

# Analysis of the information about doctoral degrees presented in the Spanish universities websites

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## ABSTRACT

Globalization has intensified competition, as evidenced by the growing number of international classification systems (rankings) and the attention paid to them. Doctoral education has an international character in itself. It should promote opportunities for graduate students to participate in these international studies. The quality and competitiveness are two of the most important issues for universities.

To promote the interest of graduates to continue their education after the graduate level, it would be necessary to improve the published information of the doctoral programs. It should increase the visibility and provide high-quality, easily accessible and comparable information which includes all the relevant aspects of these programs.

The authors analysed the website contents of doctoral programs. It was observed a lack of quality of them and very poor information about the contents, so that it was decided that any of them could constitute a model for creating new websites.

The recommendations on the format and contents in the web were made by a discussion group. They recommended an attractive design; a page with easy access to contents and easy to find on the net and with the information in more than one language. It should include complete program and academic staff information. It should also be included the study's results which should be easily accessible and includes quantitative data, such as number of students who completed scholars, publications, research projects, average duration of the studies, etc. It will facilitate the choice of program.

**Key words:** doctoral degrees, web, data quality, quantity of information.

## 1. INTRODUCTION

Globalization has intensified the competition, as evidenced by the growing number of international classification systems (rankings) and the attention paid to them.

Due to the significant increase in the offer of doctoral programs, not only in Spain but throughout the EHEA, the institutions involved in these studies point out the competition between them as one of the more important ten questions for them.

In the EUA study it was indicated that 38% of institutions consider competitiveness an important issue, while the broader issue selected was the quality of the program with 60% [1].

The growing internationalization in universities, especially at the doctoral level, is also of great importance. Doctoral education has an international character in itself. It should promote opportunities for graduate students to participate in these international studies. This can be done, for example, by increasing international mobility grants, the organization of workshops, conferences and summer schools, developing jointed doctoral programs, and the co-direction of work. The use of new technologies such as teleconferencing or e-learning will also be used to promote the internationalization of doctoral programs.

Although in 2008, some countries have decreased in number of doctors, the percentage of those on all graduate students is more or less stable. According to Eurostat (Statistical Office of the European Communities) the percentage of students in doctoral degrees in the countries of the European Union (EU), compared to the total number of graduate students, is less than 10%. The average in the EU with 27(countries) was 2.78% in the period of years from 2000 to 2008, lower than in the U.S. and Japan. In the U.S. and EU there is an increase of the number of graduate students, meaning that students do not reject higher training cycles [2].

In order to promote the interest of graduates to continue their education by accessing the training of graduate level, it would be necessary to increase the visibility of supply and provide readily accessible data to allow in-depth knowledge of the doctoral programs.

From this perspective, it is of great interest to provide quality information and make it comparable

with other institutions in order to provide interested students the choice of program and university. It is therefore necessary to use the existing communication mediums.

A website is, in essence, a digital business card, either for companies, organizations, individuals, etc. Also, the new trend oriented to Web pages is not only attractive to our visitors, but is also optimized to be quickly located by search engines through the source code. Reaching this dual purpose may pose a conflict with the quality of the content.

The objectives of this study are to analyze the accessibility and visibility of the information network of prestigious international universities and propose a basic outline of information in the publication of a doctoral program.

## 2. MATERIALS AND METHODS

In the analysis of web pages, some general questions have been considered. The "five classic criteria": Authority, Accuracy, Objectivity, Currency, Coverage [3] are not useful for the objective proposed in this study because university pages generally cover these criteria. More useful are other elements, such as information access, navigation, design, and language. Combined together with some specific information sought in this study, such as staff, the program, or the results obtained, form the elements of analysis considered at each site. The presence of these issues and the quality of it has been discussed in the web of six European universities, six U.S., and five Asian universities, comparing degrees of doctor of an area of knowledge equivalent to each.

The list of universities is as follows:

In Europa: Hohenheim University (Alemania), Agrosup Dijon (Francia), University of Leuven (Bélgica), Wageningen University (Holanda), Università degli Studi di Bari Aldo Moro (Italia) y Agricultural University of Athens (Grecia).

In USA: Virginia Tech (Virginia), University of California (Berkeley), University of Minnesota (Minnesota), University of Illinois (Illinois), Cornell University (Ithaca), Washington University (Washington).

In Asia: University of Tokyo (Japan), Kyoto University (Japan), National Taiwan University (China), University of Hong Kong (China), Chinese University of Hong Kong (China).

Berelson [4] discussed how the content analysis is "a research technique to describe the objective, systematic and quantitative content of communication." Therefore, the methodology used for the data examination was content analysis. This research technique allows formulation, based on certain data, of reproducible and valid inferences that can be applied to their context [5]. In this work the aim was to describe the content of web pages by examining frequencies.

The recommendations on form and content in the web pages were made by making decisions based on expert opinion, obtained through a qualitative research technique widely used today: the discussion group. Overall, the discussion group is a conversation with a group of people, who know the subject of discussion and are interviewed with planned questions. The topics are pre-defined but flexible. The atmosphere of discussion within the groups is permissive and non-directive [6]. Assessment through focus groups is designed to obtain information on a defined area of interest. People who are interviewed in groups should be individuals skilled in a certain subject or have much experience in the area.

The discussion group formed for this work is an already established group of people; most know each other and the type of so-called natural groups. Natural groups should be selected close to or own contexts of study groups [7]. Focus groups are considered the most naturally suited for the study of social cognition, such as curricular competencies. Moreover, working with natural groups ensures that the social context of interaction, basic rules of conversation, and attribution of meaning are shared by groups [8].

The natural group formed for this work (authors) brings together experts with the following characteristics:

- i. Spanish nationality
- ii. PhD in Engineering
- iii. Extensive teaching experience in the area (more than 5 years old and more than two different materials)
- iv. Varied experience in corporate management (leadership of working groups, teaching management work, membership of national and international groups working in academic organization, etc.).
- v. Gender diversity and range from 35 to 65 years of age.

## 3. RESULTS

First of all, there was an analysis of the contents of the websites of the 17 selected universities. This evaluation was completed with the recommendation of several aspects to consider, in terms of quality and quantity of information that should be considered for the proper dissemination of doctoral degrees through web pages.

### 3.1. Content analysis of web pages.

In most European universities selected, the first page of the site offers little and unattractive information. The information access is placed on the edge of the pages. The design is outdated and unattractive. The pages are not dynamic and images don't link. The design is hypertext. When available, the information on the general faculty of the university does not specify which teacher is responsible for each topic. There is usually no presented information on PhD. programs. And only

one university was found to have information on the number of doctorates achieved per year.

In general, the information in American Universities is focused on studies degree. The Doctor degree contains information regarding the requirements to overcome by the students (usually number of credits). Navigation is easy. The design is classic and simple. There is not specific information on websites about the staff and they do not identify who is responsible for the different subjects. The information is displayed only in English. Finally, there has been nothing found on results in any of the pages.

Regarding Asian pages viewed (we have selected the best globally positioned), the information is not comparable to those found in Europe. In general, the information is arranged in agreement with the students requirements. The information has been consulted whenever it appeared in English so it is not known the contents of the information in Chinese or Japanese. The University of Hong Kong displays more information than the rest.

Table 1 shows the results of all tested pages, counting the universities where adequate information has been detected in more than one language, accessibility or navigation, and attractive design.

Análisis		Universities		
Type	Features	UE	USA	Asia
Quality	Access	17	17	40
	Navigation	0	33	20
	Design	0	67	40
Number	Language	67	0	100
Includes information	Teachers	0	0	0
	Program	0	0	20
	Results	0	0	0

Table 1. Table percentage (%) of colleges with good quality content analyzed on the total of the 17 universities considered

In the overall analysis of these features it is apparent that the information on faculty performance and course programs is very poor. Navigation and page design is best in American universities and poorest in European ones. Accessibility and the number of languages are better in the pages of Asian universities.

### 3.2. Recommendations on the image and use of website.

There are three important points to analyze when we consider the diffusion of doctoral programs in the university web pages:

1.- Attractive. One of the first things that invites the user to remain on the website and explore its content is the appeal of the web design and consistent in their ways. This is most appreciated by Internet users when deciding on the choice of web service.

2.- Easy to use and appropriate information structure. It is very important that the users find a website that meets their needs, because that first

impression will be largely set to re-use. It is necessary that web design is focused on users so that they can interact with web sites in the most easy, convenient, and intuitive way as possible. For this, the Web design should be focused primarily on the user and designed for him. In this case, we assume that the user is the university degree and is looking for information to decide whether to continue his training as a researcher, or if he seeks to select the most appropriate program for him. Do not forget the many international programs, meaning the candidate could be from any part of the World.

3.- Easy to find the page with search engines. To have an attractive and well designed website based on the current guidelines of web design is useless if you can not achieve a good position in major search engines.

### 3.3. Recommendations on the contents to be included in web pages.

The team author of this work established the following as important elements for assessing the quality of doctoral programs and providing guidance to future students of these postgraduate studies.

1. N° students enrolled
2. N° new students
3. N° of teachers and categories
4. N° of subjects face
5. N° of e-learning courses
6. N° of subjects offered
7. N° of subjects that the student must attend
8. N° of publications related to the thesis of those programs:
  - a) International or national JCR
  - b) Other International
  - c) other National
  - d) Communications in Congresses
  - e) Reports
  - f) Book Chapters
  - g) Books
9. N° of research projects related to those programs
10. N° of students with scholarships
11. N° of languages in which information is given
12. N° of foreign lecturers
13. N° of different Spanish universities involved
14. N° of different foreign universities involved
15. N° of mentions of "European Doctor" or similar
16. N° of Awards Outstanding Doctoral Thesis or Doctoral Awards
17. N° of weeks of stay by doctoral students in foreign research centers for conducting thesis
18. N° Thesis rejected in the first round for corrections
19. N° of theses completed
20. Average time for completion of the thesis
21. N° of evaluators of the thesis, outside the University.
22. Has a quality references
23. Has a quality assurance system
24. Has satisfaction surveys to graduates
25. Percentage of doctor graduates with work
26. Percentage of doctors graduates to work in research and teaching.

This information should appear on the network along with a detailed program for the certification, list of teachers, and research proposals.

#### 4. CONCLUSIONS

In some of the best universities in the world, analysis of web pages doctorates show a generally poor quality and limited content related to the doctoral program.

In view of the results it is not recommended any model of the analyzed pages. Therefore, the working group made up of experts recommended an attractive design, a page with easy access to content, and dynamic and important links. It should also be easy to find on the net and not be forgotten that the new doctoral programs should strengthen its international dimension, so that the information should be useful for any professional, no matter its nationality.

In terms of content, it should include comprehensive information on programs (materials and schedules) and the professors who teach. The results should include an easily accessible form; most of the 26 quantitative data collected in this work and can give an idea of the overall quality of doctoral programs, facilitating the choice of program for students interested.

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