“Information Professionals”

University of Porto case study

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ABSTRACT

This paper aims to present the information professional trained at the University of Porto (U.Porto), as the result of a paradigm shift brought on by the new field of Information Science.

Following the surveys conducted, a comparative analysis of the results was performed, intersected with the characterization of the information professional's profile, thus typifying the information professionals graduating from the U.Porto.

Some of the most important characteristics of the new information professional are highlighted, such as versatility, ability to summarize, knowledge diversity, adaptability, technological knowledge and ability to innovate.

This study is relevant to any institution that trains information professionals at higher education level, as well as to potential employers and to the information professionals themselves.

In despite of the small sample used in this study, it is an important basis to conduct more comprehensive studies and analyses on the impact on Portuguese society of the new and successful information professionals who have graduated from the U.Porto.

KEYWORDS: Information Science; Information Professional

1. Introduction

In order to understand the Information Professional of today, their *modus operandi* and ability to anticipate/react when confronted with new challenges, such as those raised by the "digital environment", it is important to know and understand the evolution of education in this field over the last few years, as well as the new and different educational models that have appeared, highlighting particularly the Portuguese situation.

From the end of the 19th century to the 1980s, the training of information professionals (i.e., librarian, archivist and documentalist) in Portugal was based on an historicist, culturalist and technicist model. In the context of an emerging Information Society and in trying to cope with the growing influence of Information Science, a paradigm shift was urgently required. Consequently, it was necessary to offer information professionals the technological component they needed to face new challenges.

In an effort to provide an answer to these challenges, the Specialization Course in Documentation Sciences, with branches in 'Archives' and 'Documentation and Libraries', was created in 1983, at the Faculty of Arts of the University of Coimbra and the Faculty of Arts of the University of Lisbon, followed by the Faculty of Arts of the University of Porto in 1985. This course aimed to train qualified professionals in the field of Documentation Sciences, who would be able to conceive, plan, manage, explore and maintain documentation and information services, libraries and archives.

However, in the second half of the 1990s, the need of an effective change that could respond to the challenges raised by an emerging social and economic development model, identified in the operative notion of 'Information Society', in which information and knowledge played a core role, was widely perceived through the growing dissatisfaction among information professionals. In fact, since 1985, they contested the still recent yet already misadjusted educational model and searched for alternatives. Frequent debates were consequently held, promoted by BAD (the Portuguese Association of Librarians, Archivists and Documentalists) and by the Universities of Coimbra, Porto and Autónoma de Lisboa.

Once a new epistemological perspective had been assumed, sustained in a post-custodial and scientific-informational paradigm, it was transposed at the U.Porto to a scientific-professional training model, designed around the core, unifying area of Information Science. It further drew on a wide range of disciplines intended, on the one hand, to provide a unitary theoretical and methodological component and, on the other, to aggregate the field's applied branches (Librarianship, Archivistics and Technological Information Systems), each with

their specific characteristics. At the same time, this new training model sought to preserve multi- and interdisciplinary contributions, essential to shaping an information professional's profile, more suited to the 21st century, who is capable of providing answers to the information management requirements of any organizational context, whether public or private.

The Information Science Degree (ISD) at the U.Porto first ran in the 2001-2002 academic year, offering an integrated and innovative model that was jointly organized by two faculties: the Faculty of Arts and the Faculty of Engineering. If the Faculty of Arts had previously run the Specialization Course in Documentation Sciences, the connection to the Faculty of Engineering derived from the experience gained in its participation in the Master's Degree in Information Management, beginning in 1997-1998, in collaboration also with the Department of Library and Information Studies of the University of Sheffield (UK).

Since 2005, the Portuguese labour market has received this new information professional who, as we will see, has gained growing recognition in the most diverse type of organizations, and has effectively become integrated in this context of globalization and the Digital Era in which we live.

2. Methodological issues

Ten years after the ISD was first offered and five years after first IS graduates from the U.Porto entered the labour market, this paper intents to characterize the professional profile of this IS graduate.

The study is based on two questionnaire surveys conducted on information professionals who graduated from IS at U.Porto (2005-2009). The questionnaires were drawn up taking into account the competencies and abilities as defined in the *Euroguide LIS - The Guide to Competencies for European Professionals in Library and Information Services* (2004), and also the questionnaire model used by the Portuguese Observatory of the Information-Documentation Profession in a survey on information professionals (mostly specialized in Documentation Sciences) in 2005, precisely the year in which the first IS students at U.Porto graduated. In this context, one of the objectives was to ascertain their self-image and the view they have of themselves as information professionals, as well as their external image, that is, the view their work colleagues have of them.

The first survey, called "Survey to IS graduates", was sent to 149 graduates, the total number of IS graduates between the 2004-2005 and 2008-2009 academic years. We received 56 answers (38% of the graduates).

Although the 56 answers cover all the academic years (2004-2005 to 2008-2009), there is a higher number of responses from 2004-2005 (43.7%) and 2008-2009 (53.8%). However, the highest rate, whether in terms of respondents or graduates, belongs to the 2007-2008 academic year, clearly reflecting the impact of adaptation to the Bologna Process. It should be noted that students from the pre-Bologna degree (with 4 years of studies) as well as students from the Bologna one (1st cycle of studies with 3 years) graduated in that year.

This survey was conducted during the 2009-2010 academic year and, therefore, it does not include graduates from the current year.

It should be noted that in the survey accomplished in 2005 by the Observatory of the Information-Documentation Profession, the questionnaire on the self-image of Information-Documentation Professionals obtained 306 answers, from the 1.080 questionnaires distributed, representing a response rate of 28%.

The second survey, "The external image of the competencies of IS professionals graduated from U.Porto", obtained 41 answers from the work colleagues of the respondents to the first survey.

Each one of the surveys is analysed separately, comparing, when appropriate, the results obtained with those of the Observatory's 2005 survey and taking into account the differences among them.

Google Docs by Google was the platform used in this task, which enabled the efficient design and distribution of the surveys. The software *SPSS 15.0 - Statistical Package for the Social Sciences (Windows Evaluation Version)* was used to conduct the data analysis.

3. Data analysis

a) Survey on IS graduates

The majority of the respondents to the surveys are of the female gender (69.5%) and their ages comprised between 20 and 29 years (87.5%).

In the 2005 study, from the 306 respondents, 74% were women and their age varied between 30-39 (32.7%) and between 40-49 years (26.2%); those aged between 20-29 years represented only 10.1%.

Since the survey targeted IS graduates, the respondents' prevalent academic qualification is the undergraduate degree. However, the survey also intended to determine whether the graduates had decided to continue their studies. Thus, we found that the number of respondents who had concluded a specialization course or a master's degree is identical (18% of the graduates in total). Nevertheless, it is important to note that this result does not reflect the number of students who are currently taking a degree beyond the undergraduate level, not having concluded yet, and who are disperse in the universe of non-respondents.

What matters here is to analyse the surveyed students, particularly those who continued their studies in the most sought-after level: the master's degree (2nd cycle of Bologna).

If we consider the case of the Master's in Information Science (MIS), also offered at U.Porto, from the 116 students who entered this master degree since its start in the 2007-2008 academic year to the current one, 2010-2011, 34.5% are ISD graduates.

From these 40 graduates, 12 answered this survey and, among these, 6 are in the Master's 1st year and the other 6 are in the 2nd year. Although they have not yet conclude this level of training, they illustrate a tendency towards choosing a 2nd cycle of studies (Master's degree) after graduating. It should also be noted that in the 2009-2010 academic year alone, 10 IS graduates concluded their MIS.

Although we do not have exact numbers, we can also mention that IS graduates have continued their studies, not only in the MIS, but also in other master degrees, namely:

- Integrated Master in Industrial Engineering and Management (Faculdade de Engenharia da Universidade do Porto – FEUP)
- Integrated Master in Psychology (Faculdade de Psicologia e Ciências da Educação da Universidade do Porto – FPCEUP)
- Master in Communication Sciences (Faculdade de Letras da Universidade do Porto – FLUP)
- Master in Computer Engineering (FEUP)
- Master in Computer Systems (Universidade do Minho)
- Master in Information Systems Management (ISCTE)
- Master in Innovation and Technological Enterprising (FEUP)
- Master in Literary, Cultural and Interarts Studies (FLUP)
- Master in Multimedia (FEUP)
- Master in Services Engineering and Management (FEUP)
- Master in Translation and Linguistic Services (FLUP)

If we consider the 2005 study in relation to the topic of education in the field of information, the highest percentage of respondents have a postgraduate qualification (40% of the answers), followed by those with a technical-professional course (25.7%). This result derives from the fact that, until the ISD was created, a Specialization Course in Documentation Sciences (postgraduate level) or a BAD Technical-Professional course was required to entre BAD careers. In the 2005 study, the years of concluded academic education were grouped by decades, and the 1990s obtained the highest number of answers (34%).

Membership of professional associations is clearly not common among the respondents (94% of the answers enable us to reach such

conclusion). The fact that we are dealing with a recent degree, with only 10 years, may be one of the reasons to explain this.

Only one of the respondents states that he is a member of BAD and another two say that they are members of other associations: the PMI – *Project Management Institute* and the SSME /PT – *Service Science Management and Engineering / Portugal* (Portuguese Association for Science, Management and Services Engineering).

With regard to the question related to professional activity, we opted for the open answer, in order to embrace the diversity of the answers we were already expecting. The most frequently mentioned professional categories among the respondents are those of *Information Manager* (19.6%) and *Consultant* (14.3%). However, the diversity of categories highlights an expectable trend towards entry into new professional categories (data analyst, functional systems analyst, database manager, project manager, etc.), whereas traditional categories such as librarian and archivist were located at an inverse position compared with the 2005 survey. The percentage of those who did not answer this question (26.8%) is also significant, which may be related to situations of continuing studies or professional internships, since they answer affirmatively when questioned about the degree of satisfaction they have in relation to their jobs and professional activities (it was possible to ascertain that among the 15 people who did not answer this question (26.8%), 5 where attending the MIS.

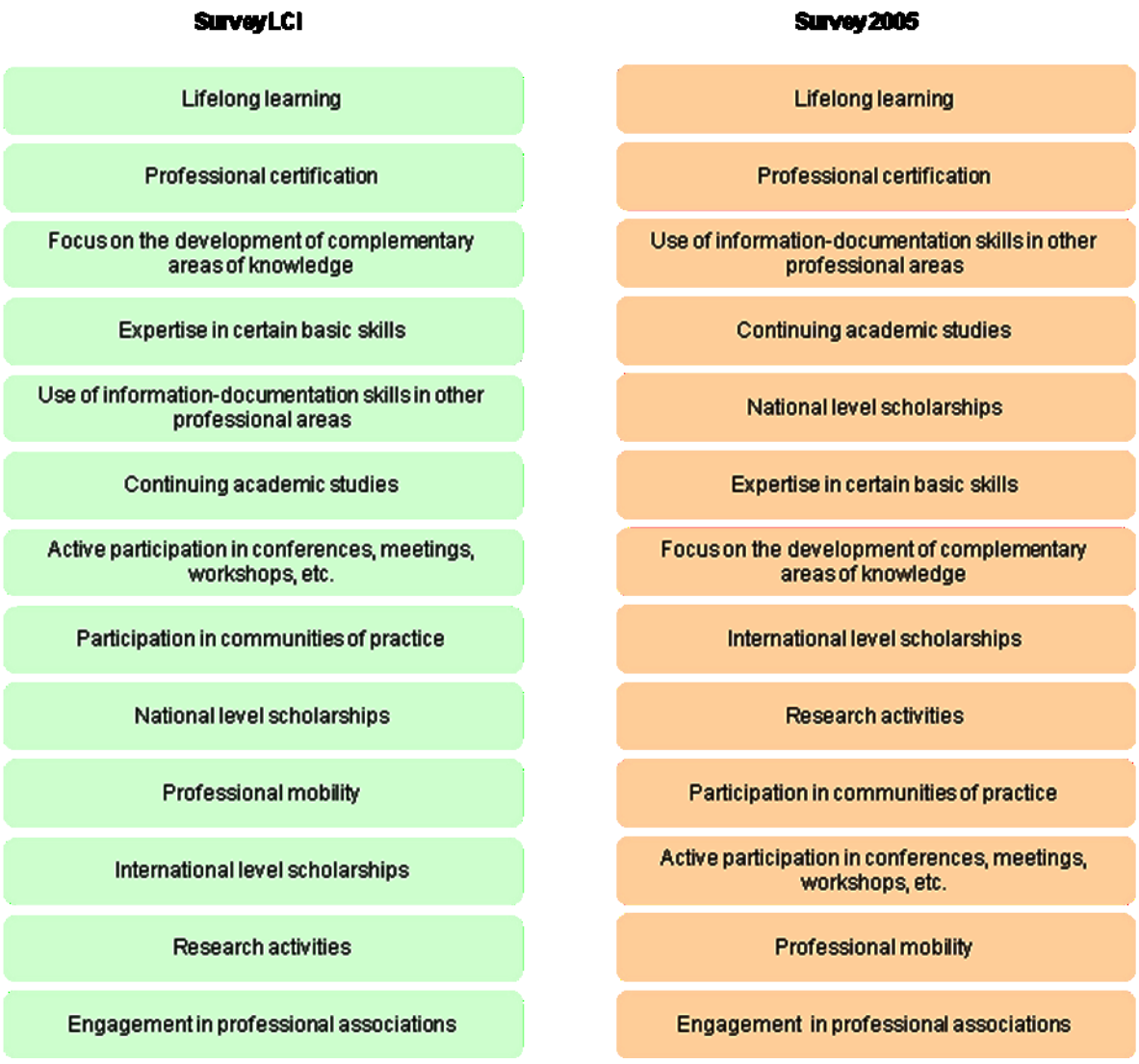
In the 2005 study, the categories of Librarian, Documentalist, Archivist and I-D Professional obtained 48% of the answers and the category of Public Administration – BAD area obtained 38%, clearly illustrating the significant weight this sector bears as the main employer in the field. Only 2% of the respondents in the 2005 survey identified themselves as professionals from the Information area.

In this context, it seemed relevant to characterize the employer market. When questioned about the sector in which they conduct their professional activity, we verify that the private sector has the highest rate (44.6%). There is no information available on this item in the 2005 study, since this question was not part of the questionnaire.

Comparing with the 2005 study, in which a period under 10 years of professional activity represents only 32% of the answers, our respondents have a much shorter period of professional activity (at the time the survey was conducted, 44.6% answered that they had been working for less than 1 year), which is understandable if we recall that the majority of the respondents had graduated from the ISD in 2008-2009.

The respondents feel quite satisfied with their jobs (48%) as well as with the professional activity they develop (57%).

In relation to strategies for professional activity development, in comparison to the 2005 study, the following table shows the selected options (based on the average number of answers obtained for each possibility), in decreasing order. We found that *Lifelong learning* and *Professional certification* ranked first in both studies. *Engagement in professional associations* came in last place, also in both studies.



With regard to Information-Documentation competencies in terms of *Current performance in the professional activity*, the figure below compares this study with the 2005 one, based on the average number of answers obtained for each option.

It is particularly clear that there are very few similarities (with the exception of *Sales and Distribution* ranking last in both studies) and the IS graduates place high value on competencies connected to information and communication in their current professional performance; thus, they rank competencies such as project management among information management and content management competencies, far above that which was considered in 2005. The first option in the 2005 study (*Information seeking and searching*) appears in this study only in 6th place.

Survey LCI	Survey 2005
Computer-based communication	Information seeking and searching
Computer-based design of information-documentation systems	Relationship with users and customers
Interpersonal communication	Understanding of the professional environment
Information and communication technologies	Interpersonal communication
Internet technologies	Content and knowledge management
Information seeking and searching	Information and communication technologies
Educational Training and pedagogical actions	Identification and validation of information sources
Complementary areas of knowledge	Educational Training and pedagogical actions
Collections enrichment	Global information management
Oral communication	Institutional communication
Understanding of the professional environment	Oral communication
Information Management/ Collections and archive management	Information analysis and representation
Project management and planning	Computer-based communication
Information identification and representation	Internet technologies
Content /knowledge management	Complementary areas of knowledge
Human resources management	Written communication
Global information management	Collections and archive management
Relationship with users and customers	Information law application
Institutional communication	Collections enrichment
Written communication	Practice of a foreign language
Practice of a foreign language	Physical handling of documents
Budget management	Organization of space and equipment
Organization of space and equipment	Design of products and services
Diagnosis and evaluation	Diagnosis and evaluation
Physical handling of documents	Project management and planning
Computer software development	Computer-based design of information-documentation systems
Audio visual communication	Computer software development
Design of products and services	Human resources management
Publishing and editing	Audio visual communication
Marketing	Marketing
Information law application	Budget management
Sales and distribution	Publishing and editing
	Sales and distribution

With regard to Information-Documentation competencies in terms of *Future performance in the professional activity*, the figure below compares this study with the 2005 one, based on the average number of answers obtained for each option.

Again, that there are not many similarities. At the top of the most valued Information-Documentation competencies by the respondents with regard to their future performance, we find *Content/Knowledge management* and *Global information management*, with the practice of a *Foreign language* immediately below *Information and communication technologies*, and then competencies related to *Communication and project management*.

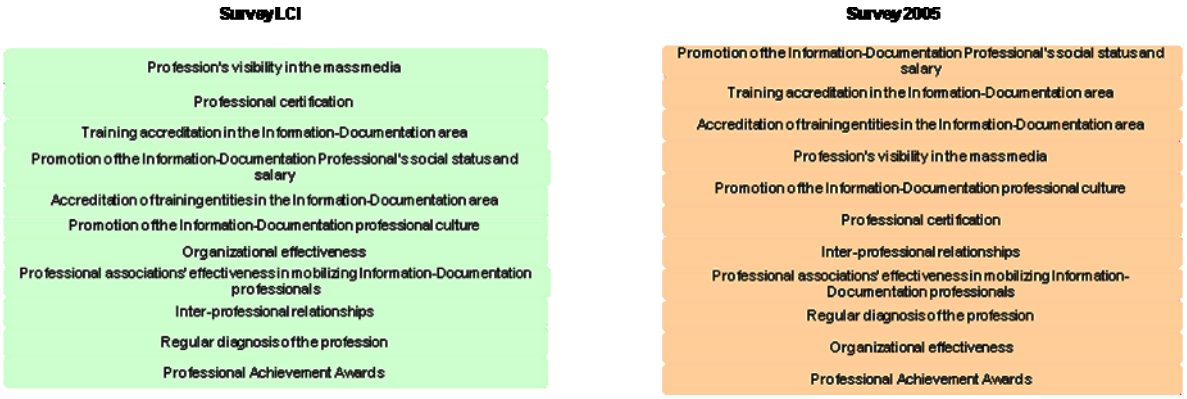
Survey LCI	Survey 2005
Content /knowledge management	Relationship with users and customers
Global information management	Educational Training and pedagogical actions
Interpersonal communication	Information seeking and searching
Information identification and representation	Information and communication technologies
Information and communication technologies	Content and knowledge management
Practice of a foreign language	Understanding of the professional environment
Institutional communication	Identification and validation of information sources
Computer-based communication	Internet technologies
Written communication	Interpersonal communication
Audiovisual communication	Global information management
Relationship with users and customers	Computer-based communication
Project management and planning	Institutional communication
Oral communication	Complementary areas of knowledge
Information seeking and searching	Practice of a foreign language
Internet technologies	Information analysis and representation
Understanding of the professional environment	Project management and planning
Complementary areas of knowledge	Oral communication
Design of products and services	Collections and archive management
Educational Training and pedagogical actions	Diagnosis and evaluation
Computer-based design of information-documentation systems	Collections enrichment
Information Management/ Collections and archive management	Written communication
Computer software development	Human resources management
Diagnosis and evaluation	Design of products and services
Physical handling of documents	Information law application
Budget management	Computer-based design of information-documentation systems
Marketing	Audiovisual communication
Human resources management	Computer software development
Collections enrichment	Physical handling of documents
Information law application	Organization of space and equipments
Organization of space and equipment	Marketing
Sales and distribution	Budget management
Publishing and editing	Publishing and editing
	Sales and distribution

It is interesting to also compare, based on the average number of answers obtained for each option, the results in terms of Information-Documentation competencies in *Current and Future Performance*. *Interpersonal communication* ranks equally in both studies (3rd place).

Present	Future
Computer-based communication	Content / knowledge managements
Computer-based design of information-documentation systems	Global information management
Interpersonal communication	Interpersonal communication
Information and communication technologies	Information identification and representation
Internet technologies	Information and communication technologies
Information seeking and searching	Practice of a foreign language
Educational Training and pedagogical actions	Institutional communication
Complementary areas of knowledge	Computer-based communication
Collections enrichment	Written communication
Oral communication	Audiovisual communication
Understanding of the professional environment	Relationship with users and customers
Information Management/ Collections and archive management	Project management and planning
Project management and planning	Oral communication
Information identification and representation	Information seeking and searching
Content / knowledge managements	Internet technologies
Human resources management	Understanding of the professional environment
Global information management	Complementary areas of knowledge
Relationship with users and customers	Design of products and services
Institutional communication	Educational Training and pedagogical actions
Written communication	Computer-based design of information-documentation systems
Practice of a foreign language	Information Management/ Collections and archive management
Budget management	Computer software development
Organization of space and equipment	Diagnosis and evaluation
Diagnosis and evaluation	Physical handling of documents
Physical handling of documents	Budget management
Computer software development	Marketing
Audiovisual communication	Human resources management
Design of products and services	Collections enrichment
Publishing and editing	Information law application
Marketing	Organization of space and equipment
Information law application	Sales and distribution
Sales and distribution	Publishing and editing

With regard to prospective scenarios for the Information-Documentation profession, we analysed the "urgent initiatives" as put forward by the respondents. The following figure compares our results with those of 2005, once more based on the average number of answers obtained for each option.

Again, there are very few points of similarity, but we can highlight that, in both studies, *Professional achievement awards* ranked last and *Professional associations' effectiveness in professional mobilization* is placed 8th.



When questioned about other initiatives considered urgent in this context, the respondents gave the following answers:

- The information professional should be appropriately classified in job centres (suggestions: Information Manager, Requirements Engineer or Information Auditor);

- Promotion of regular discussions and meetings about cognitive, technological and interpersonal needs in order to better train information professionals.

On the prospective scenarios for the Information-Documentation profession and taking into account the long-term impact of implementing urgent initiatives, the table below compares this study with that of 2005, based on the average number of answers obtained for each option.

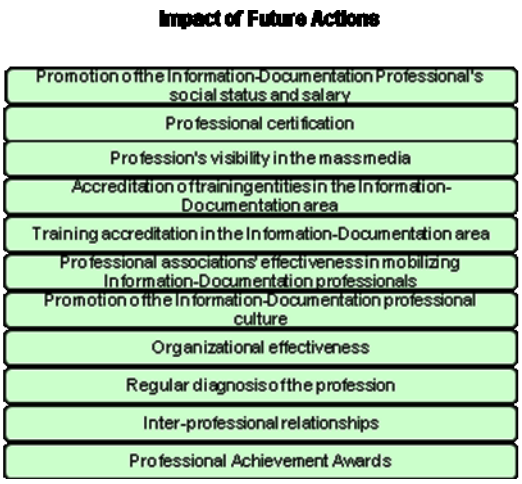
The only similarities between both studies are the *Profession's visibility in the mass media* in 3rd place, and *Regular diagnosis of the profession* in 9th.

When questioned about other high impact initiatives, we obtained the following answers:

- Enhancement and promotion of professionals, but also of companies and personalities that promote the integration of our professionals;

- Creation of a Society of Information Managers or Information Professionals (as a way to catalyzed all the prospective scenarios mentioned above).

It is interesting to compare, also based on the average number of answers for each option, the results in terms of "urgent initiatives" and "impact of future actions". Only two items ranked equally in both surveys, *Professional certification* (2nd) and *Professional achievement awards* (11th).



b) The survey "The external image of the competencies of IS professionals graduating from U.Porto"

There is not much difference in gender between the respondents to this survey, although a relatively higher number of answers came from women. In terms of age, they are situated between 20 and 29 years (43.6%) and between 40 and 49 years (23.1%).

In the 2005 study, from the 1.350 people surveyed, 57% were women and their ages varied between 20-29 (63%) and <20 years (13%).

A considerable number of the respondents hold a degree (39%), pointing to a work context with high academic qualifications. They are followed by those who stopped studying in secondary school (24.4%) and those who continued with a postgraduate course (12.8%).

The 2005 study presents an opposite trend. The large majority did not go beyond secondary school (51.6%), followed by university graduates (27.7%).

In terms of the information professional's Information-Documentation competencies, the table below compares, based on the average number of answers for each option, this study with the 2005 one.

The same positions are occupied by the following options: *Relationship with users and clients* (2nd position), *Complementary areas of knowledge* (24th position) and *Sales and distribution* (33rd position).

Noteworthy is the boost in the *Content/Knowledge Management* competency ranked in 1st place in this study in relation to *Information seeking and searching* in the 2005 study.

Survey LCI	Survey 2005
Content / knowledge management	Information seeking and searching
Relationship with users and customers	Relationship with users and customers
Information analysis and representation	Organization of space and equipment
Identification and validation of information sources	Internet technologies
Computer-based communication	Content and knowledge management
Information and communication technologies	Physical handling of documents
Computer-based design of information-documentation systems	Information and communication technologies
Information Management/ Collections and archive management	Interpersonal communication
Understanding of the professional environment	Identification and validation of information sources
Educational Training and pedagogical actions	Understanding of the professional environment
Interpersonal communication	Computer-based design of information-documentation systems
Physical handling of documents	Oral communication
Internet technologies	Information law application
Institutional communication	Computer-based communication
Practice of a foreign language	Global information management
Diagnosis and evaluation	Educational Training and pedagogical actions
Project management and planning	Collections enrichment
Information seeking and searching	Information analysis and representation
Global information management	Written communication
Oral communication	Practice of a foreign language
Audiovisual communication	Institutional communication
Computer software development	Collections and archive management
Design of products and services	Computer software development
Complementary areas of knowledge	Complementary areas of knowledge
Budget management	Human resources management
Organization of space and equipment	Audiovisual communication
Written communication	Design of products and services
Information law application	Diagnosis and evaluation
Marketing	Publishing and editing
Human resources management	Project management and planning
Collections enrichment	Budget management
Publishing and editing	Marketing
Sales and distribution	Sales and distribution

Comparing again the results of both studies with regard to Information-Documentation competencies in terms of the *Information Professional's Current and Future Performance* (classified by the work colleagues surveyed). There is agreement relative to the position of *Interpersonal communication* (3rd).

The value given to the competency *Content management / Knowledge management* is reinforced as well as of those competencies related to *Computer Science / Information and communication technologies*.


Computer-based design of information-documentation systems
Interpersonal communication
Information and communication technologies
Internet technologies
Information seeking and searching
Educational Training and pedagogical actions
Complementary areas of knowledge
Collections enrichment
Oral communication
Understanding of the professional environment
Information Management/ Collections and archive management
Project management and planning
Information identification and representation
Content / knowledge managements
Human resources management
Global information management
Relationship with users and customers
Institutional communication
Written communication
Practice of a foreign language
Budget management
Organization of space and equipment
Diagnosis and evaluation
Physical handling of documents
Computer software development
Audiovisual communication
Design of products and services
Publishing and editing
Marketing
Information law application
Sales and distribution
Global information management
Interpersonal communication
Information identification and representation
Information and communication technologies
Practice of a foreign language
Institutional communication
Computer-based communication
Written communication
Audiovisual communication
Relationship with users and customers
Project management and planning
Oral communication
Information seeking and searching
Internet technologies
Understanding of the professional environment
Complementary areas of knowledge
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Budget management
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Human resources management
Collections enrichment
Information law application
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Sales and distribution
Publishing and editing
Relationship with users and customers
Information analysis and representation
Identification and validation of information sources
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Organization of space and equipment
Written communication
Information law application
Marketing
Human resources management
Collections enrichment
Publishing and editing
Sales and distribution

4. Conclusions

These are young professionals, situated in the age bracket between 20 and 29 years, and they reveal a strong tendency to continue their studies in master's degrees as soon as they finish their degree, even those who enter the work market immediately.

Until now, there is very low membership in professional associations, some opting for associations that differ from those that are traditionally related to the information-documentation profession.

The professional categories deserving greater consideration among the respondents are those of the *Information manager* and *Consultant*, although a variety of activities in new professional categories (data analyst, functional systems analyst, database manager, project manager, etc.) is evident. It is inversely proportional to the traditional framework for inclusion in categories such as librarian and archivist (together representing 6%). This is also the case when the private sector prevails as the main employer.

In terms of development strategies for the professional activity, there is concern with *Lifelong learning* and the need for *Professional certification*, side by side with the development of *Complementary areas of knowledge* and the use of competencies acquired in other professional areas. The great importance given to *Continuing academic studies* and to *Research activities* is particularly noteworthy, which points to a growing trend for research activity in the field.

IS graduates increasingly value competencies related to *Information and communication technologies* in current performance in their professional activity, and they place competencies such as *Project management* side by side with competencies in *Information management* and *Content management*. Also relevant is the relatively low importance given to *Physical treatment of documents* (sometimes identified as "not applicable") in the course of the activity developed nowadays.

At the top of the most highly regarded Information-Documentation competencies in terms of the respondents' *Future performance* we find *Content/Knowledge management* and *Global information management*, with the practice of a *Foreign language* immediately below *Information and communication technologies*, followed by those competencies related to *Communication* and to *Project management*.

In the prospective scenarios for the Information-Documentation profession, the items *Profession's visibility in the mass media* (76%), *Training accreditation in the field*, *Accreditation by training entities in the area* and the *Promotion of a professional culture* are considered as "Very urgent" (all obtaining above 50%).

If relate these "urgencies" with other suggestions made, it is very clear that we are effectively in the presence of a new emergent profile, which needs to be consolidated, in terms of reference, visibility and social recognition, since it has already been recognized by those who have been in contact with these new professionals, having benefited from their services, and who therefore need to be acknowledged and valued externally.

The respondents were provided with the opportunity to give their opinion on the aspects they appreciated more or less in a IS professional / Information manager.

Among the most appreciated aspects, they mentioned flexibility and ability to multitask, the ability to summarise, the diversity and amount of knowledge acquired, innovation, adaptability, the ability to use information and communication technologies, commitment to storage, preservation and diffusion of information and the possibility of being mediators between technology managers (i.e., computer personnel) and the software clients/users.

In relation to less positive aspects, the respondents highlighted the legacy of certain methodologies persisting from the custodial paradigm, the need for further training and development in computer knowledge, the confusion of their competencies with those of computer-related technical personnel, the effort required to broaden their knowledge of certain subjects, and the risk of disregarding the mission of a IS professional.

It should be noted that there was a high rate of "abstention" with regard to both questions.

With regard to criticisms, only 4 respondents said that this undergraduate degree offered very good future perspectives, since organizations are quite concerned with information as a strategic resource, that the internship should be part of the degree's curriculum, that there should be a broader offer of continuous training actions (not part of a degree), and that surveys are important to improve the performance of future professionals.

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3. APPENDIXES

Information Science graduates between the 2004/2005 and 2008/2009 academic years

Academic year of graduation	Answer	
	Yes	No
2004/2005	7	9
2005/2006	5	16
2006/2007	10	16
2007/2008	19	39
2008/2009	15	13
Total	**56**	**93**

Analysis tables of Graduates in the Information Science Survey

Gender	Response Count	Valid %
Female	39	69.6
Male	17	30.4
Total	**56**	**100**

Age	Response Count	Valid %
20-29 years old	49	87.5
30-39 years old	4	7.1
40-49 years old	3	5.4
Total	**56**	**100**

Academic qualifications (postgraduate course)	Response Count	Valid %
No response	46	82.1
Postgraduate	5	8.9
Master	5	8.9
Total	**56**	**100**

Come from the ISD	Response Count	Valid %
No	76	66.5
Yes	40	34.5
Total	**116**	**100**

MIS curricular year	Answer		Total Nº of students
	Yes	No	
2nd year	6	47	53
1st year	6	55	61
Total	**12**	**102**	**114**

Professional Associations	Response Count	Valid %
No response	47	94
BAD	1	2
Other	2	4
Total	**50**	**100**

Profession	Response Count	Valid %
No response	15	26.8
Information Manager	11	19.6
Consultant	8	14.3
Librarian	4	7.1
Archivist	2	3.6
Trainee	2	3.6
Data Analyst	1	1.8
Functional Systems Analyst	1	1.8
Flight Attendant	1	1.8
Technical Assistant	1	1.8
Commercial	1	1.8
Traffic Controller		1.8
General Coordinator	1	1.8
Commercial Director	1	1.8
Database Manger	1	1.8
Project Manager	1	1.8
Service Manager	1	1.8
Retired	1	1.8
Technical Computing	1	1.8
Senior Technical Officer	1	1.8
Total	**56**	**100**

Professional Sector	Response Count	Valid %
No response	15	26,8
Public	15	26,8
Private	25	44,6
Both	1	1,8
Total	**56**	**100**

Time working (years)	Response Count	Valid %
<1	25	44.6
1	7	12.5
2	10	17.9
3	5	8.9
5	6	10.7
Between 5 and 10	1	1.8
<15	2	3.6
Total	**56**	**100**

Job Satisfaction	Response Count	Valid %
Very Satisfied	27	48.2
Satisfied	24	42.9
Somewhat satisfied	3	5.4
Dissatisfied	2	3.6
Total	**56**	**100**

Satisfaction with work	Response Count	Valid %
Very Satisfied	32	57.1
Satisfied	20	35.7
Somewhat satisfied	3	5.4
Dissatisfied	1	1.8
Total	**56**	**100**

Information-Documentation Skills considered «Very Important» in current performance	Response Count	% of Cases
	N	N
Interpersonal communication	43	78.2%
Information and Communication technologies	41	74.5%
Institutional communication	41	74.5%
Computer-based communication	40	72.7%
Global information management	40	72.7%
Information seeking and searching	39	70.9%
Internet technology	39	70.9%
Relationship with users and customers	38	69.1%
Content / knowledge management	38	69.1%
Oral communication	38	69.1%
Understanding of the professional environment	37	67.3%
Written communication	37	67.3%
Additional knowledge	35	63.6%
Information identification and representation	34	61.8%
Practice of a foreign language	34	61.8%
Project and planning management	31	56.4%
Information management / Collections and archive management	30	54.5%
Audiovisual communication	30	54.5%
Educational Training and actions	30	54.5%
Computer-based design of information-documentation systems	28	50.9%
Diagnosis and evaluation	28	50.9%
Design of products and services	26	47.3%
Computer applications development	25	45.5%
Marketing	21	38.2%
Organization of space and equipment	19	34.5%
Information law enforcement	18	32.7%
Human resources management	18	32.7%
Budget management	17	30.9%
Publishing and editing	16	29.1%
Sales and distribution	16	29.1%
Collections enrichment	14	25.5%
Physical handling of documents	13	23.6%
N	**56**	**100%**

Information-Documentation Skills considered «Very Important» in future performance	Response Count	% of Cases
	N	N
Interpersonal communication	44	81.5%
Relationship with users and customers	43	79.6%
Information and Communication technologies	43	79.6%
Information management / Collections and archive management	42	77.8%
Information seeking and searching	42	77.8%
Institutional communication	42	77.8%
Global information management	42	77.8%
Information identification and representation	41	75.9%
Practice of a foreign language	41	75.9%
Additional knowledge	41	75.9%
Understanding of the professional environment	40	74.1%
Internet technology	40	74.1%
Oral communication	40	74.1%
Written communication	39	72.2%
Audiovisual communication	39	72.2%
Computer-based communication	38	70.4%
Project and planning management	38	70.4%
Educational Training and actions	34	63.0%
Design of products and services	33	61.1%
Computer-based design of information-documentation systems	33	61.1%
Computer applications development	33	61.1%
Information management / Collections and archives management	32	59.3%
Diagnosis and evaluation	31	57.4%
Human resources management	27	50.0%
Information law enforcement	25	46.3%
Marketing	25	46.3%
Organization of space and equipment	22	40.7%
Publishing and editing	22	40.7%
Budget management	20	37.0%
Collections enrichment	19	35.2%
Physical handling of documents	19	35.2%
Sales and distribution	19	35.2%
N	**56**	**100%**

Analysis Tables of the "The external image of the competencies of IS professionals graduating from U.Porto "

Gender	Response Count	Valid %
No response	2	4.9
Female	21	51.2
Male	18	43.9
Total	**41**	**100**

Age	Response Count	Valid %
No response	2	4.9
20-29 years old	17	41.5
30-39 years old	8	19.5
40-49 years old	10	24.4
50-59 years old	4	9.8
Total	**41**	**100**

Academic qualifications	Response Count	Valid %
Without schooling	2	4.9
High School	10	24.4
Bachelor	2	4.9
Honour's	16	39.0
Postgraduate	7	12.8
Masters	4	10.3
Total	**41**	**100**

Information-Documentation Skills considered «Very Important»	Answers	% of Cases
	N	N
Relationship with users and customers	32	84.2%
Understanding of the professional environment	29	76.3%
Content / knowledge management	29	76.3%
Information sources Identification and validation	27	71.1%
Information analysis and representation	27	71.1%
Interpersonal communication	27	71.1%
Information and Communication technologies	26	68.4%
Computer-based communication	26	68.4%
Information research	25	65.8%
Oral communication	25	65.8%
Practice of a foreign language	25	65.8%
Institutional communication	25	65.8%
Global information management	25	65.8%
Computer-based design of information-documentation systems	24	63.2%
Information management / Collections and archive management	23	60.5%
Internet technology	23	60.5%
Audiovisual communication	23	60.5%
Information law enforcement	22	57.9%
Physical handling of documents	21	55.3%
Written communication	20	52.6%
Diagnosis and evaluation	20	52.6%
Educational Training and actions	20	52.6%
Additional knowledge	20	52.6%
Design of products and services	19	50.0%
Project and planning management	19	50.0%
Organization of space and equipment	18	47.4%
Computer applications development	18	47.4%
Collections enrichment	15	39.5%
Marketing	15	39.5%
Human resources management	15	39.5%
Budget management	14	36.8%
Sales and distribution	13	34.2%
Publishing and editing	11	28.9%
N	**41**	**100%**