



WHAT DO WE KNOW ABOUT OUR GRADUATES? GRADUATE ANALYSES FOR FOREST SCIENCES AND RELATED CURRICULA

Editors:
P. Schmidt
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N. Strange

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PREFACE

The 2008 SILVA Network annual meeting was organised by the Faculty of Life Sciences of the University of Copenhagen. It was held at the Danish Forestry College Forest & Landscape in Fredensborg, an optimal place with beautiful surroundings for reflecting on and discussing forestry education.

The SILVA Network would like to thank the local organisers, especially Charlotte Bukdahl Jacobsen, for their work to make this meeting a success. Thanks especially to Mette Kirstine Rask Jensen for the excursion in a beech forest used for education and to Bo Larsen for guiding us through the Dyrehaven Park in Klampenborg. Due to its old forest stands, high wildlife pressure and high recreational pressure, this Park is subjected to intensive research, is used in education and is - hence - a prime subject for excursions for SILVA Network members.

Thanks also to the authors who submitted their papers and improved them after reviewing and editing by the editors. Without these authors no proceedings would exist.

Pieter Schmidt, Siegfried Lewark, Niels Strange
Editors



Participants SILVA-Network meeting 2008 in Copenhagen. Photo Reiner Mühlisegl.

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SUMMARY

WHAT DO WE KNOW ABOUT OUR GRADUATES? GRADUATE ANALYSES FOR FOREST SCIENCES AND RELATED CURRICULA

PIETER SCHMIDT

Forestry as such is an old trade; already the ancient Romans did it. Its education is less old, about two centuries. Apparently, as Lewark remarked in his introduction, in general foresters educated at universities matched the need of the forestry sector.. Only about 40 years ago, the need to know more about how good this match is and how good universities serve the societies became stronger (see also Kennedy and Koch). Nowadays, surveying alumni about their situation is normal practice and the need for methodical standards is growing. Time, says Lewark in his opening statement, for an overview.

Before that, a short description of forestry education, which changed through the years in forest education, is given. Koch – in the paper he wrote together with Kennedy – identifies and analyses three stages during the last half century in Western-world natural resources management:

- Traditional stage: natural resources first, foremost and forever;
- Transitional stage: natural resource management, for better or worse, involves people;
- Relationship stage: managing natural resources for valued people and ecosystem relationships.

Koch sees as the driving forces behind these changes, the increasing diversity, complexity and dynamics of ecosystem values and uses over the last 50 years, requiring new ways for natural resource managers (foresters, wildlife biologists, etc.) to understand and relate to their professional roles and responsibilities - in accommodating urban and rural ecosystem users, and managing the complementary and conflicting interactions between them. Moreover he states that the impacts of these three perspectives on how natural resource managers view ecosystems and react to ecosystems, people and other life-forms is basic and can be profound. Implicitly, he assumes that changes in society like these had and will have their impact on universities and thus also on forest education. In this interface, graduate surveys have their role.

Wageningen University has already a long tradition with this kind of surveys. Bad labour market situations in the early 1970s initiated - according to Bos-Boers and Schmidt - a first survey funded by the University and the Ministry of Agriculture. This survey was preceded by a thorough discussion on the reasons why, the partners

2 Summary

Table 1: Overview of issues discussed in eight papers on graduate surveys in this volume.

University	Curriculum		Organisation			Since Year	Attention for						Remarks	Author(s)
	Forestry	Others	University	Alumni organisation	Labour union		Labour market	Prepared for job	Job satisfaction	Methods used to find job	Salary	Gender		
Wageningen, NL	X		X	X		1973	X						Background	Bos-Boers & Schmidt
Dresden, D	X	X	X			2000	X	X						Grosse
Madrid, ES	X		X	X		2002	X	X						Garcia Robredo
Helsinki, Joensuu, FI	X		X		X	1985	X	X	X	X	X	X		Orenius & Rekola
Freiburg, München, Dresden, D	X		X			1995	X		X	X	X	X		Lewark & Steinert
Freiburg, Dresden D	X		X			2008*	X	X	X					Mühlsiegl <i>et al.</i>
Alnarp, S	X		X			2007	X		X	X	X	X	International education.	Burkas & Blicharska
Joensuu, FI	X		X			2005	X						International education.	Arevalo <i>et al.</i>

- First analysis in Freiburg 1990, here new methods used.

involved, the survey and processing methods, the questions to be answered, and the goals to be reached. Both the market situation for alumni and the fit of alumni in the market were studied. At that moment a regular repetition of the survey was already foreseen. Small changes in the survey like introducing gender aspects and problems encountered and solved since the start such as funding, growing alumni population, diminishing binding to the alma mater, change from paper format to electronic format etc. are discussed too. Some data on forest graduates from Wageningen University are given.

These introductory and background papers are followed by seven papers, discussing results of various graduate surveys carried out in Germany, Finland, Sweden, and Spain. As a lot of data are presented in these papers, an overview - including the authors - is given in Table 1. No attempt has been made to complete this overview with data not published in this volume.

Of course, forest sciences or forestry curricula are the central issue in all papers, sometimes (Grosse) comparable data of other curricula of the same university are given too. Mainly, a higher education institute (university, faculty or department) organises the surveys, sometimes in cooperation with an alumni organisation. The latter can do it also on its own, just as professional guilds and/or labour organisations. Attention for surveys started in the 1970s and was enhanced in the last decade of the 20th century.

All papers present some aspects of the current market situation. Among these, aspects like where do graduates find a position, what kind of a position, how much time between graduation and start of the work, success factors for finding employment (such as marks, studying abroad or at two universities, internships outside university), future possibilities, etc. Only three papers devote attention to the fit between the education and the starting position: Which parts of the curriculum proved to be necessary for the job, which parts were not relevant? Are the education level and the job level corresponding? This does not always mean that other surveys paid no attention to these subjects, but it was not reported here. Job satisfaction (level, salary and fringe benefits, etc.) are discussed in three papers, as were the methods used to land the position.

Four papers merit some special attention. Lewark and Steinert give and compare data of three German universities with forestry or forest science curricula. Mühl siegl *et al.* follow up with data on studying abroad and about the university or faculty network graduates have and would like to have. Burkas and Blicharska on the one hand and Arevalo *et al.* on the other analyse the survey results of graduates of international MSc curricula. Design and aim are not the same, but both analyses aim at international students and use international teachers. Striking differences between countries involved regarding forestry issues and a conspicuous preference for the home country can be found here.

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Two papers, both from the Technische Universität München, deal with employability of students and what universities can do to prepare their alumni better for the labour market, including the phenomenon of 'self employment'. In a more theoretical paper but including some practical approaches, Langfelder and Rahlf state that new demands as required by the work situation and/or the employer have expanded the requirements on employees regarding skills and competences. The employability concept provides a framework for personal and work related development for students, graduates and employees. Universities, having also a responsibility to prepare students for the labour market, are faced with the challenge of providing students and graduates with the skills, knowledge and practical experience to be able to enter the labour market and persevere there. Different approaches are in practice or being implemented; career centres, career management training, relevant information and events. Langfelder and Rahlf stress the personal responsibility of the student, but universities have to support.

Ziesak and Müller-Starck present examples which refer to actions of the Technische Universität München, aiming at providing help for graduates on their way into and through their professional life. In particular, actions supporting entrepreneurial independency, including self-employment, are addressed, stimulated by a lively communication within alumni networks. An innovative new field is the recently established "Career Service". "Life long learning" is looked at as a permanent challenge, with consequences for the courses offered. It is clearly pointed out that universities should not only provide the labour market with excellent graduates but should take a lot more care for its graduates as done so far.

The last two papers concern two important organisations in the field of forest education. Dupire depicts the International Forestry Students' Association (IFSA), which bundles and represents forestry students' organisations from all over the world. IFSA is lobbying active to improve forest education. At the moment IFSA surveys the differences in perception on actual forestry curricula between teachers and students.

The International Partnership for Forestry Education (IPFE) is described by Pitkänen, as a group of universities, education networks, and international organizations aiming to strengthen university level education concerning forests and forestry worldwide through the facilitation and support of collaborations between universities, teachers and students.

In his concluding remarks, Lewark states that mostly universities are responsible for carrying out graduate surveys and that quite a number of stakeholders, including these universities are interested in the results. Graduates can give information, which can play a certain role in study advice and quality management. Moreover graduates can be used as lobbyists. Graduates can fulfill both roles only if their whereabouts are known. Lewark reflects on where the data can be used inside university and states that broad publication of the results, even in scientific journals

would be desirable and favourable, both for spreading of the results and for strengthening the position of forestry inside university. Moreover, he stressed the need, already indicated by Mühl siegl *et al.*, for uniformity in methods and forms to be used in graduate surveys.

INTRODUCTION

SIEGFRIED LEWARK

What do we know about our graduates?

Graduate analyses for forest sciences and related curricula

Looking back we find that in many countries numbers of forestry graduates seem to have matched the needs of employment in the forestry sector over a long time. Probably nobody can prove this, and surely the situation in different countries was very different.

The situation in the 1990s has been reviewed by Lewark, Pettenella and Saastamoinen (1998), as presented at the SILVA Network conference in 1997. The authors had experienced difficulties in doing this, as only in a few cases data were just ready to use, and definitely there was no standardized way of assessment and presentation. Also it is notable, that the available data have been collected by universities in some cases, by professional guilds or unions in others. And only in a few cases, real specialists did surveys of the whereabouts of graduates in a systematic manner. Interviews of actual and potential employers which may supplement graduate surveys had been carried out even less frequently.

Meanwhile, methods of graduate analysis have been developed further and standardized enquiries would be possible. This needs, however, cooperation and agreements between universities as presented and discussed in this volume by Mühl siegl. For future efforts in this direction the knowledge of what has been done and what is going on is of fundamental importance: What do we, the universities, know about our graduates? This is the main subject to be discussed during this annual SILVA Network conference in Copenhagen.

Self-respecting universities or single faculties are carrying out graduate surveys today, often as parts of their quality management system. This is a systematic undertaking and looks like more than a short-living fashion. Ideally universities may look for a matching of education and employment in distinct fields, for „employability“ of their graduates as a crucial output of study programmes, for success of their graduates on the labour market. Of course things may be more complicated if study programmes prepare for a multitude of occupations, not only for a specific field – or are not directed towards specific occupations at all.

A way to prove success on the labour market is the implementation of graduate analyses. But graduate analyses supply more than just knowledge about the whereabouts of the graduates, perhaps disaggregated by specialisations, career aspirations or gender of the graduates. They could also, in a retrospective, reveal

strengths and weaknesses of the study programmes and based on this be used for their revision. Graduates can be questioned directly about their experiences with their education and views for possible improvement of the study programmes for their successors; about competences they or the employers consider important; which did they achieve; which do they consider insufficient; which subjects may seem overemphasized; which subjects are missing in a study programme.

One should of course be very careful with the interpretation of the uttered views of graduates for several reasons: they may idealize their experiences or exaggerate bad feelings. They will compare what they have experienced by using the competences in their working life with ideas which may be out-dated. Then there are more impacts of time going by: any change in the curriculum will influence competences of later graduates only after years. And it takes even more time before graduates with new competences reach working life. So what a graduate states in an enquiry perhaps five or ten years after starting a job may have nothing to do with the learning and teaching reality at the university at the same time.

Graduate analyses seem to start from normative expectations. How do we want a study programme and the achieved competences to be, what situation in working life of our graduates do we expect. The foremost question of the universities offering forestry education often has been: how many of our students get jobs in forestry, equating this with the success of the respective universities. So it may be enough if a graduate analysis serves the university carrying it out, resulting from different traditions and functions (cf. the proceedings of the SILVA Network conference in Wageningen in 2005, Lewark et al., 2006). But forestry activities are broadening and today including fields like community forestry, social forestry, urban forestry, caring for recreation functions, nature conservation. How to prepare students best for their future occupations? How to take into consideration that graduates will more and more frequently change jobs during their careers? How to prepare them for lifelong learning, rightly emphasized increasingly? How to prepare graduates for work activities in other countries, in international organisations or in development aid? Should all this occur within traditional curricula, with specialisation inside or outside these curricula? Certainly adding subjects has its limits, especially with even shortened times of studies as requested within the Bologna Declaration. Consequently we observe the creation of new, more specialized study programmes – this makes comparisons of subsequent graduate analyses difficult and cumbersome.

In Europe we find a diversification of curricula in many universities, with an extra impetus from the Bologna Declaration, resulting in more and more specialized curricula and leading more or less away from the traditional forestry curricula. On the other hand in some countries higher forestry education still focuses mainly on the traditional occupations in forest services. How to deal with this in graduate analyses? Keeping in mind education in forestry is a measure of success for some

universities – doing the enquiry only with this idea in mind probably will not be sufficient for the future.

The contributions of the conference show us that more and more graduate analyses for graduates of higher forestry education are carried out, as compared to 1997. A variety of methods and instruments are used, certainly not standardized, and if so, then within a national or university system. But as outlined, the methodical and conceptual challenges are growing. While we must be happy with what we already have, we need further development based on an exchange of experiences and specialized knowledge about methods of graduate analysis.

The graduate surveys in the field of higher forestry education in Europe have been mostly done isolated, even if the advantages of comparable approaches and data are obvious. Certainly both, specialized and standardized, approaches have their respective merits in terms of flexibility, specificity and practicability. Most important of course is that they are done at all. Presently in SILVA Network we try to lay ground to coordinated approaches of graduate analyses in higher forestry education in Europe. The contributions of the conference will contribute to our dialogue, open our eyes, help understanding, what is going on and encourage us to proceed with methodically up-to-date graduate analyses.

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FOREST EDUCATIONS IN A CHANGING WORLD¹

JAMES J. KENNEDY AND NIELS ELMERS KOCH

Abstract

The increasing diversity, complexity and dynamics of ecosystem values and uses over the last 50 years require new ways for natural resource managers (foresters, wildlife biologists, etc.) to understand and relate to their professional roles and responsibilities - in accommodating urban and rural ecosystem users, and managing the complimentary and conflicting interactions between them.

Three stages in Western-world natural resources management are identified and analyzed, beginning with the

- *Traditional stage*: natural resources first, foremost and forever, to
- *Transitional stage*: natural resource management, for better or worse, involves people, to
- *Relationship stage*: managing natural resources for valued people and ecosystem relationships.

The impacts of these three perspectives on how natural resource managers view and respond to ecosystems, people and other life-forms is basic and can be profound.

Three stages of Western-world natural resources management

Although we two foresters come from different continents, our professional forestry educations in the United States and Denmark were similar. Both were the centuries-old European model of a hard-science and mathematics foundation, followed by traditional silviculture and tough-minded management courses that maximized the production of obviously valuable resources. The focus was on “sacred stuff” production - usually tall, straight trees and deer with large antlers. With the increases in amount and diversity of users since the 1970s, one often hears that natural resource management is now all people management. Natural resource management is neither *sacred-stuff* nor *people* management. It is both and more. We propose it is *human-ecosystem relationship* (or interaction) management, and that is what natural resource use and management has always been.

From prehistoric European or North American rock art, to God inviting Adam to identify and name the natural resources of Eden, to people logging, hiking or photographing forests today, natural resources are human-ecosystem relationship, with the parts of earth ecosystems 1) cognitively recognized and 2) emotionally

¹ Revised and shortened version of the paper Kennedy, J.J. and Koch, N.E., 2004. Viewing and managing natural resources as human-ecosystem relationships *Forest ecology and management*, 6, 497-504. Copyright (2004) with permission from Elsevier.

valued (Bateson, 1979). Humans being social animals, our human ecosystem *relationships* usually have ritual celebration, social status and other cultural components that natural resource managers intentionally or unintentionally, directly or indirectly impact by their action (or inaction). Our paper will:

- examine how natural resources management has shifted from a sacred deer, water or tree *stuff focus* to include human-dimensions,
- present a *human-ecosystem relationship* perspective that we believe is a better life-long learning concept for university students or experienced natural resource professionals.

Table 1 displays a range of justifications over the last couple of centuries for including people/society aspects in natural resources education and management. It indicates how and why these modes evolved, plus the motivation and the spirit for including them. These perspectives are presented as three modes of thought and behaviour in the following three sections.

Table 1: Several rationales for including people/society considerations in natural resource (NR) education or management.

Educational or Management Modes:	Rationales for People Considerations:	Humans and NR Relationship Models:	NR Management Mantra:
1. <i>Traditional Sacred-Stuff Mode:</i> NRs First, Foremost and Forever.	Market & political pressures compel us to incorporate economic & policy considerations.	NRs foremost, within economic & political/legal <i>constraints</i> .	Sustained-yield NR management of sacred tree or deer outputs, without damage to long-term site or habitat productivity.
2. <i>Transition Mode:</i> NR Management, for Better or Worse, Involves People.	NR management increasingly interacts with diverse, complex political & socioeconomic systems.	NRs first, but their management is driven & impacted by people.	Regardless of people or political distractions, strive always to manage for “the good of the resource.”
3. <i>Relationship Mode:</i> NRs = Human and Ecosystem Relationship.	NR definitions & symbols, direct or indirect use, protection & management are all human-ecosystem relationships. Without a “human dimension”, there are no NRs.	NRs & society are equally & inextricably intertwined over time and space.	Manage not just for ecosystems or for people, but for their complex, diverse, short- & long-term sustainable relationships.

Traditional sacred-stuff mode: natural resources first, foremost and forever

The traditional perspective of a natural resource education or management (Table 1) assumes that ecosystems have obvious human value in long-standing wood, game

or water outputs. Emerging non-game wildlife or recreational services were sometimes mentioned, but usually as constraints to the efficient production of primary, sacred-stuff outputs. In his preface to one of the Western-world's first natural resource textbooks (in 1817), von Cotta provides a poetic, passionate and ecologically sound description of German foresters' roles and social responsibility - much of which reads fresh and true today (von Cotta, 1817). Such wood-focused silviculture was an adequate appraisal of the dominant forest social values in that agricultural and emerging industrial stage of European socioeconomic development (Evelyn, 1706; McGee, 1910; Koch and Kennedy, 1991). Economics or policy courses provided some social science in forestry or other types of natural resource education, but the focus was usually microeconomic production efficiency (Hays, 1959) and a history or law emphasis in policy courses. There was little focus on the human aspects of natural resource use, values or regional socioeconomic development.

Changing European and USA social, economic and political forces persistently conspired to insert themselves into a sacred wood or game management focus after World War II (Gulick, 1951), and professional educators and managers were increasingly required to include people/society considerations (Hermansen, 1970; Kennedy, 1988). Such inclusion usually was not done eagerly or willingly, but warily and prudently (Cliff, 1963; Stridsberg, 1984). Young natural resource managers often heard from their elders that in a more perfect world there would not be all this public and political interference in our professional wisdom, and they would be liberated to "manage for the good of the resource." This "good" was generally not well articulated, but usually involved more intensive, efficient wood or game production. Somehow foresters or wildlife biologists were convinced that ultimate insight of what was good for the resource would emerge from scientific purity and professional objectivity (Behan, 1966; Magill, 1988). The European and USA public, it seems, was not so convinced (Reich, 1962; Hytonen, 1995).

Transitional mode: natural resource management, for better or worse, involves people

Increasing outdoor recreational and other uses of European or USA wild lands of the 1960s (Cliff, 1963; Hopkins, 1970; Hasel, 1971) and other sociopolitical change of the turbulent 1970s (Duncan, 1971; Reidel, 1971) educated natural resource managers to the complex and diverse human-ecosystem relationships of emerging urban, post-industrial societies (Drucker, 1993; Reich, 1991). Most natural resource professors and managers of the 1970-80s eagerly embraced the emerging concepts of *ecosystems* being more complex, diverse and interdependent than initially imagined - after all, it was just an expansion of interest and involvement natural resource scientists and managers had had with ecosystems since Evelyn (1706), von Cotta (1817) or Leopold (1939). Embracing the interrelatedness of complex and diverse *socio-cultural, economic and political systems* into our management of

those ecosystems was no more intellectually difficult, but seems to have been more professionally threatening (Hasel, 1971; Kennedy *et al.*, 1998).

The concept of managing natural resources for multiple and diverse *social values* was developed to make sense of all the different sociocultural, economic and political/legal systems impacting European and USA natural resource management in the 1970s (Kennedy, 1985; Koch and Kennedy, 1991). After becoming convinced that such social value concepts could legitimately incorporate biocentric values, suspicious wildlife ecologist also began to entertain this thinking (Kennedy and Thomas, 1995).

The beginning course version of this natural resource social value model goes something like this:

- Earth ecosystems are not managed for fixed, unchanging and intrinsic values that fall from the sky, are generated only by economic systems, or are whispered in our ears by the ghosts of professional ancestors (e.g., Aldo Leopold or von Cotta). Natural resources are managed for multiple, diverse, long and short term social values - as a) sociocultural, b) economic and c) political/legal systems interact with d) earth ecosystems.
- Natural resource social values originate from people in only one of these four systems (the sociocultural), as humans interact with earth ecosystems. Such social values originate from human needs (e.g. Maslow, 1954). Natural resource perceptions and values also are not part of our intellect or feelings upon birth. They are largely socially learned. These values, like human needs, range from human-dominant to human-mutual relationships with earth ecosystems. At the human-dominant end of this value continuum, parts of ecosystems conceptually recognized and emotionally valued (i.e., natural resources) have worth only as they fulfil human needs - be these needs material, recreational or spiritual (Kennedy and Thomas, 1995). On the human-mutual end of the continuum, biocentric values of the natural world (more independent of human use or value) are recognized. Here some humans have learned to believe that plants and animals have value (and often rights) similar to our own species (Rolston, 1988; Rolston and Coufal, 1991).
- Natural resource social values are communicated individually and jointly by three interrelated systems: the economic (in prices, taxes or jobs), the political/legal (via laws, budgets or litigation) and the sociocultural systems through symbols/messages in social protest, newspaper articles, interest group pressures, T-shirt decorations, community acceptance or shunning of natural resource managers and family, public awards or sanctions.

This social value paradigm of natural resource use and management accommodates the full spectrum of evolving human-ecosystem values in our diverse urban, post-industrial society - from the human-dominant and utilitarian perspective, to more biocentric human-ecosystem relationships. It also includes those systems (other than economics) that are more present today in natural resources use, planning and

management. In addition, it can be applied to forestry (Kennedy, 1985), range (Kennedy *et al.*, 1995) or wildlife (Kennedy and Thomas, 1995), in Europe, USA or other cultures (Koch and Kennedy, 1991; Wiersum, 1999).

Although effective at the conceptual level of ecosystem management, this model can be enriched by looking deeper at the origin of human-ecosystem social values, and the ultimate justification for managing natural resources in the first place - to provide for valued short and long term earth ecosystem *relationships* for humans and other species.

Relationship mode: natural resources are valued human and earth ecosystem relationships

A human-ecosystem relationship perspective is the foundation for a social value model of ecosystem management. It can be the initial and fundamental concept in framing natural resource, or more general ecosystem, management as if people really mattered (Brunson and Kennedy, 1995; Egan, 1996; Magill, 1988). In teaching students or experienced managers from this perspective, the core belief from start to finish, is:

- we never manage ecosystems *just for themselves* (that is, for the “good of the resource”, whatever that might mean) or...
- *just for people, ...*
- but for the many meaningful and valued short- and long-term *relationships* between ecosystems and people - regardless if those relationships are of a logger’s or a backpacker’s self-image and life-style, bird watching or bird shooting, mining or photographing a landscape, utilitarian or biocentric values.

People-ecosystem relationship is not where an introductory course in natural resource management course should end, with a lecture or two on “human dimensions”. For *without* a human dimension, there are *no* natural resources. It is where one *begins* and what should be emphasized *throughout* a course or a 50 year career in natural resource management. With such a human-ecosystem relationship perspective, there is little resistance or antagonism rationale for not incorporating people/society considerations or different professional colleagues (e.g. anthropologists or poets) into natural resource education or management, which is the topic of the next section.

Attitudes toward people and social institutions as an essential, legitimate part of natural resource planning and management

Many natural resource professors in the 1950-60s, in the *Forstmeister* mode (Miller and Gale, 1986), took an antagonistic attitude toward the increased people (especially new urbanites) and political involvement in natural resource management (Cliff, 1963). The transition mode (Table 1) is a more enlightened perspective. It is also more likely to survive in democratic societies that

increasingly demand that decision power be more broadly and equitably shared in natural resource planning and management - especially on public lands (Reich, 1962; Kennedy, 1988). Yet there is often natural resource manager reluctance and sense of sadness in such human/society inclusion in their professional lives, similar to human sexual relationship attitude in Victorian times. Namely, many natural resource managers felt they should not become involved in the social dynamics (especially politics) of human communities unless *forced*, then only as a *means* to an end, never looking forward to or *enjoying* the process.

Increasing numbers of people enjoying wild lands or increased involvement of the press or politics into natural resource management were often discussed as unfortunate consequences of the modern world, such as traffic congestion or air pollution. Our modern world might require increased cross-campus social sciences and natural resource policy/administration education to more effectively react to these increased people/society complexities. But like spinach or Victorian sex, the social sciences may be required means to necessary natural resource management ends, but probably should not be enjoyed for their own sake. What a sad way to relate to and live life.

The left column of Table 2 is a less dramatic illustration of traditional natural resource aversion or reluctance in embracing people/society as an essential and legitimate aspect of natural resource management. The right column (in contrast) begins with a human-ecosystem relationship premise, which remains a central and binding concept throughout. Yet note that although the traditional and relationship natural resource management models in Table 2 start with very different perspectives, both reach similar ultimate conclusions: that our paramount natural resource or ecosystem management responsibility is *to accommodate current human needs, while passing on adequate, diverse, sustainable ecosystem options and opportunities for future generations of our and other species*. After all this prolonged and often reluctant acceptance of human beings as a central and legitimate ingredient in the definition and management of natural resources, we have circled back to where *Forstmeister* von Cotta started in his classic jewel of a preface to one of the first silviculture textbook about 200 years ago, or to what Leopold (1939; 1949) celebrated (Kennedy, 1984).

We two foresters see no other choice for natural resource managers but to be this humble and conservative in ecosystem management - especially of *public* land and water ecosystems (Kennedy *et al.*, 1998). For if we cannot confidently predict human values and behaviour as simple as (say) USA or European men's hair styles in 2012, how can we confidently predict human-ecosystem relationships in 2050 for which to plan or manage. Given such relationship and social value uncertainty, it may be best to provide future environmental *choices and options* rather, than explicitly and rigidly planned and developed landscape scenarios. This is explicitly stated as a goal for Nederland state forest lands (Staatsbosbeheer, 2001:13) as "sustainability means continuity.....about keeping our options open for future

Table 2: Two different, yet similar, natural resource (NR) management perspectives - sacred-stuff and relationship models

<i>Traditional, Sacred-stuff Model:</i> Traditional, Scientific Natural Resource (NR) Management for Obvious and Inherent Values--We Manage for Good NR Outputs:	<i>Relationship Model: Managing Land and Water for Social Values Generated by Meaningful People-Ecosystem Relationships:</i>
1) <i>Start with NRs:</i> Ecosystems provide obvious, long-standing goods and services that society needs—commodities (e.g., wood or water) and more intrinsic or amenity values in wildlife or wilderness.	1) <i>Start with Human-Ecosystem Relationships:</i> In the Western-world perspective, human perceptions and values are the “re-“ and ecosystems the “source” in conceptualizing and managing natural resources.
2) To provide long-term flows of these valuable resources, they should be protected and managed in an efficient, sustained-yield manner.	2) People are not born with NR perceptions or values. They must be learned, will vary with culture, and change over time.
3) Best people to manage NRs are objective, scientifically-trained professionals (traditionally foresters or game managers).	3) Goals of NR management are based on socially learned human-ecosystem relationships, which are expressed to managers through interacting social, political/legal and economic systems.
4) Because people use NRs and impact their efficient management, they must (for better or worse) be considered in NR protection and management.	4) Educating NR managers in human-ecosystem relationships, plus the origin and expression of human social value, is as essential as physical, biological and management knowledge.
5) A greater number and diversity of conflicting human uses, interest groups, laws, etc. often are involved in NR management today.	5) In this social value orientation, NR managers must never forget that the majority of human stakeholders of earth ecosystems are yet to be born.
6) Somehow and somewhere, some policy and economics is required in the curriculum to efficiently protect and sustainable manage NRs.	6) The social values driving NR management are based on human-ecosystem <i>relationships</i> . Thus, NR managers are ultimately and basically relationship managers. Most of our decisions ultimately touch the human heart—so move slowly, be sensitive, think deeply and inclusively.
7) With all these people concerns and all this politics, never forget that natural resource managers should bequeath adequate, sustained-yield NR systems to future generations.	7) Since future human-ecosystem relationships and social values cannot be accurately predicted, current human society should bequeath adequate, diverse, sustainable ecosystem options to future generations of our and other species.

generations.” In an 1850s or 1950s era of greater perceived certainty, it was easier to confidently foreclose future ecosystem choices with long-term road or dam development options - appearing rational, efficient choices at the time. A quick examination of the status of world ecosystems intensively used and managed for centuries reveals a common consequence of such hubris is often contraction of relationship choices for humans and ecosystems today (Perlin, 1989). Ecosystem

relationship choices may be the greatest gift today's users and stewards of earth ecosystems (especially those publicly owned) can bequeath to future generations of humans and other life-forms.

Consciously or subconsciously, intentionally or unintentionally, a sacred-stuff orientation often creates a hubris-mode of ecosystem use and management. This hubris risk is greatest at extreme positions, be they genetically superior conifer plantations or ultra-diverse wilderness as the dominant paradigm. Striving for balance between current choice and future options, within and between public and private ecosystems, seems a good vision in a dynamic, unpredictable world. A human-ecosystem relationship perspective can foster this more humble-mode, which is our final thought and challenge.

Conclusions

USA or Danish forestry students of the 1950-60s spent more hours in silviculture lectures than in any other natural resource subject. There initiates were usually taught that if forests were efficiently managed for wood production, that other wildlife, water or recreational values would take care of themselves - known as the "wake theory" in European silviculture: do good high-yield and sustained-yield wood production silviculture and good multiple use management will follow in the "wake" (FAO, 1988; 1989). This fancy title gave such arrogance and more legitimacy in minimizing the need for natural resource students or managers to respect and study humans and their institutions. Fortunately, some professors and managers of that era were in the "transition mode" of recognizing that people and society were of increasing importance in managing the natural resources we cherished (Schmidt *et al.*, 1998). Yet learning about people and society was something to be done mostly on our own as practicing professionals.

Reserving such critical people and society knowledge for informal, experimental education in the "real-world" could have worked better if natural resource students were provided effective attitudes and skills to be good on-the-job learners. Usually they were provided neither. Most natural resource managers of the last century learned the hard (and sometimes tragic) way how to be the people-ecosystem managers they needed to be - and in spite of many dysfunctional attitudes and role models taken along with their diplomas into the real-world. Educators can do better than that for the young people entrusted to them and better for the earth ecosystem we cherish.

Educating and role-modelling students that will manage a wide spectrum of natural resources for diverse and changing social values (resulting from complex, diverse and dynamic human-ecosystem relationships) can be very effective and enduring management or educational perspectives. First and foremost, the relationship mode is people/society embracing and responsive. It stresses our public service role (Magill, 1988) and concludes with the obligation to bequeath future generations of

our and other species adequate, diverse and sustainable ecosystems choices or options. In addition, the human-ecosystem relationship perspective challenges the potential arrogance and hubris of ecosystem management at either end of the natural resource commodity or biocentric value continuum.

The human-ecosystem relationship model also meets many generic requirements for natural resource management in the 21st century (Kennedy *et al.*, 1998), because it meets many criteria of lifelong-learning. Namely, it is:

- *inclusive* of interrelated ecosystem, socioeconomic and political systems over time and space;
- *integrative* in illustrating the system interdependency of a complex, interrelated world; and
- *adaptable* in the fluid way it introduces change as a natural, long-standing way for social, economic or ecological systems to interact and adapt.

Finally, it encourages a humble-mode for natural resource managers as midwives, not masters, in a timeless relationship dance with complex, diverse and dynamic human beings and earth ecosystems.

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CHANGES IN THE JOB MARKET FOR UNIVERSITY FORESTRY GRADUATES IN THE NETHERLANDS

MARIAN BOS-BOERS AND PIETER SCHMIDT

Abstract

For a number of institutions the question “How can one monitor and forecast changes in the job market for university graduates in forestry?” is a highly relevant one. The development of job market research methods of Wageningen University (WU) graduates since 1973 is described. The main focus is on the parties involved, the aims and which problems might to be solved. The actual situation of WU graduates in Forest and Nature Conservation will be given with the results of the alumni survey in 2006 and the up-to-date alumni database of 2008.

History of the forestry curriculum at Wageningen University

The Forestry curriculum changed again and again since its start in 1918. From that year until after the Second World War, Wageningen University (WU) offered two Forestry curricula, one aimed at temperate forestry, and the more important one aimed at tropical forestry. Due to declining enrolment in the early 1950s these two curricula were changed completely into two new curricula, one aiming at ecological and silvicultural aspects and one at economic and technical ones. The next change occurred in 1971, in the wake of the 1968 turmoil in university Europe, resulting in one Forestry curriculum with three specializations not aiming at climate zones, followed in 1982 with a Forestry curriculum with even five specializations. Since 1983 a two year MSc curriculum Tropical Forestry was offered to students with a (Forestry) BSc from other (applied) universities.

Due to decreasing enrolment and diminishing interest for forestry graduates on the labour market, it was decided in 1993 to abandon the Forestry curriculum and offer a curriculum “Forest and Nature Conservation”, first in the old format of an Ingenieur (Ir) degree at MSc level, since 2000 (officially since 2002) in the format of a Dutch taught BSc degree followed by an English taught MSc degree. More details on the Forestry curricula can be found in van Baren *et al.* (1998) and Jansen and Schmidt (2006).

History of job market research

In the early 1970s, the number of alumni increased quickly, but also the unemployment rate among Wageningen graduates. The Alumni Association KLV (Royal Netherlands Association for Agricultural Sciences) and the Wageningen University felt that something had to be done. (Bakker Arkema, (1972). At the same

time the job variety among Wageningen graduates increased, they obtained jobs earlier closed for them. On the other hand, the number of curriculum specializations increased too. Moreover due to the number of graduates, it became impossible to keep in touch and be informed about their situation on a personal, informal basis. Earlier every graduate from Wageningen knew more or less his or her whole year of students (horizontal line) and all the members of his or her students' society (vertical line over the years). Moreover, nearly every student was a member of a students' society.

Hence in 1973 it was decided to survey on a five year basis all graduates from Wageningen University but also to use other sources of information in order to set up a dynamic information system which can provide information about careers of (male and female) alumni, the labour force participation, trends in unemployment, and about the opinions of alumni on their academic education.

Why

In 1973, it was discussed for which purposes a survey should be carried out. The first part of the answer is the acceptance of graduates on the labour market. Where do they find jobs and how can the market be served better? Are the expected jobs obtained, are unexpected jobs obtained? Are there many unemployed persons under the graduates? Are there over the years changes in the jobs obtained? Should the curriculum be adapted, are the competences of the graduates accepted in the market? Answers to these questions can be formulated on basis of a survey under alumni. Of course this can partly be done too by the involvement of employers in curriculum commissions, but young graduates have a better knowledge of the just finished curriculum.

Of course, this information can be used by study advisors, partly to inform new enrolling students, partly to inform students when composing their own individual curriculum by a combination of specialization and free choice courses. On the other hand, the here obtained data can be used to inform potential employers about the quality of the graduates

Parties involved in labour market research and aims

Many parties are interested in the results of alumni surveys. It is important to analyse this aspect intensively, because this can lead to funding for the actual survey, the analysis and the reports.

- Universities need the information for different purposes:
 - To improve curricula by evaluation of educational programmes – the results form a chapter in the 'Visitation' reports (each five years the WU curricula are subjected to an international peer review evaluation);
 - To improve existing curricula;
 - To develop new curricula to cope with trends in the society;

- For the professional guidance of students by study advisors;
- To give information to secondary school pupils who consider studying at a given university, for instance in Wageningen.
- Decision makers in governmental and educational organizations, whose aims can vary much:
 - To regulate the educational organizations in allocating available money;
 - To estimate the need of graduates in our society;
 - To deal with unemployment or lack of academic educated persons.
- The alumni association KLV forms an intermediate between university and labour market. KLV is using the results
 - To give professional guidance to its members, both graduates and students;
 - In their policy to maintain high quality of education at the university.
- Employers. As the fields of curricula at the universities are numerous and changing fast, employers use the results
 - To get informed on competences, qualifications and skills of the graduates and the jobs they obtained ;
 - To improve the human resource management (e.g. how many graduates are to be expected) ;
 - To involve employers in the improvement and development of curricula.
- Career advisors and head hunters.
- Individuals (students and graduates during their career).

Essential information needed

KLV and Wageningen University have carried out job market research since 1973. In the first survey in 1973 much emphasis was put on a good questionnaire which could be used in this and all future surveys (Stichting MPW, 1976). For reliable and comparable results over the years it is essential to use the same questions every time. This first questionnaire formed the basis. Items in the five-year Alumni Survey are:

- Labour market participation and trends;
- Kind of jobs, level and requirements;
- Sector of the labour market and trends;
- Conditions of employment;
- Connection between education and job;
- Need of post university education;
- Individual careers;
- Vacancies to be expected.

The results of Alumni Surveys were published in reports with results of the whole population and subdivided by number of years after graduation, gender and – if relevant – by type of curriculum (f.i tropical and non-tropical) (Stichting MPW, 1980; NILI-MPW, 1984; NILI-MPW Onderzoek, 1989; Evers and Bos-Boers,

1993a). Specialized reports for each of the curricula of Wageningen University (see Evers and Bos-Boers, 1993b) and on the position of female graduates (see Bos-Boers, 1992; 1995) were published. Other aspects like working in the industry (Bos-Boers, 1990), the position of graduates with a doctor's degree (Evers and Bos-Boers, 1993c), the income situation of graduates (Bos-Boers, 1990) were issued.

Methods

To get the information needed, several sources are being used: a survey by using a questionnaire amongst alumni, the information of the KLV Alumni data base and available data from other sources. The information from these surveys together with available statistics forms the basis of the job and career information system. The statistics are derived for instance from the ministerial institute Statistics Netherlands (CBS). CBS collects huge amounts of data on nearly everything. The Ministry of Social Affairs and Employment collects data on unemployment, more or less according to professional groups.

Besides the five-yearly surveys additional information is used. KLV initiated a short survey among students shortly before they graduate. Questions such as 'Do you have a job, where, how did you get it?' are included. Results used to be presented during the graduating ceremony. Another survey is the WO Monitor among all graduates of all universities one year after graduation with emphasis on evaluation of the education and monitoring their jobs. The Alumni association KLV keeps an enormous data base with 30000 graduates with all BSc, MSc and PhD's of Wageningen University. This database includes name, title, curriculum, address, email address, employer, position. Two persons are working full time to keep this database up-to-date. An up-to-date database is essential for all surveys and all activities for alumni. This database which can be addressed and used at any moment, can also give the latest information of the labour market situation of specific groups of graduates.

The 1973 survey, the first carried out, addressed the eight items mentioned above. Some of these questions were formulated as multiple choice questions, to facilitate both the filling in as well as the processing. Other questions were formulated as open questions, forcing the graduate to think and write a bit more and troubling the processing. A couple of these open questions were reformulated later as multiple choice questions.

Most institutes involved as shown before can use the information collected here for the different purposes mentioned. All later surveys addressed more or less the same points, with the questions formulated as before. The last survey, number eight, was carried out in 2006, some results will follow. Survey 2006 was the first in the row in which digital questionnaires were used. The next survey will be carried out in 2011.

Results of the five-year surveys can lead to add one-time additional questions in the surveys or to additional research projects. For instance in 1978, the special problems women met on the labour market were surveyed (Bos-Boers *et al.*, 1980), in 1983 questions on entrepreneurship were included, in 1992 the need for post graduate training was addressed. Sometimes, the results of the alumni survey raised other questions. This led to other research projects such as 'Future oriented methods' which included among others the DELPHI methods (Van 't Klooster *et al.*, 1979). After a certain survey, it appeared that graduates from the food processing curricula found disappointing few jobs in the food industry. So, with the DELPHI method, key persons in this industry were approached individually and directly, with selected questions, to clarify this situation. The information obtained was used for instance when rethinking curricula and for promotion of the benefits of Wageningen graduates in the food industry sector by retired professors.

Problems encountered

During those more than thirty years, many problems were encountered, some were solved, others were left to solve by themselves.

In 1973, 4000 alumni received a questionnaire, with a response rate of 68%. In 1992, 14000 forms were posted, with a response rate of 60%. Nowadays the database comprises 30000 graduates. As it is costly to survey them all, it was decided to take a sample only. How? Very simple: Forms are sent only to those graduates who answered in the surveys before plus all the new graduates since the time of the last survey. To obtain an acceptable distribution over all curricula, some graduates from certain curricula were added.

A second problem is the response rate. Young graduates apparently lost their connection with their alma mater. In 2001, 62 % of the older graduates responded, but only 33 % of the younger ones, graduated between 1997 and 2001. In 2006, 10000 graduates were invited, with a response rate of 43 %, partly via internet.

A third problem is the funding. In 1973 half of the funds came from the Ministry of Agriculture, the other half from Wageningen University. In general; the same amount of money is still granted, no correction for inflation nor a correction for increased numbers of graduates has been given. Moreover, the Ministry forced the survey being carried out by a consulting firm, who is asking more for doing less. The use of internet may help. The solution was found in reporting less, not on paper or as booklet but only as pdf files through internet and no special reports by curricula any more. The support among the graduates is diminishing and the feeling for the responsibility to continue these surveys in the institutes is disappearing. No real solution has been found yet.

Some results for Forestry and nature conservation of the 2006 survey

Hereby we focus on the first jobs of the new curriculum forest and nature conservation only. The number of graduates responding is 48 out of 142 approached, which is not very high. The respondents are mainly Dutch students, only one is non-Dutch.

About a quarter found their job through an internship during the study. This confirms the existing feeling among students and teachers. Employers know already what is coming.

Nearly half of the graduates start working directly after graduating and one-fifth within one to three months, which is good. Other sources indicate that a lot of these students wait longer with looking for work, perhaps travel around the world. This could be a larger part of the thirty percent without a job after three months.

Surprisingly only ten percent have found a job outside the Netherlands, which used to be much higher earlier.

One fifth start the career as PhD students. This working on a PhD illustrates the change towards a scientific orientation. In total thirty percent is working in a research institute or university and almost twenty percent works in a governmental job. Half of the young graduates start the career in private enterprises, mainly consulting firms, in environment services, recreation business and Information Technology. The IT and software companies have been an important sector especially in the eighties and early nineties, years with high unemployment. The high percentage working in consulting firms may be a surprising consequence of Nature 2000 and other EU regulations.

Combining several surveys can give some insight in the mobility between jobs (see Figure 1). A comparison of the 1988 survey with the one from 1992 indicated that forestry graduates climbed the career staircase in these four years. From the starting position as researcher, commercial staff and Information technology specialist they moved to policy officer, to expert or to project leader.

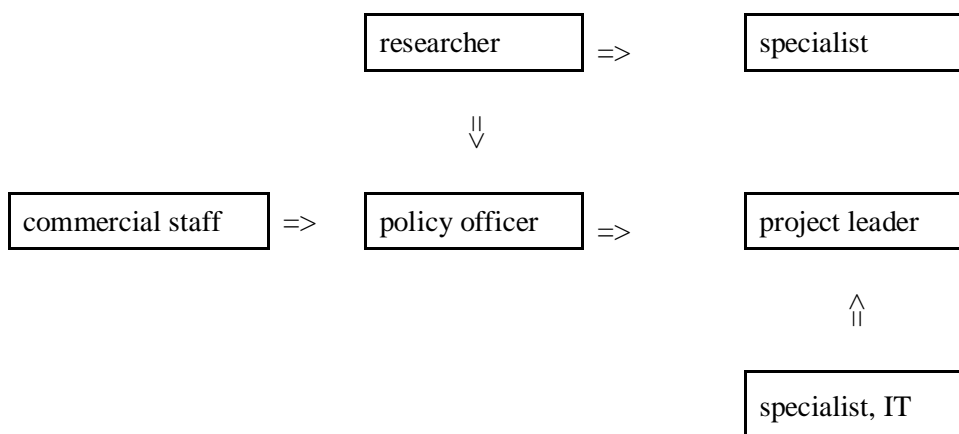


Figure 1: Mobility of forestry graduates between 1988 and 1992. Data source KLV surveys 1988 and 1992.

Trends in the labour market

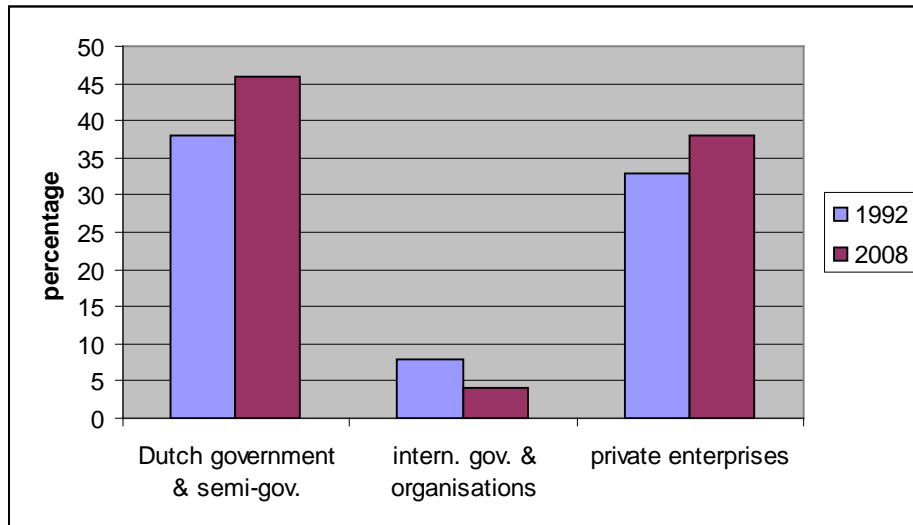


Figure 2: Trends in the labour market. Employers of forestry graduates in 1992 (N=528) and 2008 (N=830). Data derived from the KLV Alumni data base.

When comparing 2008 to 1992 (see Figure 2), relatively more graduates are in 2008 working for the Dutch government and Dutch semi governmental organisations. More graduates are working in private enterprises, mainly consulting firms. Again, is the latter the result of more EU and national regulations, resulting in more work to be done? Less graduates are working in international organisations. Are the Dutch graduates losing the competition with those from other nations? It gives the idea that nowadays quite a number of tropical countries seem to prefer their compatriots over foreigners, due to better education in the tropical countries, more tropical graduates from western universities and perhaps too the employment policy of tropical countries?

Jobs of forestry graduates in 2008

Comparing the Dutch with the non Dutch graduates, we see some differences. The relatively large number of teachers and researchers among the non Dutch graduates may be a reflection of the funding policy of Dutch development cooperation agencies. Striking is too that no non Dutch graduate indicated that they are involved in policy making and in commercial activities. Maybe here also the funding policy plays a role. That more non Dutch graduates working as self employed could be explained by the fact that not only third world students are coming to Wageningen, but also people from the United States of America, from the European Union and from countries of the former Soviet Union.

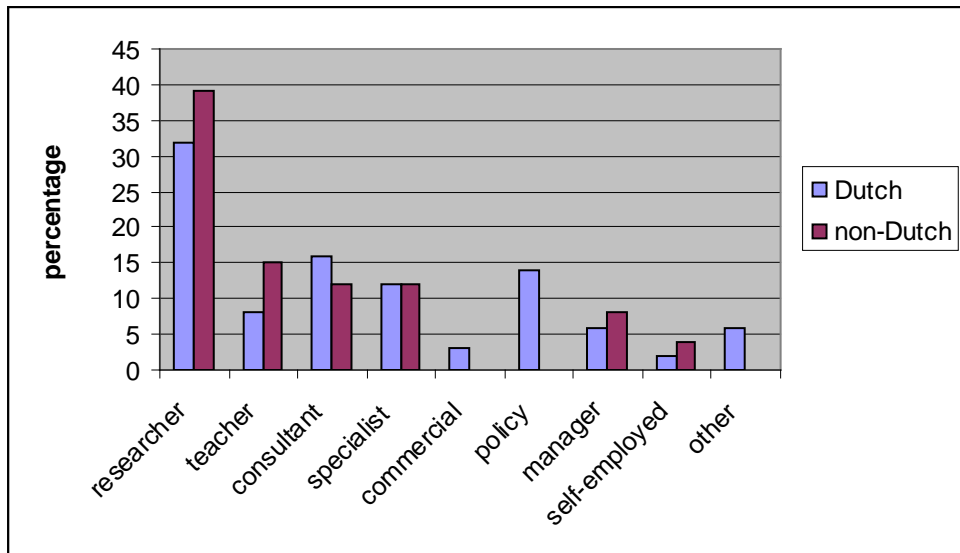


Figure 3: Job market for recently graduated (2004-2008) Dutch and non-Dutch alumni of the MSc Programme Forest and Nature Conservation. Data derived from the KLV Alumni data base.

From Forestry to Forest and Nature Conservation

In September 2008 160 students or 7 % of the total of the BSc student population, are enrolled in the BSc curriculum Forest and Nature Conservation For the MSc curriculum Forest and nature conservation, these numbers are respectively 133 and 7 %. On the other hand, 1735 graduates or 6 % of the total alumni population of the Wageningen University with a MSc and Ir degree studied forestry, the previous curriculum. The difference between seven percent of the students as compared to six of the graduates may indicate that the choice to change the curriculum from only forestry to forest and nature conservation was a good one. It helped the curriculum and the chairs involved to survive.

Conclusion

Alumni surveys of different kinds, based on a variation of data sources, yield important information, which can be used by universities, employers and students. Data sources need careful maintenance, well formulated questionnaires with items, which should be repeated in each subsequent survey. Funding of repeated surveys over longer periods may be one of the largest problems connected to alumni surveys.

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OCCUPATION AFTER STUDYING FOREST SCIENCES IN GERMANY²

SIEGFRIED LEWARK AND SANDRA STEINERT

Abstract

The Bologna process emphasizes the „employability“ of the graduates as a crucial output of study programmes. In the view of a dramatic change in the field of professional foresters this presentation includes selected results of a graduate survey. The job success of German forestry graduates and its determinants are analysed using a theory-driven model. The joint graduate surveys of the forestry faculties of the University of Freiburg (cohorts 1995-2003) and the TU München and the graduate survey of the TU Dresden supply the data (cohorts 2000-2003).

On average graduates of forestry study programmes earn 32 000 € two up to six years after graduating. A majority of 55% and 65% of the graduates from Munich and Freiburg, respectively, are satisfied with their job. Somewhat less satisfied are the graduates from TU Dresden. During the first six months after their studies 70% to 85% of the graduates had found their first job, 90% after 12-15 months. The main determinant of job success (including income, adequacy of job, job satisfaction) is the average grade in the final exams („Diplomnote“): With an increase of the grade by one point above sample average the income increases by 7 715 €. Studying abroad, traineeships or jobbing during the study were not correlated with job success. No statistically significantly gender related differences were found in job success.

Introduction: Background, aims and design of survey

Graduate analyses for forest sciences curricula have a long tradition in Germany. They are going back to the 1970s, when Scheifele (1973) analysed the job opportunities of “Diplom-Forstwirt”. Next were studies for the University of Freiburg by Kaiser (1990, 1991) for the graduation years 1981-1983, Abberger (1992) and Abberger *et al.* (1992) for the years 1986-1989, by Lappe and Bittner (2002, 2003) as well as Schröder and Krott (2007) for the graduates from the University of Göttingen from 1993 to 2001 and 2002 to 2005 respectively and the first Germany wide enquiry commissioned by “Deutscher Forstverein” (Gerecke, 1997; Gerecke and Ihwe, 1997).

² This text is based on two more comprehensive publications: Lewark *et al.* (2006) and Mutz *et al.*, (2010), where more results and information about study design and methods as well as the questionnaire are found.

When job market and working life for graduates of forestry curricula changed over the last thirty years, which intensified at the beginning of the new millennium, there were also changing demands from the field of occupation. Therefore the Faculty of Forestry and Environmental Sciences of the University of Freiburg together with the Professorship for Social Psychology and Research on Higher Education, Swiss Federal Institute of Technology Zurich, again initiated a graduate survey for the forestry graduates in Germany. Due to surveys already under way or recently finished in some universities with forest sciences programmes not all universities participated in this coordinated approach.

The graduate analysis aimed at gaining current information on study programmes, study conditions and the transition from university to occupation, on occupational orientation and on the current occupations of graduates of forest sciences curricula. Selected results for Freiburg and analyses of job success in comparison with Dresden and Munich will be reported.

Design and methods of survey

The data basis for the analyses stem from the graduate surveys of the forestry faculties of the University of Freiburg (cohorts 1995-2003), and the TU München, and the graduate survey of the TU Dresden (cohorts 2000-2003) carried out 2005/2006. Whereas the forestry faculties of the University of Freiburg and the TU Munich have cooperated doing their assessments and using the same questionnaire (Lewark *et al.*, 2006; Anonymous, 2007), the TU Dresden supplied part of their own data set³ (Lenz *et al.*, 2005, P. 202 ff.).

Survey groups and response rate for the University of Freiburg

The response rate was 47% (289 questionnaires completed sent back⁴), while graduation (1995 to 2002) was already some years ago in 2006. The return consisted of 28% female and 72% male graduates (Diplom-Forstwirt) representing the distribution of sexes in the forest sciences curriculum in Freiburg during the last years. The mean age at graduation was 29 years, what seems to be representative for the survey group as well.

Around half of the respondents were married at time of the questioning. Irrespective of the marital status two thirds of the respondents stated to live in a shared household and earn on average two thirds of the income for this household. Almost half of the respondents had children (one child in most cases) but did not always share their household with the children. On average the questioned parents declared to do 10 hours educational work per week.

³ Grosse (this volume) used the same data set.

⁴ Numbers of answers are different for different questions due to incompletely filled in questionnaires.

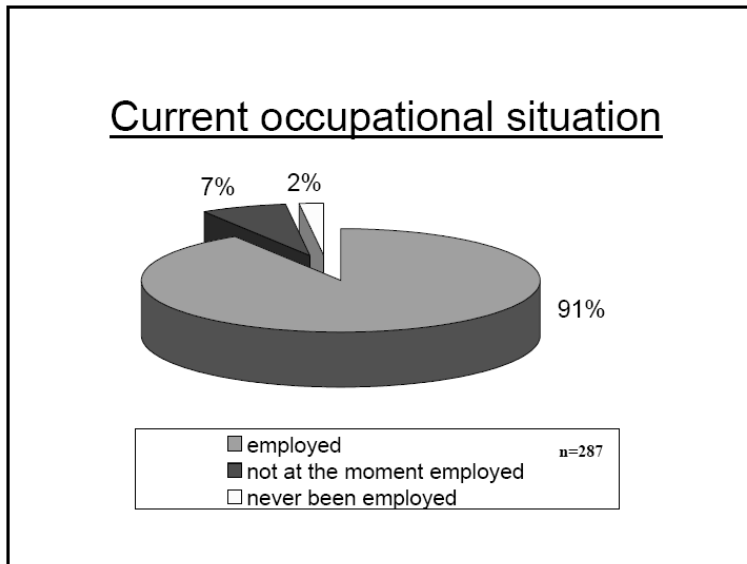


Figure 1: "Do you have a job at present?"

Current occupational situation

Most of the respondents (91%) stated to be employed at the time of the questioning (Figure 1), more than half of this group with an unlimited contract (Figure 2). The other half was in a probably more insecure occupational situation, a quarter answered to be in occupation on a limited contract.

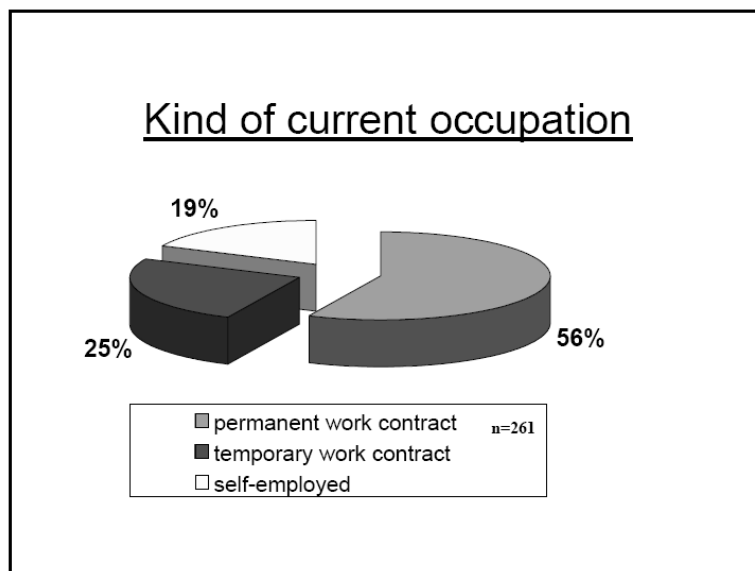


Figure 2: "Character of your current job?"

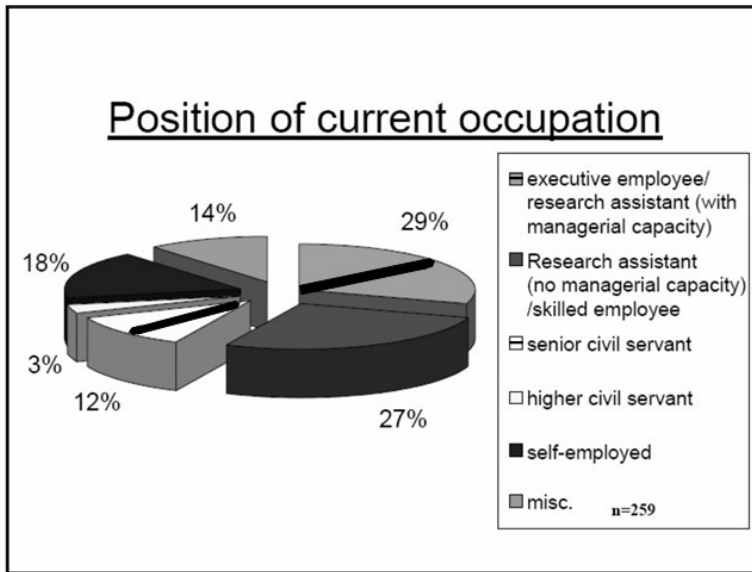


Figure 3: “What is your position at present?”

Almost 20% of the respondents were self-employed (Figure 3). The major part of the employed respondents was employees (“Angestellte”), 15% worked as public servants. About 70% of the respondents were employees in leading positions or in jobs, where scientific qualifications are required, as higher level public servants officers or self employed consultants offering traditional or new types of services. That means that this group is occupied on a level adequate to the level of their university education. Two thirds of the respondents had to move their residences because of their occupations.

Around 25% of the respondents are actually working in the field of forestry, 8% in the timber industry and 5% in nature conservation, 2% are working in other “green” fields of occupation (Figure 4). Unspecified administration, perhaps including forest administration, was named by 16% of the respondents. Other areas are education (4%), research (6%), consulting and (IT-) services (12%), development co-operation (2%). Almost 20% of the respondents are actually occupied in jobs further away from the contents of the forest sciences curriculum.

Search for occupation and satisfaction with current occupation

The application way mostly used was a reaction on advertised positions (one third of the respondents did so); second one was the application on own initiative. One third of the first jobs resulted from the former. The search via internet (about half of the respondents tried it) was successful in only 3% of the cases. To use contacts of lecturers was only the seventh most frequent way to apply, but was the third most successful way (22% tried this, 10% successfully).

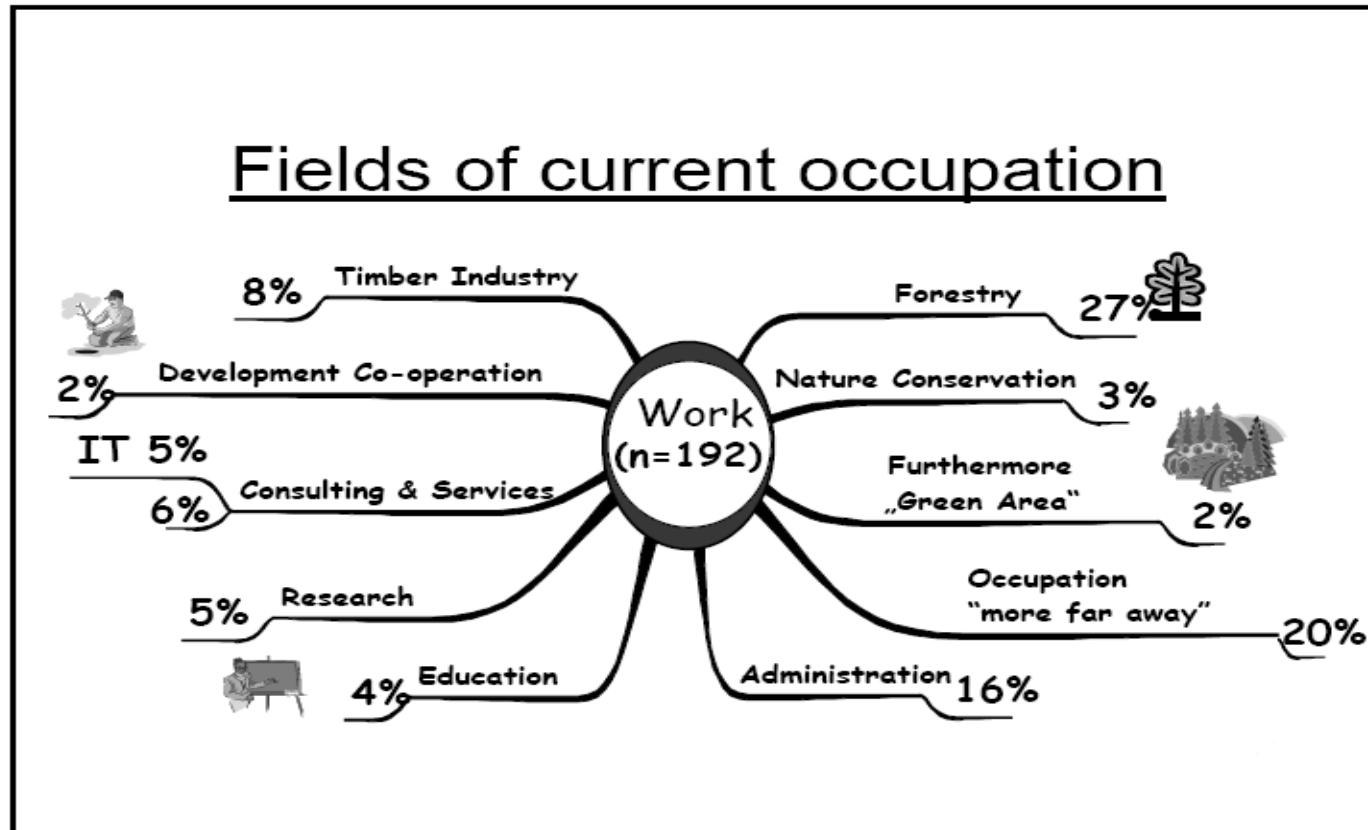


Figure 4: "What is the field of your present occupation?" (Occupations named summarized in most frequent groups).

During the first year after graduation, 90% of the respondents found an occupation, 64% found an occupation already during the first three months and 27% found an occupation even before the end of the first month after graduation (Figure 5).

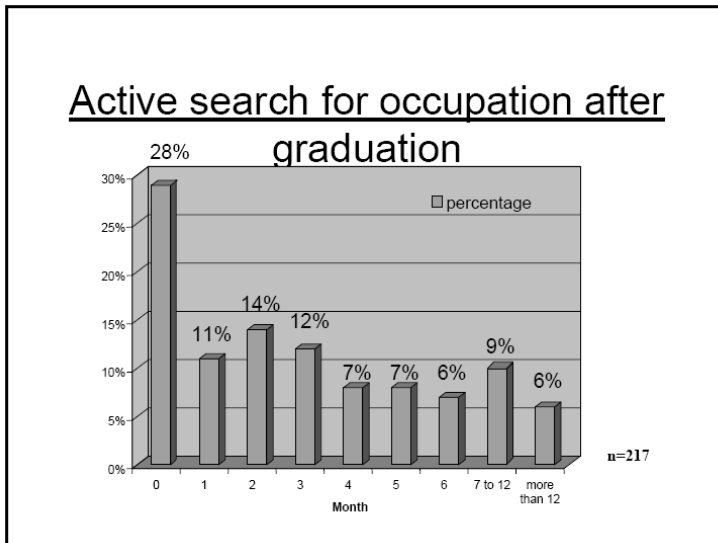


Figure 5: “How many months after graduation did you actively search for your first job?”

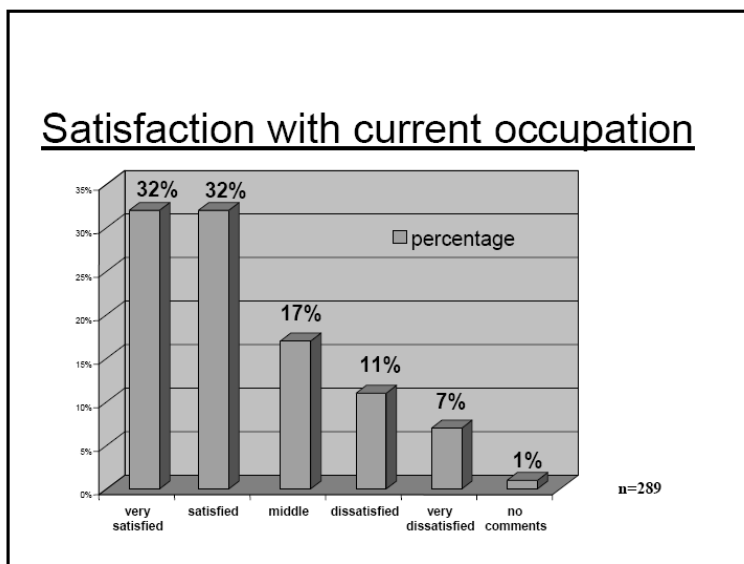


Figure 6: “How satisfied are you with your current job situation?”

On average the respondents were satisfied with their job situation, 64% of the respondents were either very satisfied or satisfied, 18% were dissatisfied or very dissatisfied (Figure 6).

Further education

The forest sciences programme as experienced by the respondents obviously resulted in basic professional knowledge needed for the job market. In most cases further education was not asked for subjects within forest sciences, but mainly in the fields of “project management”, “knowledge management” or “data processing and informatics”.

Comparison Freiburg – Dresden – Munich: job success

In a further analysis job success of forest science graduates from three German universities have been analysed (cf. Mutz *et al.* (2009) for methods of statistical analysis and more results) based on a model of determining and resulting factors (Figure 7). The following results are based on graduates responses from those four years 2000 to 2003 common to the three data sets (N=232).

The model is based on theoretically derived and empirically proved correlations between single items of the questionnaires and constructs composed from the items, thus allowing testing of hypotheses with the findings from the enquiry (Mutz *et al.*, 2009). There are similar models elsewhere in recent literature. The main purpose is to lead back outputs and outcomes to the performance of higher education including structures of study programs and to come to recommendations how to improve job success by modifications of the learning process.

Gross income of graduates

The graduates earned on average 32 000 € as compared to 38 300 € in German average in 1999 (from the international CHEERS study „Careers after higher education: A European research study“ by the University of Kassel (cf. Schomburg, 2007)). There were clear differences of income between the graduates of the three universities, graduates from Munich and Freiburg earning a great deal more than those from Dresden.

Gender and job success

Men and women were employed with temporary and permanent contracts or self-employed in a similar way. Women earned 4 500 € less than men: men 33 300 €, women 28 500 €. This difference of 17% is not statistically significant. In 1999, the average difference in Germany was 24% (Schomburg, 2007). There was no statistically significant difference of job success (gross income, job satisfaction, time of search for first job) between women and men either.

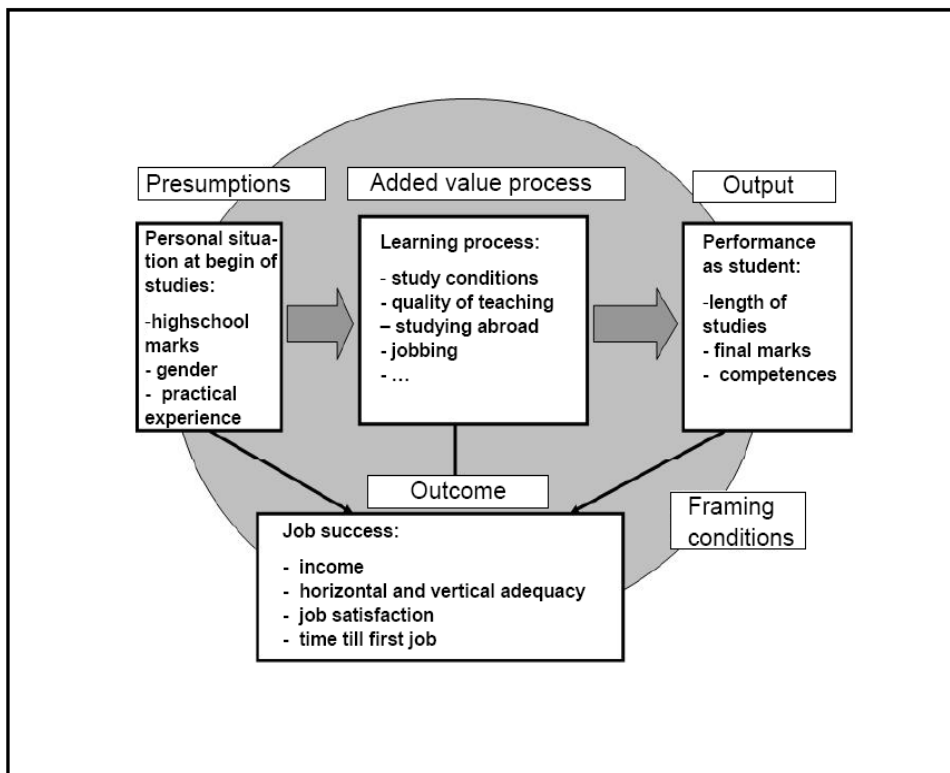


Figure 7: Model of job success (presumptions: personal situation; added value process: study; output: study success; outcome: job success) (modified after Mutz *et al.*, 2009).

Time of search for first job

After 6 months 70 to 85% of the graduates had found a job, after 12-15 months more than 90%. Jobbing before or during studying did not show an impact on job success. According the Bavarian panel of graduates (Falk *et al.*, 2007) around 70% of graduates in Physics, Mathematics, Chemistry and Biology in Bavaria had a job or a PhD position three months after graduation.

Performance

Job success was higher with better final grades. Yearly gross income was 7 700 € higher with every point⁵. At the same time job satisfaction was higher with better grades. Correlation between final marks at university and high school was $r = 0.47$. This is in agreement with other predictions of performance during studies (Trapmann *et al.*, 2007). Lengths of studies have often been seen as important for job success, but here no influence on job success (gross income, job satisfaction) has been found. There was also no influence of internships and studying abroad.

⁵ In the German grading systems marks are from 1 (best) to 4 (passed).

Temporary employment and number of years in the job

There was a strong correlation between limitation of contracts, gross income and job satisfaction, independent of gender: graduates with limited contracts earned 8 600 € less than those with unlimited contracts or being self-employed. At the same time those with limited contracts or being self-employed were clearly less satisfied with their occupation than graduates with unlimited contracts. Gross income was growing by 4 000 € per year.

Three reservations are made in interpretation of the results:

- First they refer only to the graduation cohorts 2000-2003, graduated 3-6 years before questioning. So the variability of the variables, especially of gross income, may be restricted („restriction of range“), which may result in lower correlations. Of course results are only valid for the years analysed.
- Secondly we are dealing mostly with descriptive analyses. Multiple regression will control the influence of single variables, but regression function must not be interpreted as causally determined. So the moderate correlation between final grades at highschool and university and job success may, instead of a simple impact of input, depend on a third factor, such as intelligence influencing all three variables.
- Thirdly using the data of TU Dresden resulted not only in a reduction of the data set (number of years), but also in a reduction of numbers of variables. As the variables needed for calculation of horizontal and vertical adequacy were not including in the enquiry the resulting items could not be analysed.

Conclusions

The presented results of the analyses show, that many of the graduates from the forest sciences curriculum in Freiburg as well as of the other two included German universities found an occupation in quite a short time after graduation, had an occupation at the time of the survey and sometimes already had leading positions.

More detailed analyses would be needed in order to give more detailed information on study experiences, on transition of the graduates from studies to occupation and on current occupational situations. This would allow conclusions for the further development of the new curricula in Freiburg to prepare students even better for the changing job market and for the future fields of occupation.

In general studying forestry seems to offer employability. Most graduates had a job after 12-15 months. Average gross income was slightly lower than that of other academic graduates (Schomburg, 2007). Women were found to have similar employability as men (due to a low number of years between graduation and enquiry all with a short time in their jobs), with a tendency of lower income. These general positive statements about studying forestry are in agreement with results for other academic graduates from national and international studies as the CHEERS

study, which Schomburg (2007) titled „Not a difficult start: the first years in the job of higher education graduates in Europe”.

Performance (final grade) was decisive for job success and rewarded in the labour market, less important were internships, studying abroad or length of studies. Partly success also results from general achievement potential and commitment, which are also expressed in high school grades. The universities may use knowledge about these correlations, along with their tests of affinity for a subject and qualifications, for selection future students.

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GRADUATE ANALYSIS RESULTS AT THE FACULTY OF FOREST, GEO AND HYDRO SCIENCES, TECHNISCHE UNIVERSITÄT DRESDEN

WERNER GROSSE

Abstract

At the Technische Universität Dresden, graduate surveys including the career situation and retrospective evaluations of the study programme have been carried out since 2000. The analyses are being accomplished by the “Project Team Graduate Studies“, part of the “Saxon Centre of Competence in Education and Academic Planning”. Standardized questionnaires were sent out annually questioning graduates of three or four faculties. Between 2000 and 2006, graduates of all 14 faculties have been questioned once or twice. The focus of this paper is on the information collected from the graduates of the Faculty of Forest, Geo and Hydro Sciences. The results of the analyses are discussed and recommendations are given to improve the future contents and the relationship between the courses taking into consideration the situation on the forestry job market.

Introduction

The survey of graduates, among others allows collecting indicators of the quality of the education. If such surveys are conducted over a period of several years in different curricula of a university, a huge number of statements will arise. A comparative evaluation of study programmes between different faculties will be exceptionally helpful for the development of new education programmes. At the Technische Universität Dresden (TU Dresden) graduate analyses are being systematically carried out since 2000. Annually the graduates of three to four faculties of the TU Dresden are questioned. The first questioning takes place from two to four years after termination of the study, while four years later the graduates are questioned once again. This survey of graduates, conducted systematically, covered such issues as length of the study period, labour market for the graduates, including time for the job search and job choices available and applicability of their learning results to work activities. A total of about 8000 graduate students were surveyed up to 2006, and about 4000 responded, resulting in a response rate of 50%. The results of this survey, focusing exclusively on diploma programmes are shown below.

Methods

A standardized questionnaire has been designed by the “Project Team Graduate Studies”. It was sent to the graduates (graduation years 2000/2001 to 2003/2004) of

the Faculty of Forest, Geo and Hydro Sciences (FGH) in 2005. The questions aimed at shedding light on: (1) length of their studies; (2) success on the labour market, including time for the job search and job choices available as well as the first salary; and (3) applicability of their learning results to work activities. More on the methods of the survey and the results for the whole university can be found in Heidemann *et al.*, 2004; Heidemann, 2007; Kremmkow, 2006; Kremmkow and Pastohr, 2006 and Lenz *et al.*, 2005. Here, focus is on the information collected on the graduates of the Faculty of FGH. In addition to the above-mentioned survey, data from Roloff (2002) have been used.

Results

Length of study

In Germany, the academic year is divided into two semesters: winter and summer semester. The standard length for the programme designed to lead to a Diploma (the traditional German degree) at the TU Dresden and the Faculty of FGH has been nine semesters. The official sojourn of nine semesters at the university has been exceeded by most of the FGH graduates. The average real study period for these students in 2005 has been 11.2 semesters (Figure 1). There was a clear trend towards studying longer than the regular length of the programme for quite some time for all curricula. In the last years, especially with the students of forestry, this real study period had increased gradually; reaching more than 12 semesters in 2007 (Figure 2). Several reasons might have led to this trend. The main reasons seem to be first the jobbing of students to earn money to finance their education and second the insufficient qualification of some of the students enrolling university.

A third reason could be that although TU Dresden strives to be a good employer, and seeks to attract and retain high quality staff, in order to sustain the overall health, viability and success of the institution, from time to time it has found itself in financial circumstances requiring reductions in the number of staff employed. This has affected especially the midlevel faculty staff. This staff reduction is creating deficiencies in student tutoring. From the personal viewpoint of the author, there is a lack of time to deal with and to integrate excellent students in research projects during the study period.

Although a number of student exchange programmes, varying in duration from several weeks to several months and enabling students to gain first hand experience as well as to learn about the culture of other countries, are offered only 40% of the FGH-students used this opportunity in the year 2005. Students are aware of the immeasurable benefits of a traineeship abroad. However, there seems to be a decrease in the incentives for students to study abroad both in the curriculum and outside of the curriculum (e.g. as Erasmus student, as practical trainee, etc.) after the establishment of the BSc and MSc curricula. While the number of Lifelong Learning Programme/Erasmus-agreements encouraging cross-border cooperation between the Department of Forest Sciences of the FGH with its counterpart

faculties in Europe has increased, the number of participants in these student mobility programmes has declined.

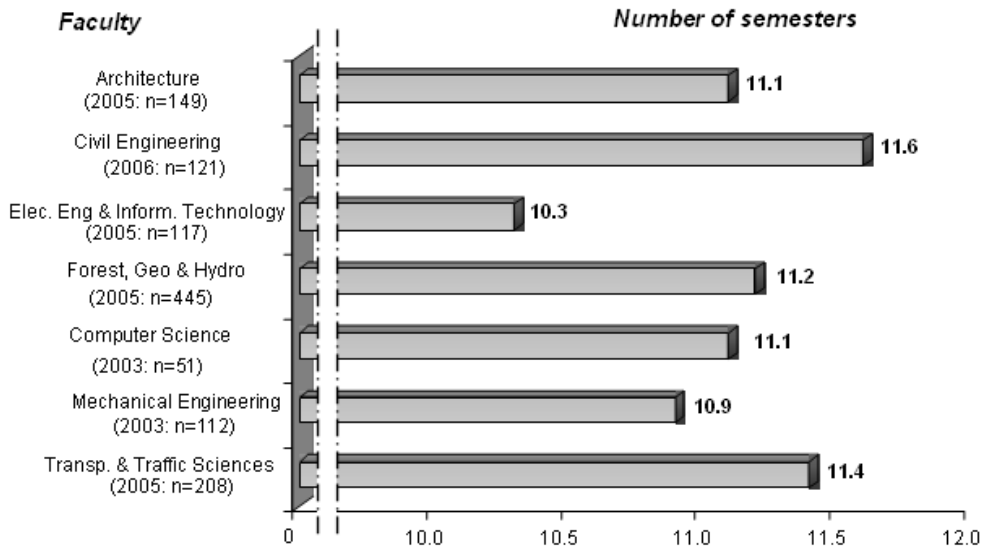


Figure 1: Real length of the study period at the faculty FGH in 2005, compared to other faculties. Source: Heidemann (2007) modified.

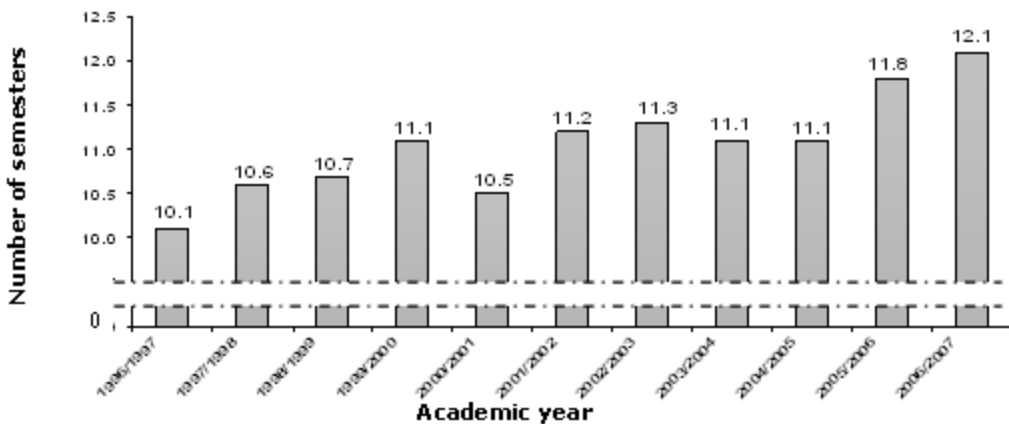


Figure 2: Length of study period by the graduation year at the department of forest sciences in Tharandt.

Searching for employment and career opportunities

An important aspect of the questionnaires has been the evaluation of the time needed to obtain a job position after graduation and the availability of open positions on the market. The graduates of the Faculty of Mechanical Engineering need the shortest time to find a position (Figure 3). The boom of the mechanical

industry during the last years has created almost an “employment-demand-market” offering the possibility for the graduates from these disciplines to select from different position offers and shortening the time needed to obtain a job.

On the contrary, it takes FGH graduates nearly five months after graduation to find a position. Compared to six other faculties (see Figure 3), finding a job is for forestry graduates more time consuming than for the other graduates. This is a clear indication of the limited number of positions available. Unlike in the mechanical industry with its sufficient number of free positions, the number of the so-called “green” jobs is very limited. The reorganization of the State Forest Service in the German states caused a strong staff reduction and nearly no new vacancies. Furthermore, graduates from the FGH faculty have to compete for “green jobs” with graduates from environmental and ecological study programmes.

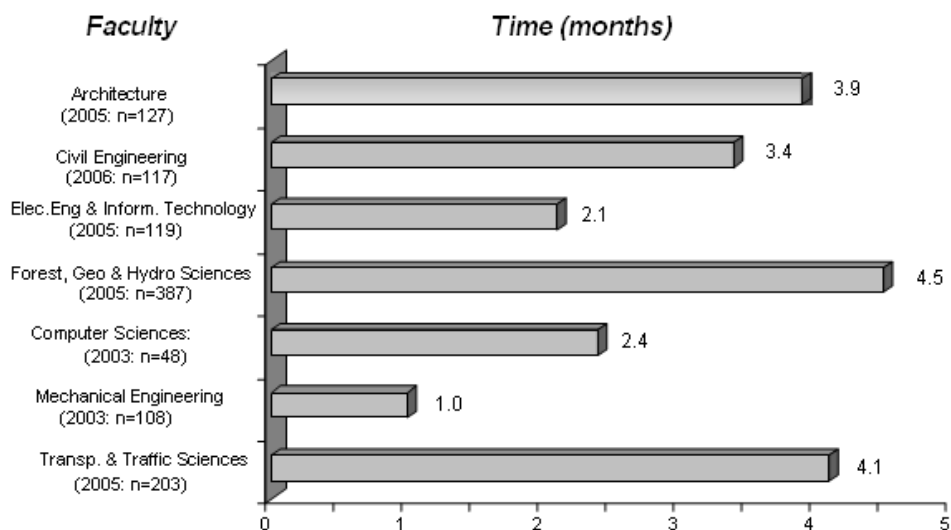


Figure 3: Time to obtain a job after graduation for FGH students as compared to other faculties of the TU Dresden. Source Heidemann (2007), modified

The first job and applicability of education to work activity

Changes in the workplace brought about by technological development, downsizing, and restructuring have led to the realization that to be successfully employed today students need skills differing from the ones years ago. Thus, a retrospective evaluation by the graduates of the study programme and their situation might serve as a good indicator how the curricula are adapted to the new situation on the labour market.

The majority of the graduates from forest sciences (90%) have found a job; more than 60% in the so named “green jobs”. According to Table 1, 30% of the employed graduates joined the public administration / public authority sector, which might not offer the highest salary, but seems to be more reliable. The usability of the knowledge absorbed in the curriculum was been evaluated differently by the

respondents (Figure 4). Among the employed graduates, more than 93% of the information sciences graduates reported that their training was relevant for their present jobs and evaluated it as very positive, but only 55% of the FGH-graduates shared that opinion. It would require detailed investigations to define the causes for this result.

Table 1: First employment after graduation as percentage of the questioned FGH graduates. Source: Lenz *et al.* (2005), modified.

	Forest sciences n =126	Hydro sciences n = 75	Geo sciences n = 98	Total n = 399
Private sector	29	49	37	37
University or research institute	25	29	22	25
Public administration, Public authority	30	11	23	23
Non-profit-organization	3	0	3	3
Others	2	0	6	5
Unemployed 1996-1999 ¹ 2005	3 10	5	9	9

¹ Source: Roloff (2002).

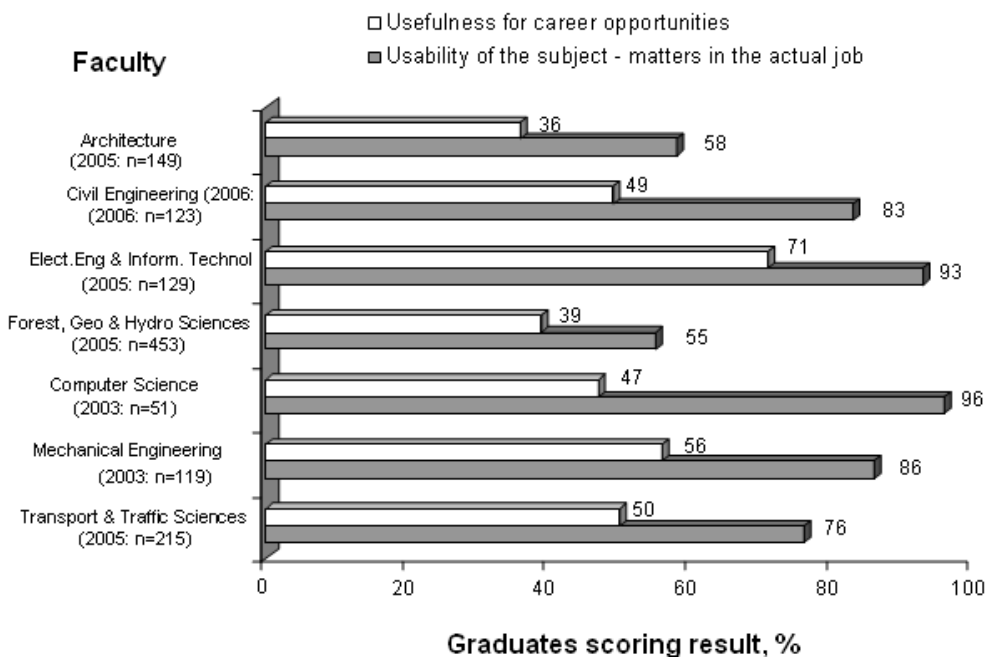


Figure 4: Percentage of graduates scoring their curriculum as good or very good in terms of career opportunities and usability in the job. Source: Heidemann (2007), modified.

Good jobs will go to persons who can put knowledge to work. In contrary to the usability of the study content in the actual job, when asked about the usefulness of the curriculum for career opportunities, only 55% of the graduates found that the study programme was useful or very useful for their career (Figure 4).

The trend remains more or less the same in both answers, however. More than 70% of the electrical engineering and information technology graduates evaluated the curriculum as very useful for career opportunities, whereas only 39% of the FGH graduates were positive. Only the Architecture curriculum scored lower.

Starting salary

The graduates of the Faculties of Architecture and FGH received with €1400 and €1500 respectively the lowest average monthly gross income of all starting graduates during their first employment. This is almost half of the starting salary of information sciences graduates (data not shown). Nevertheless, there is a growing interest to study forest sciences at the forest department in Tharandt. Both the number of applications in forest sciences and the number of enrolled students show increasing trends (Figure 5). Comparing this high number with the low starting salary suggests that the motivations to study this discipline are others than just making money.

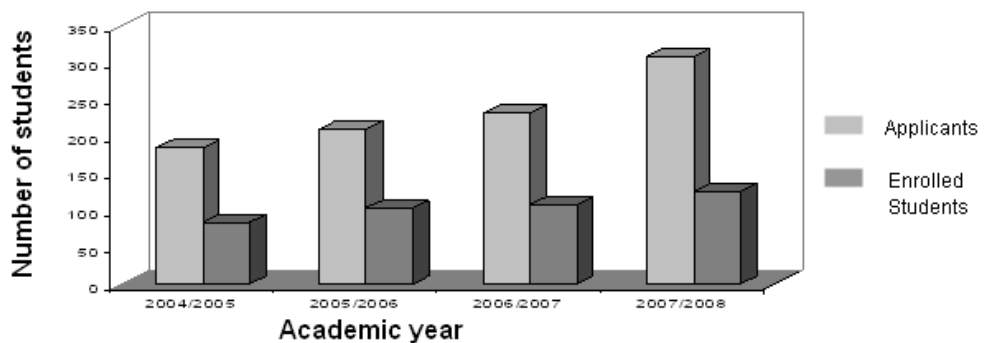


Figure 5: Number of applications and enrolled students from 2004 to 2008 at the Department of Forest Sciences.

Conclusions

Graduates included in the surveys have provided us with a unique look at their career situation and a retrospective evaluation of the curriculum. This survey and the analyses revealed several important results especially in terms of: (1) the efficiency of the study of Forest sciences, (2) usability of the study for the career, and (3) the use of mobility programmes.

The "efficiency" of studying Forest sciences as indicated by e.g. the length of the study period shows a significant increase. The main reasons seem to be the need of

earning money to finance their education and maybe the insufficient qualification of some of the students enrolling university. Concerning the usability of the acquired knowledge for subject matters in the job, the study programmes should be oriented to do both - impart a solid, scientific based general knowledge and a high competence in the area of specialization.

Although one of the main objectives of the Bologna Declaration is motivating and funding a higher mobility among the students during their study period, there is a decreasing trend in willingness of studying abroad after establishing of the new bachelor and master programmes. This suggests that we need to look for applicable solutions to improve this situation. There is no requirement to finish the study after 10 semesters if the students have used the additional time for practical traineeships or an Erasmus study abroad. The knowledge of foreign languages and cultures also could be an advantage in searching a job, and should be acquired by the majority of master students during their study period.

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ENQUIRY 2008 OF THE UNIVERSITY OF FREIBURG IN THE CONTEXT OF THE GERMANY WIDE RESEARCH PROJECT BY INCHER-KASSEL

REINER MÜHLSIEGL, RENÉ KREMPKOW AND SIEGFRIED LEWARK

Abstract

The University of Freiburg, and within it the Faculty of Forest and Environmental Sciences, participated in a new Germany wide research project initiated by INCHER-Kassel. This ambitious and comprehensive project used a standardized assessment instrument and included more than fifty universities in Germany. The project has been presented at the SILVA Network annual conference 2008 and will be sketched as background in this text. Results of interest in the context of the topic of the conference are meanwhile available and will selectively be summarized here.

Introduction: Background, aims and design of survey

The University of Freiburg, and within it the Faculty of Forest and Environmental Sciences, participated in a new Germany wide research project initiated by INCHER-Kassel (for details see Schomburg, 2008). This ambitious and comprehensive project including more than fifty universities in Germany uses a standardized assessment instrument and started in 2008. The project has been presented at the SILVA Network annual conference 2008.

The project was initiated as the result of a study of the practice of graduate surveys at higher education institutions in Germany (Janson *et al.*, 2006). This resulted in the following findings, demonstrating the attempts as well as their shortcomings:

About two thirds (65%) of the higher education institutions in the survey conducted at least one graduate survey in the last five years. Most of the surveys were conducted decentralised, on the level of a department or study programme. Of the higher education institutions, 45% conducted surveys on the level of the whole institution. About half of the institutions did not conduct graduate surveys regularly. The results from graduate surveys were used for "internal reports" in higher education institutions. Only in rare cases an external discussion and reflection in the form of a publication took place.

Using the results of graduate surveys for improving the curricula was stated more often by universities of applied sciences (83%) than by universities (53%).

Higher education institutions not conducting graduate surveys stated a lack of qualified personnel as the main reason.

In participating in the INCHER project the University of Freiburg started a new phase of quality management intending a systematic enquiry of graduates on the their start into working life and on retrospective views on their curriculum and study (Krempkow, 2009). In 2008 the university executed a graduate survey for seven out of eleven faculties, including the Faculty of Forest and Environmental Sciences. Here only the latter one will be discussed.

Graduates of forestry programmes were questioned not long before, in 2006, the results have been published by Lewark *et al.* (2006), Mutz *et al.* (2010) and Lewark and Steinert (this volume). Some results will be compared here. This short report will include international mobility and networking experience of the graduates, as this may be a good addition to the results reported from other universities in this volume.

Design and methods of survey

In general the objectives of the 2006 and 2008 enquiries, both include the graduates' start into working life and a retrospective view on their studies. But whereas the earlier surveys of forestry graduates (1980s and 1996) always used their specific questionnaires while absolutely representing the state of methodical development, only in 2006 an attempt was made by Freiburg and Munich to standardize methods in order to get comparable results (Lewark and Steinert, this volume). But this was still only securing comparability between the two data sets. Now with the INCHER project there is a chance for obtaining comparable data of a large number of universities by a standardized questionnaire, which can be modified though in some parts by adding questions of special interest. Furthermore for the first time at the University of Freiburg the same instrument will be used at several faculties.

The survey 2008 is characterized by a first enquiry shortly after graduation. A follow-up study was planned, with the next survey of the same graduates four years after. However, recently the quality management unit at the university was reorganized and, hence, a continuation on university level is not secure. But attempts will be made to repeat the study with the same questionnaire at faculty level.

Population examined

The 2008 survey included graduates from all study programmes of the Faculty for Forest and Environmental Sciences (in total 45 respondents), but the evaluation presented below includes only the 27 respondents from the traditional study programme of forest sciences, leading to "Diplom-Forstwirt".

At the time of sending out the questionnaires (2008) already the first students of the new BSc programmes had graduated. Even if the Faculty was very curious about their view on their start in working life and on their curriculum, these students were not included in the target group. The target group studied consisted of the graduates who started into working life in winter semester 2005/2006 and summer semester 2006, before the graduation of the first BSc students. The enquiry was timed two to two-and-half years after graduation as compared to four to ten years after graduation in the 2006 enquiry. According to the concept of the INCHER project the first enquiry should be done shortly after graduation in order to obtain still fresh impressions regarding the studies and obtain information about the situation at the start of the working life. This first survey should be followed by another enquiry four years later (cf. above).

With 27 respondents the 2008 response rate was lower than that from the 2006 enquiry. It may be speculated that this is due to the fact that the questionnaires have been sent by the university, whereas those from 2006 came from the faculty. The number of graduates per year was in the same magnitude as in the 2006 enquiry, between 80 and 100 graduates per year.

This number does not allow sophisticated analyses or far reaching conclusions, but some comparisons with the results from 2006 can be made (Lewark *et al.*, 2006; Mutz *et al.*, 2010; Lewark and Steinert, this volume). In addition some new information, like studying abroad, will be included which may complement other results in this volume.

The responding group includes 20 male and 7 female graduates – about the same shares as in 2006 and well representing the percentages in the population, according to the statistics of the university.

The responding graduates were 27 years of age at the time of graduation as compared to 28 to 29 in the 2006 enquiry. Only 15% were married at the time of enquiry, 52% were living in a partnership (including the married ones), whereas in the 2006 enquiry it was 47% married and 78% in a partnership⁶. The differences probably are due to the much shorter time between graduation and enquiry in 2008.

The lengths of studies averaged 11.6 semesters, which was about the same in the 2006 enquiry, and also similar to those in the Tharandt cohort (Grosse, this volume).

General satisfaction with studies experienced was reported to be very high (5 out of 26) or high (13) by the majority of graduates.

⁶ Out of the 78% 17% did not live in the same household, which was not specifically asked for in 2008

Studying abroad

Out of the 27 respondents 16 or 60% answered that they spent some time abroad during their studies, as compared to 40% from Tharandt (Grosse, this volume), for 2.5 to 19 months (on average 8.3 months). Out of these 16 students, 11 participated in a study semester or in an internship, some in both, whereas only a few participated in language courses or study projects. Various Erasmus programmes funded eight students and a number of other sources financed each one or two students, whereas three students did not find funding.

Occupational situation

At the time of enquiry (i.e. 2 years after graduation), 22 of 26 respondents had an occupation. Of these 22 graduates five had an unlimited contract and six serve an internship (“Referendarzeit”). One graduate was self-employed and 4 were (still) unemployed. Four graduates were working part time. Twelve graduates still held their first job, nine their second one.

Unemployment was experienced by 19 out of 26 graduates responding to this question, by 10 of them only for up to three months, by 5 for more than a year. One graduate did not yet have an occupation after graduation at all. Not all of the graduates started looking for a job immediately after graduation. Income was up to 1500€ per month for 12, more than 1500€ for 11 graduates. In the first occupation men had on average an income of 1590€, women of 920€ – at the time of enquiry the income was increased to 1790€ and 1460€ respectively. The occupational situation is considered adequate or highly adequate to education by 11 out of 23 graduates. It is meeting the expectations they had at the start of their studies for 13.

Contacts and networking

The 2008 enquiry includes a number of questions on the wishes for contacts with the university and for contacts the graduates have, summarized in Table 1.

Table 1: Wish for contacts of graduates with the university and contacts they have, 2008 enquiry. Total n = 27; missing numbers = no response to this question.

Type of contact	Wanted yes/no (n)	Existing yes/no (n)
Newsletter or similar from faculty	9/8	4/16
Newsletter or similar from university	2/15	8/12
Invitation for events at university	6/11	5/15
Invitation for graduation ceremony at faculty	2/15	3/17
Professional or scientific contact to university	12/5	5/15
Participation in alumni network of university	2/15	5/15
Information about continuing education at university	5/12	3/17
Contact to teaching staff	7/10	5/15
Contact to other graduates	7/10	13/7

The answers of the graduates two years after graduation indicate, that the interest is larger for professional or scientific contact than for general information or alumni networking. The latter one is perceived to exist rather on university level than on faculty level, whereas the interest would be more focussed on faculty level.

Discussion and conclusions

In general, the approaches of the various graduate analyses presented in this volume and the earlier ones at the University of Freiburg are similar, asking for reviews of the study experiences and for the job situation. In detail though there are differences with respect to the questions included and also with the concrete formulation of questions, which make comparisons of results cumbersome or vague.

Generally, the results of the 2008 enquiry of forestry graduates from Freiburg do not show large differences compared to those of the 2006 enquiry, and also not to those of other graduate surveys from German forestry programmes. Having one of the last cohorts of “Diplom-Forstwirten” in the study did not result in any cohort specific findings. These could have indicated changing attitudes or changes of the labour market, which we did not find. Further education proved not to be an issue at this time after graduation, as could be expected – and indeed there is no indication of starting an additional education at this time.

So the main progress to be stated here is that a start has been made with a standardized procedure and questionnaire. Whereas all the graduate analyses for forestry graduates - with exception of Tharandt - every single time used a new questionnaire, this new approach, using the approach from INCHER-Kassel, will lead to results comparable with those of other study programmes within the University of Freiburg and between other German universities. Hopefully these paths will be treaded according to plans.

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SURVEYS ON FINNISH FORESTRY GRADUATES

OUTI ORENIUS AND MIKA REKOLA

Abstract

Since 1998, the average annual number of MSc graduates (forest sciences) from the Faculty of Agriculture and Forestry in the University of Helsinki has been 54. There are several surveys investigating the labour market situation of these graduates. First, the three UH forest science departments collect data by contacting their graduates individually by electronic mail or telephone. These studies potentially provide very accurate information, but obtaining such data is very laborious and conducting the surveys is therefore not necessarily continuous. Second, the university career service carries out two surveys annually; one of recent graduates and one of alumni graduated five years prior. These studies report the results mainly on a faculty level and thus do not give specific information on forestry graduates. Third, The Society of Finnish Professional Foresters (SFPF) conducts, together with three other labour organizations, three surveys annually, one of the labour markets for students, one of recent graduates and one of the present labour market situations for their members. These surveys provide a lot of information but do report only to a limited extent specific data related to universities or major subjects, i.e. University of Helsinki and University of Joensuu, and their seven major curricula. It is also good to note that the labour market survey is only sent to members of the society. Results show that right after graduation unemployment is common (16%), however, none of the surveys reports how long it takes to find the first job - a piece of information especially valuable for universities. Large amounts of data are available for research purposes, but it might be challenging to compare it with data from other European countries without common standardized procedures.

Introduction

University level forest education has been given at the University of Helsinki (UH) since 1908. The labour market has changed significantly since then and will continue to change in the future as well. Graduate surveys are means to assess the success of curricula on the labour market. It is relevant for universities to know whether their alumni have found relevant careers.

The labour market for UH graduates is reviewed annually by several surveys. First, the three forest science departments - Departments of Forest Ecology, Forest Economics, and Forest Resource Management - collect data on their own MSc graduates. These studies are unsystematic and not executed continuously. Second, the university career service carries out two surveys annually; one on recent MSc graduates and another on MSc students who graduated five years ago. These studies

report the results mainly at the faculty level and thus do not give accurate information of forestry graduates. Third, The Society of Finnish Professional Foresters (SFPF) conducts, together with three other labour unions, two national level graduate surveys annually, one on recent MSc graduates and another on the present labour market situation for its members. These surveys provide a lot of information but do not report much university or major specific data on the demographic features, i.e. separate for UH and University of Joensuu (UJ).

Because in Finland, the MSc degree (one cycle curriculum) has in practice been the only degree level that has been approved by the forest sector labour markets before adopting the Bologna system in 2005, all surveys concern only these MSc graduates. So far, only very few BSc alumni exist and they are not registered separately in any statistics. For instance, there were only two BSc alumni out of 544 responses in the survey by SFPF. However, the situation is likely to change in future.

The objective of the paper is to find out from the existing surveys

Which number of MSc graduates finds work in the field of their education?

Which number of MSc graduates finds work on a relevant academic level?

Is there any potential in developing the existing surveys in order to obtain data that can be exploited while developing university curricula?

Departments of Forest Sciences keeping track of their graduates

The UH-Department of Forest Ecology reports data on career paths of alumni, graduated between 1996 and 2006. The whole population is 175 and information has been obtained from 150 graduates (86%). Graduates have been asked directly or information has been collected from colleagues and other related persons. Not the entire list is updated every year, and there is a risk of analysing outdated information. Based on the indicated employers, we estimate that two third of the graduates work in an area closely related to their education. There is, however, no clear definition of when the job content is more or less related to their academic programme. Only two of the respondents reported to be unemployed (Department of Forest Ecology, 2007).

The UH-Department of Forest Economics has conducted surveys on its graduates in 2005 and 2007 (Rinne, 2005; 2007). The most recent data are from 2007 and the population graduated between 1.1.2000 and 31.12.2006. During the inventory an effort was made to reach the whole population (153 graduates) individually. Success rate was high as 128 (84%) responded. In this survey not the individual employers were analysed but rather the fields of employment (Table 1). Among the respondents forest industry was the largest employer (33%), other industry being the second (15%). Forest industry consulting firms (12%) are also important employers as well as universities, whereas forest research institutes employ very few forest economists (2%). When comparing the results of 2007 to those of 2005,

it can be noted that graduates are more often employed in fields not related to their education, such as other consulting firms and other industries. Where in 2005 one fifth was working outside forestry, in 2007 already one third was employed here. During the 2005 and 2007 surveys 10% of the graduates were working abroad (Rinne, 2005; 2007). There is no mention of unemployment, but there might well be some among the 16% that could not be reached.

Table 1: Employment of alumni from the UH-Department of Forest Economics. Response rate 84% (Rinne, 2007).

Field of employment	Number of employees	Share (%)
Forest industry	42	33
Other industry	19	15
Consulting of forest industry	15	12
Other consulting	6	5
Universities	13	10
Ministries and other public service	6	5
Research institutes	3	2
Financing services	9	7
Others	15	12
Unemployment	0	0
Total	128	100

Surveys of the Society of Finnish Professional Foresters

Recent graduates survey

The Society of Finnish Professional Foresters (SFPPF) has surveyed the recently graduated foresters since the late 1990's. For the past few years, these surveys have been conducted in collaboration with three other natural resources related labour unions. The latest survey was carried out in May 2007 (Vänskä, 2007), covering the professional fields of these four unions. Labour unions have utilized the results for example in setting minimum wage standards. The common survey procedure has been useful also to compare between (careers of members of) labour unions (Hankala, pers. comm., 4.7.2008).

An electronic form developed by Digium PLC (Vänskä, 2007) was sent to the graduates by email. Email addresses were obtained from the databases of universities and labour unions. The population surveyed in 2007 existed of 857 MSc students graduated in 2006, 87 of these are foresters⁷. In this report we review only the MSc forestry graduates. The electronic forms were sent out on May 8th 2007 and after two reminder emails the data collection was closed on May 28th 2007 (Vänskä, 2007). In order to get as high a response rate as possible, the SFPPF contacted graduates, who had not replied, personally (Hankala, pers. comm., 4.7.2008). In total, 61 foresters returned their forms, giving a 70 % response rate.

⁷ In Finland foresters can graduate from two universities, the University of Helsinki and the University of Joensuu.

As the number of responses in some categories were low, for instance in not-popular major curricula, the results of such categories were merged (Vänskä, 2007).

Almost half of the respondents (46%) had not applied for a job after graduation. The most common reason (60%) was the fact that they already had a job. Doctoral studies (33%) and family matters (7%) were the other reasons mentioned. Graduates were looking for a job mainly in Finland, but 26% applied abroad. The most used mean to apply for a job are responses to announcements in media (Table 2), whereas the labour union or university recruitment services were the least used channels. Public Employment Offices were used by 40% of the respondents; however, none were able to get a job through these offices (Table 2). As a result of application 85% succeeded in finding a job, the majority by answering to an internet or media announcement (Vänskä, 2007).

Table 2: Channels used to look for and channels leading to employment among those who graduated in 2006 (Vänskä, 2007). Multiple answers were possible.

Channel	channels used (%)	channels used successfully (%)
Media or Internet announcement	91	62
Social networks	51	14
Direct contact to employer	51	10
Public employment office	40	0
University recruitment service	17	0
Labour Union recruitment service	17	3
Continuing the job started during study		10
Total		100

The average period of applying for a job was 2.4 months. Unemployment was experienced by 41% of the graduates and an average unemployment period lasted 3.5 months. In May 2007, one year after graduation, 16% were still unemployed. This is a slightly higher figure as compared to the graduates of other nature resource management fields where 10% were unemployed in May 2007 (Vänskä, 2007).

A majority of the graduates were employees and one out of ten continued their education as PhD student (Table 3). Nearly 90% reported working in a field related to their studies and 80% on a level comparable to their education. Only 4% worked part-time. Temporary positions were common. Surprisingly the results of this survey indicate that 61% of men and "only" 53% of women had these contracts. The most common reason (48%) for having a temporary contract was that the job was part of a project. Most graduates would have preferred a permanent position as only 15% stated that temporary work was their own choice (Vänskä, 2007).

The average income of full time employed recent graduates was 2549 € a month which was slightly higher than the average income reported by all four labour unions (2287 €). Men earned on an average 2 600 € and women 2 480 € a month.

Table 3: Main employment of the recent graduates (Vänskä, 2007).

Employment category	Share of respondents (%)
Employee	70
Entrepreneur	0
PhD student, employee	7
PhD student, scholarship	3
2nd degree student	2
Unemployed	16
On parental leave	0
On military service	0
Other	2
Total	100

Labour market survey

The SFPF has surveyed the labour market situation of its members⁸ since the late 1980's (Hankala, pers. comm., 4.7.2008). For the past four years the survey has been conducted in collaboration with three other labour unions. The electronic questionnaire was sent by electronic mail to the working members of all four unions, in 2007 12814 persons. The email addresses were obtained from the registries of the unions. A functional address was found for 92% of the members. The data collection was initiated 1.11.2007 and closed after two reminders 21.11.2007. The results describe the labour market situation in October 2007. The responses represent 42.2% of the forestry MSc graduates, and 50.7% of the members of the SFPF (Society of Finnish Professional Foresters, 2007).

Comparing to the data for recent graduates, the unemployment level has dropped from 16% (right after graduation) to 3.4%; among women, however, the figure was still 6.1%. Women also had more commonly temporary positions and worked more often on tax-free grants than men (Table 4). It was not reported whether the respondents had work related to the field or academic level of their studies.

The average monthly income of a forester⁹ was 4105 € which was higher than in all natural resource related fields (3602 €). An average male forester earned 4365 € and female forester 3376 € which means that female's earnings are around 75% of males, whereas a recently graduated female forester earned 95% of what a recently graduated male forester (Society of Finnish Professional Foresters, 2007). This difference is partly explained by the fact that female members of the association are on average younger (39 years) than men (45 years) and that age and working years correlate positively with income level (Society of Finnish Professional Foresters, 2007).

⁸ In the recent graduates survey 85 % of respondents were unionized. In reality this figure is a little lower, closer to 70 % (Joensuu, pers. comm., 5.5.2008).

⁹ For full time employed foresters, excluding entrepreneurs, including natural benefits and provisions, excluding holiday money, overtime compensations.

Table 4: Employment data of members of the Society of Finnish Professional Foresters according to gender. Source: Society of Finnish Professional Foresters (2007).

	Male (N=1127)	Female (N=475)	Total (N=1602)
	%	%	%
Employment 10/2007			
Permanent position	80.4	55.9	73.2
Temporary position	12.2	24.9	16.0
Temporarily dismissed, put on short-time	0.2	0	0.1
On maternity or other family leave	0.2	6.3	2.0
Part-time retired	0.8	0.2	0.6
On tax-free grant	0.9	3.6	1.7
Unemployed, on labour policy training	2.3	6.1	3.4
Entrepreneur	1.3	1.3	1.3
Otherwise outside working life	1.7	1.7	1.7
Total	100	100	100

Surveys by the UH career service

Study- and working life feedback

The UH career service collected annual feedback on studies and working life at the time of graduation since 2004. The survey questionnaire has been given to the students together with the degree certificate. The questionnaire can be filled on paper or on the internet.

The most recent survey was conducted in 2007 and it contains data of students who graduated from the UH in 2006. The total response rate was only 37.7%, within the Faculty of Agriculture and Forestry it was 51.8%. Due to the small amount of answers in some sub-groups, e.g. major specific results could not always be reported. The feedback system is still under development and one of the main challenges is to increase the response rate (Pulkkinen, 2007). Here we review only results regarding the Faculty of Agriculture and Forestry graduates.

The aim of the study was to assess satisfaction with curricula as well as the rate and quality of employment at the moment of graduation. The reviewed population¹⁰ was 133 graduates. The results show that the most common reason given (56%) for delay of graduation was work related to the students' own studies. Second came, however, lack of study counselling (41%) and some (20%) had also noted that compulsory courses were not available when needed (Pulkkinen, 2007). The last two reasons are issues the departments can easily work on. Students were also asked whether their studies had developed skills such as field specific knowledge, professional ethics, skills to adapt learnt skills to practice, international communication skills etc. Students considered themselves having learnt well skills like research methods, field specific knowledge, and ability to learn and acquire

¹⁰ Faculty of Agriculture and Forestry graduates in 2006.

new knowledge whereas entrepreneur and international communication skills were not considered well developed through studies (Pulkkinen, 2007).

At the moment of graduation 81.3% of MSc. graduates in the Faculty of Agriculture and Forestry were working or had a job but had not yet begun working whereas 5.4% were unemployed looking for employment. This figure is much lower than the 16% which was found in the SFPP survey and also half of the unemployment rate of the graduates of the whole UH (11%). Other respondents were PhD students (3.6%), enrolled in other studies (1.8%), on parental leave (2.7%) or had another reason to be off the labour market (5.4%). Many (18%) had found work through their own networks. When combining groups that had found work by contacting an organisation they were interested in (15%), previous traineeship (12%) or previous summer job (9%) positions, it is remarkable that only few jobs were found through traditional means such as newspaper ads (Pulkkinen, 2007). The situation was very different among recent forestry graduates in the SFPP survey, where majority of the jobs were found through media or internet announcements.

Of the working graduates 90% worked in field partly or completely related to the field of their studies and 93% said the work was almost or completely of the relevant academic level. Only 11% said that they can not utilize in their present job the skills they achieved during their studies at the Faculty of Agriculture and Forestry (Pulkkinen, 2007). Income level of the graduates was not reported.

Career follow-up

The UH career service conducts annually a survey on graduates who obtained their diploma five years ago. The follow-up is done in cooperation with 13 other Finnish universities with whom the questionnaire has been developed. The aim is to create a national survey where 80% of the questions are the same for each university. Results are reported per university (Haapakorpi *et al.*, 2007).

The most recent survey is from 2007 and the population of the study was those who graduated from the UH in 2001 (2628 graduates). Personal data were collected from the university register together with some basic study related information like the faculty, major and obtained degree. The contact details were ordered from the Finnish Population Register Centre. All Finnish addresses were obtained including the ones that are not available for marketing purposes¹¹. The data, however, do not include those graduates who had moved abroad (Haapakorpi *et al.*, 2007).

The questionnaires were sent in autumn 2006 and a second questionnaire was sent to those who did not reply in the first round. It was possible to use an online form and 215 respondents decided to do so. The response rate was 62% which can be evaluated as satisfactory (Haapakorpi *et al.*, 2007).

¹¹ Such addresses can be obtained for research purposes.

According to the results 68% had needed higher education for their first job after graduation whereas at the time of the follow-up 83% had needed higher education for their present job. One of striking results was the low unemployment rate (2%) five years after graduation. Right after graduation the unemployment rate was 11% and employment rate 79%. The authors report that graduates from the Faculty of Agriculture and Forestry had had to deal with higher unemployment rates right after graduation but that the differences had evened up by the time of the follow-up (Haapakorpi et al., 2007).

When asked how graduates had found their present position, many (~35%) had either applied to their present employer or had been invited by him. Own networks were also commonly used (15%). Unlike among the recent graduates of the UH, this group had used often (35%) traditional methods such as internet and newspaper ads when looking for their present position. Less than one percentage used a public employment office (Haapakorpi et al., 2007).

Most respondents mentioned that their position was comparable to their education. Around 10% thought that the level was slightly lower than the level of education and a few found the level of their work significantly lower than their education level. The most common working tasks were research, teaching, education, and customer service. The share of entrepreneurs was only 4%. Five years after graduation, the mean income was 3033 €(Haapakorpi et al., 2007).

More than half of the respondents were satisfied or very satisfied with the competences, their education offered for their careers. Two thirds said they use daily the knowledge they obtained during education and only 4% reported not being able to use all what they learned at the university (Haapakorpi et al., 2007).

Conclusions

The results of all surveys show that right after graduation unemployment is common but that in general unemployment does not last very long. Surprisingly often the most common way of finding a job is still through public announcements in the media. Public employment offices are used but success rate is very low. It seems that in the long run 90% of graduates find work in the field of their education and that 80 - 90% have work at an adequate academic level. Both SFPPF and UH surveys provided more or less similar conclusions.

Comparing the two organisations - Society of Finnish Professional Foresters and University of Helsinki career service - conducting questionnaire surveys the response rates are higher in the first. We believe this might be because the first one applies online questionnaires which are sent directly to recipients' email addresses. The fact that SFPPF has the resources to remind respondents personally is, of course, likely to make a large difference. Surveys conducted by Departments of Forest Sciences clearly need a more systematic approach, and they could also gather some

other information beside the place of employment. We conclude that in the future this survey could also be accomplished together with SFPF and or UH surveys. In general, one of the largest challenges with all surveys is in maintaining the response rate and it seems that using the latest technology pays off.

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FORESTRY GRADUATES FROM THE TECHNICAL UNIVERSITY OF MADRID: PRESENT SITUATION AND FUTURE PERSPECTIVES

FERNANDO GARCÍA ROBREDO

Abstract

The School of Forest Engineering of the “Universidad Politécnica de Madrid (U.P.M.)” is the oldest centre of higher forestry education in Spain. A brief history of the School and some relevant information on its graduates, such as employment characteristics, fields of activity and level of salary, are presented in this paper. Finally, some issues and challenges for the future are analysed.

Background

The number of universities offering forestry programmes in Spain has increased extraordinarily during the last two decades. Nowadays, seven universities are offering long cycle forest engineering curricula in Spain. In addition, there are thirteen universities offering short cycle forest engineering degrees. The former has a duration of five or six years depending on the university, the latter one of three years. In recent years, the number of students enrolling in forestry studies is going down dramatically, raising the problem of survival for some of these schools.

The School of Forest Engineering was founded in 1848 in Villaviciosa de Odón. In 1870 it moved to El Escorial where it stayed until 1914 when it was moved to the city of Madrid. It occupied different sites within the city. Since 1945 it is located in the University Campus shared by the “Universidad Complutense” and the “Universidad Politécnica”.

In 1971 it became one of the 19 Schools and two Faculties that make up the “Universidad Politécnica de Madrid” (Technical University of Madrid, U.P.M.). A faculty or a school is a part of the University consisting of one or several departments giving instruction in a particular field. In Spain, traditionally, the university centres teaching engineering are called schools and those teaching science, humanities, medicine, etc. are called faculties. Regarding the number of teachers, officials and students, the relative size of the Forestry School when compared to the University is depicted in Table 1.

Number of students enrolled in forestry

As it has been pointed out above, the number of students in most forestry schools across the country has decreased in recent years, and the School of Madrid is not an

exception to this. The development in the total number of students in the U.P.M. and in the Forestry School is depicted in Figure 1.

Table 1: Number of teachers, officials and students at U.M.P. and at its Forestry School. Source: Universidad Politécnica de Madrid, 2008.

	Technical University of Madrid	Forestry School
Faculty	3,303	123
Administrative personnel	2,229	91
Undergraduate students	34,692	752
Graduate students	2,178	123
International students	861 (UG) + 355 (G)	12 (UG) + 15 (G)

While the University has experienced a 23% decline in the number of students during the last six years, the decrease in the School of Forestry has been even more dramatic, reaching 42%. It must be noticed that the decline in the number of students is a general trend in the Spanish universities due to the age structure of the Spanish population as a result of the decrease in the birth rate. Anyway, from these data, it seems obvious that Forestry is less attractive to young people than other studies offered by the U.P.M., mainly engineering degrees.

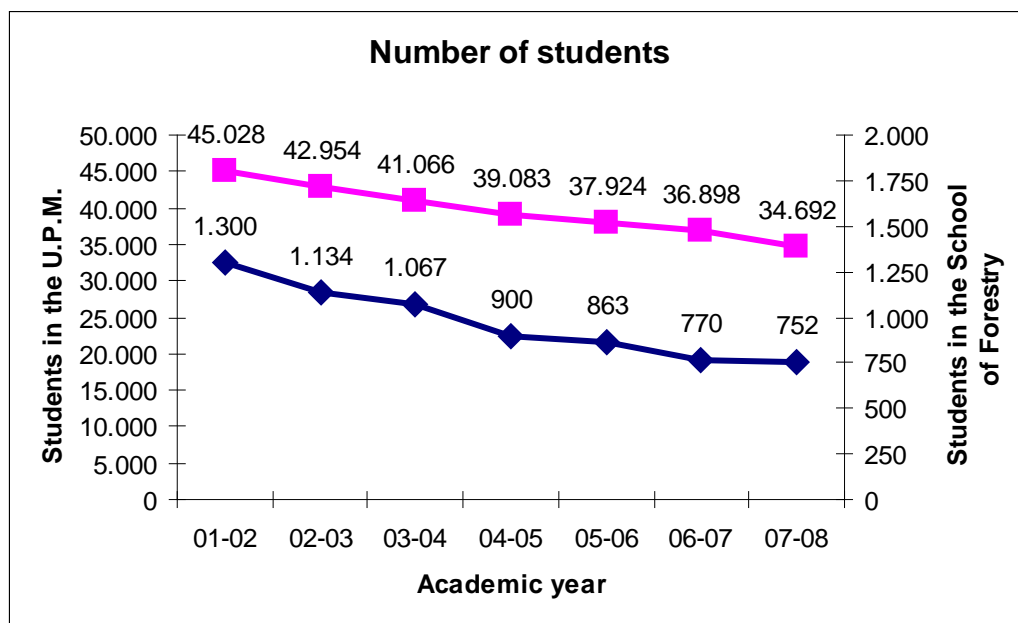


Figure 1: Evolution in the number of students enrolled at U.P.M. (square) and its Forestry School (diamond). Source: Universidad Politécnica de Madrid, 2008.

On the other hand, the number of students graduated from the University in the academic year 2006-07 was 3,790, that is, 10.3% of the total number of students. For the majority of the students, studies take longer than scheduled. In the School of

Forestry, 101 students graduated in 2006-07, amounting to 13.1% of the students enrolled in the School at that time.

The Forestry School seems to be more effective than the rest of the U.P.M. regarding the number of graduates, and it deserves a special credit if it is taken into account that the Forest Engineering curricula, together with those of Civil Engineering, are the longest in the University. Long cycle Forest Engineering studies in the U.P.M. consist of a six year degree, after which the students can enrol in a Doctorate Programme of at least two and a half years.

At this moment, this curriculum structure is being reformed to conform to the European Higher Education Area. Hopefully, the academic year 2010-11 will be the beginning of a new system offering three levels of studies: Bachelor of Science in Forest and Wildland Engineering (4 years), Master of Science in Forestry (2 years) and Doctoral Degree (at least one additional year after the completion of a Master of Science or a research-oriented Master's degree).

Situation of forestry graduates

In order to characterize the situation of the graduates from the Forestry School of Madrid, three main sources of information have been used:

Two surveys carried out by the "Colegio de Ingenieros de Montes" (Professional Association of long-cycle Forest Engineers in Spain):

- Survey in December 2002 answered by 366 registered forest engineers, 14% of the population (Colegio de Ingenieros de Montes, 2003.)
- Survey in May-July 2006 answered by 176 registered forest engineers, 5% of the population (Colegio de Ingenieros de Montes, 2006).

One survey carried out by the Universidad Politécnica de Madrid in 2007

- First job and working situation of graduates who completed their studies in 2002-03.

In December 2007, there were 3,621 registered long-cycle forest engineers in Spain and 62% of them had obtained their degree at the School of Forestry of Madrid. The origin of graduates is depicted in Figure 2.

Ninety-six percent of Spanish registered foresters are employed. The average time spent looking for a job is four months and six days. The employment situation of forest engineers in Spain can be summarized as follows: 89% of the graduates have a full time job, 3% have a part time job, 3% are retired, and 4% are unemployed. The remaining 1% is continuing their study pursuing a Master's degree or a doctorate. The employment situation by age is depicted in Figure 3. It can be noticed that some forestry professionals over the retirement age still have a full time or a part time job to complement their pensions.

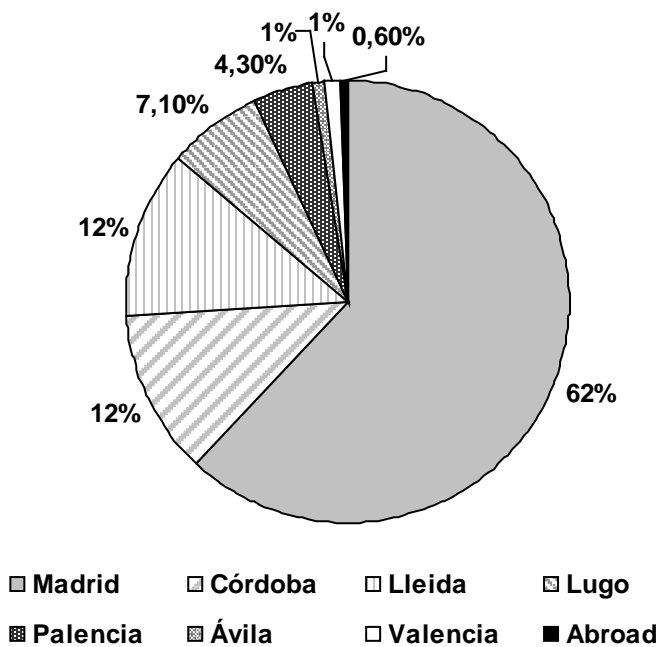


Figure 2: School of provenance (alma mater) of forestry graduates in Spain. Source: Colegio de Ingenieros de Montes, 2008.

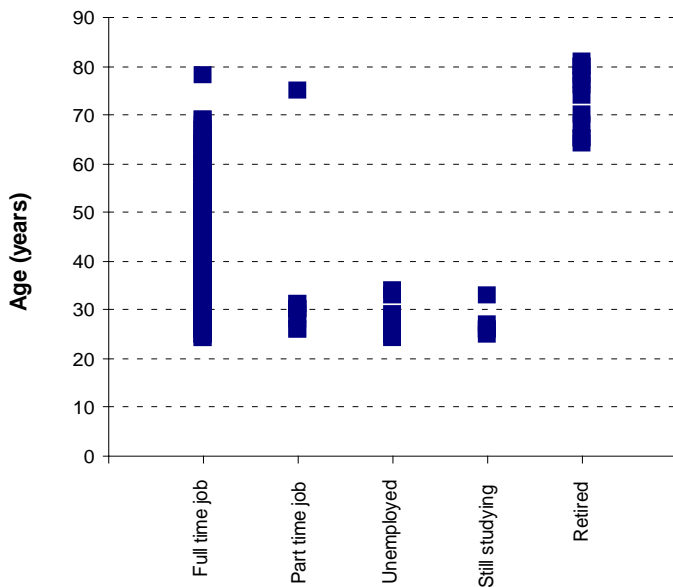


Figure 3: Employment situation by age. Source: Colegio de Ingenieros de Montes, 2003.

The professional activity of Spanish foresters is related to forestry in 89% of the cases. Only 11% of the graduates acknowledge they work in non-forestry related activities. The main fields of graduates' professional activity are shown in Figure 4. Within the forestry related activities, wildland management, forestry works, watershed management and forest management show the higher shares and account for 46% of total employments, while those jobs related to the forest products industry have a small weight in the final distribution (3.6%). This result is consistent with the fact that student enrollment for industry related courses is very low.

Civil works, both related and non-related to forestry, have a significant share of the total number of employments, probably due to the quality of the education received in subjects such as mathematics, mechanics, structural analysis or forest road construction.

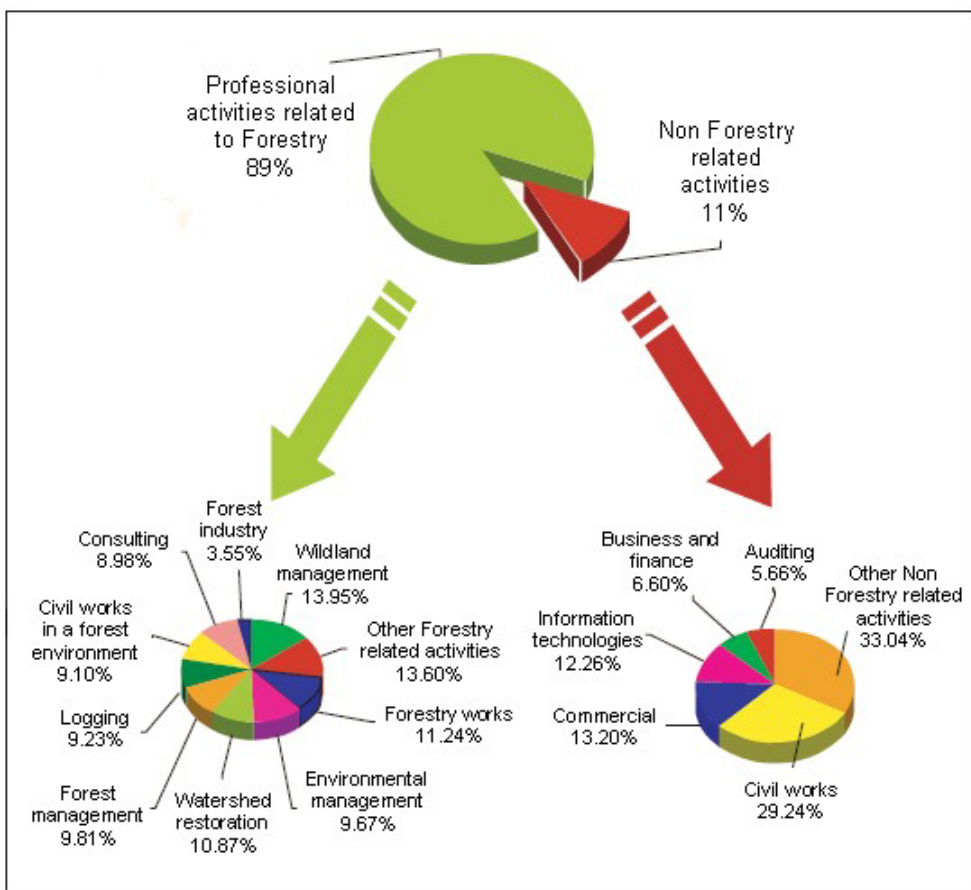


Figure 4: Professional activities of Spanish Forest Engineers. Source: Colegio de Ingenieros de Montes, 2003.

Almost half of the foresters in the sample have an annual income from €20,000 to 30,000, and 55% of them work for private companies, 28% are public officials, and 11% are entrepreneurs. Most of those who earn over €50,000 are public officials (58%), while 29% work for an employer and only 3% are freelance or entrepreneurs. There is a direct relationship between age and salary depicted in Figure 5.

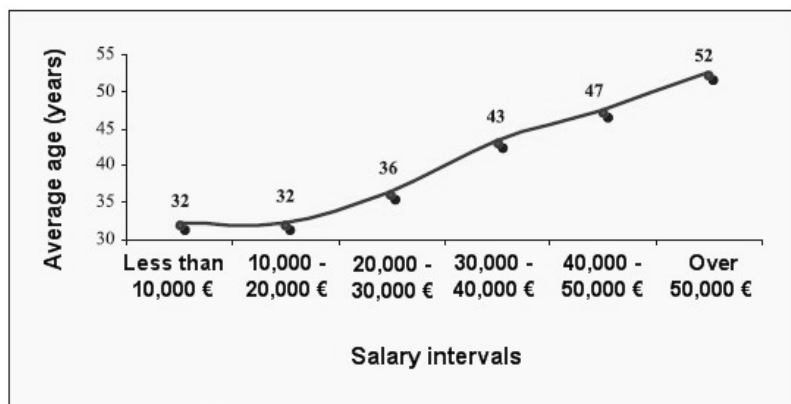


Figure 5: Relationship between salary and age. Source: Colegio de Ingenieros de Montes, 2003.

Graduates' perception on the quality of education

Two of the surveys mentioned above, the one carried out by the Professional Association of long-cycle Forest Engineers in Spain in 2002 (Colegio de Ingenieros de Montes, 2003) and the one carried out by the Technical University of Madrid in 2007 (Universidad Politécnica de Madrid, 2007), included some questions on the perceived quality of the education received.

When asked about the knowledge and skills acquired during their studies, graduates answered they perceive they have a very good knowledge of subjects such as botany, range management, soil science, mathematics, structural analysis, plant physiology, hydrology, forest mensuration and ecology. On the other hand, they thought their level of knowledge is very low in chemistry, fish and game management, business administration, valuation, environmental impact assessment, statistics, electricity and thermodynamics.

When it comes to analysing the usefulness of the skills acquired, the courses that were considered to be of great use in the professional practice were botany, project design and management, silviculture, afforestation techniques, mapping and photogrammetry, environmental impact assessment, forest mensuration, hydrology, ecology and forest management. On the other hand, other courses such as chemistry and biochemistry, thermodynamics, electricity, mechanics, physics, genetics, plant

physiology, technical drawing and hydraulics were considered to have a lower level of usefulness.

Figure 6 shows a list of courses which, according to the graduates from the School of Madrid, could be eliminated from the Forestry curriculum. Each course is depicted together with the percentage of graduates who proposed its removal. It is interesting to notice that some fundamental courses such as botany, silviculture, forest mensuration, forest hydrology, forest operations, mapping and photogrammetry and ecology are not included in the list, and some other key courses like afforestation techniques, forest management or soil science have been selected by a non-significant number of graduates. On the other hand, it seems that all the basic disciplines such as mathematics, physics, chemistry and their related subjects are rejected by a significant number of forestry graduates.

There is a general feeling among graduates that most courses within the Forestry curriculum are theoretically oriented, and more emphasis should be placed onto the practical aspects of forestry. A more practice-oriented approach is demanded for courses on business administration and finance, economics, project Design and management, or forest management, to give just a few examples.

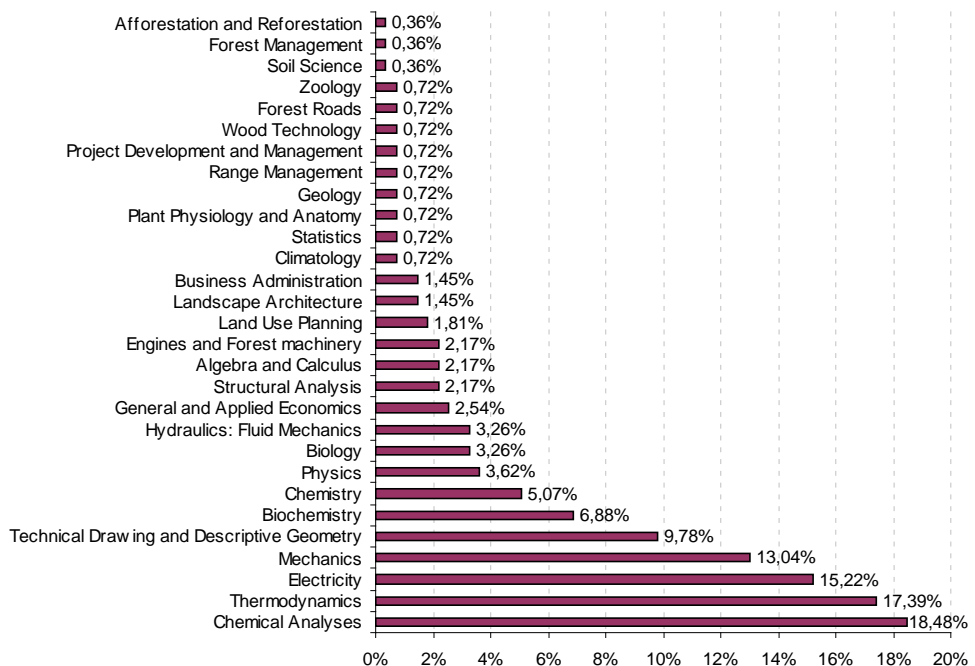


Figure 6: Courses that should be eliminated from the curriculum according to the graduates from the School of Madrid. Source: Colegio de Ingenieros de Montes, 2003.

There is also a demand for the implementation within the Forestry curriculum of training periods in private companies or public agencies which could provide the students with a practical learning experience and the recognition of a certain number of credits.

Final remarks and conclusions

As stated above, the School of Forestry of the Technical University of Madrid is facing some challenges. There are some more general difficulties, such as the decrease in the number of students or the cutbacks in public funding, which are common also to other universities offering Forest Engineering studies in Spain. Some shortcomings are specific: The teaching and administrative staff of the Madrid School is oversized, and its curriculum needs to be updated.

Regarding the situation of forestry graduates in Spain, they seem to be doing reasonably well. They do not have special difficulties to find a job, and most of them develop a forestry-related professional career. It is appropriate to underline the high number of foresters working for the public administration, a relict from the good old times. Nowadays, public official positions are not growing and most young graduates are developing their careers in private companies or as forestry consultants.

Perhaps due to this change in the professional openings for forestry graduates, when they are asked if the education received meets their current needs, a high number of them identify several shortcomings related to the limited skills acquired on business administration, and the lack of practical training periods in private firms. It must be pointed out that these demands are general to the U.P.M. and not specific to the Forestry School.

The adaptation of technical and engineering university studies to the European Higher Education Area provides an opportunity to fix the current deficiencies in the education of several disciplines and to modify the structures and curricula of the academic institutions in order to adapt to the new scenario. The first consequence of this process is a reduction of the scheduled duration of the studies.

The information gathered provides some hints about what should be done in the near future: It seems convenient to encourage the updating of some courses in order to meet the demands of society and establish compulsory training in private and public companies as part of the curriculum in order to strengthen the links with the professional world.

Pointing at the same objective, there seems to be a need for an increase of practical courses and a reduction of some theory-oriented courses. Related to this, many surveyed graduates expressed the opinion that lecturers and professors should have

some kind of professional experience which they could communicate to their students.

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CAREER PATHWAYS OF EUROFORESTER GRADUATES

VILIS BRUKAS AND MALGORZATA Blicharska

Abstract

Based on an online survey, this paper attempts to provide some insights into the job situation of graduates that attended an international MSc year in Alnarp, Sweden, in 2001-2007. The survey was answered by 135 out of 173 graduates; the majority of respondents originate from countries in the Baltic Sea region: Estonia, Latvia, Lithuania, Poland, Russia and Sweden. The results indicate that Euroforester graduates are doing well on the job market. A clear majority of respondents have jobs in forestry-related fields and are satisfied with the current work situation. However, large differences in satisfaction with salaries are found between males and females. International educational background stands out as an important factor for success on the job market. The graduates particularly emphasise the significance of improving transferable skills and broadening the professional perspective. The study also shows that brain drain is not a real problem. A major part of the graduates prefer staying in their home country as long as they have reasonable opportunities to get a forestry-related job. This is the first survey in Europe that provides rich data on graduates from an international MSc programme in forestry. Comparing its results with the graduates from the same universities but without foreign study periods could be an interesting task for future research.

Keywords: International forestry graduates, Baltic Sea region, job description index.

Introduction

As indicated by publications in this volume, a trend of increasing and more systematic forestry graduate analyses is observed in selected European countries. Another clear trend is an emergence of MSc programmes in forestry targeted to international students and often delivered by international university consortia, with a higher or lower degree of collaboration. European Master of Forestry, coordinated by University of Joensuu (van Soest, 2006), Euroforester, Swedish University of Agricultural Sciences, (Ekö and Gemmel, 2006; van der Maaten, 2008) and Sufonama, Copenhagen University (Helles et al., 2008), are just a few examples of such programmes launched during the last decade. Yet little is known about the whereabouts of graduates from international programmes. Setting up new collaborative programmes drains significant human resources in times when the academic staff is increasingly overloaded with numerous duties, which minimises attention to such “side matters” as graduate analyses. International programmes are recently institutionalised and they inherently face lesser pressure to prove graduate

employability to national authorities. Probably even more important, it is more difficult to keep track of international graduates spread out in numerous countries than of graduates from traditional national programmes.

On the other hand, career paths of international graduates deserve attention, giving rise to interesting questions. For example, do international curricula provide a competitive advantage on the job market? How do the graduates fare depending on their nationality and country of employment?

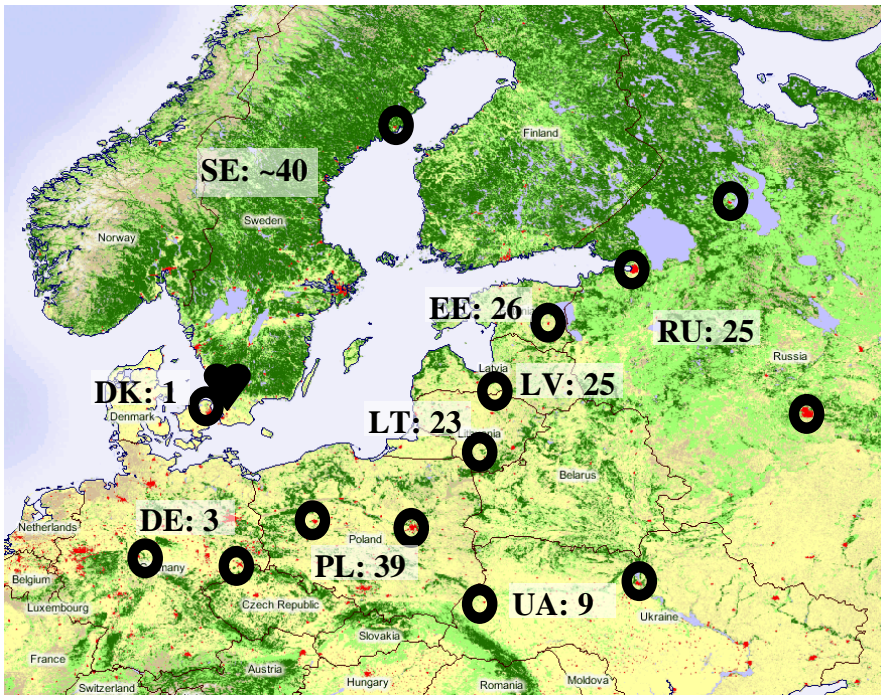


Figure 1: Current Euroforester consortium universities (circles) and number of graduates (by country) in 2001-2007.

Based on a survey, this paper attempts to provide some initial insights into the job situation of graduates that attended an international MSc year in Alnarp, Sweden in 2001-2007. Launched as one-year MSc programme package “Sustainable Forestry around the Southern Baltic Sea”, the curriculum now is transformed into two-year full MSc programme “Euroforester”. However, the basic set-up has not changed significantly. During the first year in Alnarp, students attend wide thematic courses that broaden and deepen their knowledge in silviculture, ecology, forest management planning, and forest policy. A heavy weight is assigned to practical applicability of skills, the international perspective and network building (Ekö and Gemmel, 2006). After the first “base year”, students can choose courses at any of the current 14 consortium universities but in practice, they usually return to their home university, where they started their undergraduate studies. An increasing number of students utilises the option to obtain a double diploma, by preparing an

MSc thesis under joint supervision and with defence of the thesis at two consortium universities.

Until 2007, one-year courses in Alnarp were completed by more than 200 students mainly coming from six countries in the Baltic Sea region: Sweden (~40), Poland (39), Estonia (26), Russia (25) Latvia (25) and Lithuania (23) (Figure 1). Euroforester has also welcomed European and overseas students from outside consortium universities; however, such students frequently stay for shorter periods, e.g. one or a half semester.

Survey

The graduate analysis was based on a detailed online questionnaire (Blicharska and Brukas, 2008), which, in addition to personal data, included the following sections:

- Professional identity and attitudes, personal values in relation to forest management paradigms, hot forest policy issues, etc.
- Education, including the attended study programmes and completed degrees, evaluation of national studies versus the Euroforester programme, etc.
- Career, covering the career path (organisations and positions), net salaries, factors for obtaining a job, influences of international experience, etc.
- Job satisfaction, based on a widely applied measuring tool called Job Descriptive Index (JDI) and Job In General (JIG), developed at the Bowling Green State University, US (BGSU, 2008).
- Euroforester network, investigating the perceived need to formalise the Euroforester alumni network and graduates' willingness to contribute to its activities.

As this paper focuses on results from the job satisfaction section, JDI and JIG merit a more detailed description. JDI consists of five components, relating to the following job aspects: (1) work on present job, (2) pay, (3) opportunities for promotion, (4) supervision, and (5) people on your present job. The second tool, JIG measures job satisfaction in general. JIG and each component of JDI include several items evaluated by a respondent. The obtained scores for JIG and for each component of JDI may range from 0 to 54, where 32 and above indicate satisfaction, 22 or below indicate dissatisfaction and scores 23-31 constitute a neutral range (BGSU, 2008).

The survey was conducted online using the SurveyMonkey software (SurveyMonkey, 2008), respondents being approached by e-mail containing a hyperlink to the survey. The surveying took place in January-March 2008 including several reminders with requests to begin answering or to complete the survey.

Selected findings

Respondents and their employment

The survey was received by 173 graduates, 135 of them (78.0 percent) responded to at least one section of the survey. 122 respondents (70.5 percent) answered all relevant sections. Among 135 respondents, 52 (38.5 percent) were females. The largest group of respondents comes from Poland, followed by Lithuania and Estonia (Figure 2). No clear trend can be observed with regard to the response rate, depending on the graduation year. The rate ranges from 66.7% for 2005 to 90.5% for 2003 (Table 1).

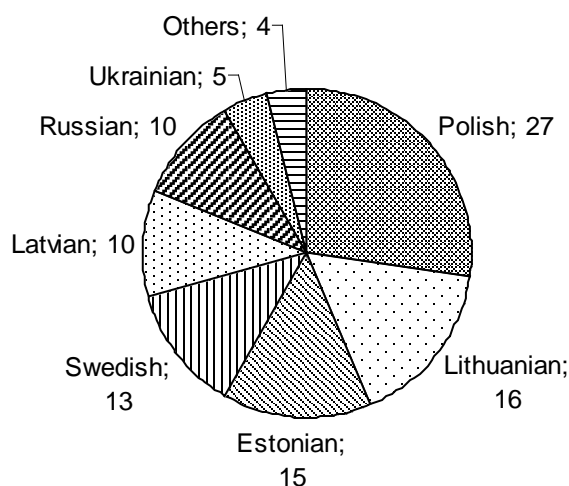


Figure 2: Respondents' distribution by nationality, in percent

At the time of surveying, 72 percent of all respondents were employed (including 12 percent that were PhD students), while 18 percent still studied for an MSc degree. Six respondents were unemployed, two ran their own companies and two were on maternity leave. Out of 93 employed respondents, 24 work at a university or a research institute, 23 at State forestry administration/enterprises and 17 in forest industries.

Table 1: Response rate by year of graduation, all respondents

Graduation year	Surveys sent	Answered		Response rate
	N	N		%
2002	21	15		71.4
2003	21	19		90.5
2004	28	23		82.1
2005	33	22		66.7
2006	33	24		72.7
2007	37	32		86.5
Total	173	135		78.0

Table 2 presents professional field of employed respondents by country. 48 percent of employed graduates identify themselves with “Forestry”. When grouped together, “Timber industry and timber trade” make up 25 percent. Just 10 percent of employed respondents have jobs that are not related to nature resource management. Comparing countries, a significantly higher proportion of Estonians, Latvians and Swedes identified themselves with “Forestry”. One of the possible explanations could be a high importance of forestry in the economies of their countries, as forestry organisations there may be able to offer a higher number of attractive jobs for graduates with international educational background. Another important factor might be the job market situation, i.e. the supply of forestry graduates versus the demand for employees in the sector. A rough measure could be the annual number of graduates divided by forest area in a country. Notably, Poland and Lithuania are the two countries that relatively “produce” the highest number of forestry graduates¹² and where a significant share of respondents are unemployed or work in jobs not related to nature resource management. The sample in this survey is too small to make any conclusive statements. These relationships would be interesting to test comparing the employment profiles of all recent national forestry graduates in different European countries.

Table 2: Professional field of employed respondents and number of unemployed respondents.

Nationality	Number of employed respondents (% share from employed respondents by country)				Number of unemployed respondents ²
	Forestry	Timber trade and industry	Diverse NRM ¹ - related jobs	Not related to forestry/NRM	
Estonian	8 (67 %)	1 (8 %)	3 (25 %)	-	1
Latvian	9 (64 %)	5 (36 %)	-	-	-
Lithuanian	5 (29 %)	5 (29 %)	2 (12 %)	5 (29 %)	1
Polish	11 (46 %)	6 (25 %)	5 (21 %)	2 (8 %)	3
Russian	3 (33 %)	3 (33 %)	2 (22 %)	1 (11 %)	-
Swedish	7 (58 %)	2 (17 %)	2 (17 %)	1 (8 %)	-
Other	2 (40 %)	1 (20 %)	2 (40 %)	-	1
Total	45	23	16	9	6

1. NRM – nature resource management.

2. Respondents still enrolled at universities are not included in this table.

Polish respondents most frequently work at state forestry administration/enterprises (SF) (14 out of 24 employed respondents). This can be related to a strong position of SF in Poland, which is the dominant actor in the forest sector and manages over 80 percent of Polish forests. Moreover, the higher forestry education in Poland aims, almost exclusively, at preparing students to work at SF. None of Lithuanian or Russian respondents work at SF. They are probably hampered by unfavourable conditions for work, with ongoing staff reductions and not sufficiently competitive

¹²In Poland and Lithuania the annual number of graduates/million ha forest area is 45 and 30, respectively; the numbers are much lower in Sweden (3), Latvia (10) and Estonia (20).

salaries. Almost 70 percent of the Estonians work at a university or a research institute, while in the other studied countries together, this share reaches only 15 percent. This presumably can be explained by good conditions for young researchers in Estonia and a targeted and successful effort by relevant institutes to attract graduates with international educational background.

Job satisfaction

Based on answers of 87 employed respondents, the median satisfaction scores for JDI were as follows: 'Work on present job': 46, 'Pay': 30, 'Opportunities for promotion': 32, 'Supervision': 43, 'People at your present job': 43. The median for JIG was 42. The numbers show high average satisfaction for JIG and most components of JDI. Only 'Pay' and 'Opportunities for promotion' fall within the neutral range (Figure 3).

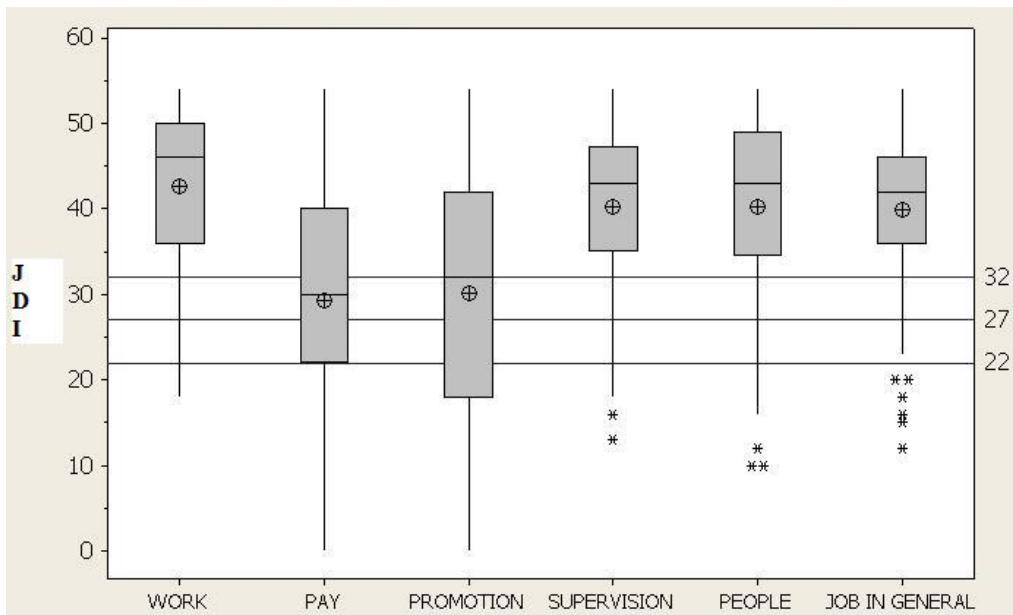


Figure 3: Boxplots of JDI and JIG. The line in the middle of the box is a median, the circled crosses are the means, and stars are outliers, i.e. values that are farther away than 1.5 times of the box height (interquartile range).

Comparison of scores by gender reveals similar scores for most JDI components (Figure 4), however males overall (median score 34; 53 respondents) are remarkably more satisfied by 'Pay' than females (median score 24; 37 respondents). The t-test shows a moderate evidence for difference between means of males and females for pay satisfaction (two-sided p-value = 0.024), inconclusive evidence for supervision satisfaction (p=0.09), and no evidence for other job aspects.

Satisfactions scores are fairly similar among countries. The largest differences are found for 'pay' satisfaction (Table 3).

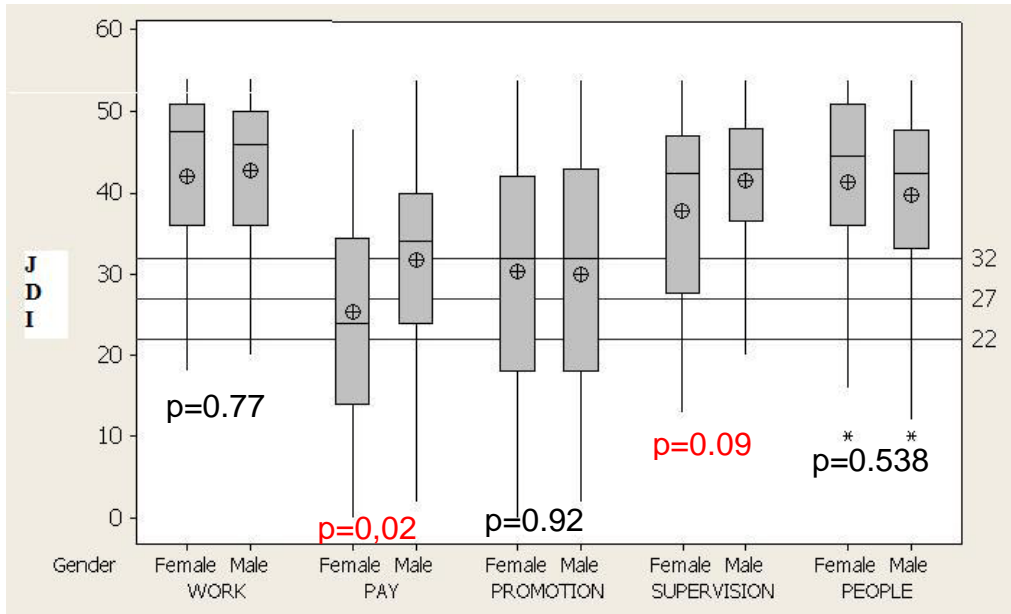


Figure 4: Distribution of JDI scores by gender.

The obtained satisfaction scores were compared with US national job satisfaction norms that are elaborated based on numerous surveys of various employment groups in the USA and differentiated according to several demographic characteristics. When checked by gender, job tenure and obtained graduate degree, Euroforester graduates score consistently above the norms. The only exception is 'Pay' satisfaction by gender, where survey scores are slightly lower than norms. The highest difference is found for 'Opportunities for promotion' - both male and female Euroforester graduates yield median score '32' while medians in the US norms equal '12' for males and '11' for females.

Ten percent of respondents do not live in their home country. Comparing job satisfaction depending on the country of stay (home country versus abroad), the only significant difference can be seen in 'Pay' satisfaction that is much higher for respondents living abroad (Table 3). This can be explained by the fact that most of respondents in the 'Abroad' group moved to countries with higher average earnings (from Eastern to Western Europe and North America).

Table 3: Job satisfaction by country of stay; 78 respondents in home country and 9 respondents living abroad.

JDI components and JIG	Median score	
	Home country	Abroad
Work on present job	46	48
Pay	29	42
Opportunities for promotion	32	28
Supervision	42	46
People at your present job	42	46
Job in general	42	42

Salaries

The average salary net after taxes equals 1013 €monthly for all respondents. When calculating average income by countries, only respondents that lived in the home countries were included. As expected, a large difference is found between Sweden (2025 €monthly) and East European countries (below 900 €monthly).

Table 4: Average salaries in €net after taxes by country and gender, excluding respondents that have moved abroad

Country	Salary vs. satisfaction for pay		Salary by gender (No respondents)		
	€month	'Pay' medians	Female (F)	Male (M)	F % of M
Sweden	2025	39	1997 (3)	2039 (6)	97.9
Estonia	862	35	667 (3)	960 (6)	69.5
Lithuania	869	30	736 (7)	1024 (6)	71.9
Poland	669	28	557 (5)	712 (13)	78.2
Russia	868	18	852 (3)	880 (4)	96.8
Latvia	867	35	750 (3)	925 (6)	81.1
Average	972	30	864 (24)	1036 (41)	83.4

Somewhat surprisingly, the average income in Poland is much lower than in all other analysed countries (Table 4). Perhaps this can to some extent be explained by the fact that 55 percent (10 out of 18) of the Polish respondents that indicated salary level work at State Forestry (SF) administration. At the Polish SF the basic payment is not very high; however, according to additional information from some respondents, employees at SF often get alternative monetary privileges, like free accommodation and supplementary money for staff clothes, laundry, house heating, etc.

When respondents that provided data about their salaries are divided by countries and gender, the obtained groups are very small, ranging from 3 to 13 graduates per group (Table 4). However, it is still noticeable that females earn less in all countries; on average a female earns just 83 percent of average male salary. In Sweden and Russia the difference between males and females salary is less than 4 percent, while in other analysed countries it ranges from 19 to 30 percent.

Factors for getting job

Answering to an open-ended question about factors that were important for getting a job, respondents listed many items. The qualitative answers were processed by extracting and grouping the key factors. The largest group related to various transferable skills, like foreign language (named by 32 respondents) and communication skills (23 respondents). The second large group related to university education, for example, the obtained degree (18), marks (12), and professional knowledge (10). These two groups are in many cases linked to studies abroad; 13 respondents explicitly mentioned studies abroad as an important factor. Another significant group concerned professional and personal networks/contacts (22 respondents). Previous job experience was mentioned by 18 respondents.

Influence of international education on career

According to the respondents, the Euroforester programme considerably contributed to their careers; however, there is a notable difference between Swedish and non-Swedish respondents (Figure 5).

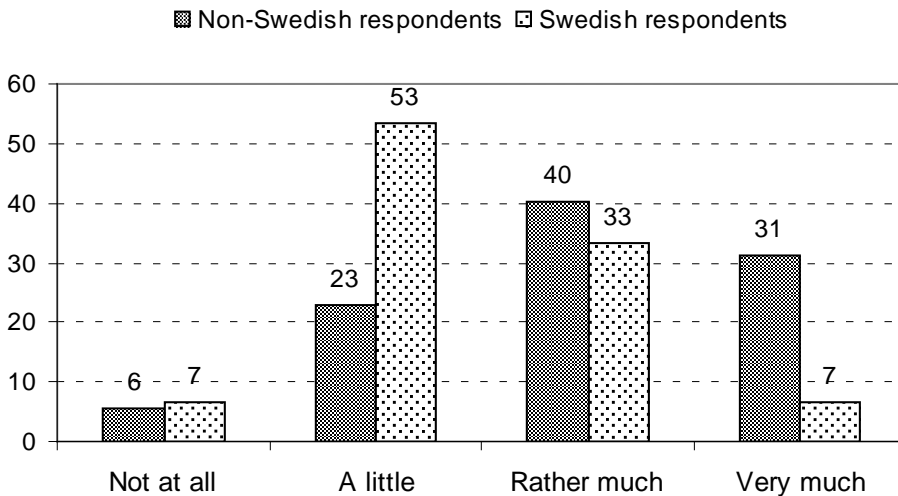


Figure 5: 15 Swedish (100 %) and 109 non-Swedish respondents' (100 %) answers to the question 'To what extent the Euroforester programme contributed to your career?' Distribution in percent.

Of the non-Swedish respondents 71 percent evaluate that the programme contributed to their career rather much or very much, while for Swedes the respective share is 40 percent. This can presumably be explained by the fact that, despite its international orientation, the Euroforester programme was just a part of regular, national education for the Swedish students. For non-Swedish respondents, Euroforester entailed a lengthy study period abroad, building tighter personal networks with the international peers, and a great improvement of the transferable skills.

Concluding remarks

This paper provides only a fraction of findings from the survey, mainly pertaining to the current job situation of the graduates. The surveying has been an engaging and rewarding effort for several reasons. First, authors of the survey themselves had a deep personal commitment¹³; they know most of respondents in person and care for their future. Second, the surveyors were encouraged by respondents' enthusiasm and time devoted for detailed responses to the lengthy questionnaire. The high response rate is in itself indicative for respondents' positive attitude to the international education, an assumption confirmed in survey parts that evaluate national versus international educations and their contribution to the career.

The survey shows that, at large, graduates of the Euroforester are doing well on the job market. The majority of the graduates obtain jobs in forestry or related fields and are satisfied with the current work situation. As might have been expected, female students have worse odds in East European countries. The large difference in actual salaries as well as 'Pay' satisfaction between females and males indicates that either females have greater difficulties in climbing the career ladder or are paid less than males for identical jobs.

The elicited factors for success on the job marked are plentiful. However, the importance of an international educational background is standing out. Respondents point at international study programmes per se and at different skills obtained during the year abroad. Numerous Eastern European respondents specifically mention the value of Euroforester in broadening the professional perspective and furthering their transferable skills such as English, communication, presentation and work in team.

Finally, the issue of brain drain deserves to be mentioned. It might be expected that an international programme running in Sweden and engaging primarily East European students would entice many graduates to migrate westwards. The survey shows that only eight percent of respondents (11 people) migrated from East to West. Moreover, almost half of them (five persons) origin from Poland, where the job market for forestry graduates is very tight due to overproduction, i.e. huge numbers of people annually graduating in forestry programmes. Hence, brain drain is not a real problem; a majority of graduates prefer staying in their home country as long as they have reasonable opportunities to get a forestry-related job.

The survey gave rich data on Euroforester graduates. A very interesting further research could target their peers from home programmes who have not had foreign study periods. By posing analogous questions, one could objectively examine the influence of international study programmes on careers, income levels or attitudes to education.

¹³ Vilis Brukas has been teacher in the Euroforester programme from its beginning. Malgorzata Blicharska graduated the Euroforester programme in 2003.

Acknowledgements

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EXPERIENCES OF MSC EUROPEAN FORESTRY ERASMUS MUNDUS PARTICIPANTS IN THE LABOUR MARKET

JAVIER AREVALO, PAAVO PELKONEN AND LIISA TAHVANAINEN

Abstract

The MSc European Forestry is a pioneer joint master programme co-organized by six member universities of the SILVA Network. Even though the programme is young and only two groups (totalling 35 students) have had time to complete their curricula so far, the experience of these participants (both graduates as well as students prolonging their study over the standard two-year period) in the labour market have been explored. Thus, both formal (questionnaire for graduates) and informal (E-mail contact) communications between the coordination of the programme and the MSc participants show their relatively high employment (71% of the participants) after five months since the end of the study period. The collected data provides details on issues such as the students' views on their employability after taking part in the programme. Data also shows a general trend for participants of the MSc European Forestry to find an occupation either at an organization in their home country or as PhD students at European or Canadian universities.

Introduction

The Master of Science European Forestry (MSc EF) is a pioneer joint master programme co-organized by six member universities of the SILVA Network: BOKU-University of Natural Resources and Applied Life Sciences, Vienna (Austria), Albert-Ludwigs University of Freiburg (Germany), University of Joensuu, (Finland, coordinating university), University of Lleida (Spain), SLU-Swedish University of Agricultural Sciences (Sweden) and Wageningen University (the Netherlands). It provides academic education in forestry focusing on international forest resource management and utilisation, supported by a sound understanding of the ecological conditions and their dynamics in Europe, aiming at a double degree. A partnership established with three non-European universities, i.e. University of KwaZulu-Natal (South Africa), the Federal University of Parana (Brazil) and the Northwest Agriculture and Forestry University (China) reinforces the global character of the programme and provides study opportunities outside Europe for its European students. The MSc programme consists of a first year with a common curriculum with courses at each of the six European universities, followed by a second year of specialisation at one or two of these universities. Requirements for the joint admission include a bachelor degree in forestry, nature management or related sciences with grades well above average, and fluency in

English. More information can be found on the website (MSc European Forestry Erasmus Mundus, 2008).

The MSc EF idea originates from the discussions of a larger number of forestry faculty representatives in networks such as SILVA back in the late 1990s (see for example Parry *et al.*, 1998). The programme initially run during a first period (2002-2004) as a one-year MSc, aimed at European students. In 2004, the MSc EF was selected by the prestigious Erasmus Mundus Programme of the European Union for the period 2004-2008 and adapted into a two-year international double-degree MSc. The MSc EF intends to participate as well in the next phase of the Erasmus Mundus Programme 2009-2013 already presented by the Commission (European Commission, 2007) for approval to the European Parliament.

Within the period 2004-2008, 107 students from 38 different countries have participated in the MSc EF, with only a minority of the students coming from Europe (20%), the balance coming from Asia (52%), Africa (15%), Latin America (8%), Middle East (3%), North America (1%) and Oceania (1%). This article focuses on the experiences on the labour market of the first two groups (totalling 35 students) which participated in the two-year MSc EF. Throughout this article the term MSc EF participant has been used to refer to both graduates as well as students that were prolonging their study over the minimum period.

Experiences on the labour market

Data collected by the coordination of the MSc EF programme (see Figure 1) show that, five months after the end of the study period, a relatively high number (71%) of the participants had a full time occupation. This figure includes both those employed by a company or organisation (40%) as well as those continuing their academic education (31%). Only one participant reported being unemployed, although a second one told he was still carrying out his studies and having no other occupation. Together, these two cases amount to 6% of the total. Information on the remaining 23% of participants was not received.

Interestingly, all MSc EF graduates, continuing their education were doing so outside their regions of origin, either in European universities (9) or in Canadian universities (2), concretely enrolled in forestry PhD programmes with the exception of one student attending a Master of Business Administration. On the other hand, all MSc EF employed by companies or organisations have returned to their countries of origin. Their employers can be grouped as industries/companies (4), environmental non-governmental organizations (3), research institutes (3), universities (2), governmental organization (1), and self-employment (1). Only in one case the participant returned to the same organization that had employed her before the MSc EF. A list of these employers can be seen in Table 1.

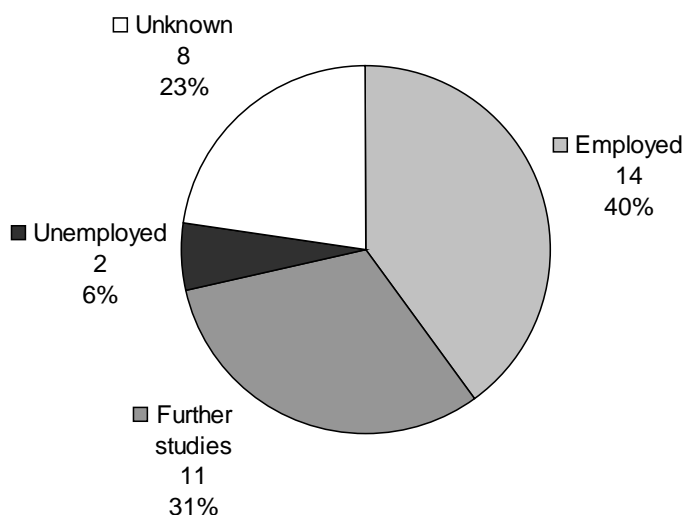


Figure 1: Employment situation of 35 MSc European Forestry Erasmus Mundus participants, five months after the end of their study period.

In some cases, students started working while still completing their MSc from their home countries (i.e. finalising their delayed thesis). Data also shows a significant proportion of participants (23%) not returning any information. This figure clearly shows the need for improved follow-up systems as well as for an adequate range of incentives and alumni support services.

Table 1: List of MSc EF employers, with the position reported.

Employer	Position
CIFOR Regional Office, Cameroon	Research assistant
Climate Bridge Ltd. Shanghai, China	Not provided
Corporación Fondo Biocomercio, Colombia	Coordinator of Monitoring and Evaluation
Forest Technological Centre of Catalonia, Spain	Researcher
Institute of Forestry Policy and Information, Chinese Academy of Forestry	Associate Professor
Mae Fah Luang University's Botanical Garden, Thailand	Forest officer
Ministry of Forestry, Republic of Indonesia	Forest Fire Extinguishing Data Analyst
Mondi Business Paper, South Africa	Environmental Specialist
Sutherland Seedlings, South Africa	Nursery Manager
Sveza, Russia (plywood company)	Marketing specialist
Thai Research Fund, Bangkok, Thailand	Project Coordinator
The Nature Conservancy, Indonesia	Head of Berau office (East Borneo)
Wetlands International, China	Not provided
Self-employed, Spain	Forest consultant

Students' views on employability

The students' views on their own employability are taken from their answers to two items included in two different surveys. The first question, asked by a student of the programme (Poudel, 2007) during the last month of the second year programme, was formulated as: "Do you think that the MSc EF gives you an advantage on the labour market in comparison to having a MSc in forestry from your home country?" With a 63% response rate, a majority of the responses answered positively (11), none answered negatively (0), while the rest (6) did not know.

The second item was asked five months after the minimum study period by the programme coordination, being formulated as: "How much do you think the completion of the MSc EF has improved your opportunities on the labour market?" With a response rate of 60%, answers were equally divided among very positive students (indicating that completing MSc EF "greatly improved" their opportunities on the labour market) and sceptics (those who did not know).

Discussion

The experiences of forestry students from a new international MSc on the labour market five months after leaving university were described above. The MSc European Forestry Erasmus Mundus can be considered as an example of a new reality in many forestry and nature resource management faculties in Europe, where students from abroad constitute a significant proportion of the enrolment. However, the limitations of this article are clear: only the experiences of small number of participants (35) over a short period of time (five months) were investigated. Given the dominance of non-EU students in the sample, which could be attributed to reasons such as easier obtaining more attractive scholarships from the European Commission (van der Maaten, 2008) by these students, no specific conclusions on the employability of the European participants can be extracted.

Data show that a large proportion of participants had a full-time occupation within five months from the end of the programme, and that this occupation followed one of two patterns: either a job at a forest organisation at the student's home country or a PhD position abroad. The fact that none of the non-European participants found employment at a forestry organisation in Europe other than a university may point out difficulties in fitting into such a niche. In this respect, notwithstanding studying European Forestry, (still) reduced knowledge of national/local forestry issues and languages may constitute disadvantages. This could be improved by providing international employers with detailed information on the professional qualifications given by this – new – degree as well as assisting graduates with high-quality career services.

Another interesting result is that a clear majority of the participants believe that such degree gives them an advantage on the labour market in comparison to having

an MSc from their home country. Even though this may just be an indication of their motivation to enrol in the programme, it also reflects the high demand for joining postgraduate curricula in Europe. At a point in which enrolment of national students in forestry and related subjects is in decline in many European countries, international programmes can attract students from around the world while adding extra values to the learning experience of the local students. For example at the Faculty of Forest Sciences of the University of Joensuu (Finland), postgraduate students from abroad, amounting to only few five years ago, constitute now about a third of the annual enrolment at master level.

A systematic monitoring of graduates of new international programmes is particularly crucial since it provides information on the varied and evolving labour market. Such an analysis should consider the phases of job search, transition to employment, early career development and employment after several years after graduation (Schomburg and Teichler, 2006). Attention needs to be paid to the current systematic large-scale surveys at national or university levels, since they may not yet be adapted to international students (e.g. language of the survey, use of national pre-paid envelopes) or may not consider issues specific to international labour markets.

As Lewark *et al.* (1998) pointed out already in their review of the labour market for forestry professionals in Europe during the 1990s, there was already then a need for standardised graduate analyses in the field of forestry and related sciences. The authors strongly support a much needed coordinated approach among institutions that will surely benefit the higher forestry education in Europe in particular and the forestry profession in general.

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EMPLOYABILITY – THE UNKNOWN GOAL OF STUDENTS AND UNIVERSITIES?

HANNO LANGFELDER AND JOHANNES RAHLF

Abstract

Changes in the local and global economy are affecting the job markets. New workplace demands have expanded the required skills and competences of workers. The employability concept provides a framework for personal and workplace related development for students, graduates and employees. Universities, as preparation centres for the job market, are faced with the challenge of providing students and graduates with the skills, knowledge and practical experience to be able to enter the job market and remain there. Different approaches are in practice or being implemented; career centres, career management training, information and events. This article will provide the rationale for university-based career development and an overview of implementation guidelines as well as a practical example within a bachelor programme at the Technische Universität München.

Introduction

The European and global job markets are changing rapidly. A competitive and diverse economy is making demands on personal flexibility, mobility, learning capacities and skills. The access to higher education is increasing. More and more people with one degree or more are entering the job market. Specialisation is increasing. At the same time employers are looking for personnel with diverse skills and competences – social, methodological, cognitive and operational. Companies want employees with general knowledge, not just a specialist know-how in a limited area. An ethically responsible behaviour is increasingly important.

The word employability is at the centre of the discussion. Employability is about an individual's ability to enter and stay in the job market. It includes a wide range of knowledge, skills and attitudes; specialist knowledge, initiative, personal responsibility, goal-orientated action, learning competences, communication and team skills, emotional intelligence and self-reflection, to name just a few.

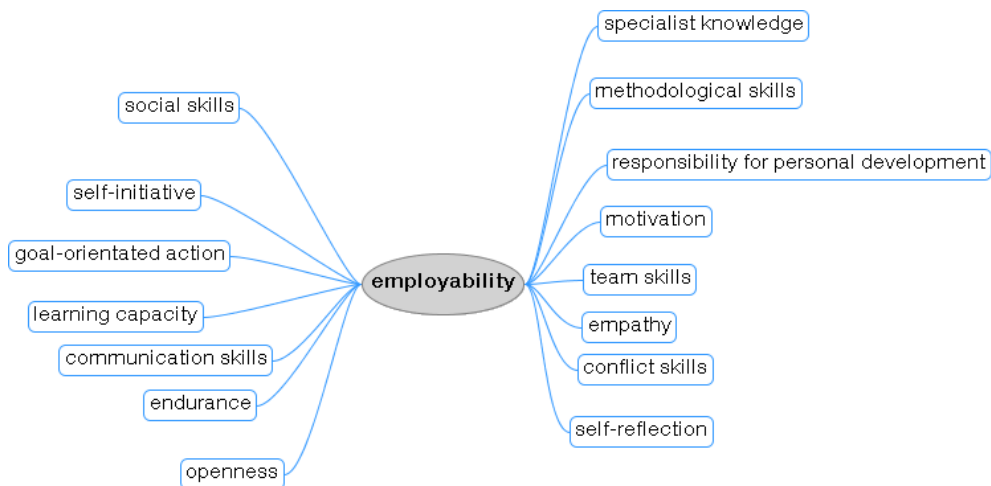
The concept of employability prompts a lot of questions for students and universities: how to develop employability in people? What quality standards to set and how to achieve them? How do students realise which skills they have acquired? How to test these competences? What are the individual roles of students and higher education institutions in achieving employability? How can this goal be effectively integrated into the curricula?

Focus – Employability

Employability is the ability of a person to gain and retain fulfilling work, within the changing conditions of the present and future work environment. Figure 1 gives an overview of the attributes associated with employability. It highlights the extent and diversity of employability attributes. Knowledge in a specialist area or pure method skills for office, field or laboratory work are no longer sufficient.

The concept of employability shifts the focus from the task to the person. The Industrial Era required people to acquire specific competences to perform specific tasks. Now, we are and have been entering the Knowledge Era economy, where rapid change, complexity, diversity and flexibility – in mind, methods, location and context – shape our actions and decisions. With these changes in mind, it becomes clear that methodological skills alone will not provide a student or an employee with sufficient competence to gain and retain a position on the job market. The individual needs to expand his or her horizon, open up to different skills, knowledge and competences and develop him- or herself on a continuous basis. Learning becomes a process in its own sense and no longer a finalized product as a result of a narrow and linear education path.

Figure 1: Employability attributes



As can be seen from Figure 1, skills and competences expand into deeply personal characteristics of a human being; openness, conflict resolution skills, self-reflection and empathy to name just a few. What do they mean? Self-reflection, for example, is the capacity of a person to be critically aware of his or her behaviour, actions and purpose; to reflect on these and take corrective or adaptive action. Learning and individual change becomes possible. This is a crucial attribute for creative work processes, team building and negotiations, among other things.

Conflict skills provide an employee with the capacity to resolve or handle a situation between two or more persons in a satisfactory way. Human interaction provides enough reasons for conflict and disagreement. The ability to listen and understand, to communicate such understanding, to value and respect a person's grievances and to come up with creative solutions to a conflict situation are all highly demanding skills that need training and practice.

These few examples show that a different education and attitude to education is asked for, if these attributes are to be developed in a sustainable way. How employability attributes could be developed at higher education institutions will be discussed below.

The Universities UK, the main representative body of the higher education institutions in the United Kingdom (see Universities UK, 2008), and the Higher Education Careers Services Unit, a charity organisation working and researching career-related learning and career guidance in higher education (see Higher Education Careers Services Unit, 2008), both see these three components of employability as central to the discussion.

Development of employability attributes

The individual's task is to become sensitive towards and aware of employability attributes. With this knowledge, it is possible to embark on the discovery and acquisition of these attributes. Responsibility for this process can not and should not be removed from the individual. But higher education institutions can provide valuable support. Not only can they trigger the sensitivity, they are also able to provide qualitative sources of information, additional training and seminars. They can sensitise their own staff and ensure that employability attributes are integrated into the curricula and become part of the university education culture.

It is the student's task to become aware of these offers and include them in his or her time schedule. Again, faculty or university staff can take on a consulting role by helping the student select the appropriate trainings and workshops. Through this process, a three component partnership can be created; the student, the faculty or university staff and the provider of additional training; centralised or decentralised career services, job centres or commercial companies and coaches.

Career management

Career management is about looking after your own career by ensuring continuity and coherence; creating your own career goals; expanding your skills and knowledge and keeping up to date with career trends.

Ball (1997) describes career management as a process of choices and decisions about your personal career development. The changed nature of work means that

individuals may now have to revisit this process more frequently than in the past. It is also about managing yourself at one's workplace; stress, decision-making, life-stage transitions, life-work balance, etc.

Career management is also concerned with developing and using skills that ensure your smooth transition from one organisation to another. These are called transferable skills, because they can be used in very different contexts.

It is important to take control of one's personal development – as employers take less responsibility, employees need to take control of their own development in order to maintain and enhance their employability. Universities can provide the stimulus for students and graduates to take action and at the same time ensure an effective flow of information and additional input in the form of seminars.

Willingness to learn and reflect on learning

As we come to see employability as a process within, and not just a product of education and employment, the willingness to learn and reflect on learning re-enforce their meaning. A graduate's performance on the job market does not end with him or her receiving a job. Quite the opposite, this is when the person's abilities are really tested. Especially in a graduate's case, he or she will need to acquire new skills, use new knowledge and interact with diverse people. A willingness to learn is essential. Universities have a key role in fostering and expanding this willingness through inspiring teachers, well-conceived curricula and learner-friendly environments. A willingness to learn includes understanding the processes of learning and using self-reflection to apply the understanding to his or her own situation. Not only will this lead to more productivity on the job, it also strengthens the employer's recruiting decision. Learning to learn and reflecting on learning are life-long processes. They will, if applied consistently, provide an individual with the attitude for continuous career and workplace development.

Context – Employability and higher education institutions

The role of higher education institutions in communicating and fostering employability in young people is important. Here is a ready-made learning environment. The context is right, people are tuned to learning and understanding, motivation is high and students have decided on their first career focus in life – their selected university programmes. All good reasons – and yet the situation is still tricky. The available time is limited; human and financial resources are only slowly being developed; student and staff members lack the full awareness of employability as a concept and a process; the embedding of employability within the curricula is only starting or has yet to start; research into the effects of employability training are lacking. Schindler (2007) notes that the new bachelor and master programmes may have a negative impact on the development of employability. Time, especially, has become a scarce resource for students and

universities. But time is important to allow for additional courses, internships, community activities and reflection.

Universities UK and the Higher Education Careers Services Unit have formulated the following suggestions for developing employability at higher education institutions (Harvey, et al., 2002):

- Institutions must develop a strategic, institution-wide approach to employability, ensuring that a very senior manager has overall responsibility.
- Institutions should develop a holistic approach, facilitating the linking together of different aspects of employability.
- The work to embed employability enhancement in curricula should be continued. This might be facilitated through revising programme structures, curricula content and teaching methods. Staff support during this process needs to be ensured.
- If students are to take employability as part of the curriculum seriously, institutions should consider including it in the assessment and grading process.
- Work experience, either as part of a programme of study, or as an external extracurricular activity, should be recognised in some way and formally accredited where possible.
- It is essential to give students structured support to learn from experience and to record their learning, preferably through integrated personal development planning processes: for example, within a progress file.
- Institutions are encouraged to identify ways of maximising the effectiveness of links with employers.
- Institutions should collect evidence of the impact of efforts to enhance employability. This needs to be ongoing, rather than the one-off evaluation of a specific project. Impact assessment might involve consultation with employers and alumni, and analysis of take-up and employment. It should be noted, though, that some developments drip-feed employability rather than deliver an immediate and dramatic effect.
- Institutions should exchange information about, and their experiences of, employability development initiatives to avoid duplication of effort, including through agencies such as the LTSN (Learning and Teaching Support Network) and other networks.

It's personal and part of the university community

Developing employability is a highly personal matter and rests with the individual. Therefore, it is primarily the individual's responsibility to make decisions and take action. But that is too easy. Universities and their communities (alumni, private partnerships, associations, etc.) have an important role to play (see Box 1). They can communicate the need for employability development, provide information about employability, offer workshops, seminars and events that focus on establishing and enhancing employability attributes and provide incentives for students to engage in self-development of those attributes.

Box 1: Employability at the School of Forest Science and Resource Management, Technische Universität München:

The bachelor programme „Forest Science and Resource Management“ at the Technische Universität München is one example for involving the idea of employability in a study programme. A detailed description of the programme is available in Utschig (2006).

Given as a criterion in the Bologna Process the study handbook (Anonymous, 2008) describes the integration of employability as:

„Before the thematic orientation of the modules had been set, possible careers of future alumni were found out and learning goals and necessary competences were defined by asking experts and alumni and looking into the field of occupational research (future of labour, megatrends). An eight week work placement and a project give students the possibility to learn independent work, teamwork and project planning. Furthermore presentation skills should be fostered within the modules. Additionally there are different possibilities for further education at the Technische Universität München, e.g. language courses and courses for personality development.“

Not only presentation skills are taught in the modules. Although most lectures are given with classic ex-cathedra teaching there are also other learning and [as that is the point] teaching methods. Presentations, essays, teamwork, practical exercises force students not only to get special knowledge but also to use it, work independently and evolve additional skills. The Chair of Forest Policy even uses role play to show the interactions between politicians, forest companies, environmentalists, etc. Instead of taking additional courses to get further qualifications the strength of these methods is the connection with the taught knowledge.

The practical work experience in a company gives the student the opportunity to take a look at a company of individual choice and different tasks he could later be confronted with. He or she is required to use appropriate skills and knowledge and so get a better view on his or her own abilities. It helps him or her to define personal career goals. These are also a part of employability connected with career management and personal attitude to a later job.

Translated extract from the Study Handbook for Bachelor in Forest Science and Resource Management (see Anonymous, 2008)

This does leave some open questions. How many resources should a university allocate to employability communication and development for students? Where does the expertise for this come from? What status and priority should employability have within the study programme? Where do the various responsibilities for employability development lie within an education institution? Where is the line between personal and organisational responsibility for the development of employability? Where does the responsibility of a university end? And so on.

This leaves us with a general idea of employability and how universities could approach the subject. But the questions remain and it is a matter of thoughtful engagement, active creativity and meaningful dialogue between the different actors to discover appropriate processes for integrating and communicating employability within university programmes. It is certainly worth the effort.

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WHAT DO WE DO FOR OUR GRADUATES?

MARTIN ZIESAK AND GERHARD MÜLLER-STARCK

Abstract

Examples are presented which refer to actions of the Technische Universität München, aiming at providing help for graduates on their way into and through their professional life. In particular, actions supporting entrepreneurial independency, including self-employment, are addressed, stimulated by a vivid communication within alumni networks. An innovative new field is the recently established “Career Service”. “Life long learning” is looked at as a permanent challenge, with consequences for the courses offered. It is clearly pointed out that universities should not only provide the job market with excellent graduates but should take a lot more care for its graduates as done so far.

Introduction

Under standard conditions, university education is completed if students achieve a distinct academic degree like a BSc, MSc or PhD. Graduation is considered as the final act in the responsibility of universities for their students. Evidently, there is a clear cut between educational issues and activities on the way to an appropriate employment.

It is the objective of the present paper to present examples which might help to bridge the fields of education including graduation with topics such as employability and job market facilities, respectively. Actions are presented which were worked out by the ‘School of Forest Science and Resource Management’ of the Technische Universität München (TUM) in order to support their graduates with respect to employment issues.

Support for entrepreneurial independency, self-employment

Employability appears to be a major goal of every professional training, hence also for universities. However, in addition to dependent positions as employees self-employment is another career option. At TUM, which calls itself also the “The Entrepreneurial University”, this idea is heavily promoted.

All actions in this direction are bundled in a separate association, called “UnternehmerTUM” (“entrepreneurship” but at the same time “entrepreneur of the TUM). The official holding “UnternehmerTUM GmbH”, the centre for innovation and start-ups, was founded in January 2002. It is an independent, non-profit, private-limited company and an institute associated to the university.

In short, the idea of this company is best described quoting Susanne Klatten (member of TUM university council): “UnternehmerTUM offers young, entrepreneurial people the opportunity to realise their own business ideas, to recognise chances, to test concepts in a realistic environment and to implement them; this is what UnternehmerTUM stands for.”

As a first bundle of actions UnternehmerTUM (see UnternehmerTUM, 2008) offers in different seminars and lectures the necessary qualification and knowledge on establishing start-ups. Elements taught are how to create and work with business-plans and business-models and how to deal with finance, tax and marketing questions. A course on “Innovative Entrepreneurs” offers knowledge about foundation and management of innovative companies; outstanding founders and managers give insight into their entrepreneur curricula.

Those, who do have already ideas for a start-up, can receive individual support on their way to the market. This includes aspects like coaching their business plan development, mentors coaching their actions and support in patent questions. Even office infrastructure can be made available in the “InnovationLab”. Various contests, some repeated annually, are open for interested candidates in order to attract people to the idea of self-employment and help them on their way to self-employment.

Finally, a strong network is provided through UnternehmerTUM. Regular events bring together people of interest. As an example the “Discontinuous InnovationLab” may be mentioned, which offers an international network of interdisciplinary researchers and innovation managers. They meet in regular international workshops and conferences and aim at mastering the discontinuous innovation cycles (see Discontinuous InnovationLab, 2008).

Alumni Network

In contrast to some American and British traditions, the idea of alumni being linked directly to their “alma mater” is not yet that strongly established in Germany. Nevertheless, the TUM Alumni Network, an organisation for TUM graduates, has created, since 2000, a substantial network of more than 30,000 registered members (see Figure 1).

The idea behind this network is to create a permanent link between the university and the graduates. In order to establish a strong network several activities are provided through the TUM Alumni network, such as

- *KontaktTUM-Database*
Personal lifelong forwarding e-mail, Alumni Portal.
- *Information for Alumni*
Magazine “KontaktTUM“, English Newsletter “Alumni News“, and a monthly E-mail-Newsletter “Die TUM informiert“ (TUM informs).
- *Events for Alumni*
Alumni-Forum: 5. Alumni-Forum October 2008, international seminars.
- *Services*
Career Service, programme “Zurück zum Campus!“ (Back to Campus), offers for children of the alumni.
- *International Network*
Ten regional network groups all over the world, presenting regional events.

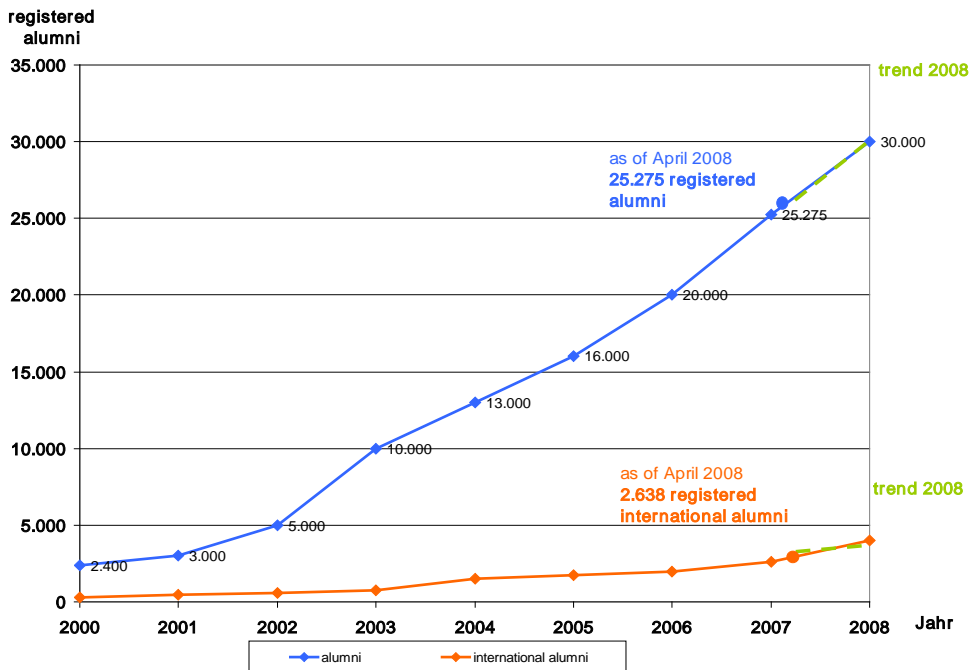


Figure 1: Registered TUM alumni over the last 8 years (source: Alumni network, 2008).

Besides this central organisation, it is important to have a specific network for each school or faculty. Only in this way highly specific elements of different industries can be respected. At the ‘School of Forest Science and Resource Management’ there exists since 1997 a separate alumni organisation, called the “Münchner Forstwissenschaftliche Gesellschaft e.V.” (Munich Forest Science Society), (see Münchner Forstwissenschaftliche Gesellschaft e.V., 2008). It maintains contacts to alumni within the forest sector. It is a dialogue platform between employed foresters, graduates and students. It offers a view on current research activities and

its latest results at the School of Forest Science and Resource Management and provides contacts for enterprises to graduates. Regular meetings, seminars and an own publication series are the media, which help to achieve this.

Career service

A career service provides a link between university and economy, between academic studies and career, between graduates and potential employers. It provides active support for graduates for their step from student to professional life. The TUM activities are bundled in a unit (Career service, 2008), but also the 'School of Forest Science and Resource Management' has its own career coordinator (Hanno Langfelder, see Langfelder and Rahlf, 2009).

Many things are organised through the career service, such as company presentations at the TUM, job exchanges, and career fora, like the IKOM LifeScience at the campus in Weihenstephan (IKOM, 2008) (Industrial Communication Fair Munich, founded 1989 as "Industriekontaktmesse München", extended as "IKOMLifeScience" in 2008). In addition, offers for internships are brokered and a service is provided, where graduates can present and improve the presentation of their application dossier.

Life long learning

Life long learning is unquestionably necessary in order to stay successful in employment. The university is an excellent place to provide the latest knowledge. Offers for those, who are already in employment can be easily provided. However, the typical conditions and needs for those in a job have to be considered, such as restricted time for educational programmes as a condition or access to latest research findings as a need. Various offers are available, organised by the faculty, but also by individual chairs:

Our summer schools (see Ziesak *et al.*, 2008) are run by the faculty, and some are really dedicated only to already graduated participants. Course length is one to two weeks, which seems to be a maximum time span for employees. As examples for shorter - one or two days – actions, many activities organised by single chairs or institutes - meant as knowledge platforms to the general market, but in particular organised for forestry graduates - can be mentioned.

- 14th Münchner Holzkolloquium [Munich timber colloquium] (17th July 2008, Munich) with a focus on timber.
- 12th Unternehmertag Freising [Contractor's day Freising] (2nd April 2008, Freising) with a focus on forest engineering questions.
- Forum "Genetik-Wald-Forstwirtschaft" [Forum 'Genetics-Wood-Forestry'] organised alternately by forest research institutions in Germany, Austria and Switzerland, e.g. 1995 by TUM (Müller-Starck, 1996) with a focus on forest genetics.

Conclusions

Their placements on the highly competitive and variable job market strongly suggest that graduates particularly in the fields of forest sciences are prepared for entrepreneurial independency. Corresponding information together with Alumni networks and life long learning strategies appear as very effective tools for the improvement of the competitiveness of graduates. Universities should not confine themselves to a providing knowledge function with respect to graduates but bridge the educational tasks and the demands of the job markets in a more efficient way than ever before. The given examples refer to the specific situation and perspective of only one of the universities but may be looked at as an encouraging case of overcoming isolated academic educational schemes.

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THE INTERNATIONAL FORESTRY STUDENTS' ASSOCIATION (IFSA) AND FORESTRY EDUCATION

SYLVAIN DUPIRE

Abstract

This article aims to introduce and explain some actions of the International Forestry Students' Association (IFSA) in the field of forestry education as well as the students' role in improving it at local, regional or global scale. It focuses especially on a survey made by IFSA in 2008 among forestry students and forestry universities staff in order to identify regional or global trends in terms of forestry education.

Key words: forestry education, forestry students, IFSA, global survey, forestry universities.

Introduction

In our fast changing world, foresters are more and more asked to use and adapt their knowledge in order to ensure a sustainable future of our forests. One of the main steps to meet this societal need is certainly to educate the society and to teach the current and next generations of foresters.

Over the past years, forestry education has suffered different crises (gap between curricula and employers' needs, less enrolment of students, insufficient means) and it is now necessary to solve these problems in order to be more prepared to upcoming global challenges (environmental, societal and economical) and needs (e.g. improve internal and external communication of the forestry sector).

Forestry students also felt this need of communication some years ago and decided in 1990 to create the International Forestry Students' Association (IFSA) which aimed to exchange ideas, experiences and views and to represent the forestry students on international level. For more information see IFSA's website (IFSA, 2008), Schoenenberger (1998) and Pfothhauer (2004).

Nowadays, IFSA aims also to contribute to the improvement of forestry education and to better prepare students to professional life. IFSA provides thus many opportunities to develop and improve students' open mind but also important transferable and forestry related skills and knowledge.

More than offering opportunities to improve individual learning, IFSA participates also to improve global and/or regional forestry education. A nice example is the role played in the promotion of international forestry MSc curricula in Europe which permit people from all over the world to study forestry with very good means.

In 2008, IFSA also implemented a global survey which aims to construct and fill databases gathering information on forestry MSc programmes around the world, to

identify the most important needs at global and regional scale in terms of forestry education and also to compare students' feelings with the actual curricula universities offer.

Methodology

Elaboration of the questionnaire

The global scheme of the questionnaire has firstly been proposed by IFSA to several partners: IPFE, IUFRO, EFI and SILVA Network. Amongst the numerous inputs given by these partners to enrich the survey we can cite the suggestion to circulate it not only among students but parallel among both students and universities' staff in order to get a meaningful comparison between students' feelings and universities' offers in terms of curricula.

A similar questionnaire for both groups has been elaborated which contains questions on different points like trends in students' enrolment, students' gender distribution, subjects covered by the curricula, place of practical and field work in the curricula, links with research, employers and other universities and a final part on the employment of graduates. The complete questionnaire can be found on IFSA's website (IFSA, 2008).

Finally, the survey has been translated into Spanish by the language commission of IFSA in order to reach the Latin American continent as well.

Spread of the questionnaire and answers returned

The questionnaire has been sent in a Word document by e-mail to the different IFSA mailing lists to reach about 3000 forestry students from all over the world. The students were also asked to transmit it to someone from their university staff being able to answer the questionnaire correctly. In parallel, e-mails have been sent to different IFSA's contacts (about 60) working in different universities in the world. The questionnaires have been returned by e-mail, which was done by 45 students from 40 universities and 27 staff members from 27 universities.

Analysis of the answers

The answers have been collected into a small database and we carried out some analyses to see if we could already identify some trends.

First results

Trends in enrolment on international scale

The first trend observed internationally is decreasing numbers of students choosing to study forestry sciences as compared to a growing number of students opting to study new "environmental" sciences. Another trend observed is an increasing percentage of women choosing to study forestry sciences.

Links between universities and research, employers and alumni

Forestry faculties and departments of universities seem to be linked quite well to forestry research, which is also reflected in the study programmes. The links between universities and potential employers are generally good which is also quite encouraging.

Less encouraging are the links between universities and their respective alumni as few universities are keeping track of their former students. More efforts need thus to be made on this point and the formulation of a common tool to follow the careers of the graduates, as it has been proposed during the SILVA Network Annual Conference 2008, could meet the students' needs in term of information on the work available once graduated. Also some teaching successes of a single university should be promoted and serve as advertisement tool in order to recruit students for forestry curricula.

A first comparison of the views or feelings of students and university staff

Concerning the percentage of field work in study programmes: 68% of the students would like to have more field and practical work, while 65% of university staff think there is enough field and practical work. Moreover it seems that concerning enrolment in forestry programmes, at global level, students think that there is an increasing enrolment whereas university answers indicate enrolment is decreasing. It seems so that at global level, students are not well informed about the trends in enrolment. This is not true when we take only answers from Europe, as students' answers are generally the same as those from university staff members.

Conclusion on the survey

To conclude on this study, we think that such a survey should last for a longer period if we want to reach all our first objectives and mainly establish a good database at global scale. Comparing students' and university staff's views is not an easy task and to do it properly we need to have at least one answer from both sides of each university. Gathering this information at global level is quite a large task.

On the rate of answers received we can say that it is quite low. This is maybe due to the not very comfortable way this survey was made. It takes much more time for example to download the survey, fill in it and send it again attached by e-mail than filling in a survey directly online. Hence, a large effort needs to be made in order to encourage more answers from students and from universities.

Finally, even if we got some elements of answer thanks to this survey, we need to think how we can gather in more efficient ways more information, and how this information can be made available for everybody.

Role of IFSA in forestry education

Large events such as the World Forestry Congress (WFC) 2009 (Buenos Aires, Argentina) and the IUFRO World Congress 2010 (Seoul, South Korea) but also smaller ones such as the SILVA Network annual conferences and IPFE Workshops are the places to discuss important and relevant issues in forestry education, because

all the stakeholders of forestry science and education are present at the same place and at the same time.

IFSA needs to participate in these events with examples of actions and above all with proposals of actions and ideas to improve forestry education. Identifying trends and problems is already a first step but proposing solutions to face the difficulties is what IFSA really has to do in the future.

In this way, after having read the provisional programme of World Forestry Congress 2009 (<http://www.wfc2009.org/>), IFSA considered the attention given to education too small and we started to discuss with FAO and the local organisers in order to propose a special session on forestry education into the programme of WFC. The proposal was accepted at the end of 2008. IFSA and especially its FAO focal person Nicolas Dolidon, has been working intensively to organize this session in partnership with the International Partnership for Forestry Education (IPFE). You can get more information by contacting the “Students to WFC 2009” coordination team: students.wfc@gmail.com.

To prepare this session, the focal point of IFSA is to understand better students’ needs at local and international levels (facility to study, motivation to study forestry, main problems in their countries and universities, and solutions to those problems). This will be done in two steps:

- Online survey among students;
- Workshops at the International Forestry Students’ Symposium (IFSS) in August 2009 in Indonesia.

Those two points should permit to know the students’ perspective well and to propose as well local solutions and wider ones.

Concerning the elaboration of a public and online database, the reflexion on what this database should include and how it will work is still in progress. The outputs of the next WFC should already give an element of answer on this point.

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INTERNATIONAL PARTNERSHIP FOR FORESTRY EDUCATION

SARI PITKÄNEN

Background

The status of global forestry education and the lack of an international forestry education worldwide forum gave rise in 2001 to the idea of creating an entity that would link forestry institutions through curriculum development and networking. A group representing universities, education networks, and international organizations agreed to establish the International Partnership for Forestry Education (IPFE). Notwithstanding the difficulties in the forestry sector as a whole, serious national and global challenges were identified pertaining to gaps in forestry education programmes in many parts of the world. The IPFE was created to address these global issues by strengthening university level education concerning forests and forestry worldwide through the facilitation and support of collaborations.

IPFE is a non-profit voluntary partnership. IPFE facilitates collaboration, and sharing of information, experiences, resources and skills, for education about forests and forestry. Its vision is forestry education which is contemporary, locally relevant and globally connected, and responsive to the global development agenda. Its mission is to assist university-level forestry education to meet society's needs. It facilitates partnerships between university forestry educators and other relevant institutions to jointly improve the quality and relevance of forestry education programmes. More information about IPFE can be found from the website: www.ipfe.info

Priorities

IPFE's priorities are defined as:

- Sharing learning and experiences of curricula, courses, methods and joint programming;
- Strengthening and connecting regional networks in order to share knowledge and address needs;
- Partnering with student bodies to learn from, support and enhance their learning;
- Fostering dialogue among diverse interests about forests and forestry education;
- Enhancing societies' understanding of forests and forestry; a key role for universities.

Organization

Executive Office

The Executive Office provides leadership for the partnership, and consists of the Chairperson and three Vice-Chairs. All posts would be voluntary and among the four posts, two would be represented by institutions from the developing world.

The Executive Office shall be appointed by the General Assembly for a term of three years, renewable only once. The Secretary of IPFE is an ex officio member of the Executive Office. The Executive Office convenes at least once a year.

The Executive Office for the first term consist of:

- Chairman: prof. Hosny El-Lakany, University of British Columbia, Canada;
- Vice chairs: prof. Oswaldo Encinas, University de Los Andes, Venezuela, prof. Paavo Pelkonen, University of Joensuu, Finland , prof. August Temu, African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE), Kenya.

Steering Committee

The overall responsibility of the Steering Committee is to set the general operating policy and procedures of IPFE including general coordination of its activities. This entails oversight and guidance of the work of the Executive Office.

The Steering Committee is composed of prominent persons from education institutions, industry, NGO's, research institutions and Networks, on a voluntary basis. It is composed of 11 to 13 members with due consideration to geographic distribution, discipline, and affiliation. The International Forestry Students Association (IFSA) has a permanent seat on the Steering Committee.

The Chairperson proposes names of the Steering Committee to the General Assembly for approval. The Chair of the Steering Committee is elected among members of IPFE. The Steering Committee is convened by the Chairperson at least once a year (depending upon availability of resources).

The Steering Committee for the first term is in 2008:

- Members of the Executive Office;
- Dirk Längin, Stellenbosch University;
- Peter Kanowski, Australian National University;
- Pieter van Lierop, FAO;
- Manuel Guariguata, CIFOR;
- Siegfried Lewark, SILVA Network and IUFRO;
- President of IFSA, Sylvain Dupire;
- Sari Pitkänen, secretary, representative of IPFE Secretariat.

The Secretariat

The IPFE Secretariat is at present co-hosted by the University of Joensuu in Finland and by the University of British Columbia in Canada. It is entrusted with the following main tasks:

- Coordination and internal communications among partners;
- Organization of meetings and events;
- Public relations and information dissemination;
- Fund raising and resources mobilization;
- Knowledge generation and sharing;
- Administration of the partnership;
- Maintain and up-date the web site of IPFE.

The IPFE Secretary is nominated by IPFE Chairperson and approved by the General Assembly, with due consideration to offers from member institutions to host the Secretariat. The term of office is three years, renewable upon approval of the General Assembly, and the Host Institute.

The General Assembly

The General Assembly is the supreme authority of IPFE. It is composed of representatives of all member institutions. Representatives are nominated by their respective institutions. The General Assembly is chaired by IPFE Chairperson.

Members of the Executive Office are ex officio members of the General Assembly. The General Assembly may appoint other persons on a voluntary basis for specific tasks or as Advisors. Decisions of the General Assembly are by consensus in general, or by two-thirds majority, if no consensus is reached.

Members

Membership is open to institutions engaged in or committed to university-level forestry education - including, for example, regional forestry education networks, universities, research centres, and international organizations.

Application for membership should be addressed to the IPFE Secretariat (sari.pitkanen@joensuu.fi) indicating acceptance of the Charter and stating the name of the institution, location, and the name of the representative. Applications have to be approved by the Executive Office and ultimately by the General Assembly.

Finances

IPFE is a partnership financed entirely through grants, contributions and project funding. IPFE operates on project basis, and endeavors to secure funding to support its mission. All project proposals and requests for funding activities under the auspices of IPFE must be submitted through the secretariat and approved by the Executive Office, and will be reported to the General Assembly. The costs of participation in any IPFE activities, projects or meetings should be borne by members.

DISCUSSIONS IN WORKSHOPS

In three workshops participants discussed some aspects of graduate surveys and a possible format and subjects of future SILVA network activities. Below, a report of the discussions in this sequence is given.

Graduate Analysis

Reasons for graduate surveys

A good reason for surveys is to determine employer expectations of graduate competences, skills and knowledge, providing information which can be integrated into curricula and which is relevant for taking decisions on university programmes and on priorities. Surveys can also show employment trends and developments in forestry and associated sectors.

Higher education institutes lack conclusive data about their students and alumni. Graduate surveys can fill this gap, especially if conducted on a regular basis. The survey results also provide current and future students with valuable information about the prospects of studying forestry and related subjects. The results can form part of the marketing tools for the faculties and institutes. Contacting alumni shows the continued interest of universities in its students, thereby strengthening the ties.

Some methodological aspects

The most important aspect of a survey is the quantity and quality of the returned forms. To increase the quantity, it may help to inform current students about the survey and keep them informed on a regular basis. In this way, when the survey arrives at their home, they will have a higher incentive to answer it. The risk, otherwise, is a not-representative survey. We do not yet know enough about alumni's motivation for answering surveys. Do they prefer to answer if they are successful in life? Will they withhold the information if they are unsuccessful? Or, as one survey showed, will the successful ones not answer the survey because lack of time? The survey could be self-selective and therefore also not-representative.

As an incentive to return the form, various benefits could be added; for example, shopping or cinema vouchers or small give-aways. The easy availability of correct addresses is another subject. Here, it might be possible to buy addresses from special service companies. One idea may be to ask for or retain the parents' home address, as this is less likely to change and will therefore provide a more stable contact point to the alumni.

To increase the value of surveys, it might make sense to additionally conduct person to person interviews. This would add data of different quality to the surveys. Key individuals could be selected for this process.

Electronic surveys via the Internet could be used in future. The advantage would be the increased access to people and the immediate availability of digital data.

The use of graduate surveys

The survey results could be used for faculty and programme marketing. The fact that forestry students in Germany enter their first full time job within six months after graduation is a good selling point, for example. The survey can also support the career management process of students and support staff. It can be used for political argumentation and negotiation; either for university internal affairs or for regional and national policy. The information may be valuable for graduates and alumni in their search for jobs and during job interviews. A survey can also provide salary overviews for graduates. And finally, it was mentioned that a number of students remarked that their mother influenced their decision for studying forestry. Might there be a new target group for study programme marketing?

SILVA Network

Possible activities

The following aspects are suggested as future short term activities

- Introduction and description of earlier SILVA Network activities to new participants and invitation for ideas, suggestions and personal interest topics for future SILVA Network activities;
- Continuation of realisation of annual meetings as a platform for discussions and exchange of new findings as an idea-pool with conference proceedings as documentation;
- Further graduate analysis and comprehension of professional organisations into graduate analysis;
- Establishment of cooperation within or with ALFA 3 network - on Latin American and European level;
- "Erasmus questions" - activities on student mobility and student or teacher exchange;
- Topical support of IFSA during the World Forestry Congress 2009;
- Integration of SILVA Network activities into other networks' projects, which are already funded - contribution to networks other than SILVA Network;
- Enhancement of networking - combining organisations focussing on forestry education;
- Motivation of other, currently inactive, SILVA Network members to contribute to meetings and activities.

Format of future SILVA Network conferences

Based on the preliminary remarks that

- SILVA Network is related to education exclusively;
- The main objective of SILVA Network is the exchange of experiences and to pick up contacts;

- It should be possible to validate the results of the annual meetings through indicators.

The following suggestions were made to enhance attractiveness and aura:

- The annual SILVA meeting should start with a thematic main point (half a day). For this main theme, one or two key-note speakers with high competence and decision making power should be invited. The presentations of the key-note speakers should be followed by a detailed discussion with a panel of experts; with an enhanced round of participants.
- The second and the third day should be used as in earlier meetings for the exchange of experiences (presentations, posters), group discussions for special topics and plenary discussions for all topics.
- The meeting should finish with a field trip in the forest in the neighbourhood of the meeting place.

CONCLUDING REMARKS: THE DATA ARE AVAILABLE—WHAT NOW?

SIEGFRIED LEWARK

Every so often universities express a need to know the whereabouts of their alumni. Students, employers and others quite often have the same questions here. As we saw during the conference, graduate surveys are by no means standard procedure at our faculties of forestry, but very nice examples exist, some of them presented in this volume. We saw too that graduate surveys quite often examine more than only the whereabouts of the graduates, but also their competences, working situation and their views on the curriculum they passed.

All this information is of different value for the various stakeholders. The students are probably mostly interested in what worked out positively for success on the job market. Employers will want to know about knowledge, experiences and other competences the applicants bring along, and how they might differ from older graduates, hired earlier, or from what they themselves have experienced. In the centre, though, we probably expect the university, who in most cases initiates the enquiries and carries them out. They are at the same time the actors who take most advantage from the results and are responsible for delivering these results to the others stakeholders. This merits a closer look to the use of results generated by graduate surveys and to the ways of spreading information.

The objectives when using this information should match the focus of the analyses (see Figure 1). In general, if a quality management system is functioning, that is the place where these data will be used, most of all for finding out, whether attempted goals of education are reached and whether study programmes and structures are suited for this purpose. More often quality management may not be carried out in a formalized way, but still elements of it are implemented at various places in the faculties, e.g. curriculum and exam commissions, dean's offices and responsible vice-deans, student advisors or career centres. This may be very effective, with short ways and in direct coordination with the teaching staff.

Somewhere in the university system key processes take place:

- Selection of best suited students;
- Advice to beginning and older students about options in their studies, in connection to their career aspirations;
- Advice about adequate internships within the country or internationally, within the scope of the study programmes or beyond;
- Advice about preparing theses in cooperation with potential employers;

- Revising study programmes with regard to changes in the labour market and to changing demands from potential employers and the society;
- Finally more or less direct help with placement of graduates on the labour market.

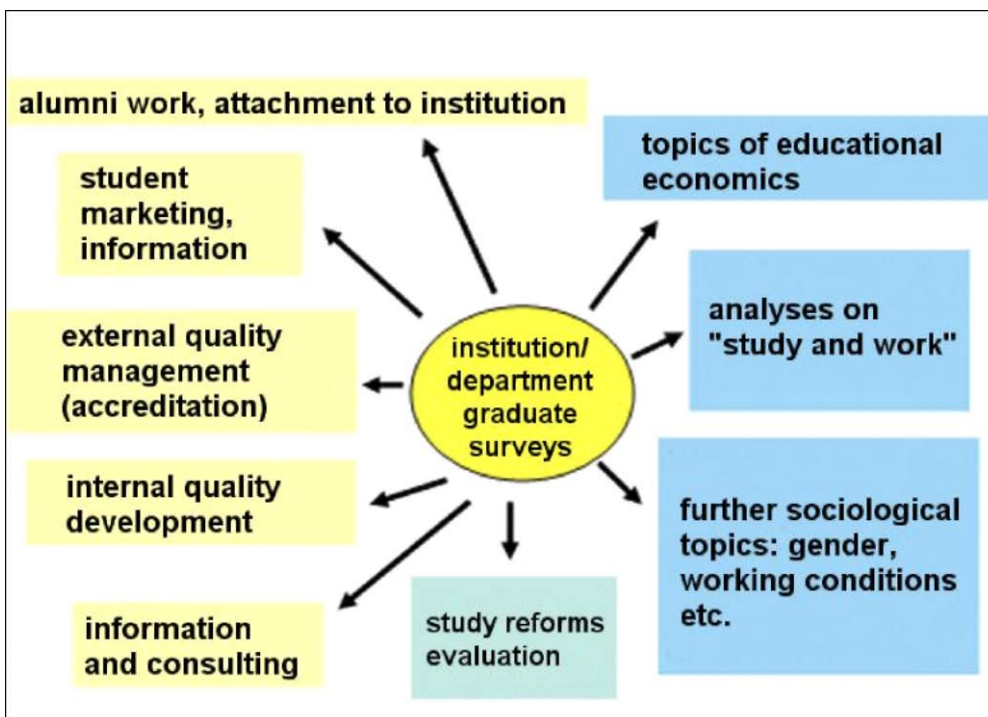


Figure 1: Potentials of graduate surveys. Source: Schomburg, 2008.

European universities have recently become more and more aware of the potential of alumni as informants and as lobbyists and partners, in the latter context looking at the graduates from a different perspective, but this certainly also needs knowledge about their whereabouts and working histories.

How well all this works, depends on the need seen by the universities – traditionally much of it has not been considered by the universities, at least not in Europe – and on the resources they allot to these activities. What makes things more and more difficult is a growing diversification on the labour market for graduates in many countries. How best to prepare students in curricula and courses for later occupation ranging from scientific work over politics to management in the more traditional sense in fields such as nature protection, development aid in tropical countries, forest management, wood industry etc., be it in a governmental service, in a private company or as a private person.

Certainly choices and specialisations for students during their studies, exemplary courses, working for key competences and transferable skills, training to solve problems in projects as a preparation for problem solving in the working life are of growing importance. The attitude of lifelong learning is of growing importance as well as students know less than ever about the stations waiting for them in working life.

The above considerations lead to the questions whether or to which degree universities can design and offer curricula based on graduate enquiries. Certainly curriculum design cannot be deducted from graduate enquiries in a detailed manner, i.e. introducing specific courses directly upon views of employees (or employers). Moreover, on the one hand is the situation in natural resources management quite a dynamic one. On the other hand, universities need some time to react to changing demands.

What may be a consolation: Except from new faculties or completely new study programmes without predecessors an orientation may be possible from success of earlier graduates, in a general manner. Curricula can not reflect tasks in forest services any more as it was in the 19th century, but easier than before, graduates learn to transfer competences gained as students to new tasks in working life.

Publishing results of graduate analyses is of great importance under these circumstances, using easily accessible media, including the internet. Publishing in reviewed journals may sometimes not be easy for a small sector as forestry as forestry may seem insignificant for education journals, while education issues may not be seen attractive by editors of forest science journals, as some experience has shown. Can the higher level professional journals give some support here?

But publication will strengthen the position of the faculties within the universities and towards ministries and parliaments, which provide funding. And publications are also a basis for research which may arise on the knowledge from graduate analyses, which may include research questions from the motivations, success on the job, career paths, gender studies and potential of non-traditional labour markets.

Altogether results of graduate analyses seem to deserve attention from the stakeholders, probably more than ever – but universities should think about how to make a better use of them.

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WHAT DO WE KNOW ABOUT
OUR GRADUATES?
GRADUATE ANALYSES FOR FOREST
SCIENCES AND RELATED CURRICULA

