged by the European Commission to participate in the process, without being assigned any specific resources to complete this work. This represented establishing consensus for what is core to the discipline. One of the initial objectives of TUNING Geography was to promote reflection, discussion and debate on the competences from a subject perspective. In this respect a number of conclusions can be drawn:

- A series of subject-specific competences for Geography in higher education was proposed, discussed, analysed, developed and finally defined and agreed on by a European subject experts
- The assessment of competences for Geography fits well with the student-centred approach promoted under the Bologna process.
- Subject specific competences have been reviewed for undergraduate and postgraduate degree programmes. This demonstrated that such courses need to be considered separately in terms of their qualifications, content, approaches and outcomes.
- The analysis of generic competences provides an opportunity to refine a professional profile for Geography and thus enhance the employability of geographers.
- The opinion of academics, graduates and employers showed a high degree of correlation between ranked generic competences. These groups had very similar opinions in terms of the most and least important competences. The capacities for analysis and synthesis and for applying knowledge in practise were most important and in terms of the rank given.
- Surprisingly, given the nature of the discipline, international aspects appeared relatively low on the scale of importance. These findings however mirror the results of the first phase of the TUNING Project *(Gonzàlez et al., 2003)*.
- Instrumental skills were considered to be more important than interpersonal than systemic by all groups surveyed.

As a result of this research:

- A period of reflection on the results of this research should lead to the production and discussion of relevant and suitable learning outcomes to inform course developers.
- Connections to curriculum creation and assessment of quality through benchmarks will need to be determined.
- Defining an academic and professional profile of geographers, linked to competences and their achievement, can follow
- The professional profile of Geography must be related to employability
- It will be important for Geography departments to review and consider how Geography courses can help promote graduate employability
- The importance of the multidisciplinary and interdisciplinary nature of the subject needs to be reviewed and evaluated
- The reference points should be revisited, reconsidered and reassessed by departments as new courses are developed in a continuous cycle of quality enhancement.
- There needs to be a strong and positive promotional campaign in particular informing employers in Europe of the importance of Geography and the skills and abilities that geographers bring to the labour force.
- Working with a set of agreed subject-specific competences is vital to ensure that degree programmes provide a professional focus and clear value for learners. The resultant learning outcomes should provide an identity for and status of the qualification.

There seems to be a degree of consensus concerning the nature of Geography in European higher education. The challenge is now to take the work that has been done on competences and translate them into level descriptors and performance indicators to meaningfully represent subject benchmarks. This research has not yet identified the level at which each competence needs to be demonstrated at the end of the first or second cycle.

TUNING involves wide consultation so this research is on-going, work-in practise. It is now important to consult with stakeholders in different countries across Europe. This is a challenging remit if TUNING is to have an impact. Groups that need to be involved include:

- HERODOT network member organisations
- Higher education institutions not involved in TUNING
- Geographical organisations
- Professional associations
- Employers of Geography graduates
- Professional geographers and
- Student associations

Probably the most important conclusion that can be drawn from this research is that by undertaking the TUNING of Geography a better understanding of European needs and expectations has be established. TUNING Geography has also provided an opportunity to establish a statement about Geography degrees in Europe, even though they are very varied in content and context.

4.25 TUNING Geography: next steps

4.251 HERODOT and TUNING

The next phase of the Tuning project (2007-2009), if approved by the European Commissions will be based on the outcomes of earlier work. In this stage it is anticipated that the HERODOT network will be able to represent the voice of geographers and will work to strengthen these findings by working with its members, including professional associations, student association and other agencies to validate the outcomes by considering the role of learning, teaching, assessment and performance in relation to quality assurance and evaluation. It will seek to consider the role and importance of inter-disciplinary and professionally oriented components of the disciplines and to work to improve the employability of its graduates.

4.252 Geography and curriculum development

TUNING is supposed to be part of an innovative curriculum design process. Courtenay and Holtham *(2006)* recommend a high-tech, high touch learning framework for innovative curriculum design. They illustrate how the degree of learner engagement has a significant impact on the level or type of learning achieved. The physical or virtual learning space that is created establishes a context and background for learning to take place. So in just the same way as curriculum design is important, successful geographical learning spaces also need to be developed in order to create a successful learning framework.

The outcomes of TUNING Geography process should now be built by departments into establishing a learning and teaching conceptual model such as that proposed by Goodyear *(2001)*, In this example the learner sits at the heart of the approach and

the most important roles of the teacher are in setting an overall course philosophy and pedagogy. In doing this the pedagogical framework and organisational context become closely related via the proposed educational setting. This sort of reflection would encourage academics to map their own Geography 'learning landscape'. Such mapping would allow for innovation to be developed locally over time.

4.253 Disciplinary issues and employability

In dealing with change a number of important subject and professional issues should be considered and addressed by stakeholders, these include:

- whether Geography should be treated in holistic way? This is not the case in many departments and in most European countries.
- whether disciplinary boundaries should be crossed as part of Geography courses?
- whether other complementary disciplines should become integrated into courses and if so how?
- how to limit the divisions created by the territorial nature of the discipline?

Increasingly, in research and the workplace, interdisciplinary skills and expertise are sought after. Geography demonstrates the characteristics of both a multi-disciplinary and an inter-disciplinary subject area. For example, many courses in Geography programmes are thematic *(Donert, 2007)*, that is to say they deal with a topic which requires learning from a number of viewpoints. They may also be place-based for example with a local, regional, national or international focus. These usually have to be either multidisciplinary or interdisciplinary in nature.

Multi-disciplinary courses engage students through a number of disciplines which are studied in parallel with one another. Interdisciplinarity implies a course which offers students an integrated approach where disciplines are brought together so that a synthesis can take place.

In order to improve the position of Geography and the employability of Geography graduates, some questions which should be considered include:

- How can interdisciplinary experiences and outputs best be generated?
- How are the disciplines to be integrated?
- In interdisciplinary activities, who is responsible for integration of disciplines?
- Is Interdisciplinarity a feature which is distinguished between Bachelors and Masters/PhD studies?
- Is there a learning process where students transfer from single specialisation to multi-disciplinary to inter-disciplinary activities?
- Would the widespread use of GIS offer an integrative tool?

It is, at this point, worth commenting that in countries where combined subject degrees are offered, such as the UK and Ireland, the disciplines concerned rarely or never talk to one another, let alone plan courses together. Modularisation makes such curriculum isolation even more prominent. Are there examples where this is not the case?

Some of these multidisciplinary and interdisciplinary issues are being addressed by the HERODOT network under different the thematic pillars.

4.3 Recommendations

The State of Geography Report *(Donert, 2007)* demonstrated that Geography in European higher education is both a multidisciplinary and an interdisciplinary subject. There are a broad range of topics dealt with a lot of variations in the programmes offered at undergraduate and postgraduate levels. Most of the courses exist within departments or faculties of Geography. There is a growing trend for geographers to be located in and offer courses on behalf of other faculties. This research and subsequent publications have demonstrated that a broad range of beliefs, values, approaches and aspirations exist in European Geography departments.

4.31 Recommendations *for the future TUNING and the HERODOT network*

1. The outcomes of TUNING Geography should be disseminated widely to reach those involved in the full spectrum of Geography courses in European higher education in order to encourage wider discussion and consultation.
2. Through the HERODOT network, Geography should be involved in the next formal phase of the TUNING project.
3. The HERODOT network should organise a meetings and workshops whereby these outcomes can be discussed
4. Validation of these results should be undertaken together with the main stakeholders: namely universities, employers, professional associations, students, quality assurance and accreditation agencies
5. Links between competences and ECTS credits should be explored in order to test the use of the ECTS as a tool for curriculum design.
6. Different teaching, learning, assessment and performance approaches should be explored, researched and presented within the framework of the HERODOT network and other geographical publications.

4.32 Recommendations to HERODOT network members and other stakeholders

1. The results of this work should be considered in terms of curriculum design and course development
2. These findings should be reviewed and widely discussed and if possible this work should be elaborated and extended by further research and in comparing Geography with the TUNING of other subject areas
3. Modification of the points of reference for generic and subject-specific competences should be made to create level descriptors for Geography at undergraduate and postgraduate levels.
4. TUNING Geography should be specifically be applied to teacher training courses.
5. TUNING Geography should be extended to more countries.
6. The HERODOT network seeks to provide professional development and support for higher education geographers in Europe.

4.4 The HERODOT response

HERODOT has actively responded to the European Commission challenge to undertake TUNING of Geography. The result so far is the research presented here. As a consequence, a number of other actions have already been implemented. HERODOT II is the second phase of the network for Geography in higher education. The proposed working programme was designed based on the ideas and outcomes generated from this research, that of the State of Geography in Europe *(Donert,*

2007), research presented at HERODOT conferences, workshops and seminars and developed through a series of network publications.

A major network conference on the impact of TUNING and the Bologna process will take place in Stockholm from September 24-28 2007. At this event, the four thematic pillars (TPs) will have the opportunity to consider these outcomes as part of their work programme.

Specifically:
TP1 will seek to explore the European Dimension in Geography in higher education. It will examine how Europe being dealt with in Geography courses and the role that Geography has to play in creating European citizens. It will seek to produce a publication of its findings.

TP2 will examine how to promote the value of Geography to important groups in European society, like employers, politicians and decision makers and create a toolkit for geographers to use.

TP3 will explore learning and teaching Geography in Europe, examining and reporting on innovative approaches.

TP4 will explore issues of employability and lifelong learning in Geography. It will examine opportunities for the integration of employability in the curriculum.

Other events, activities and publications are planned that will relate to outcomes of this report. Further information on these can be obtained from the HERODOT network Web site (http://www.herodot.net).

The HERODOT coordinator has agreed to participate in the next TUNING project meeting in November 2007.

HERODOT has been invited to formally participate in the application to the European Commission for the next phase of TUNING activity.

HERODOT membership is free and open to all organisations and individuals interested in Geography and geographical education. Visit the Web site to find out more.

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Appendix 1: Generic competences used in the HERODOT survey (in = instrumental, ip=inter-personal, s=systemic)

Competence	Type	TUNING classification
Capacity for analysis and synthesis	In	1
Planning and time management	In	2
General knowledge in the field of study	In	3
Knowledge of the profession in practice	In	4
Oral and written communication in the national language(s)	In	5
Knowledge of other languages	In	6
Use of information and communications technology	In	7
Information management skills (ability to retrieve and analyse information from different sources)	In	8
Problem solving	In	9
Decision-making	In	10
Critical and self-critical abilities	Ip	11
Teamwork	Ip	12
Interpersonal skills	Ip	13
Ability to work in an interdisciplinary team	Ip	14
Ability to communicate effectively with non-experts (in the field)	Ip	15
Appreciation of diversity and multiculturality	Ip	16
Ability to work in an international context	Ip	17
Commitment to work related ethics	Ip	18
Capacity for applying knowledge in practice	S	19
Research skills	S	20
Capacity to adapt to new situations	S	22
Capacity for generating new ideas (creativity)	S	23
Leadership	S	24
Project design and management	S	25
Ability to work on their own	S	26
An entrepreneurial spirit	S	28
Concern for quality	S	29
Additional HERODOT competences		
Ability to work on own initiative	Ip	24
Responsibility	Ip	27
A systematic approach to accuracy and precision	S	30
Dealing with uncertainty	S	31
TUNING Competences not used		
Capacity to learn		21
Culture and customs of other countries		24
Will to succeed		30

Appendix 2: Generic competence questionnaire

RANK	Generic Skills/Competences	IMPORTANCE	LEVEL TO WHICH DEVELOPED BY UNIVERSITY DEGREE
	Capacity for analysis and synthesis	1 2 3 4	1 2 3 4
	Capacity for applying knowledge in practice	1 2 3 4	1 2 3 4
	Planning and time management	1 2 3 4	1 2 3 4
	General knowledge in the field of study	1 2 3 4	1 2 3 4
	Knowledge of the profession in practice	1 2 3 4	1 2 3 4
	Oral and written communication in the national language(s)	1 2 3 4	1 2 3 4
	Knowledge of other languages	1 2 3 4	1 2 3 4
	Use of information and communications technology	1 2 3 4	1 2 3 4
	Research skills	1 2 3 4	1 2 3 4
	Information management skills (ability to retrieve and analyse information from different sources)	1 2 3 4	1 2 3 4
	Critical and self-critical abilities	1 2 3 4	1 2 3 4
	Capacity to adapt to new situations	1 2 3 4	1 2 3 4
	Capacity for generating new ideas (creativity)	1 2 3 4	1 2 3 4
	Problem solving	1 2 3 4	1 2 3 4
	Decision-making	1 2 3 4	1 2 3 4
	Teamwork	1 2 3 4	1 2 3 4
	Interpersonal skills	1 2 3 4	1 2 3 4
	Leadership	1 2 3 4	1 2 3 4
	Ability to work in an interdisciplinary team	1 2 3 4	1 2 3 4
	Ability to communicate effectively with non-experts (in the field)	1 2 3 4	1 2 3 4
	Appreciation of diversity and multiculturality	1 2 3 4	1 2 3 4
	Ability to work in an international context	1 2 3 4	1 2 3 4
	Ability to work on their own	1 2 3 4	1 2 3 4
	Ability to work on own initiative	1 2 3 4	1 2 3 4
	Project design and management	1 2 3 4	1 2 3 4
	Concern for quality	1 2 3 4	1 2 3 4
	Responsibility	1 2 3 4	1 2 3 4
	An entrepreneurial spirit	1 2 3 4	1 2 3 4
	Commitment to work related ethics	1 2 3 4	1 2 3 4
	A systematic approach to accuracy and precision	1 2 3 4	1 2 3 4
	Dealing with uncertainty	1 2 3 4	1 2 3 4

Are there any other competences that you think are important?

Using the rank column above, please now also rank the ten most important competences according to your opinion (number 1 being the most important).

Appendix 3: Questionnaire for Academics

This questionnaire presents a series of questions related to the *skills and competences* that may be important for the professional development of university geography graduates**.** Please answer all the questions. The answers will be very valuable in improving the planning of courses for future students of this subject.

Many thanks for your co-operation

Name of University:		
Age in years:	Sex: ☐ Male ☐ Female	Employment: ☐ Full time ☐ Part time
Your areas of specialism:		

For each of the skills listed on the following pages, please estimate:

- the **importance** of the skill or competence, in your opinion;
- the **level** to which each skill or competence is developed by degree programmes at university in geography.

Please use the following scale:
1 = none; 2 = low; 3 = moderate; 4 = high

RANK	Generic Skills/Competences	IMPORTANCE	LEVEL TO WHICH DEVELOPED BY UNIVERSITY DEGREE
	Capacity for analysis and synthesis	1 2 3 4	1 2 3 4
	Capacity for applying knowledge in practice	1 2 3 4	1 2 3 4
	Planning and time management	1 2 3 4	1 2 3 4
	General knowledge in the field of study	1 2 3 4	1 2 3 4
	Knowledge of the profession in practice	1 2 3 4	1 2 3 4
	Oral and written communication in the national language(s)	1 2 3 4	1 2 3 4
	Knowledge of other languages	1 2 3 4	1 2 3 4
	Use of information and communications technology	1 2 3 4	1 2 3 4
	Research skills	1 2 3 4	1 2 3 4
	Information management skills (ability to retrieve and analyse information from different sources)	1 2 3 4	1 2 3 4
	Critical and self-critical abilities	1 2 3 4	1 2 3 4
	Capacity to adapt to new situations	1 2 3 4	1 2 3 4
	Capacity for generating new ideas (creativity)	1 2 3 4	1 2 3 4
	Problem solving	1 2 3 4	1 2 3 4
	Decision-making	1 2 3 4	1 2 3 4
	Teamwork	1 2 3 4	1 2 3 4
	Interpersonal skills	1 2 3 4	1 2 3 4
	Leadership	1 2 3 4	1 2 3 4
	Ability to work in an interdisciplinary team	1 2 3 4	1 2 3 4
	Ability to communicate effectively with non-experts (in the field)	1 2 3 4	1 2 3 4
	Appreciation of diversity and multiculturality	1 2 3 4	1 2 3 4
	Ability to work in an international context	1 2 3 4	1 2 3 4
	Ability to work on their own	1 2 3 4	1 2 3 4
	Ability to work on own initiative	1 2 3 4	1 2 3 4
	Project design and management	1 2 3 4	1 2 3 4
	Concern for quality	1 2 3 4	1 2 3 4
	Responsibility	1 2 3 4	1 2 3 4
	An entrepreneurial spirit	1 2 3 4	1 2 3 4
	Commitment to work related ethics	1 2 3 4	1 2 3 4
	A systematic approach to accuracy and precision	1 2 3 4	1 2 3 4
	Dealing with uncertainty	1 2 3 4	1 2 3 4

Are there any other competences that you think are important?

Using the **rank column** above, please now also rank **the ten most important competences** according to your opinion (number 1 being the most important).

Subject Specific Skills/Competences	**IMPORTANCE FOR UNDERGRADUATE STUDY**	IMPORTANCE FOR POSTGRADUATE STUDY
Comprehend the reciprocal relationships between physical and human environments	1 2 3 4	1 2 3 4
Comprehend the significance of spatial relationships at various scales	1 2 3 4	1 2 3 4
Understand and explain the diversity and interdependence of regions, places and locations	1 2 3 4	1 2 3 4
Draw knowledge, understanding and diversity of approaches from other disciplines and apply them in a geographical context	1 2 3 4	1 2 3 4
Apply an understanding of geographical concepts	1 2 3 4	1 2 3 4
Interpret landscapes	1 2 3 4	1 2 3 4
Collect, compare, analyse and present geographical information	1 2 3 4	1 2 3 4
Appropriately use geographical terminology	1 2 3 4	1 2 3 4
Communicate geographical ideas, principles and theories effectively and fluently by written, oral and visual means	1 2 3 4	1 2 3 4
Use diverse, specialised techniques and approaches in Geography	1 2 3 4	1 2 3 4
Comprehend the nature of change	1 2 3 4	1 2 3 4
Appreciate representations of geographical space and different geographical representations	1 2 3 4	1 2 3 4

Are there any other competences that you think are important?

Many thanks for your co-operation

Appendix 4: Other proposed subject-specific competences

The following is a list of suggested additional subject-specific competences, in alphabetical order. Duplicates have been removed.

Ability to introduce the spatial dimension into an another domain (to set up new problems, to find innovative solutions)
Ability to present information using multimedia
Ability to think in a multidimensional way
Appreciate and understand significance of complexity
Appreciate multiculturalism
Better cooperation between science and economy
Compassion for fellow man
Comprehend the significance of temporal relationships at various scales
Cultural and economic processes over time
Develop humanistic perspectives
Develop interdisciplinary thinking
Distance to their own society
Environmental sensitivity
Formal aspects of working scientifically
General competence in professional legislation
Geostatistics
Work experiences in practise
GIS
Global thinking
Geographical research approaches
Importance of Geography for today's society
Intercultural competence
Knowledge dissemination
Knowledge of historical geography
Knowledge of the difference between analysis-interpretation-presentation
Knowledge on Europe
Learning and using methods of empirical work
Geo-Marketing
Methods of empirical social research
North-south-responsibility
Political analysis and impacts
Preparation for postgraduate study in Geography
Processes of spatial planning and steering
Scientific basics of the discipline
Scientific working, theory of sciences
Understand the importance of research and scholarly activity to geography
Understanding natural processes
Understanding sustainable development as a key competence of geographers
Understanding systems and the influence of single factors on changes of the total system