Cultural Impact on Knowledge Representation and Organization in a Subject Domain

Abstract
Culture affects the way in which knowledge is represented and organized. Cultural warrant in knowledge organization systems (KOS) can be considered as a quality indicator that would allow universal use. On the other hand, there is a demand for integration of cultural views in KOS in order to enrich the standard cultural and social perspective that these systems usually have. In order to allow cultural differences to be represented and organized in KOS in an integrated way, we must get to know those cultural differences so they can be represented and integrated to other views pertinent to the KOS, views on which it is intended to be built. This study aims to unveil how different cultures, as they are Spain and Uruguay, can impact in the developing of a subject field such as that of Gender Studies, and how this may affect to knowledge representation and organization in KOS. The final goal is to detect differences in terminology, categorization and conceptualization of the field studied, taking them as a reference point for suggesting an integrated and supranational proposal for knowledge representation and organization in KOS. To get this goal, an analysis of the domain has been conducted in order to know the dynamics and the content of Gender Studies in the two cultural areas studied.

Introduction
It has been claimed that culture affects the way in which knowledge is represented and organized. This is true even for subjects that are somehow considered to be more neutral as is the case with technology and science (Hassan, 2003). Cultural warrant in KOS (Beghtol, 2002) can be considered as a quality indicator that would allow universal use (Hunter & Beck, 2000; Treitler, 1996). On the other hand, there is a demand for integration of cultural views in knowledge organization systems (KOS) in order to enrich the standard cultural and social perspective that these systems usually have (Srinivasan, 2007; Rao, 2006; Kargbo, 2005; Muswazi, 2001; Liew, 2004 and Doyle, 2006; Zeng, Kronenberg & Molholt, 2001). In order to allow cultural differences to be represented and organized in KOS in an integrated way, we must get to know said differences so they can be integrated in the KOS that is intended to be built.

This paper aims to unveil 1) how different cultures, in this study Spain and Uruguay, can impact the development of a subject field, in this case the Gender Studies, that is much influenced by cultural and social environments, and to see how this fact is reflected in the specialized literature, 2) to show how this situation affects knowledge representation and organization in KOS as it is much based in literary warrant. To achieve this goal, we conducted an analysis of the domain, based on the terminology extracted from indexing of primary sources published in both countries, in order to detect the differences in terminology, categorization and conceptualization of the field of study, and 3) to make a comparison with the results found in these two cultural areas in order suggest an integrated and supranational proposal for knowledge representation and organization of the domain pertinent for both cultures.

Materials and Methods
The approach to domain analysis (Hjørland, 2002) of the Gender Studies has been the terminological one, in order to get a set of terms that represents this domain in both cultural areas. This was the starting point needed for a further study that aimed to get to know how to represent and organized the domain. To do so, the following procedure was carried out...
for each area: 1) a study of how terms were deployed in order to observe the performance of those terms in the inter-discipline, and 2) a proposal for the conceptual organization of the Gender Studies domain based on the impact of the selected terminology as found in primary documents previously analyzed. Detailed data about the selected sources and about the methodology followed in the process of studying terms and conceptual structure for documents published in Uruguay can be found in López-Huertas, 2006. In the case of the Spanish publications, the selected sources consist of eight scientific journals until 2004, handbooks and electronic documents. The sources available in Spain represented important differences compared with those found in Uruguay, because there were no scientific journals on Gender published in Uruguay. On the contrary, articles about this matter were published in journals devoted to Social Sciences, conferences proceedings not specialized in Gender and chapters of books.

Indexing was done by assigning free key words. Terms were selected from titles, abstracts and main headings in monographs and articles. The obtained terminology was located in a relational data base on the Access platform that was designed for the study. It has seven fields: name of term, identification number, source of term provenance, source code, onomasiological variants, semasiological variants and context. This database can give results on request that are very helpful for this type of study, such as lists of terms, frequencies of terms, sources of the terms, etc. Terminology in the database was later examined according to a quantitative methodology based on the frequency of the terms’ appearance in the documents. The higher or the lower impact of the selected terms within the domain provided important information due to the fact that Gender is an interdisciplinary field. This procedure helped in the identification of different kinds of terms, many of them closely related to their original disciplinary provenance, and which showed how these “outsider” terms were incorporated into the interdisciplinary domain, according to the Gender epistemology.

Results

1) URUGUAYAN AREA. This region was studied in a previous paper that showed how the field of Gender Studies is represented in this context (López-Huertas, 2006). In this occasion, the resulting terminology (538 terms) was studied in two ways: 1) to discover the conceptual and terminological behaviour of this interdisciplinary domain and 2) to find out a pertinent conceptual structure for it.

The results showed that only a small proportion of the terminology is well represented in documents, but most of the terms are not, considering that the frequency is 1. A small amount of the terminology (32% of the total of descriptors) is found to be generated by the interdisciplinary activity itself, representing new organic matter. That is, it does not come from any other disciplines that interact within the domain. The rest of the terms (68%) are originated in other specialties, and it seems they are incorporated into the Gender domain apparently with the same form and meaning. Main subject areas forming the Gender domain were those dealing with the Social Sciences, Health/Hygiene, and Economy/Business, together with Gender itself, as shown in Figure 1. Figure 2 gives the thematic composition of main subject areas.

2) SPANISH AREA. Terminology extracted from indexing primary sources yielded a result of 1,421 terms. These terms were not well represented in documents since the 90.5% has only one hit in documents as seen in Figure 3.
From a knowledge organization point of view, we found noticeable differences between Spain and Uruguay. These results showed the necessity for the modification of some categories currently used. The results also showed the need for organizing sources in a different way from the conceptual structure suggested for the Uruguayan documents, in order to adjust the findings in the Spanish documents. Figure 4 shows the conceptual composition of the latter.

Quantitative and qualitative differences in knowledge representation were found between the two sets being compared. This fact effected, in turn, the suggested knowledge organization structure for each set. One of the most important differences was the impact of the Gender perspective on other specialties in the case of the Spanish documents. It was quite remarkable, not only because many documents dealt with a wide variety of disciplines, but also because new terms were created or stressed within outsider specialties due to the influence of the Gender perspective. This fact lead us to
create a new general category under the label *Gender perspective in Specialties*. In the case of the Uruguayan documents, a very small amount of documents on Specialties were found, 17 in total, that did not allow us to group them under a general category, instead an *Others* category was created to house them, as seen in Figure 2. As it can be seen in Figure 4, this group has 461 documents. An explanation of this big difference can be found in the fact that these studies are more developed in Spain than in Uruguay. It seems that the maturity of the inter-discipline leads researchers in it to explore other knowledge domains close to their object of study. It is clear, by the data in Figure 4 that Gender Studies interacts most with Social Sciences and Humanities. It also shows that there is a remarkable social and cultural sensitivity towards this matter.

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1. This claim is also based on the fact that the number of total terms (538) is much lower than the total of Spanish terms (1,421), along with the inexistence of journals specialized in Gender published in Uruguay.
Another interesting finding coming from Figure 4 was that the internal composition of main classes has changed, compared to the Uruguayan model. This change, in some instances has been so deep that it was needed to rename some categories as it is the case of Body/Mind, called Health/Hygiene in the Uruguayan knowledge domain. The main reason for doing that was that the group called Attitudes, Conducts, Feelings, Status was very important for the Spanish domain, and it was most representative of the interests of the Spanish scholars because it is the biggest group under this category with 108 hits. Nevertheless, it has almost no representation in the case of Uruguay. So, a new, more general name to label the category was needed. This group, in my view, is a very expressive matter for the Gender Studies domain, because many of the attitudes and feelings identified in the content of documents have been conditioned, in a way, by social constructions along with time.

It is also remarkable the weight that the groups Society/Social movements/Groups (200) and Politics/Policies (221) have within the class Social Environment. These matters are less important in the Uruguayan documents, where Politics is 34 and Society 13.

At the same time, the Uruguayan side presents thematic characteristics that are not pertinent for the Spanish domain. For instance, there is a concern about poverty or political and social situation in the area, as it can be seen in terms such as poor women, poor children, poverty, urban poverty, poor adolescents, family impoverishment, poor families, feminization of poverty, poor childhood, street children and street living, food discrimination, women execution, murders of women, missing women, country women, that
are not important for the Spanish area. Although it is not frequent, we found terms tied to Uruguayan traditions and customs such as *charrúa* women, *murgas*, *murgueras*, *carnivals*, *carnival songs*, *Hispanic* women, *indigenous* women, *Latin-American* women and *Montevideanas*.

Other points of thematic interest for Uruguay were concepts related to *social networks to support women public and domestic activities*, *women's health* and *problems women face in labour market and job environments* and *discrimination*. Figure 5 shows the comparison between both cultures where the said differences can be seen more clearly.

The comparison of main categories in both cultures in Figure 6 shows clear differences in the Gender Studies domain between the two cultures. In this Figure, we can see what has been said before in a clearer way. There is an evident difference of knowledge production between the two areas being compared that is materialized in a remarkable difference in the number of terms identified for each area. As it was said before, the main category *Gender perspective in Specialties* is almost non-existent in Uruguay. The class *Body/Mind* houses almost the group *Health/Hygiene* from the Uruguayan side but other groups in the same general category (*Body/Image* and *Attitudes*) are underrepresented.

**Conclusions**

After analysing the Gender Studies knowledge domain in two different cultures, even though they share the Spanish language, remarkable differences have been detected that take us to conclude the following:

1. Socio-cultural environments affect the thematic orientation of Specialties. An important part of the knowledge being produced is responding to socio-cultural demands, especially in subjects like Gender Studies. Culture influences the content of scientific (scholarly) production.

2. Differences in contents effect knowledge representation and organization that differ from culture to culture since KOS have to be built based on literary warrant.

3. In this paper, quantitative and qualitative differences have been detected in the production of specialized knowledge which affected common and shared conceptual structure, intended to be used by the two cultures, in two main ways: a) At a macro level, new main categories needed to be created when including the Spanish documents: *Gender perspective in Specialties* and *Body/Mind*. b) At a micro level, the importance of main categories based on the impact of terms in documents shows the need for deeper description or specificity. This way, the decision of how much to develop each class will be based in quantitative data coming directly from documents. At the same time, concepts directly linked to culture, as it was described above, can be accommodated in the structure giving to them the space for it.

4. The incursion of the Gender perspective on other specialties is interesting to observe because, in some instances, it created new core terminology inside other disciplines which means that Gender is somehow modifying the knowledge structures of those disciplines.

5. Cultural differences have to be borne in mind when planning to build KOS for use in multicultural environments. One way is to analyse the knowledge domain in each culture in a similar way as is described here. By doing this, documents will be indexed properly and users in each culture will find it familiar to their needs. We shall be building a system with cultural warrant as well.
References