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Research Graduate Careers



Skills for Career Success: The Perspective of Research Graduates

Careers Service
Cooperative Education & Careers Division
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*Skills for Career Success: The Perspective of
Research Postgraduates*

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***Skills for Career Success: The Perspective of
Research Postgraduates***

**A survey of career paths and skills of research graduates,
University of Limerick, 1999, 2002 & 2005**

**Careers Service
Cooperative Education & Careers Division
University of Limerick**

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Foreword

Since the completion of the 2004 OECD review of Higher Education in Ireland, Irish policy makers have made a major investment in 4th level education. This has resulted in a significant increase in the number of PhDs graduating from Irish universities. These policy makers recognise the vital contribution that highly educated research graduates can make to the development of a successful Smart Economy and they expect that significant numbers of these graduates will take up employment in the enterprise sector as well as within traditional academic careers.

With the expectation that research graduates will move beyond traditional academic roles comes the need to ensure that these graduates are provided with a clear sense of career options available to them along with the opportunity to develop a wider set of employability skills that will complement their career choices. The Irish Universities Association addresses this need with its PhD Graduates' Skills Statement which identifies the key skills recommended for the professional development of PhD graduates.

The University of Limerick Cooperative Education & Careers Division (CECD) acknowledges the importance of the IUA skills statement in promoting the employability of research graduates. While some of these skills will be enhanced as part of the research process it will be necessary for students to engage in additional training to facilitate the development of a number of the IUA skills. To that end the Careers Service has collaborated with the UL Graduate School to develop and deliver a suite of transferable skills seminars and workshops which are available to all research postgraduates. While there has been strong participation by postgraduates in all training programmes the Careers Service recognised the benefits of surveying graduates in order to obtain their views on the most important skills for career progression.

The survey was conducted in 2009 and addressed two main objectives. In the first instance it provided a snapshot of the career paths that have been pursued by researchers that graduated from UL over 10, 7 and 5 years ago. This useful information will be used in conjunction with the annual First Destinations surveys of graduates to provide an overview of the types of careers that PhD and Research Masters graduates pursue. In the second instance it addressed

a gap in the literature in relation to skills that graduates themselves consider important for their career progression. Using the IUA skills statement as the basis for the research, graduates were asked to indicate which of the 31 skills they had developed during their studies and to highlight the importance of these same skills for their career progression. The results of the research have enabled the CECD to identify the areas which past research graduates consider of paramount importance for career pursuit thereby giving evidence to support the employability and skills training programmes currently delivered to research postgraduates.

Acknowledgements

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Executive Summary

In fulfilling the government policy to double the output of PhD graduates, Irish universities recognise the need to ensure that research graduates develop relevant skills that will ensure their employability for careers within academia and research as well as careers within industry and self-employment. The Irish Universities Association (IUA) has addressed this issue by producing a key document which outlines the skills that PhD graduates may expect to develop during their research. The University of Limerick (UL) has used this statement as the foundation for the development of a suite of training programmes, seminars and workshops to facilitate research graduates to gain these important transferable and employability skills.

In order to ensure the legitimacy of its current work and inform future training programmes for research postgraduates, the UL Graduate School and Careers Service (CECD) conducted a survey of past graduates to identify the types of careers pursued by these graduates and to seek feedback on the skills considered important by these research graduates. Using the IUA skills statement, the CECD surveyed UL Graduates from 1999, 2002 and 2005. Respondents were asked to give feedback on their own careers to date and to identify critical skills for employability into the future.

The following provides a summary of the key results of this research, further details of which are available in the enclosed report.

Key findings

Current Employment Status

The report reflects a positive picture of the employment status of respondents. The following are the main survey results with respect to current employment:

- 94% of respondents are currently employed, of whom 78% are on permanent contracts;
- 7% are self-employed
- 3% have pursued further education or training
- 3% are unemployed. This is well below the official labour market unemployment figure which is in excess of 13.7% in 2010.

- 81% are based in Ireland, half of whom are working in the mid-west region.
- 19% are based overseas, half of whom are in the UK

Employment History

- The sector representing the highest concentration of employment is higher education, accounting for 45% of current jobs. This includes teaching, research and administrative roles. The remainder are evenly dispersed across management, professional and consulting roles in the services or industrial sectors.
- Over half those who were in previous employment changed jobs for reasons of promotion or to develop their careers.
- 78% of respondents hold permanent employment contracts. This is common across all three graduating cohorts.
- The results indicate that 19% are currently working abroad but that this is not necessarily a long-term option as more than half of those who had worked abroad since graduation subsequently returned to Ireland. This allays fears of ‘brain drain’ and the subsequent loss of research expertise which is vital to the Irish economy.
- It is clear that respondents recognise the importance of continuous professional development as some 25% had undertaken additional further studies in areas relevant to their jobs. The rate of change in work practices is such that graduates need to constantly improve their knowledge, skills and competencies throughout their careers in order to ensure future employability.

Career Progression Skills

One of the main benefits of this survey is in the identification by respondents of the skills they consider important to their career progression and the extent to which these skills were developed in the course of their research studies.

While the 31 skills from the IUA PhD Graduates’ Skills statement formed the basis for this survey, it is important to note these graduates had completed their studies prior to the

publication of the IUA statement, at a time when there was relatively little recognition of the importance of generic skills development as part of the formal education of researchers.

When presented with a comprehensive list of 31 skills in seven skills categories, the view of respondents was that the extent to which they had developed some of the key skills during their education was greatly outweighed by the importance of these skills to their career progression. The greatest gaps were recorded in three key transferable skills: *Team Working and Leadership*; *Personal Effectiveness/Development*; and *Career Management*. In the case of *Research Skills and Awareness*, and *Ethics and Social Understanding*, there was a high level of congruence between the development of these skills and the perceived importance in relation to career progression.

Relevance of Field of Study to Employment

Fewer than half the respondents, 41%, felt that their field of study was the only possible background for their current job whereas 55% were of the opinion that other fields of study could also prepare people for work in that area. This is further evidence of the importance of generic skills development to complement the specialist research expertise as graduates progress in their careers. Most promotional opportunities require a combination of technical and professional expertise as well as evidence of innovation, flexibility, adaptability and other key interpersonal skills.

Recommendations

This report reflects the view of research graduates who completed their studies between 1999 and 2005, prior to the publication of the IUA PhD Graduates' Skills statement and the emergence of structured PhD programmes. It is now common practice for research postgraduate students to undertake generic skills development programmes in the specific skills sets identified in the skills statement as important for their professional development. With ever increasing research graduate numbers it is imperative that universities support the acquisition of both research and transferable skills necessary for careers both within and outside of academia. The findings of this survey provide a number of recommendations of how universities can provide this support as follows:

- Research postgraduates should be encouraged to identify and take part in training opportunities, particularly in *Team Working and Leadership; Career Management; and Personal Effectiveness and Development* as these were highlighted in the survey as particularly important for career progression
- The importance of networking skills in research and professional work environments has also been highlighted in this survey. This suggests that there is a need for providing formal training in networking skills as part of research education.
- While the survey results highlight key transferable skills it will be important for universities' graduate schools to formalise skills training through the incorporation and accreditation of transferable skills as part of structured PhD programmes. In addition, to support this delivery, universities will need to support specialised careers services for postgraduates' students.
- A key limitation of this survey is that it only reflects the view of graduates and does not take into account the opinions of employers or current research postgraduates. To provide a more comprehensive picture would require a survey of key research employers, as well as surveys of more recent users of the specialised postgraduate careers service, using a similar portfolio of skills.
- One of the surprising findings of the survey was the lack of awareness amongst earlier cohorts of research graduates of the professional career management resources that are available to them. A useful resource could be compiled which provides details on the main online careers resources available for past graduates.
- This survey reflects the views of research graduates of the University of Limerick only but it provides a template for a much more extensive survey which could be conducted in all higher education institutions.

Methodology

This report presents information on the career experiences of a sample of research graduates from the University of Limerick.

1. Target Group

The target group for this study comprised 1999, 2002 and 2005 research masters and PhD graduates of the University of Limerick (UL).

2. Research Design

The study was carried out using a postal survey. It was believed that this would provide the optimum means of making contact (after constructing a valid sample frame) with the participants whilst also adhering to ethical concerns such as confidentiality and anonymity (Salkind 2009; Bryman 2004). A survey questionnaire was posted to 196 graduates, of whom 50% were masters and 50% were doctoral graduates. The questionnaire comprised four sections: personal demographics, employment history, further qualifications and skills (see Appendix 1 for the full questionnaire). The section on skills sought respondents' opinions on the extent to which they believed they had developed specified skills during their research programme at UL and the importance they placed on such skills for career progression. The section on skills was influenced by the Irish Universities Association (IUA) statement on the skills required by PhD graduates (Irish Universities Association 2008).

3. Constructing a Sample

Pre-existing sample frames were obtained from the UL Student Academic Administration office for the three cohorts of graduates. The sampling process returned a valid sample of 196 graduates.

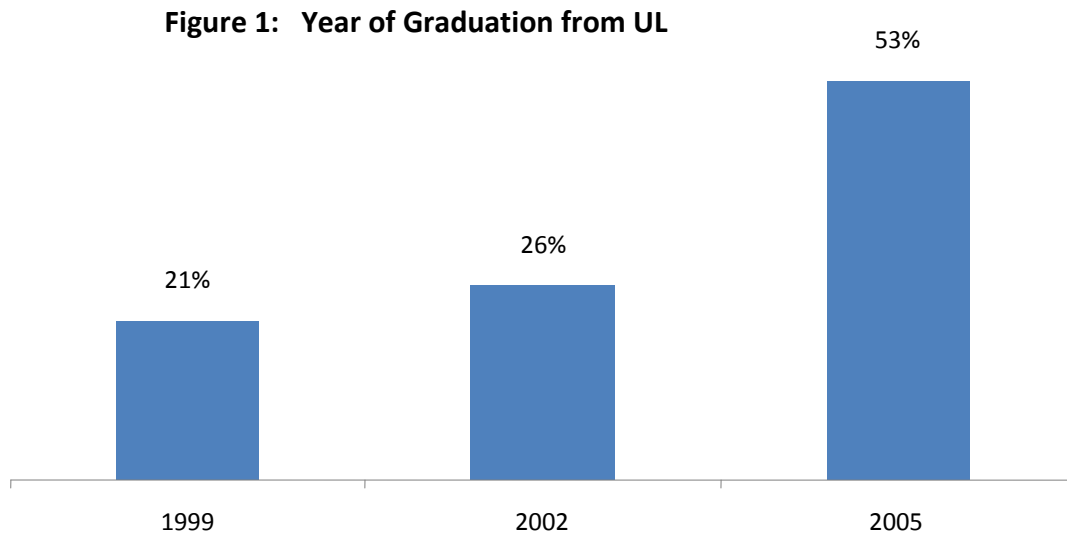
4. Response Rate

The final response rate was 32%. While this may be considered low at first glance, many studies operate with such response rates and are considered valid for statistical inference (Bryman 2004; Ryan & Sweeney 2004).

Presentation of Findings

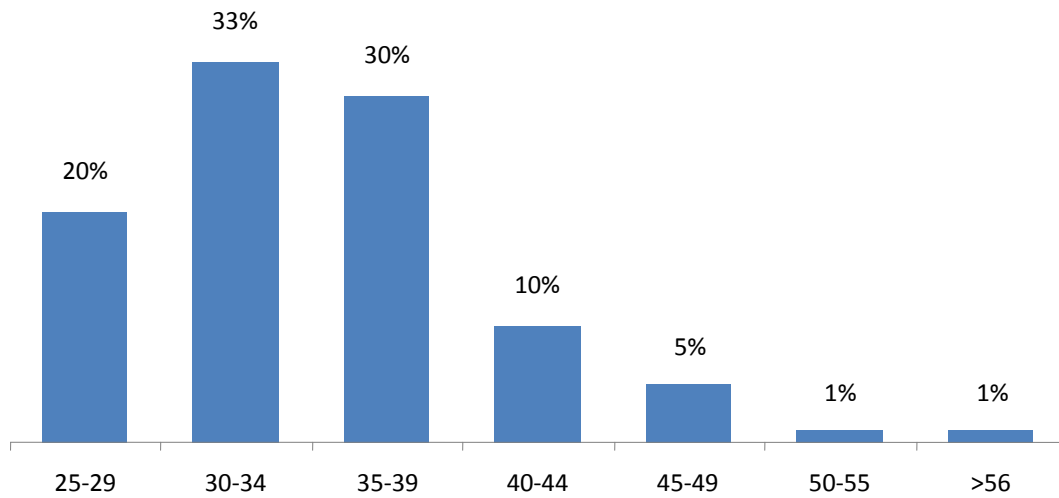
Survey findings are presented with respect to four main areas: (1) demographics; (2) employment history; (3) further qualifications; and (4) an audit of skills considered important by fourth-level graduates for their career progression.

1. Demographics



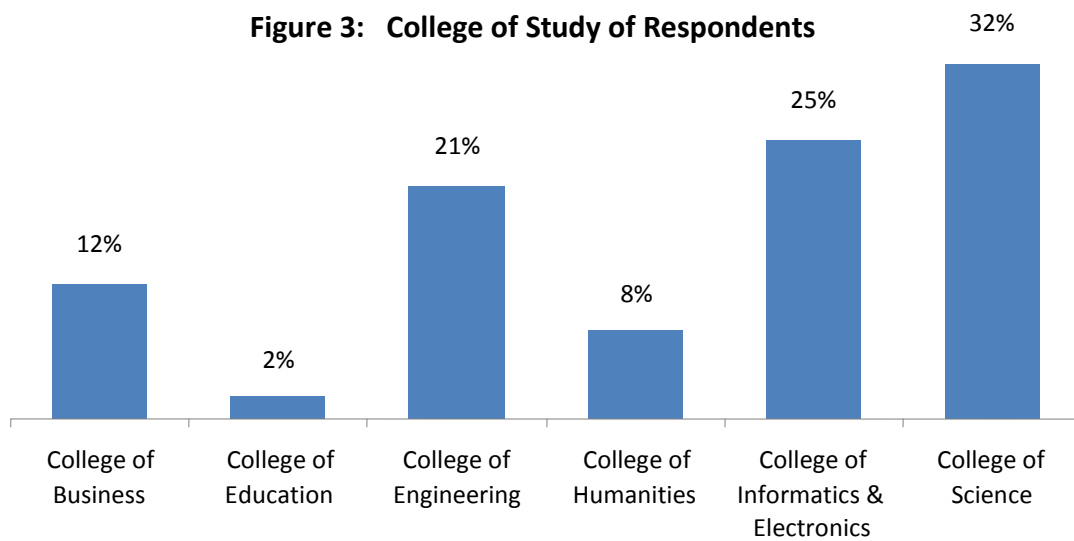
- Figure one outlines the response rate from graduates across the three graduating years with 53% response rate from 2005 graduates, 26% from 2003 graduates and 21% from 1999 graduates.
- The response rate is in line with increasing numbers of students pursuing postgraduate programmes during the period under review.
- There was an almost even breakdown between masters and doctoral respondents.
- 52% of respondents were male and 48% were female.

Figure 2: Response Rate by Age Group



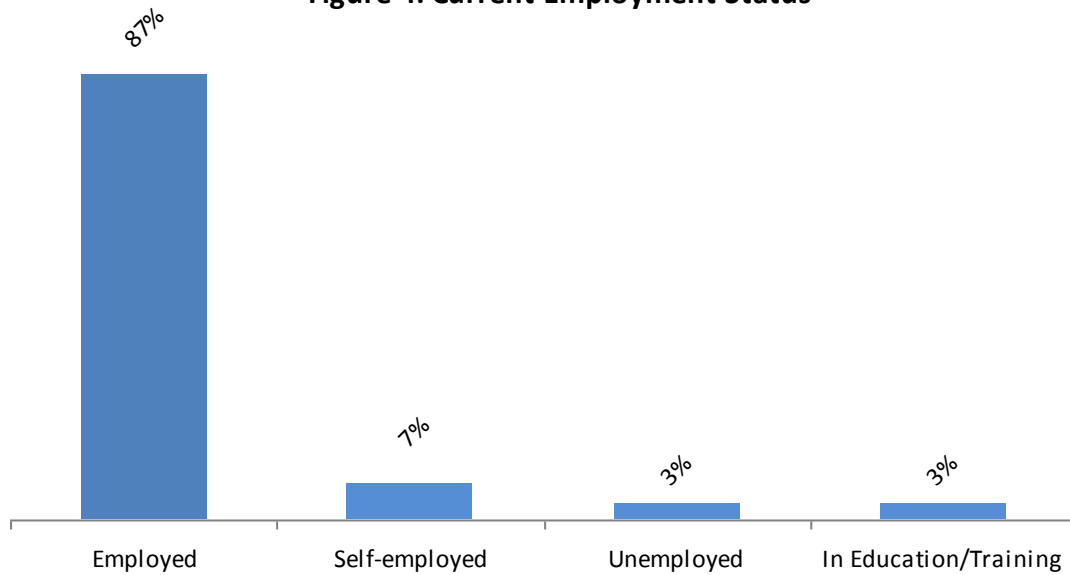
- The majority of respondents (83%) were in the 25-40 age bracket while the remaining 17% were over 40 years of age.

Figure 3: College of Study of Respondents



- The majority (78%) graduated from the colleges of Science (32%), Informatics & Electronics (25%) and Engineering (21%). This may reflect the strategic position of these sectors within government policy and the Irish employment sector (ASC 2008).

Figure 4: Current Employment Status



- 94% are employed, this includes 7% who are self employed.
- 3% are unemployed and 3% are in further education/training.
- 81% are based in Ireland and 19% are based outside of Ireland.
- All 1999 graduates are living in Ireland while 25% of 2002 graduates and 24% of 2005 graduates are living outside Ireland.

2. Employment History

This section of the survey (question 9, Appendix 1) asked participants about their employment history since completing their research programme. Participants were asked to give specific information relating to their (i) current or most recent employment; (ii) second most recent employment; (iii) third most recent employment; and (iv) fourth most recent employment. Details sought included:

• Start and end dates	• Summary of duties
• Name and location of employer	• Type of contract
• Number of employees	• Annual gross salary
• Job title	• Reasons for changing jobs

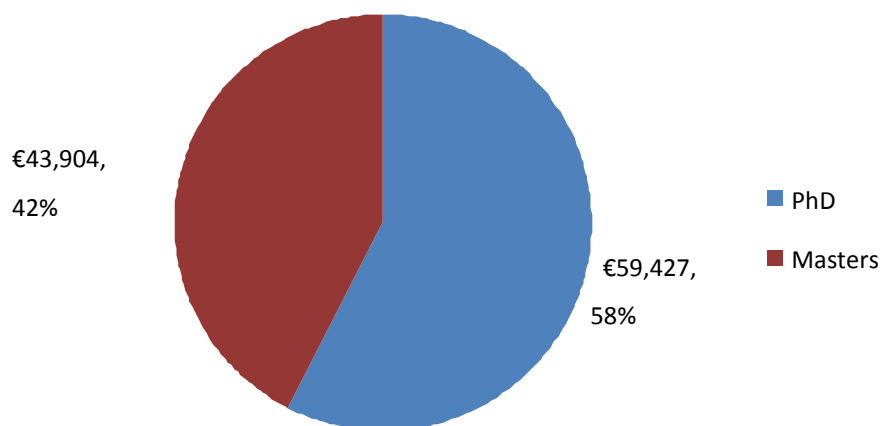
Just over half of the respondents (55%) offered the above information in relation to their current/most recent employment, and just under half (44%) did so in relation to their second most recent employment. Because an insufficient number of responses were given in relation

to third and fourth most recent employments, the findings outlined in the sections to follow relate to respondents' current/most recent and second most recent employment only. 'Second most recent employment' will hereafter be referred to as 'previous employment' in this report.

Current/Most Recent Employment

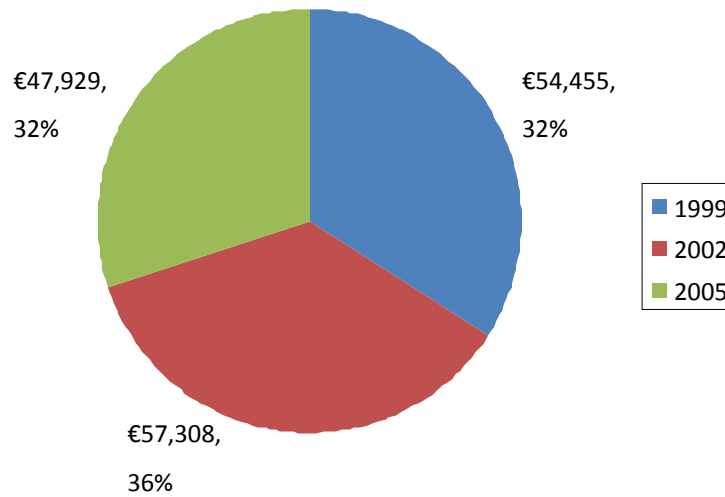
- Many respondents have moved into careers in research and/or teaching within academia. For example, 45% reported working within the third-level educational sector. (Refer to Table 1 in Appendix 2 for a full list of current/most recent employers.)
- 78% are on permanent employment contracts (Table 2 in Appendix 2). This is common across all three graduating groups.
- Of those working in third-level education, 25% are lecturers, assistant lecturers, assistant deans or adjunct professors (Table 3).
- A significant number of respondents hold managerial positions in a range of other professions (Table 4).
- Smaller businesses with fewer than 10 employees represent just 13% of the workplaces where the graduates are employed.
- 81% are employed within Ireland, with almost 55% of that group working in the mid-west region (Table 5).
- 19% are based overseas, half of whom are based in the UK (Table 5).

Figure 5: Mean Gross Pay by Qualification Awarded



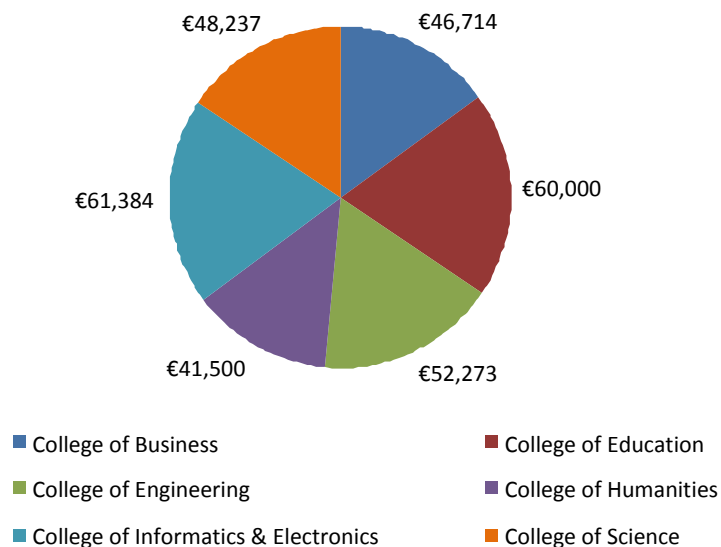
- On average, PhD graduates earn more than research masters graduates.

Figure 6: Mean Gross Pay by Year of Graduation



- 2002 graduates are the highest earners while 2005 graduates are the lowest earners. This may be due to the slightly higher number of PhD graduates in 2002.

Figure 7: Mean Gross Pay of all graduates by discipline

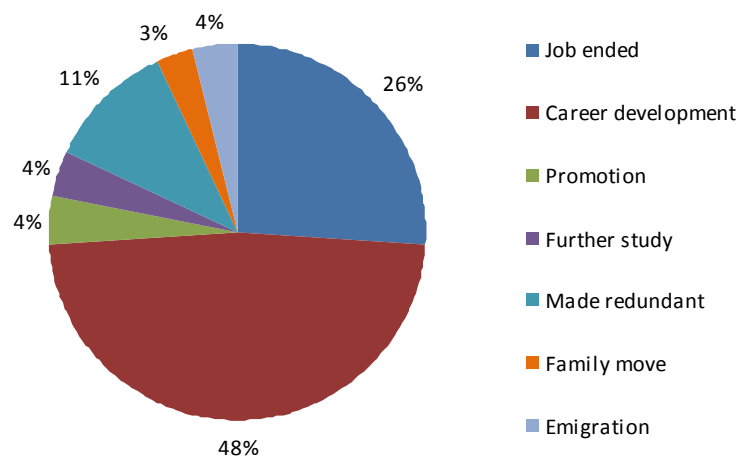


- Graduates of the College of Informatics & Electronics have the highest mean gross pay, followed closely by those from the College of Education. There appears to be a gap between the earning power of graduates from the colleges of Business and Humanities and the colleges of Informatics & Electronics, Education, Engineering, and Science.

Previous Employment

- Of those who were employed before their current/most recent employment since graduating, 35% were employed in education. Refer to Table 6 in Appendix 2 for a full list of previous employers.
- 47% had permanent contracts in their previous employment (Table 7).
- 37% worked in education in previous employment (Table 8).
- 72% worked in Ireland (Table 9).
- Of the 28% who worked abroad in previous employment, 56% are now employed in Ireland while 44% continue to be employed abroad (Table 9).

Figure 8: Reason for Change of Employment



- 52% who were in previous employment changed employment to develop their careers or for reasons of promotion.
- 26% changed employment because their contract came to an end.
- 11% changed employment because they were made redundant.

3. Further Qualifications

Respondents were asked if they sought further qualifications after graduating from UL.

- Almost one-quarter of respondents undertook further educational courses. Of this group, 65% had previously held a masters degree while the remaining 35% held a PhD.

- 41% undertook their courses in Irish universities, while almost 12% did so through FÁS, FETAC or HETAC.
- Just over 53% pursued courses in science and/or engineering.
- All respondents who undertook additional qualifications did so on a part-time basis.
- 75% of those who undertook additional qualifications believed that the qualification was relevant to their current job.

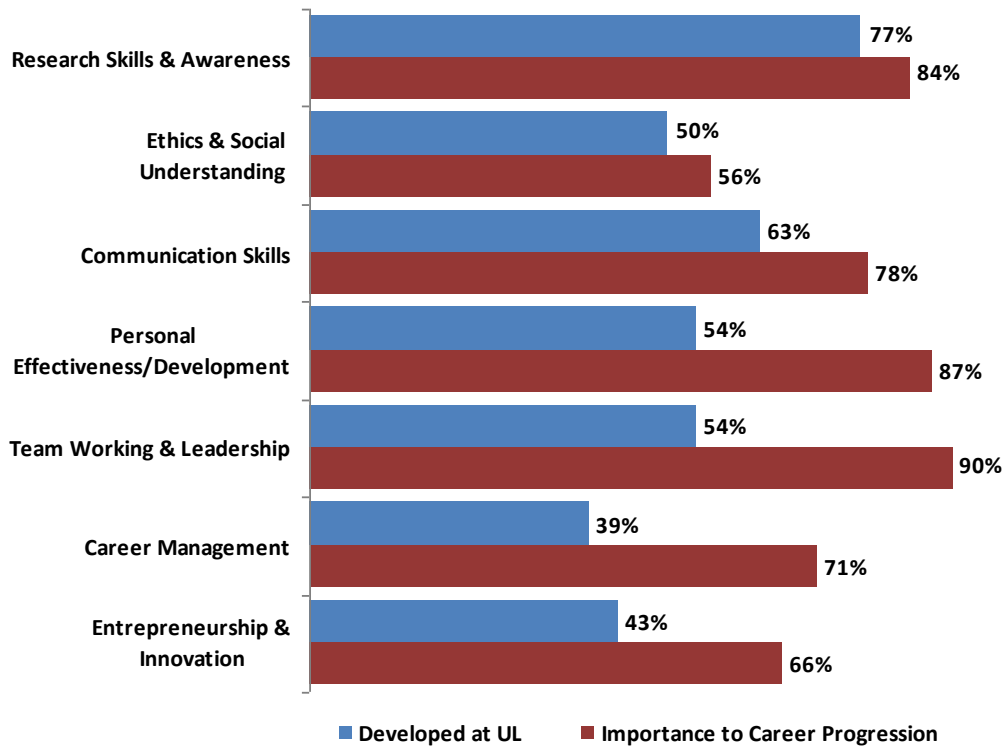
4. Career Progression Skills

In its 2008 publication *Irish Universities' PhD Graduates' Skills*, the IUA describes the desired learning outcomes and skills that PhD students may develop during their studies (Irish Universities Association 2008). The skills identified on pages 5 and 6 of the publication were adapted for the purposes of this study, which included masters as well as PhD graduates (see the Skills Match section of the questionnaire in Appendix 1). The targeted skills fall into seven categories (or skill sets): (i) research skills and awareness; (ii) ethics and social understanding; (iii) communication skills; (iv) personal effectiveness/development; (v) team workings and leadership; (vi) career management; and (vii) entrepreneurship and innovation.

Overview of Skills Match

This section of the survey (question 11) asked respondents to (i) record, as a percentage value, the extent to which they felt that they developed specified skills within each of the seven skill sets during their research studies and (ii) assess the importance of each skill to their current career progression. Figure 9 gives accumulated results for each of the seven skill sets.

Figure 9: Development and Importance of Transferable Skills

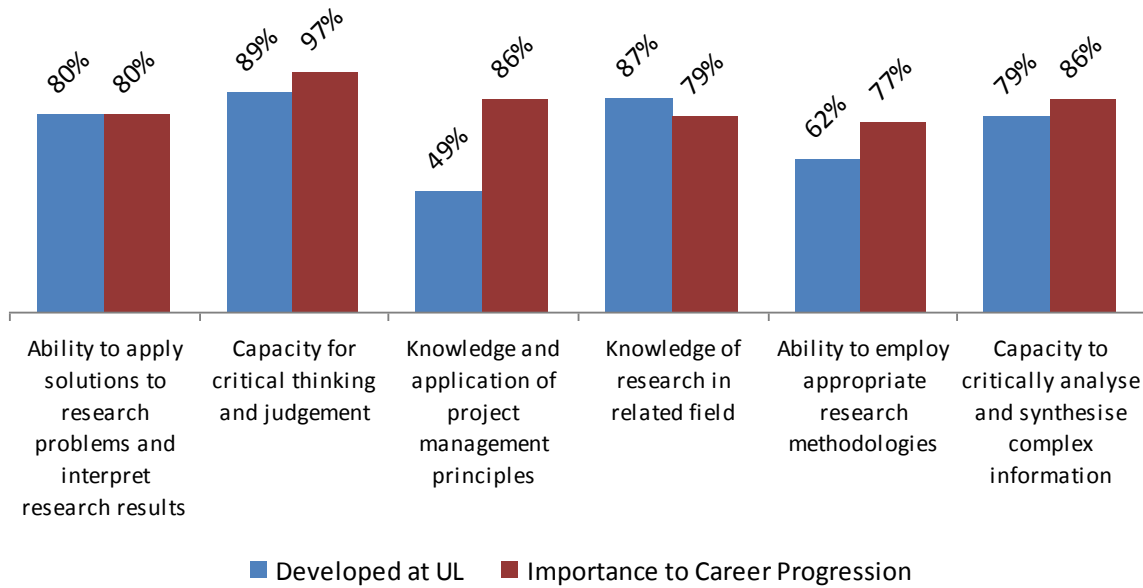


The accumulated results for each skill set show that the number of respondents who felt they had developed a particular set of skills during their research studies was outweighed in every case by the number of respondents who considered those skills to be important to their career progression. The widest gap was reported in the team working and leadership skill set (36% differential, i.e. 90% felt those skills were important for career progression while only 54% felt they had developed them during their research studies). Personal effectiveness/development skills gave rise to the second-widest gap (33% differential), followed closely by career management skills (32% differential). Results pertaining to each individual skill set are reported upon in more detail in the sections to follow.

Research Skills and Awareness

Accumulated results for the six specified skills in the Research Skills and Awareness category show that 84% of respondents considered these skills to be important for their career progression while 77% felt that they had developed them during their research studies. This category gave rise to the second-lowest differential, i.e. 7%.

Figure 10: Research Skills & Awareness

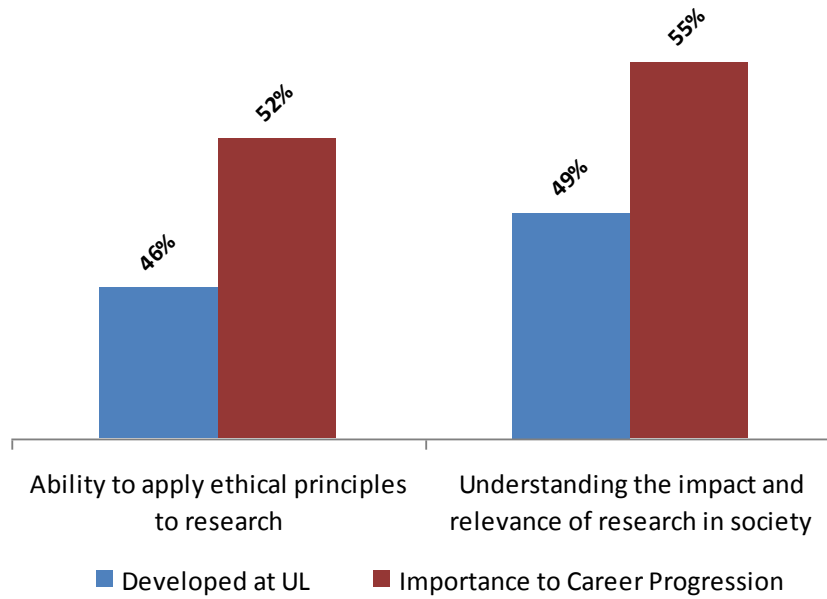


In the case of four of the six skills within this skill set, more respondents considered the skills as being important for career progression than considered they had developed them during their research programme. The skill with the greatest differential (37%) is *Knowledge and application of project management principles*, i.e., while 86% considered this to be important for career progression, only 49% felt they had developed this skill. In relation to the other two skills in this category, more students considered they had developed *Knowledge of research in related field* (87%) than considered it to be important for career progression (79%), while the same number of respondents considered the *Ability to apply solutions to research problems and interpret research results* skill to be important to career progression as believed they had developed it during their research programme (80%).

Ethics and Social Understanding

Accumulated results for the two specified skills in the Ethics and Social Understanding category show that 56% considered these skills to be important for career progression while 50% felt they had developed them during their research studies. This category gave rise to the lowest overall differential, i.e. 6%.

Figure 11: Ethics & Social Understanding

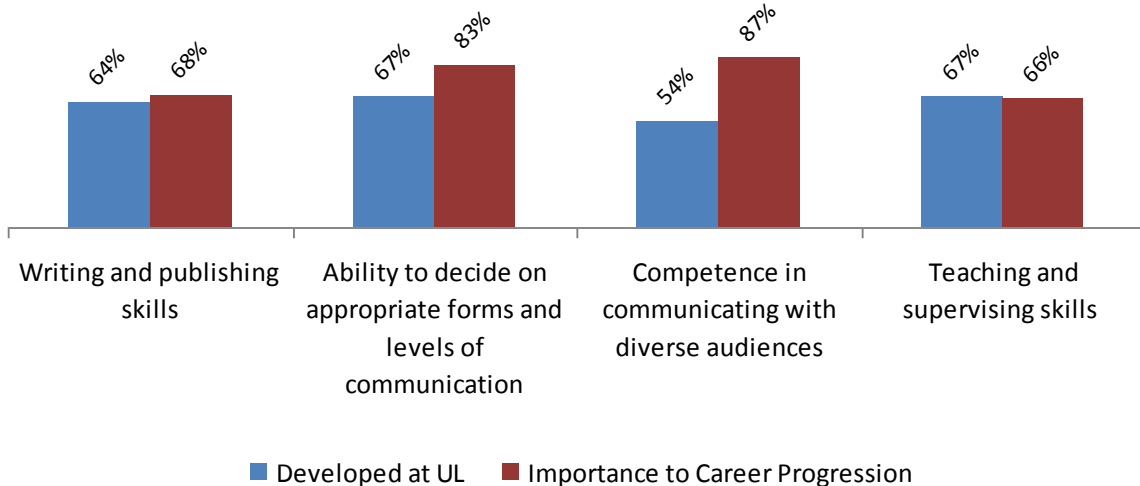


When responses relating to each of the two skills within this category are considered separately, more respondents felt the skill was important to career progression than felt they had developed that skill during their studies. However, as would be expected from the accumulated result and as illustrated in Figure 11, the gap in each case was narrow.

Communication Skills

Accumulated results for the four specified skills in the Communication Skills category show that 78% considered these skills to be important for career progression while 63% felt they had developed them during their research studies. This category gave rise to an overall differential of 15%.

Figure 12: Communication Skills

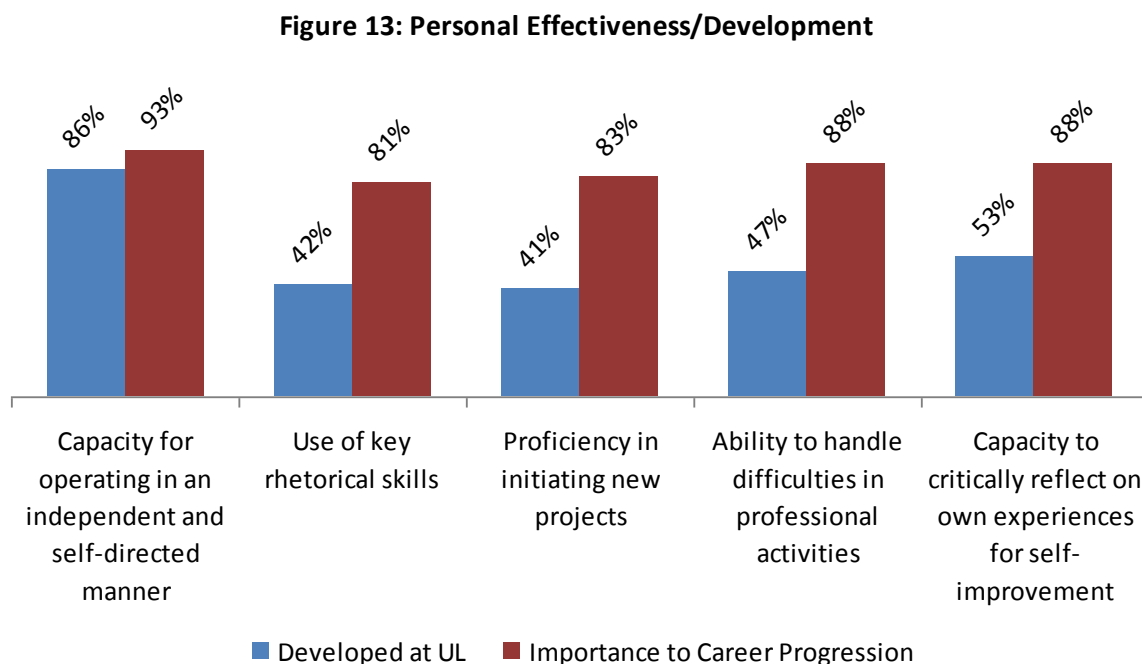


With the exception of one skill (*Teaching and supervision skills*), a breakdown of the skills within this category shows that more respondents felt each skill was important to career progression than felt the skill had been developed by them during their studies. The skill that gave rise to the widest gap was *Competence in communicating with diverse audiences* (33% differential).

Personal Effectiveness/Development

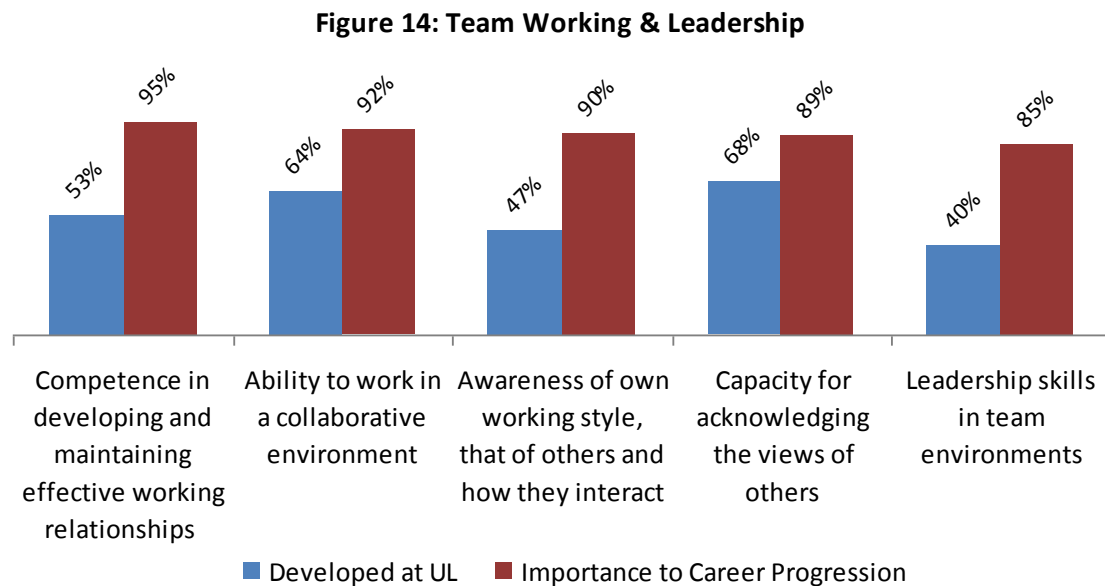
Accumulated results for the five specified skills in the category show that 87% considered these skills to be important for career progression compared with only 54% who felt they had developed them while at college. This is the skill set that gave rise to the second-widest gap between perceived development and importance for career progression (33% differential).

The gap between perceived development at UL and importance for career progression varies for each of the five skills in this category (Figure 13) but all follow the same pattern, i.e. more respondents believed in the importance of each skill than felt they developed this skill. The skill with the widest gap was *Proficiency in initiating new projects* (42% differential) while the skill with the narrowest gap was *Capacity for operating in an independent and self-directed manner* (7% differential).



Team Working and Leadership

Accumulated results for the five specified skills in the category show that 90% considered these skills to be important for career progression compared with only 54% who felt they had developed them during their research. This is the skill set that gave rise to the widest gap between perceived development during research and importance for career progression (36% differential).

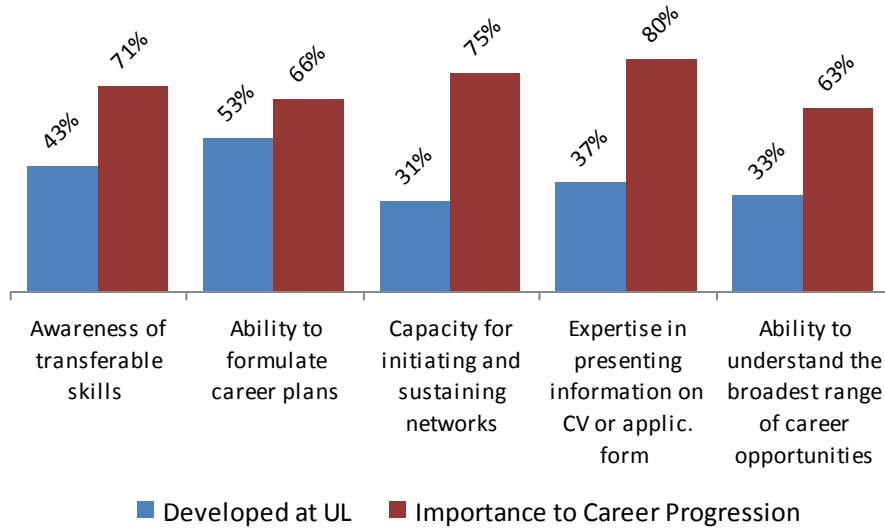


Once again, when each of the five skills is considered separately, perceived importance outweighs perceived development in every case. The skill with the widest gap was *Leadership in team environments* (45% differential) while the skill with the narrowest gap was *Capacity for acknowledging others' views* (21% differential).

Career Management

Accumulated results for the five specified skills in the category show that 71% considered these skills to be important for career progression compared with only 39% who felt they had developed them during their research. This skill set gave rise to the third-widest gap between perceived development during research and importance for career progression (32% differential).

Figure 15: Career Management

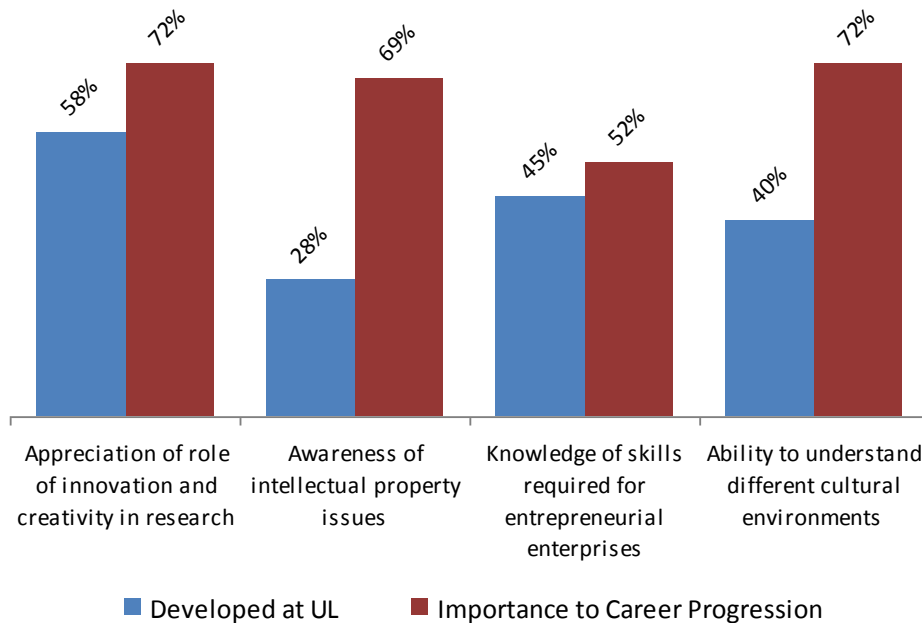


Again, perceived importance outweighs perceived development in every case. The skill with the widest gap was *Capacity for initiating and sustaining networks* (44% differential) while the skill with the narrowest gap was *Ability to formulate career plans* (13% differential).

Entrepreneurship and Innovation

Accumulated results for the four specified skills in the Entrepreneurship and Innovation category show that 66% considered these skills to be important for their career progression while 43% felt they had developed them during their research studies. This category gave rise to an overall differential of 23%.

Figure 16: Entrepreneurship & Innovation

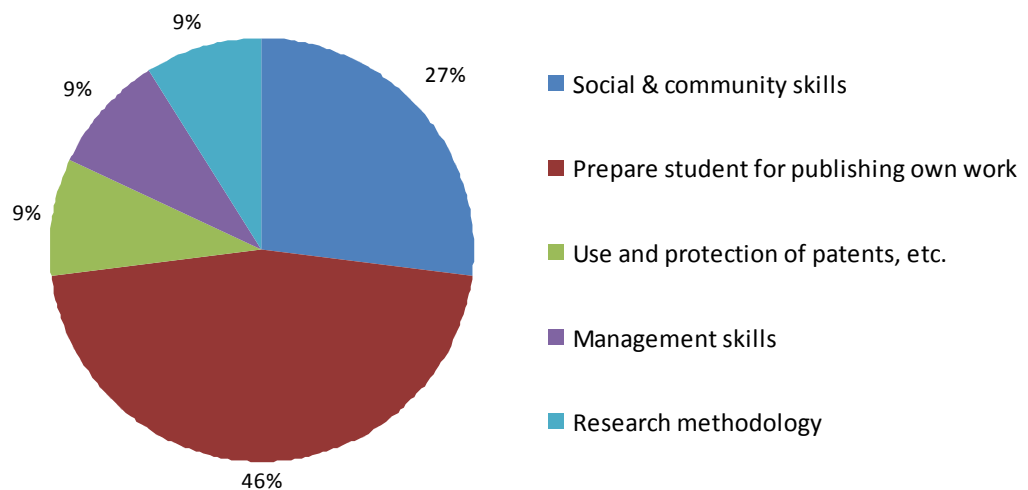


Perceived importance outweighs perceived development in the case of every skill within this category. The skill with the widest gap was *Awareness of intellectual property issues* (41% differential) while the skill with the narrowest gap was *Knowledge of skills required for entrepreneurial enterprises in public and private sectors* (7% differential). However, in the case of this latter skill, it is worth noting that the percentage of those who felt it was important to career progression was relatively low (52%).

Additional Skills

The survey asked respondents to specify other skills they think ought to have been covered during their research studies. The findings are illustrated in Figure 17.

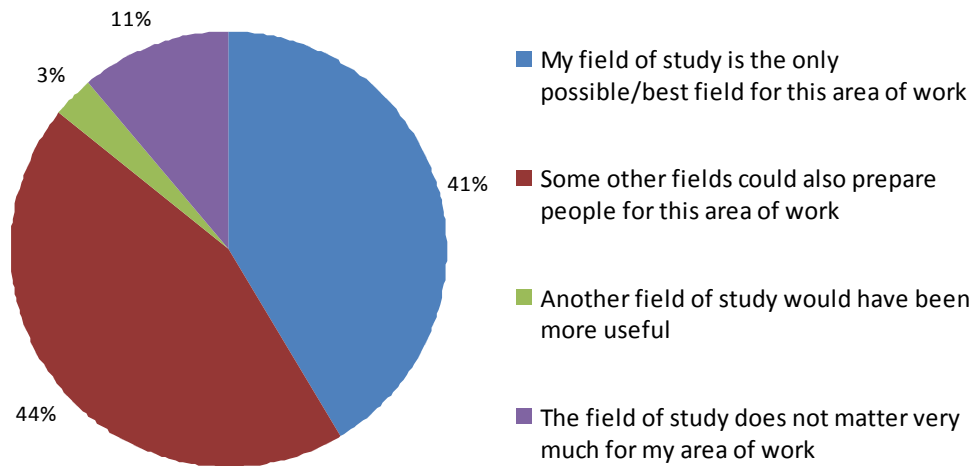
Figure 17: Additional Skills to Cover during Research Programme



Relevance of Field of Study to Employment

Respondents were asked how closely related they felt their field of study was to their work.

Figure 18: How Field of Study Relates to Employment

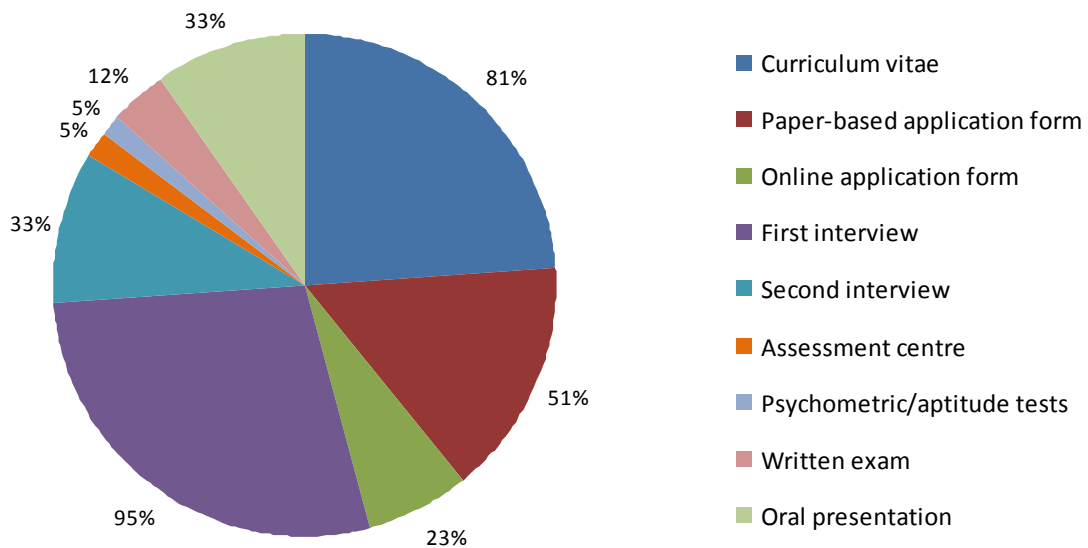


Recruitment Process

In terms of identifying skills needed for the recruitment/selection process, respondents were asked to identify what was involved when they were recruited by their current/most recent employer. Figure 19 illustrates the results of this question.

As can be seen in Figure 19, interviews, CVs, application forms and oral presentations are the favoured form of assessment by potential employers.

Figure 19: The Recruitment Process

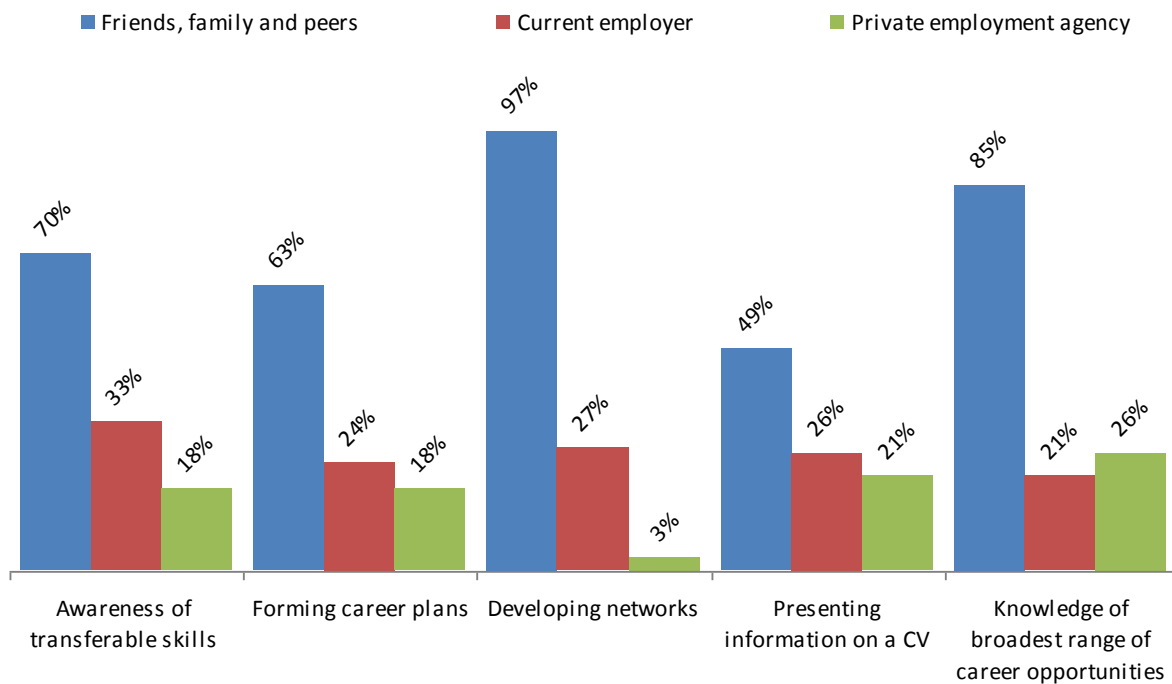


Percentages add to more than 100% as more than one answer was given

Career Management Services

Respondents were asked to specify services that had assisted them with career management skills since leaving formal education. It emerged that graduates rely more on family, friends and peers than on employers or private employment agencies for such assistance. The use of family, friends and peers was most notable in relation to developing networks (97%).

Figure 20: Career Management Services



Percentages add to more than 100% as more than one answer was given

Analysis of Findings

This section discusses the more significant findings of the study and makes recommendations for improvement to providers of research programmes at the University of Limerick.

1. Employment Status

It is highly encouraging that 94% of survey respondents are currently in employment while only 3% are unemployed. Because four-fifths are based in Ireland and over half of those are based in the mid-west region, it can be argued that the graduates' training and expertise is benefiting the Irish economy in general and the local economy in particular. In general, graduates state that they have obtained employment in their chosen field. The majority of respondents are working in key sectors of the Irish economy, such as education, science, technology and pharmaceuticals, which reflects the general employment pattern for research graduates in Ireland (O'Hearn 2000; ERA Steering Group 2004; Department of Enterprise,

Trade and Employment 2009; Industrial Development Agency 2009). The fact that 45% reported working within the third-level educational sector is in keeping with a 2009 HEA study, which found that 47% of PhD and 23% of research masters 2008 graduates found employment in third-level education (HEA 2009). The majority of graduates (78%) have secured permanent employment contracts.

The fact that PhD graduates earn more than research masters graduates could be attributed to a 'graduate premium' that is associated with different levels of qualification (Purcell and Elias 2004). The fact that 2002 graduates earn more than 1999 or 2005 graduates might be due to the slightly higher number of PhD graduates in that particular cohort.

2. Further Qualifications

It is noteworthy that almost a quarter of the respondents undertook further educational courses (all on a part-time basis). The fact that three-quarters of those stated that the qualification they pursued was used in their current job may indicate that employers are increasingly encouraging employees to up-skill while on the job (Government of Ireland 2008). It is possible that part of this need to up-skill could be related to the gaps reported upon in the survey findings between perceived importance versus perceived development of skills by respondents during their research studies.

3. Career Progression Skills

Skills Match

The *Presentation of Findings* section of this report gave survey results relating to graduates' perceptions of (i) the extent to which they developed particular skills during their research studies and (ii) the importance they place on such skills for career advancement. Overall, the majority of respondents reported that the skills specified in the survey are significantly important to career progression. Less heartening to note is that in the case of 28 of the 31 specified skills, the number of respondents who considered each skill to be important to career progression outweighed the number of respondents who felt they had developed that skill during their research studies.

The table below presents the top 10 skills in order of the difference (i.e. the gap, or differential) between the percentage of respondents who considered the skill to be important

and the percentage who felt they had developed that skill during their programme. The skills are listed in descending order of the differential value. The second column gives each skill a skills category number – the key for the seven skills categories is given below the table.

No.	Skills cat.*	Skill	Importance for career progression	Developed at UL	Differential
1.	5	Leadership in team environments, with ability to recognise the strengths of team members and work effectively to achieve mutual goals	85	40	45
2.	6	Capacity for initiating and sustaining networks	75	31	44
3.	5	Awareness of own working style, that of others and how they interact	90	47	43
4.	6	Expertise in presenting skills, attributes, experiences and qualifications on a CV or an application form	80	37	43
5.	5	Competence in developing and maintaining effective relationships with colleagues	95	53	42
6.	4	Proficiency in initiating new projects	83	41	42
7.	4	Ability to handle difficulties in professional activities in an appropriate manner	88	47	41
8.	7	Awareness of intellectual property issues	69	28	41
9.	4	Use of key rhetorical skills, including how to persuade others to achieve your aims	81	42	39
10.	1	Knowledge and application of project management principles	86	49	37

*Skills category key:

- | | |
|---------------------------------------|------------------------------------|
| 1. Research Skills and Awareness | 5. Team Workings and Leadership |
| 2. Ethics and Social Understanding | 6. Career Management |
| 3. Communication Skills | 7. Entrepreneurship and Innovation |
| 4. Personal Effectiveness/Development | |

The full list of skills in order of differential is given in Appendix 3.

Based on the above list of skills, eight of the ten skills come from three categories: *Team Working and Leadership*, *Career Management* and *Personal Effectiveness/Development*. Each will now be considered in turn.

Team Working and Leadership

This skills category gave rise to the widest accumulated gap in the survey findings between

development of relevant skills and importance to career progression and included three skills in the above list: *Leadership in team environments* (45% gap), *Awareness of own working style, that of others and how they interact* (43% gap) and *Competence in developing and maintaining effective relationships with colleagues* (42% gap). One potential explanation for the gaps could be that the traditional mode of PhD research followed a master-apprentice model where the apprentice research student tended to work alone. However, the importance attributed by respondents to teamwork and leadership skills for career progression correlates with feedback from employers of research graduates – McCarthy and Simm (2006) and Jackson (2007) show that employers emphasise the importance of transferable skills in graduate employees, most notably teamwork and cooperation with colleagues.

Career Management

Given that there was no dedicated careers service at UL for postgraduate students until 2007, it is perhaps not surprising that the *Career Management* skills category gave rise to the third-widest accumulated gap between development of relevant skills and their importance to career progression. The importance accorded to career management skills by respondents is reflected in the level of service currently provided to research postgraduates and in the level of uptake of these services by such students.

In terms of specific skills within this category that gave rise to the widest gaps, respondents reported a 43% gap in expertise in presenting skills, attributes, experiences and qualifications on a CV or application form. This is an area in which the Careers Service currently provides assistance to research postgraduates.

The reported gap between skills development during research and importance to career progression of initiating and sustaining networks (44%) is surprising given the premium that is placed within research programmes on networking for developing links within a particular discipline. The importance of networking has become such an integral part of the research process that networking sessions are often written into conference programmes. However, the gap reported in the survey findings is anecdotally supported by feedback from current research postgraduates who have stated that they do not feel confident enough in their research area to network at conferences. This suggests that there is a case for providing formal training in networking skills as part of PhD education.

Personal Effectiveness/Development

This skills category gave rise to the second-widest accumulated gap between development of relevant skills at UL and importance to career progression and included three skills in the above list: *Proficiency in initiating new projects* (42% gap), *Ability to handle difficulties in professional activities* (41% gap) and *Use of key rhetorical skills* (39% gap). Accounting for these gaps requires an understanding of the nature of PhD research, which focuses on individual specialisation in a field and offers limited opportunity for group work, presentation and the initiation of new projects. The reported gaps in the three skills indicate the need to provide research students with opportunities to work on skills that are not traditionally a part of the master-apprentice model, i.e. to engage in work that brings them outside the comfort zone of straightforward research into a more collaborative approach to research and writing.

Additional Skills

In terms of the additional skills that respondents suggested could be covered in research programmes, it is important to note that 46% suggested that students ought to be better prepared for publishing their own work. Given that the majority of respondents work in environments that engage with intellectual property rights, patents and publishing, it is crucial that research students gain more proficiency in these areas while at college.

Relevance of Field of Study to Employment

Given that 45% of the respondents reported that they work within the third-level sector, it is not surprising that 41% reported that their field of study was the only possible or best field of study for their area of work. However, in support of the provision of transferable skills training at fourth level, it is encouraging to see that 44% of respondents felt that other fields of study could have prepared them for their work while 11% felt that the field of study was not significant in relation to their work. These findings are in keeping with the European Universities Association's Salzburg principles, which recognise that while original research is a core element of research education, it is also important that research postgraduates develop additional skills to develop and manage their careers across a broad range of employment sectors (IUA 2008). The findings also align with the Advisory Science Council's strategy of ensuring that graduates develop "their careers in enterprise and the public sector as well as in the higher education system" both locally and nationally (Advisory Science Council 2008, p.4).

Career Management Services

It is important that graduates increase their awareness of professional career management agencies once they leave college.

Respondents reported that they rely more on family members, friends and peers than on employers, career management specialists or recruitment agencies when it comes to seeking advice and guidance on career management. However, while the advice given from personal contacts may be sound, there is always a chance that bad advice may be given – it is suggested here that graduates would benefit more by availing of specialist guidance from professionals who are proficient in the area of career management. Accordingly, it is important that students are given information during their studies on career management agencies that are available to graduates and that they be encouraged to engage with such agencies after leaving college. At UL, this function would best be carried out by the Careers Service.

The graduate cohorts in this study entered employment at a time when employment levels were particularly high. Current and future graduates are entering into a significantly different employment landscape. According to the Advisory Science Council (2008, p.4), it is “timely that we consider how we can better support and structure researcher careers and address any barriers to full mobility” within the public/private/research nexus. In that context, for current and future graduates, it is important that the disparity between the lack of development of certain skills in university and the importance accorded to those skills be addressed.

Conclusions and Recommendations

In line with EU and national government policies the numbers of research postgraduate students has increased in recent years. These graduates have the potential to contribute to all sectors of the economy and will be employed beyond the traditional academic and research career paths. In order to facilitate these graduates who are emerging into a very competitive career environment it is imperative that universities support them to gain the academic and transferable skills they will need in their career pursuits. The findings presented in this report support the role that universities should take to assist research postgraduates to identify and develop these skills in tandem with their advancement of knowledge through original research.

Specifically, universities have a responsibility to help their research students (i) to be fully aware of the skill-set that they can offer to employers, (ii) to be able to present these skills convincingly, and (iii) to develop the habit of 'lifelong learning'. This support can be provided to research postgraduates in a multilevel format; via research supervision, via Graduate Schools' Training Programmes as well as through the Careers Service.

Research Supervision

While it is widely accepted that the role of a research supervisor or supervisory panel is to support and mentor research postgraduates analytical thinking and research method; a good supervisor can also have an important role in helping research postgraduates to **identify training needs and encourage them to take part in training opportunities** that increase their employability. In particular this report highlighted the need for training in *Team Working and Leadership; Career Management; and Personal Effectiveness and Development* as part of the professional development of researchers.

The importance of networking in research and professional work environments was also highlighted in this survey. Given the premium that is placed within academia on developing strong networks this report recommends that research supervisors/supervisory panel **support their students to initiative and sustain relevant networks** both within their host institution through participation in relevant training but also through support for attendance and presentation at relevant conferences. In addition, the Graduate School and Careers Service can facilitate research postgraduates to in this regard by **providing formal training on networking skills**.

Graduate School Training Programmes

Within UL, the Graduate School's Training Programme offers a range of workshops, seminars and events that facilitate research postgraduates to develop generic and transferable skills. To date, although participation has been widely supported from across all four college faculties, this training has not been accredited. With the formalisation of a structured PhD model within the university, academic and service departments will need to **seek the incorporation and accreditation of transferable skills training** that is delivered to research postgraduates. This should have a positive impact on the suite of training programmes currently delivered by the Graduate School and act to consolidate valuable transferable skills training for research postgraduates.

Career Service

Given the increased number of postgraduate students enrolled in all Irish universities it will be important for national and institutional strategic plans to provide funding and **support for specialised careers services for postgraduate students** to ensure continued delivery of tailored services and training to promote employability of research postgraduates. In turn these career services can assist students to develop their employability skills as well as identify and manage their own career planning. Specifically, the Careers Service can take the lead role in relation to a number of recommendations emanating from the current research survey:

Survey of Employers of Postgraduates

Further **research on employer perspectives and experiences in recruiting research graduates** should be undertaken. In particular, employers should be surveyed with respect to their experiences of recruiting research graduates along with their perception in relation to the benefits and barriers with regard to this graduate cohort. A survey of this kind will have the added benefit of raising awareness of PhD recruitment opportunities among employers and offer the chance to develop a database of potential employers of future research graduates.

Survey of Graduates who have used the Specialised Careers Service

By conducting **surveys of more recent users of the specialised postgraduate Careers Service** it will be possible to gain insight into their experiences of this specialised support which has been available since 2007. In addition it will be possible to conduct a qualitative

exploration of the activities and supports that current postgraduates seek from a career service.

Survey of Research Graduates from Irish Higher Education Institutions

This survey reflects the views of research graduates from the University of Limerick only but **it provides a template for a much more extensive survey which could be conducted in all higher education institutions.** Considering the current emphasis on the role of PhDs in the ‘Smart Economy’ and the dramatic increase in the output of PhDs in Ireland, it would be useful to get feedback from current PhD students on how their research education is addressing their needs.

Identify Core Online Resources for Past Research Graduates

In line with the increase in the number of postgraduate students there has been an expansion in the number of online resources that support researchers both during the course of their study as well as in their career planning and development. A useful **resource could be compiled which provides details on the main online resources** that graduates could avail of, dissemination of which could be organised via the careers services and respective Alumni associations.

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Appendices

Appendix 1: The Questionnaire



Graduate Employment Trends - SURVEY OF UL GRADUATES

Dear UL Graduate,

I am seeking your help with carrying out a survey of those who graduated from Research Masters and PhD programmes in the University of Limerick.

I have recently been appointed as the first postgraduate careers advisor in UL and I am keen to develop accurate and current data on various aspects of career progression of those who completed research postgraduate programmes in UL.

This survey is the first of its kind and has the objective of providing current research postgraduates, faculty and the Careers Service with a picture of various skill sets employed by research graduates from the time they left the University up until and including their present employment. The information will be utilised to help us to identify and develop skill sets that we need to put in place for current and future cohorts of research graduates so as to aid them in their career progression.

I would be most grateful if you would complete this questionnaire and return it to us as soon as possible. The survey should take no longer than 15 minutes to complete.

If you have any queries on the survey you can contact the research team at:

Pat Fitzpatrick	patrick.fitzpatrick@ul.ie	0863375306
Martin Power	martin.j.power@ul.ie	0863169292
Catherine Browne	catherine.browne@ul.ie	0870523129

Alternatively please feel free to contact me in the UL Careers Service at 061 234350 or by email at elaine.kiely@ul.ie

Many thanks for your co-operation.

Yours faithfully,

Elaine Kiely

Postgraduate Careers Advisor, Cooperative Education & Careers Division

www.ul.ie/careers

Survey ID Number (for coding purposes)	
--	--

Personal Background & Information

1. What Year did you graduate from UL: _____

2. What qualification were you awarded: PhD Masters

3. Please tick the college faculty which applied to you:

College of Business	<input type="checkbox"/>
College of Education	<input type="checkbox"/>
College of Engineering	<input type="checkbox"/>
College of Humanities	<input type="checkbox"/>
College of Informatics & Electronics	<input type="checkbox"/>
College of Science	<input type="checkbox"/>

4. Please give a broad description of your research area e.g. Medical Sociology, Manufacturing Engineering, European Law etc;

5. Sex: Male Female

6. Age Bracket: 20-24 25-29 30-34 35-39 40-44
 45-49 50 -55 >56

7. Current residence: Ireland UK EU
USA/Canada Elsewhere (please specify) _____

8. Which of the following best describes your current status?

Employed
Self Employed
Unemployed
In education/training
Other (specify) _____

Employment History

9. Please provide details of the employment positions held since the year of your graduation.

CURRENT/MOST RECENT EMPLOYMENT

Start Date: Month _____ Year _____

End Date: Month _____ Year _____

Name & Location of Employer:

No of Employees: Less than 10 11 – 100 101-250 251+

Job Title & Brief Description of Duties:

Type of Contract: Permanent Fixed Term (State Period) _____ Temporary
Self-Employed Other (please specify) _____

Approximate Annual Gross Pay: _____

Reasons for Change to Next Main Activity: Job Ended Career Development
Promotion Going into further study or training Made redundant
Other (please write in) _____

2ND MOST RECENT EMPLOYMENT

Start Date: Month _____ Year _____

End Date: Month _____ Year _____

Name & Location of Employer:

No of Employees: Less than 10 11 – 100 101-250 251+

Job Title & Brief Description of Duties:

Type of Contract: Permanent Fixed Term (State Period) _____ Temporary
Self-Employed Other (please specify) _____

Approximate Annual Gross Pay: _____

Reasons for Change to Next Main Activity: Job Ended Career Development
Promotion Going into further study or training Made redundant
Other (please write in) _____

3RD MOST RECENT EMPLOYMENT

Start Date: Month _____ Year _____

End Date: Month _____ Year _____

Name & Location of Employer:

No of Employees: Less than 10 11 – 100 101-250 251+

Job Title & Brief Description of Duties:

Type of Contract: Permanent Fixed Term (State Period) _____ Temporary
Self-Employed Other (please specify) _____

Approximate Annual Gross Pay: _____

Reasons for Change to Next Main Activity: Job Ended Career Development
Promotion Going into further study or training Made redundant
Other (please write in) _____

4TH MOST RECENT EMPLOYMENT

Start Date: Month _____ Year _____

End Date: Month _____ Year _____

Name & Location of Employer:

No of Employees: Less than 10 11 – 100 101-250 251+

Job Title & Brief Description of Duties:

Type of Contract: Permanent Fixed Term (State Period) _____ Temporary
Self-Employed Other (please specify) _____

Approximate Annual Gross Pay: _____

Reasons for Change to Next Main Activity: Job Ended Career Development
Promotion Going into further study or training Made redundant
Other (please write in) _____

Further Qualifications

10. Please record details of any further qualifications you have undertaken or been awarded since leaving full time education? If more than one, start with the most recent; if more than four feel free to insert information on extra page.

Course/Programme Title	Name of Awarding Body	Field of Study (please be as specific as possible)	Start and End Dates	Full time or Part time	Is the qualification used in carrying out your current job?
Most Recent			Start _____ End _____ On-going <input type="checkbox"/> Stopped before completion <input type="checkbox"/>	Full Time <input type="checkbox"/> Part Time <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Second Most Recent			Start _____ End _____ On-going <input type="checkbox"/> Stopped before completion <input type="checkbox"/>	Full Time <input type="checkbox"/> Part Time <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Third Most Recent			Start _____ End _____ On-going <input type="checkbox"/> Stopped before completion <input type="checkbox"/>	Full Time <input type="checkbox"/> Part Time <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Fourth Most Recent			Start _____ End _____ On-going <input type="checkbox"/> Stopped before completion <input type="checkbox"/>	Full Time <input type="checkbox"/> Part Time <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

Skills Match Section¹

11. In this section we want to gather information on the skills you had upon completion of your postgraduate programme, and the importance of those skill sets to your career progression.

In the University of Limerick column you are being asked

- **To what extent would you say you had the following skills at the time you completed your third level research education (1=not at all; 5=to a great extent)**

In the Career progression column you are being asked to

- **indicate the importance of each of these skills to your career progression (1=not important; 5=extremely important)**

	University of Limerick	Career Progression
Research Skills & Awareness		
Knowledge of research in related field / discipline	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to employ appropriate research methodologies	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Capacity to critically analyse and synthesise complex information from diverse sources	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to apply solutions to research problems and interpret research results	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Capacity for critical thinking and judgement	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Knowledge and application of project management principles	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ethics and Social Understanding		
Ability to apply ethical principles to your research	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Understanding of the impact & relevance of research in society	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Communication Skills		
Writing and Publishing skills	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to decide on appropriate forms and levels of communication	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Competence in communicating with diverse audiences (including specialist & non specialist audiences)	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Teaching and supervising skills	1 2 3 4 5 N/A	1 2 3 4 5 N/A

¹ Skills Match descriptions adapted from Irish Universities Association PhD Graduates' Skills Statement.

	University of Limerick	Career Progression
Personal Effectiveness / Development		
Capacity for operating in an independent and self directed manner	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Use of key rhetorical skills, including how to persuade others to achieve your aims	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Proficiency in initiating new projects	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to handle difficulties in professional activities in an appropriate manner	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Capacity to critically reflect on your experiences and to use this process for self-improvement	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Team-working and Leadership		
Competence in developing and maintaining effective relationships with colleagues	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to work in a collaborative environment	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Awareness of own working style, that of others and how they interact	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Capacity for acknowledging others views	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Leadership in team environments, with ability to recognise the strengths of team members and work effectively to achieve mutual goals	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Career Management		
Awareness of transferable skills	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Ability to formulate career plans	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Capacity for initiating and sustaining networks	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Expertise in presenting skills, attributes, experiences and qualifications on a CV or an application form	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Understanding of the broadest possible range of career opportunities	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Entrepreneurship & Innovation		
Appreciation of the role of innovation and creativity in research	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Awareness of intellectual property issues	1 2 3 4 5 N/A	1 2 3 4 5 N/A
Knowledge of skills required for entrepreneurial enterprises in public and private sectors	1 2 3 4 5 N/A	1 2 3 4 5 N/A
An ability to understand different cultural environments, including the business world and the contribution that knowledge transfer can make to society	1 2 3 4 5 N/A	1 2 3 4 5 N/A

12. Are there other skills you think should have been covered? If so, can you please specify: _____

13. Please indicate how closely related you feel your field of study is to your area of work? Please tick one answer

- My field of study is the only possible/the best field for this area of work
- Some other fields could also prepare people for this area of work
- Another field of study would have been more useful
- The field of study does not matter very much for my area of work
- Other (please specify)_____

14. When you were recruited by your current/most recent employer were any of the following involved in the selection process?

- | | | |
|------------------------------|------------------------------|-----------------------------|
| Curriculum Vitae | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Paper based Application Form | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Online Application Form | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| First Interview | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Second Interview | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Assessment Centre | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Psychometric/Aptitude Tests | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Written exam | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Oral Presentation | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Other (please specify) | | |

15. Since leaving formal education what services have assisted you to demonstrate the following career management skills? Tick all that apply

Career Management Skills	Current Employer Through HR Training Programmes	Current Employer Through Mentoring Programme	Informal Networks with Peers	UL Careers Service	Private Employment Agency	Friends & Family
Awareness of transferable skills						
Formation of career plans						
Development of networks						
Presentation of skills, attributes, experiences and qualifications on CV						
Knowledge of the broadest possible range of career opportunities						

16. Would you be willing to provide additional information in a future Careers Service survey?

- Yes No

Thank you for taking the time to complete this survey.

Appendix 2: Employment Tables

Table 1: Current/Most Recent Employer

Employer	
Analog Devices	J.L. Richards & Associates
BER Assessor	Kentz Group
Boston Scientific	Kerry Group
Clare VEC	Kew Riverside Primary School
Department of Education	Mary Immaculate College
DIAGEO	Mater Dei Institute of Education
Dublin City University	Menarini Pharmaceuticals
Dundalk Institute of Technology	NUI Galway
Element Six	NYC Dept of Education
Enterprise Ireland	RPS Consulting Engineers
Fanore Software	Schwarz Pharma
Fluid Analysis	Siemens Research & Development
Genzyme Therapeutics	Simon Fraser University
Gerard Laboratories	St Ericsson
Institute of Technology Tralee	Swansea University
Intel Ireland	Templemore Community Services Ltd
International	Tipperary Institute
Irish Broadband	University of Limerick
Italy Medical Service	University of Nottingham

Table 2: Current/Most Recent Employment Type of Contract

Type of Contract	Percent	
Permanent	78	
Fixed Term	8	
Temporary	7	
Self-employed	5	
Job sharing	2	
Total	(N = 60)	100%

Table 3: Current/Most Recent Employment Job Title

Job Title	Percent
Assessor	1.7
Assistant Lecturer	1.7
Associate	1.7
Brewing Shift Manager	1.7
Design Engineer	3.4
Development Officer Elite Sport	1.7
Director	3.4
Electrical Project Engineer	1.7
Engineer	3.4
Environmental Consultant	1.7
Exercise Physiologist	1.7
Faculty Librarian	1.7
Food Scientist	1.7
Health & Safety Officer	1.7
Lecturer	20.2
Lecturer & Assistant Dean Academic Admin	1.7
Library Assistant	1.7
Manager	3.4
Managing Director	3.4
Mechanical Engineer	1.7
PA to Head Teacher	1.7
Principal Teacher	1.7
Production Chemist	1.7
Program Manager	1.7
Quality Analyst	3.4
Research Audiologist	1.7
Research Fellow	3.4
Research Implementation Manager	1.7
Research Laboratory Technician	1.7
Research Operations Manager	1.7
Researcher	6.8
Senior Biologist	1.7
Senior Lecturer and Researcher	1.7
Senior Metallurgist	1.7
Teacher	3.4
Teacher / Adjunct Professor	1.7
Website Developer	1.7
Total	(N = 59) 100%

Table 4: Current/Most Recent Employment Responsibilities

Employment Duties	Percent
Catchement monitoring and management	9.1
Delivering lectures and tutorials to students	9.1
Drug development, project manager	9.1
Economic development consultancy	9.1
Failure analysis/quality/account management	9.1
Health and safety	9.1
Lecturing	9.1
Optimising bio & pharma ingredients	9.1
Project leadership	9.1
Sessional teaching duties	9.1
Teaching, research & administration	9.1
Total	(N = 11) 100%

Table 5: Current/Most Recent Employment Location

Ireland	Percent
Belfast	1.9
Clonmel	1.9
Co. Clare	9.5
Cork	3.7
Dublin	13
Dundalk	1.9
Galway	3.7
Kerry	1.9
Leixlip	1.9
Limerick	32.2
Listowell	1.9
Thurles	1.9
Tipperary	1.9
Tralee	1.9
Total	(N = 43) 79.2%

Overseas	Percent
Boston, US	1.9
Cambridge, UK	1.9
Canada	3.7
Germany	1.9
High Wickombe, UK	1.9
Italy	1.9
London	1.9
New York	1.9
Nottingham, UK	1.9
Swansea	1.9
Total	(N = 11) 20.8%

Table 6: Previous Employer

Previous Employer	
Allegen	NUI Galway
Ardlee Ltd	Rensselaer Polytechnic
Athletics Ireland	Royal Bank of Scotland
Bohannon Construction	Scoil Carmel
BT	Sulso Pumps Ltd
Co. Limerick VEC	Tralee
Guinness Chemical Ltd	University of Bordeaux
Irish Medical Organisation	University of Limerick
IRMM - JRC	University of Nottingham
Kildare Education Center	VEC
Loretto Convent School	Waterford IT
Mater Dei Institute of Education	Wellcome Trust Sanger Institute
North Tipp VEC	Welsh Development Agency

Table 7: Previous Employment Type of Contract

Type of Contract	Percent	
Permanent	47	
Fixed Term	38	
Temporary	12	
Self-employed	3	
Total	(N = 32)	100%

Table 8: Previous Employment Job Title

Job Title	Percent
Assistant Lecturer	6
Chemist	3
Computer Programmer	3
Director	3
Director of Coaching	3
Engineer	3
Fellowship Researcher	3
HR	3
Investment Banking Operations Analyst	3
Junior Lecturer	3
Lecturer	12
Project Leader	6
Quality Assurance & Technical Manager	3
Research Associate / Research Fellow	21
Research Project Manager	3
Sports Science Intern	3
Teacher	13
Trade Union Official	3
Tutor	3
Total	(N =33) 100%

Table 9: Previous Employment Location

Ireland	Percent
Dublin	26
Ennis	4
Galway	4
Kerry	4
Kildare	4
Limerick	38
Portlaoise	4
Tipperary	4
Waterford	4
Westport	4
Wexford	4
Total	(N = 23) 100%

Overseas	Percent
Bordeaux	11
Kiev	11
Mol, Belgium	11
New York	11
Switzerland	11
UK	45
Total	(N = 9) 100%

Appendix 3: Skills Gap Results

The table below presents a list of the 31 skills specified in the survey. The survey questionnaire asked graduates to rate (i) the extent to which they developed these skills during their research studies at UL and (ii) the importance to them of each skill for advancing their careers. The values in the fourth column (**Importance for career progression**) denote the percentage of respondents who rated the specified skill as being important to them for career progression. The values in the fifth column (**Developed at UL**) denote the percentage of respondents who reported that they had developed the specified skill during their research programme at UL. The values in the sixth column (**Differential**) represent the difference (i.e. the gap) between the percentage of respondents who considered the skill to be important and the percentage who felt they had developed that skill during their programme. The skills are listed in order of differential in descending order. The second column gives each skill a skills category number – the key for the seven skills categories is given below the table.

No.	Skills category*	Skill	Importance for career progression	Developed at UL	Differential
1.	5	Leadership in team environments, with ability to recognise the strengths of team members and work effectively to achieve mutual goals	85	40	45
2.	6	Capacity for initiating and sustaining networks	75	31	44
3.	5	Awareness of own working style, that of others and how they interact	90	47	43
4.	6	Expertise in presenting skills, attributes, experiences and qualifications on a CV or an application form	80	37	43
5.	5	Competence in developing and maintaining effective relationships with colleagues	95	53	42
6.	4	Proficiency in initiating new projects	83	41	42
7.	4	Ability to handle difficulties in professional activities in an appropriate manner	88	47	41
8.	7	Awareness of intellectual property issues	69	28	41
9.	4	Use of key rhetorical skills, including how to persuade others to achieve your aims	81	42	39
10.	1	Knowledge and application of project management principles	86	49	37
11.	4	Capacity to critically reflect on your experiences and to use this process for self-improvement	88	53	35

12.	3	Competence in communicating with diverse audiences (including specialist & non specialist audiences)	87	54	33
13.	7	An ability to understand different cultural environments, including the business world and the contribution that knowledge transfer can make to society	72	40	32
14.	6	Understanding of the broadest possible range of career opportunities	63	33	30
15.	5	Ability to work in a collaborative environment	92	64	28
16.	6	Awareness of transferable skills	71	43	28
17.	5	Capacity for acknowledging others' views	89	68	21
18.	3	Ability to decide on appropriate forms and levels of communication	83	67	16
19.	1	Ability to employ appropriate research methodologies	77	62	15
20.	7	Appreciation of the role of innovation and creativity in research	72	58	14
21.	6	Ability to formulate career plans	66	53	13
22.	1	Capacity for critical thinking and judgement	97	89	8
23.	4	Capacity for operating in an independent and self-directed manner	93	86	7
24.	1	Capacity to critically analyse and synthesise complex information from diverse sources	86	79	7
25.	7	Knowledge of skills required for entrepreneurial enterprises in public and private sectors	52	45	7
26.	2	Understanding of the impact & relevance of research in society	55	49	6
27.	2	Ability to apply ethical principles to your research	52	46	6
28.	3	Writing and publishing skills	68	64	4
29.	1	Ability to apply solutions to research problems and interpret research results	80	80	0
30.	3	Teaching and supervising skills	66	67	-1
31.	1	Knowledge of research in related field / discipline	79	87	-8

*Skills category key:

- | | | |
|------------------------------------|---------------------------------------|------------------------------------|
| 1. Research Skills and Awareness | 4. Personal Effectiveness/Development | 6. Career Management |
| 2. Ethics and Social Understanding | 5. Team Workings and Leadership | 7. Entrepreneurship and Innovation |
| 3. Communication Skills | | |

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