

# **SUSTAINABILITY REPORTING AT THE UNIVERSITY. EMPIRICAL RESEARCH ON ONLINE DISCLOSURE OF CORPORATE SOCIAL RESPONSIBILITY IN LEADING UNIVERSITIES**

## **ABSTRACT**

In the last years, there has been a certain consensus about the fundamental role of universities in terms of the impact of the incorporation of social responsibility (SR) in their teaching and research, as well as their mission, vision and corporate strategy. The application of social responsibility in the field of Higher Education implies, among other questions, the identification of the expectations of different stakeholders, the establishment of dialogue with these stakeholders in addition to accountability. The recent development of Information and Communication Technology (ICT) could further encourage the implantation of this phenomenon at universities. Nevertheless, there is still no research which has studied whether or not universities are concerned about these questions and if they are using ICT to meet these new requirements.

In this context, the article has a twofold objective. On the one hand, this paper seeks to analyze if, in the framework of accountability, universities are using ICT as a means to disclose issues related to social responsibility. On the other hand, we also analyze whether or not universities show a greater level of development in questions such as communicating information through the Internet and offering high levels of information in relation to social responsibility through their webpages.

The conclusions of this paper suggest that universities give very little importance to online disclosure of specific information about SR and, therefore, it cannot be considered to be a key aspect of their communication policy if it is compared with the webometric ranking that measures the online disclosure of information.

## **1. Introduction**

While over the last decades academic and professional interest in the application of Corporate Social Responsibility in the sphere of business has grown significantly, in public administrations the situation is significantly different, since only recently has there been any concern about Social Responsibility in the public sector (Ball and Grubnic, 2007; Ball and Bebbington, 2008). Indeed, public administrations have been under pressure to be more efficient (Rocheleau and Wu, 2002) and transparent (Piotrowski and Van Ryzin, 2007) without thereby penalizing respect for the environment nor the fulfilment of social responsibility which are two important questions that they have to know how to manage (Jones and Stewart, 2009). Therefore, over the last years social responsibility has acquired great relevance as the main feature of accountability in the field of public administrations (Vidal and Kozak, 2008) and this has become a guarantee for accomplishment of socially responsible policies, not only in the private sphere but also in their own organizations (Mellé, 2003).

Universities are one area of the public sector which, due to the social service and function that they fulfil, should be considered part of social responsibility in all of their spheres of action such as teaching, research, transfer of knowledge and management. Indeed, they have become one of the driving agents not only for sustainable development (Lukman and Glavic, 2007), but also for the promotion of socially responsible policies which are incorporated into their mission statements, vision and strategies for education and research (European Commission, 2003; Muijen, 2004; Lukman and Glavic, 2007). Although some universities already have considerable experience in the implantation of initiatives related to

social responsibility (Van Weenen H., 2000; Lukman and Glavic, 2007), most of which are centred on measures related to the environment (Mangion, 2006; Serap and Eker, 2007; Ferrer-Balas et al., 2008; Hammod and Churchman, 2008).

Nowadays, universities are broadening their field of action and integrating the concept of sustainable development in to everyday reality on campus (Ferrer-Balas et al., 2008; Segalàs et al., 2009) and they are promoting the development of social responsibility in two clearly defined directions. Furthermore, taking into account the essential role that they play in the transmission of knowledge (Stephens et al., 2008), they are integrating the concepts of social responsibility within the university educational system and training professionals in educational ethics, social values and concern about the repercussion of business activity on the environment (Loeb, 1988; Bampton and Maclagan, 2005). Moreover, universities are broadening their field of action in questions of social responsibility and are more aware of the negative and/or positive repercussions of their actions in society at large (Vallaey, 2006) and the need to play a leading role in this question as an ethical model for society (Vallaey, 2006).

Nevertheless, the question of transparency of information which is an essential question linked to accountability, seems to have been neglected. Indeed, universities are under increasing pressure to improve their disclosure of information in the field of social responsibility (Banks et al., 1997) since, traditionally, this disclosure has been exclusively focused on financial and budget information, and has not considered questions related to social responsibility (Martín, 2006; Mellé, 2007).

New information technologies and, above all the Internet, have played a key role in transparency (Meijer, 2009), allowing an improvement in communication and greater access to information for all stakeholders (Borins, 2002). Indeed, these new technologies have been recognized by governments all over the world as a powerful tool for the improvement of public policies and a way of increasing confidence among citizens, since it favours communication and accountability for stakeholders (Pina et al., 2007; Kudo, 2008) since the interactivity offered by the Internet allows governments to better respond to the needs and demands of citizens (Pina et al., 2007).

Therefore, it would be interesting to know if universities, as models of ethical behaviour for society and centres of knowledge and research in questions of social responsibility, are taking advantage of the opportunities provided by new information technologies, particularly the Internet, as a means both for the disclosure of information about social responsibility and for interaction with stakeholders. Nevertheless, there are currently no studies which have focused on the analysis of online communication policies at universities in questions of social responsibility.

In this sense, this paper seeks to make a triple contribution. On the one hand, based on previous research in different fields of knowledge, we have designed and programmed a model to analyze and evaluate the online disclosure of information about social responsibility at universities. Furthermore, this model is applied to a sample which includes the main universities in the world that are applying socially responsible criteria on campus, in order to observe whether or not they disclose information about this. Finally, we also seek to analyze whether or not the information that is disclosed online about questions of social responsibility is considered to be an essential part of their communication policy.

Taking all of these factors into account, this article has a dual objective. On the one hand, to analyze whether or not, in the framework of accountability, the universities are disclosing information about social responsibility. On the other hand, we also study if the

universities which offer the highest level of communication of information through Internet, are also those who give a high priority to the disclosure of information related to social responsibility, in their policies regarding communication in the web.

In order to meet these objectives, the article is divided as follows: section 2 describes the role played by universities in the development of social responsibility as an essential element for legitimacy and improvement in terms of accountability. In section 3 we show the main aspects of the empirical research, such as sample, methodology and the proposal for a model for the assessment of online disclosure of information about SR. Section 4 analyzes the results of the empirical study. We finish the study with our main conclusions and a discussion section.

## **2. Universities and social responsibility**

As we have stated previously, in the non-profit public sector, in which many universities operate, there isn't much literature about Social Responsibility in this field. Indeed, in the case of universities, the main research about social responsibility has been focused on assessing the perceptions of students about this concept and the reasons for these perceptions (Matten and Moon, 2004; Ibrahim et al., 2006; Christensen et al., 2007; Lamsa et al., 2007; among others), analyzing the education offered about Social Responsibility at universities (Holdsworth et al., 2008; Buchan et al., 2007; Ciurana and Filho, 2006; Davis et al., 2003; among others) or examining specific cases based on certain universities where there are clear strategies aimed at social responsibility, mainly in environmental terms (De Keizer, 2004; Serap y Eker, 2007; Ferrer-Balas et al., 2008; Hammond and Churchman, 2008; among others).

In any case, there seems to be a certain consensus that universities have a fundamental role due to the impact that they could have if they incorporated social responsibility both in their teaching and research as well as in their mission, vision and corporate strategy (Muijen, 2004). In the same line, the UNESCO World Declaration on Higher Education in the 21st Century, published as long ago as 1998), in its first article related to the *"mission to educate, to train, and to undertaken research"* in the section devoted to the missions and functions of Higher Education, was then mentioning the need to reinforce and encourage the missions and fundamental values of Higher Education; in particular, the mission to contribute to the sustainable development and improvement of society as a whole.

The application of social responsibility to the context of Higher Education implies, among other questions, the identification of the expectations of the different groups of stakeholders, the establishment of mechanisms of dialogue with these stakeholders and the promotion of accountability at universities. Regarding this question, and in line with Jongbloed et al. (2008), with increasing intensity and regardless of their geographical context, universities have been forced to interact with an increasingly broad group of stakeholders, each with their own vision and demands of Higher Education. These connections and mutual dependencies are related both to the external functions of Universities, such as economic, social and environmental externalities that they generate, as well as the direct services that they offer through teaching, research and knowledge transfer.

Therefore, universities must integrate social responsibility in their strategic planning, through the setting of objectives and the development of long term strategies in questions related to social responsibility (Muijen, 2004) which must then be translated into specific actions (Valleys, 2006; Nicolaidis, 2006; Mulder, 2010), all of which will allow them to occupy a predominant role as models of ethical behavior for society as a whole (Valleys, 2006).

These lines of action must be aimed in various directions. On the one hand, they must incorporate social responsibility as a key, cross-curricular element both in their teaching and in their research (Muijen, 2004). In terms of teaching, this incorporation must take place both on degree programmes and in post-graduate studies and must encourage the training of future professionals in different fields of study with a high level of sensitivity to the issue of social responsibility (Angelidis and Ibrahim, 2002; Nicolaidis, 2006) whilst also preparing them to deal with problems that may arise in this field (Colucci-Gray et al., 2006; Broadbent et al., 2010). All of the aforementioned factors will inevitably lead to greater quality in education (Bourner and Flores, 1997), the creation of a fairer society and higher levels of sustainable development (Shriberg, 2002).

Moreover, in relation to research, universities must encourage research into social responsibility through their conviction that this kind of research can be a useful tool for more sustainable social change supported by university management and its social projection (Filho, 2000; Stephens et al., 2008).

Thus, universities are accepting socially responsible criteria within their own management systems and are aware of their impact in terms of organization (aimed at members of the university community in both working and environmental questions), education (quality in the teaching of students), cognitive aspects (related to the mission of universities as providers of knowledge) and social questions (universities as social reference points) that are present in everything that they do (Vallaey 2006). This has meant that universities are becoming true managers of social responsibility, leading actions that promote an optimal level of social responsibility within organizations (Broadbent et al., 2010).

Nevertheless, an area that does not appear to have been efficiently developed at universities is the disclosure of information. At present, stakeholders are pressuring universities to provide more complete information that will allow them to better understand the actions that are carried out, their function and organization. Hence, they demand the disclosure of information about social responsibility and environmental questions at universities (Al-Khatar and Naser, 2003). Nevertheless, the information traditionally provided by universities has mainly been found in their annual reports (Gray et al., 1995; Banks, 1997; Walker, 1998; Neu et al., 1998; Castelo and Lima, 2008) and has been exclusively based on financial and budgetary questions (Martín, 2006; Mellé, 2007), which has made it difficult to provide proper accountability.

Therefore, universities need to deal with a problem of legitimacy regarding their stakeholders. In the face of the pressure exerted on universities in different countries studied in the previously published literature such as in the case of New Zealand (1985-1989) or in the UK (1992-1994) (Bank, et al. 1997), regarding greater accountability at universities, it seems that universities are not dealing with these demands efficiently, particularly in terms of the disclosure of information about social responsibility. Adapting to the expectations of different university stakeholders (Gallego et al., 2009) would represent, above all, an instrument of legitimacy for universities that would favor the process of acceptance and approval by stakeholders of the activities carried out in the community by universities (Deegan, 2002; Deephouse and Carter, 2005; Neu et al, 1998; Zimmerman and Zeitz, 2002).

Consequently, universities must make a constant effort to satisfy the informational needs of their stakeholders, disclosing the aspects of social responsibility that are derived from their actions and establishing communication strategies for social responsibility at universities which, in addition to presenting universities as active participants in this field, allows them to

fulfil the informational expectations of stakeholders, thus influencing public opinion and giving an image of universities as socially responsible institutions (Branco and Rodrigues, 2006), which will ultimately lead to an improvement in their reputation and an improvement in their relationship with their stakeholders (Castelo y Lima, 2008).

Although the traditional method of communication used by universities has been the annual report (Gray et al., 1995; Banks, 1997; Walker, 1998; Neu et al., 1998; Castelo and Lima, 2008), which has often included information about social responsibility, the previous literature states that greater accountability, and socially responsible policies and practices should be included in a Sustainability Report or a Social Responsibility Report, considering this to be an effective mechanism of control and communication of information which could also allow improvement in the benchmarking process between different universities (Lukman and Glavic, 2007; GRI, 2000, 2002 and 2006).

Furthermore, the development of new information and communication technology could facilitate access to SR information allowing for more effective fulfilment of the duty of accountability at universities and improving their legitimacy. Above all, the Internet has proven to be one of the main tools used to provide the public with greater access to information (Borins, 2002), and the creation of websites has become one of the most common initiatives promoted by public institutions (Joseph and Jeffers, 2009).

Therefore, universities could use new information and communication technologies both to digitalize university services and to improve the transparency of university information allowing free, easy and adequate access to information, not only in financial and budgetary terms, but also in questions related to social responsibility. Therefore, it would be useful to create models of assessment which, on the one hand, could analyze the degree of informational transparency in terms of social responsibility at universities and, on the other hand, could create a benchmarking process that would facilitate improvement in these questions and a greater fulfilment of accountability, thus improving legitimacy and the need to meet the needs of the stakeholders.

### **3. Empirical Research**

#### **3.1 Sample:**

With the aim of identifying those universities, which to a greater or lesser extent, are disclosing information about SR on the Internet, as well as observing the main and specific contents of this information, we initially carried out a search of universities on an international level of those universities which most frequently dealt with SR on their official webpages or which included this information in Annual Reports or Social Responsibility Reports as a means of communication and an important source of accountability (Vuontisjärvi, 2006) and which has traditionally been used as a source of information on environmental questions in particular (Deegan and Rankin 1997).

Therefore, through general Internet search engines such as Yahoo, Google and Terra, we introduced key concepts such as *sustainability report*, *environmental report*, *environment*, *ecology*, *water*, *recycling*, *green building*, *biodiversity* and *non-profit*, among others, along with the term *university*. The results showed that universities in the UK, the USA, New Zealand, Canada, Australia and Ireland are the most active in disclosing SR related questions on the Internet. In order to analyze the best practice, our sample has been focused on Anglo-American universities as these are the most active on the Internet in terms of publishing SR related information.

Furthermore, the selection of the number of Anglo-American universities in the sample has been determined taking into account a webometric ranking (Wormell, 2001; Aguillo 2009 and Kirigha and Neema-Abooki, 2010). This ranking includes, according to an index, those universities on a world-wide level that show the best communication policies on the Internet. The use of webometrics as a method of selecting the universities in the sample will allow us to observe whether or not the disclosure of SR related information at Anglo-American universities is playing an important role in their Internet communication policies. In order to have a significant sample we selected the first 25 universities, regardless of whether they were public or private, from each of the Anglo-American countries selected. Therefore, the sample is made up of a set of 136 universities, 25 of which belong to each Anglo-American country in the sample except in the cases of Ireland and New Zealand in which case there were 21 and 15 universities respectively, according to the ranking selected.

### **3.2. Research methodology**

In order to analyze to what extent the universities in the sample are disclosing SR information online, and taking into account the scarce amount of previous studies which have analyzed this question, in this article we propose a model of assessment through the creation of a series of indexes that analyze the main aspects to be considered both in the content and the form and context of their disclosure.

We initially considered several studies that analyzed the disclosure of information on the Internet (Roberts, 1991; Deegan and Gordon, 1996; Elvins, 2002; Marston and Polei, 2004; Caba et al., 2005; Caba et al. 2008; Pettersen and Solstad, 2007; Rodríguez Bolívar, 2009; Gallego et al., 2009) along with others that analyzed visibility (Middleton et al., 1999), accessibility (Lawrence and Giles, 1999), usability (Badre, 2002; Dustin et al., 2002; Chandler and Hyatt, 2002), privacy and informational content (Holzer and Manoharan, 2007; Holzer and Kim, 2008). The specific analysis of this previous literature has meant that we have structured this research in two sections which will ultimately lead to the study of six indexes.

The first section includes, in a general manner, the structure of an SR report and deals with the informational content on SR published by the universities in the sample. In order to study the SR informational content we have followed the GRI guidelines on the one hand and we have also analyzed the SR Reports from different universities, along with a set of the main qualitative characteristics of the information which comes from other sources such as economic-financial information. Consequently, we distinguish three different sections: General SR Information (GSRI), specific SR information (SSRI) showing a series of data included in Table 2 in the Appendix, and the Qualitative Characteristics of the SR Information (QCSRI) as the main questions to be addressed in order to guarantee the quality of information related to SR. We analyze a series of qualitative characteristics regarding SR information which can direct and increase the usefulness of the information in order to satisfy the needs of users (See Table 1, 2 and 3 of the Appendix).

The second section of our study refers to the context of the SR information and has been structured in three sections taking into account the previous research. On the one hand, we seek to analyze the usability of the webpage (USRI) i.e. the ease with which users can access webpages in order to find specific information. On the other hand, in order to obtain information about stakeholders, learn about their expectations and establish mechanisms for interaction, we analyze which mechanisms favor the participation of stakeholders (SKSRI) in the universities in the sample, and then finish with the characteristics related to the privacy and safety on webpages (PSRI) which mainly seek to observe the capacity for personalization that can be included in the disclosure of SR information (See Table 4, 5 and 6 of the Appendix).

In relation to the value assigned to each of the questions included in our proposal for assessment of the disclosure of SR information at universities, and based on the previous literature (Cooke, 1989, Roberts,1991; West, 2000; CYPRG, 2000 and 2001; Larran and Giner, 2002; Caba et al., 2005), we have opted for a binary dichotomic value system (0/1) depending on the absence or presence of each aspect on the webpage or the Sustainability/Social Responsibility Report, with the objective of reducing the subjectivity in the evaluation when there are no specific rules to assign the value of each one of the aspects analyzed (Jones and Alabaster, 1999), giving the same value to each unit when the aspect analyzed is defined by various items (See Appendix Tables 1,2, 3, 4, 5 and 6 to observe the concepts studied and the items that define these as well as the specific scores assigned to each item).

Along with the proposal for the aforementioned model, in order to assess the disclosure of information about SR, we have created an aggregated index (RSRC) which allows us to observe the practices regarding disclosure of SR information for each of the universities in the sample. Thus, this index is made up of the sum of the indexes that define the general SR index (GSRI) and the specific SR index (SSRI). Therefore, this index is the sum of a series of dichotomic variables. We have decided not weigh the informational segments that compose the index since when we have used indexes to assess the quantity of information disclosed by public sector organisms these have not been weighed (Rodríguez et al. 2006; Bastida and Benito, 2007; Pina et al. 2007; Gandía and Archidona, 2008; among others).

Finally, from this last index (RSRC), we have constructed a coincidence index (CI) which will serve us as an instrument to make a homogeneous comparison of the online disclosure practices of universities, thus analyzing whether or not those universities that occupy the best positions in terms of disclosure of information (according to the webometric ranking) are disclosing SR criteria as an essential aspect of their communication policies.

In order to obtain the necessary data, between June and September 2010 we looked at the webpages of the universities selected in order to carry out an exhaustive review and obtain the necessary information for our research. All of this process was performed separately by the three authors of this paper in order to guarantee the maximum objectivity, and the authors met to discuss the results and reach a consensus. If there were any disagreements with significant variations the webpages in question were analyzed again by the three authors.

### **3.2.1. Design for the Proposal of a Model to Assess the Online Disclosure of SR Information at Universities:**

**a) Content of SR information:** The content of the SR information refers to a set of items that examine general and specific information about SR as well as a set of qualitative characteristics that make the information relevant and reliable.

a.1) General SR Information (GSRI): In the case of universities, applying as a reference point the informational items used in previous studies has the limitation of the scarcity of previous references. In the face of this difficulty, the selection of the sections and the items that refer to general SR information was based on international declarations such as the GRI Supplement for Public Agencies (2005) whose main mission is to improve the quality, rigour and usefulness of sustainability reports.

In this sense, we have focused on knowing whether or not the universities are disclosing the general aspects of a sustainability report represented by the elements that are involved in this report according to main international codes.

Therefore, in order to assess the level of online disclosure of general SR information, we have created the index defined as

$$GSRI = \sum_{i=1}^m g_i$$

where  $g_i$  is each one of the questions detailed in Table 1 of the Appendix and is equal to 1 if this question is disclosed and 0 if not. The GSRI index could obtain a value of 5 if all of the elements of general information are disclosed and 0 if none have been disclosed.

a.2) Specific SR Information (SSRI): In this section, we try to carry out an in-depth analysis of those questions which normally make up the information disclosed in Sustainability Reports. Therefore, we have created an index (SSRI) that seeks to assess the disclosure of specific SR information at universities (See Table 2 Appendix). In order to create this index, we have used empirical analysis of SR Reports and/or Sustainability which are currently being disclosed by universities (such as Michigan, Victoria or Maryland, among others) on their webpages as well as the questions dealt with in the College Sustainability Report Card (2009 and 2010).

In order to assess the online disclosure of these specific areas of information on their webpages or Sustainability Reports, we have constructed an index defined as:

$$SSRI = \sum_{i=1}^m g_i$$

where  $g_i$  refers to each one of the questions mentioned in Table 2 of the Appendix and is equal to 1 if the question is disclosed and 0 if not. The SSRI index could obtain a value of 8 if all of the elements of specific information are disclosed and 0 if none are disclosed.

a.3) Qualitative characteristics of SR information (QSRI): the qualitative characteristics of the information have mainly been developed in other areas of study, particularly in those areas linked to financial information (FASB, 1980; IASB, 1989). Nevertheless, these characteristics are implicit in any system of information. Their presence tries to introduce a certain internal coherence to the information system in order to reach the ultimate aim of this type of information: their relevance for decision-making and the reliability of their use. This has been the main reason why this paper incorporates analysis of the qualitative characteristics as implicit elements of the quality of the information provided. The specific analysis of the qualitative characteristics in the context of this research is included in Table 3.

In order to know the qualitative characteristics of the information, we have made the following index defined as

$$QSRI = \sum_{i=1}^m g_i$$

where  $g_i$  refers to each one of the questions detailed in Table 3 of the Appendix and is equal to 1 if the quality is fulfilled and 0 if not. The QSRI index could obtain a value of 6 if we evaluate all of the qualitative characteristics of the information and 0 if no characteristic has been evaluated.

**b) Context of the SR information:** in order to observe how the information is being provided we included in the evaluation model elements that evaluated questions related to usability, stakeholder participation and security/privacy.

b.1) Usability (USRI): This refers to a set of aspects that are related to the design, navegability and accessibility of the information. Therefore, in this section we reflect the need to design a webpage that is easy to navigate and in which SR information is easy to find. For the analysis of this question, we have focused on institutions and authors that identify key aspects in the design of these webpages and condition access to sustainable information (Cyberspace Policy Research Group, 2010; Fang, 2002; Holzer and Manoharan, 2007; Holzer and Kim, 2008).

We created an index to measure the degree of usability of university webpages defined as

$$USRI = \sum_{i=1}^m g_i$$

where  $g_i$  refers to each one of the questions detailed in Table 4 of the Appendix, and is equal to 1 if this question is published and 0 if not. As stated previously, the questions included in Table 4 are evaluated splitting the unit value among the items that define specific aspects, as is the case in the other sections. Nevertheless, in the specific case of the analysis of the format used to disclose the SR information (reading and scanning) the corresponding score of 0.33 is divided as indicated in the section that evaluates Table 4 of the Appendix obtaining the greatest percentage of the formats xml, xbrl and xls, which unlike the formats html, pdf or doc, allow the management and use of the information and allow users to process the data. The USRI index could obtain a value of 5 if we evaluate all of the aspects of usability and 0 if not.

b.2) Stakeholder participation (SKSRI): As the Internet is such a useful mechanism to promote the participation of stakeholders at universities, in this section we aim to analyze a set of tools used in webpages that allows users to participate in an active way, facilitating their identification and knowledge about their expectations and needs regarding the University (Cyberspace Policy Research Group, 2010; Fang, 2002; Holzer and Manoharan, 2007; Holzer and Kim, 2008).

We created an index that measured the degree of participation of stakeholders at universities defined as

$$SKSRI = \sum_{i=1}^m g_i$$

where  $g_i$  refers to each one of the questions detailed in Table 5 of the Appendix and is equal to 1 if we evaluate each question that refers to stakeholder participation and 0 if not. The SKSRI index could obtain a value of 5 if we evaluate all of the questions and 0 if not.

b.3) Privacy and security (PSRI) In this section we mainly analyze privacy policies and the identification systems applied by the different webpages in order to allow access to information (Cyberspace Policy Research Group, 2010; Fang, 2002; Holzer and Manoharan, 2007; Holzer and Kim, 2008).

We defined an index which measured questions of privacy and security as follows:

$$PSRI = \sum_{i=1}^m g_i$$

where  $g_i$  is each one of questions detailed in Table 6 in the Appendix and is equal to 1 if the question defined in Table 6 of the Appendix is fulfilled and 0 if not. The PSRI could obtain a value of 5 if we evaluate all of the questions and 0 if not.

### 3.2.2. Coincidence Index:

In order to observe the practices of disclosure of SR information at the universities in the sample and compare these online practices with those universities that occupy the highest places in the webometric ranking, we created the following aggregated index:

$$RSRC = (\sum GSRI + \sum SSRI)$$

This index, calculated for each university, is composed of the sum of the indexes that refer to the general and specific content regarding SR information at each university.

From the score obtained, the RSRC index allows us to establish a ranking among the universities in the sample. As in the case of results of the empirical analysis some universities obtained an identical score in our model of disclosure, it is possible that several universities occupy the same place in the ranking. This has led to dividing the universities in the sample into 40 positions.

Therefore, in order to carry out comparative study between the webometric ranking and the model we propose, we divided both rankings in four quartiles. In the same way, we created a Coincidence Index that allows us to evaluate to what extent those universities that occupy a determined quartile, according to the webometric ranking, are in the same quartile, according to the ranking obtained in our empirical study. Thus, we define the CI as:

$$CI_n = \frac{RM_n \cap RW_n}{RW_n} * 100$$

where

$RM_n$  is the number of universities that make up the  $n$  quartile of the Model Ranking

$RW_n$  is the number of universities that make up the  $n$  quartile of the Webometric Ranking

$RM_n \cap RW_n$  refer to the number of universities that fulfil the condition of being included in a determined quartile of the Model Ranking and at the same time in the same quartile of the Webometric Ranking.

#### 4. Analysis of the results

In section a) content of the SR information disclosed, the low values obtained by all of the universities in a.1) general information about SR (see Table 7) shows the low level of commitment in the online disclosure of this type of information (an average of 1.42 out of 5). Whilst universities in the USA obtained the highest score (1.95), in the case of universities in Ireland and New Zealand the scores do not even reach 1. In any case, out of the different items that make up this section, the least disclosed ones are those related to the profile of stakeholders and to the indicators of execution in the different dimensions of SR.

Furthermore, observing Graphic 1 we can see that all of the universities follow common patterns in terms of the items that are disclosed. Therefore, from the analysis of the variation coefficients, it is observed that, with the exception of New Zealand (with the highest coefficient of variation, 1.30), the performance of the various universities is homogeneous (Table 7). Once again we can highlight the fact that universities in the USA show the lowest coefficient of variation, which suggests that in these items their online information is the most homogeneous of the universities in the sample.

Analysis of the results obtained in a.2) specific SR information confirms the relative importance that the universities in the sample give to the online disclosure specific SR contents. The average score obtained by the total of universities (3.46 out of 8) allows us to state that there is no clear online disclosure strategy about SR disclosure, and there is still a major gap between the possibilities for disclosure and the actual disclosure that universities carry out. In this sense, universities from Ireland and New Zealand give least importance to the disclosure of these questions, with averages of 1.29 and 1.67 respectively, and they also have the highest coefficients of variation and the most heterogeneous performance among their universities (Table 7). At the other end of the spectrum, in order of their score, we can find universities in the USA, Canada and the UK. Special mention should be made of the case of universities in the USA whose average is over 5 and whose coefficient of variation is 0.36.

Regarding the most widely disclosed questions on a global level, we can highlight those items related to recycling and waste management, energy and questions related to academic and research activities. On the contrary, those which have received least attention are those which deal with sustainable food and/or fair trade and the use of criteria that prioritize the purchase of ecological and reusable materials. However, as can be seen in Graphic 1, we cannot identify a common pattern of performance among the universities in the sample, since each university decides to give more or less importance to the disclosure of different questions. The results obtained, in line with the previous research (see, among others, Ferrer-Balas et al., 2008; Hammod and Churchman, 2008), show the importance that environmental questions still have in the conception of university social responsibility.

Regarding section a.3) qualitative characteristics of the SR information, the low average score obtained by the sample (0.86 out of 6), shows the low importance that universities analyzed give to the presence of these qualities in SR information. Therefore, universities in New Zealand and Ireland are below the average (0.47 and 0.24 respectively) and the rest of the universities are only around 1. Graphic 1 shows us that the trend in the performance of universities in relation to these items is very similar. The results show the considerable

deficiencies that exist in terms of the completeness, timeliness, comparability, understandability and reliability of the SR information disclosed by the universities in the sample.

Nevertheless, without forgetting the important limitations observed in this section, it should be pointed out that the aspects of SR that are being communicated by universities are being communicated through technical summaries (not annual reports or specific SR reports). These technical summaries are usually accompanied by ratios or graphs with comments that try to make the information easier to understand for external users. Indeed, there are very few universities analyzed that offer SR reports on their official webpages. If these documents are in fact disclosed, the information contained is not normally very timely, since there is no data on periods of time lower than one year and they do not refer to previous years, thus making it impossible to establish comparisons. Furthermore, there are very few universities in the sample that offer information that has previously been certified, accredited or audited (Table 7). These results show that, contrary to what was suggested by Lukman and Glavic (2007), the universities in the sample are not communicating online, through sustainability reports or Social Responsibility Reports, their socially responsible practices and policies which makes it difficult to establish a benchmarking process between them.

Regarding section b) context of the SR information disclosed, the scores related to b.1) usability reach an average of 3.22 out of 5, with a very low standard deviation (0.12). As was observed in Table 7, the average scores of the different universities in the sample are very similar and the weight of the score is mainly concentrated on the items related to the design of the webpages, since the universities have included instruments that facilitate navigation, such as search tools or hyperlinks that allow users to further explore the information found. In the case of universities in the USA, the UK and Canada, these search tools solve, at least partially, the general absence of a structured map of the webpage. It is worth highlighting the high score obtained by all universities in section U5 (characteristics of accessibility), showing that the SR information on the webpage is accessible, free and easy to download. Nevertheless, there are very few universities that have a specific section for SR information and the formats in which that information is presented are not easy to use and adapt, since universities have usually chosen formats such as HTML or PDF and, furthermore, they are only in one language which reduces the numbers of potential users. In Graphic 1, we can also observe how, with the exception of the item that refers to the structure of the webpage (web map), all of the universities in the sample show similar performance in the different concepts included in this section.

It is significant that it is Section b.2, participation of stakeholders from section b) that we are analyzing which obtain the scores with the lowest average (2.03). In terms of countries, the average scores of the universities in the sample are similar and are mainly concentrated on the score given to the items that refer to the news on the webpage and the use of 2.0 web technology. Nevertheless, universities do not promote communication and participation with stakeholders through other channels, such as different emails to that of the webmaster, which would help users to check specific information on SR or to request additional information not included on the webpage, and even to update this information through a mailing list. Other participatory tools that are not currently being used by universities include online chats,

forums or surveys. Graph 1 clearly shows a common tendency at the universities in the sample in terms of dealing with stakeholder participation. These results are in line with those obtained in previous studies such as those by Magalhaes (2000), Pacivic et al. (2009) or Benneworth and Jongbloed (2010) which highlight the lack of market orientation of universities in relation to stakeholders, as well as the weak role that they play in the management of these institutions. They also disagree with the results of other studies which state that universities are promoting the relations with their stakeholders, adapting to their expectations and increasing their influence and participation in university management (Al-Khatar and Naser, 2003; Jongbloed et al., 2008; Castelo and Lima, 2008; Gaete, 2009; Krazimierz, 2010, among others).

Regarding section b.3) privacy and security of webpages, this has the highest average score (3.55) of all of the questions analyzed in section b) context of the SR information. The highest score is concentrated on the items that refer to the development of aspects of notification of privacy policies, restriction of access to areas of personal information and use of cookies. On the contrary, the least developed aspects are the use of a digital signature to permit greater security and systems of data collection. With the exception of universities in New Zealand and Ireland (with a standard deviation of 0.37 and 0.31 respectively), the rest of the universities in the sample, as can be observed in Graphic 1, perform in a similar way in the different items in this part of the study.

Finally, the coincidence index shows whether or those universities that have a high ranking in terms of their web communication policies (a ranking provided by the webometrics site) show a similar performance in relation to policies of transparency and visibility in the disclosure of SR information. As can be observed in Graph 2, the universities in the sample that have the best score, in line with the evaluation model proposed, are not those that have the highest webometric ranking, since they are far from the ascending/increasing straight line that represents the coincidence of the position of a university in the two rankings proposed.

Therefore, these results lead us to conclude that the SR information does not play a relevant role in the communication policies of the universities in the sample. Indeed, the universities with the highest webometric ranking are those that give least SR information. We reach the same conclusion observing Table 8, since in the first two quartiles, the coincidence index does not reach 30%. Therefore, out of the 68 universities that make up these two quartiles in the webometric ranking, only 26.5% of these universities also occupy the first two positions obtained in the proposed model of disclosure of information. Consequently, contrary to the ideas defended in previous studies which argue that universities may well have begun to consider social responsibility as a strategic and differentiating factor (see, among others, Melewar and Akel, 2005; Serap and Eker, 2007), our results show that the universities in the sample are still not aware of the importance that online disclosure of SR information could have as a differentiating factor and as a competitive advantage over other institutions. Nevertheless, considering the results of section b.2 related to the participation of stakeholders, and in line with the work of Ferrer-Balas et al. (2008), the lack of societal pressure is an important obstacle for the implantation of social responsibility strategies at universities.

## 5. Discussion and concluding remarks

The growing interest in increasing the social commitment of universities, the need to improve social responsibility criteria both in teaching and in research as well as in terms of corporate strategy, are the justification for this article which seeks to contribute to knowledge about social responsibility at universities and to be of use to university managers involved in improving the social commitment of their institutions.

If we understand the disclosure of information about SR as a fundamental part of university accountability and a key aspect of SR, the contribution of this study is not only in terms of the proposal of a model that facilitates assessment of the degree of online disclosure of information about social responsibility at universities, but also to encourage the process of benchmarking in order to assist improvement in these questions and greater fulfilment of the duty to provide accountability in these organizations, improving their legitimacy in the face of the need to meet the expectations of stakeholders.

A first approach to this subject, made through Internet search engines, shows that universities in the UK, USA, New Zealand, Canada, Australia and Ireland show a greater Internet presence in terms of disclosure information about SR, which has led analysis to focus on good practice at Anglo-American universities.

Unlike the results of previous studies, such as that conducted by Lukman and Glavic (2007), who argue that universities have become one of the main agents for promoting socially responsible policies, our results show that the universities in the sample give very little importance to the online disclosure of specific information about SR, as they do not offer this information through their webpages, nor through sustainability reports or Social Responsibility Reports which, in turn, makes it difficult to establish a comparative benchmarking process.

Nevertheless, and in line with previous studies (Ferrer-Balas et al., 2008, Hammod and Churchman, 2008), an interesting result refers to the importance of environmental questions in the conception of university SR. Nevertheless, universities do not make it easy to find information about SR on their webpages. Indeed, information about SR is only found in a very disperse fashion and normally through search engines and sometimes included in technical reports, not using Annual Reports or online reports on SR and this tends to question the importance given by some authors to these means of communication (Lukman and Glavic, 2007).

Furthermore, although universities could take advantage of the advantages offered by ICT in order to encourage the participation of stakeholders in the management of university SR, they have not changed their policies in order to meet the expectations of different stakeholders and do not seem to realize that these stakeholders demand more complete information about SR in its different dimensions (Al-Khatat and Naser, 2003). These results differ from other studies which state universities are developing their relations with their stakeholders, adapting to their expectations and, increasing their influence and participation in university management (Al-Khatat and Naser, 2003; Jongbloed et al., 2008; Castelo and Lima, 2008; Gaete, 2009; Krazimierz, 2010, among others).

The interpretation of these results seems to indicate that universities are only disclosing information about SR in order to fulfil basic policy demands, as a means of legitimacy and image, but without really getting involved in the process of accountability and forgetting that stakeholders are the main users of this information. Taking into account that the concept of stakeholders is a key aspect of social responsibility, since socially responsible behaviour should be managed in terms of the interests and needs of each group of stakeholders, the evidence

suggests that universities are not seeking to analyze the needs of stakeholders, despite the major influence they have on any organization (Thompson, 1997; Johnson, Scholes and Whittington, 2006). This is an important aspect that, in our opinion, requires subsequent analysis which aims to include stakeholders in the management and strategy of universities.

Another interesting find refers to the fact that the universities in the sample with the highest ranking obtained in the model proposed do not occupy the highest places in the webometric ranking that measures the online disclosure of information. Indeed, the universities that occupy the best positions in webometric ranking are those that give least information on SR. This leads us to conclude that currently information on SR is not taken into account as relevant information in terms of parameters of disclosure. In the light of this situation, we believe that universities should reconsider their efforts in this field and set some specific objectives in order to improve in the near future.

In conclusion, the results of this study may lead to a profound debate if we take into account the fact that SR is currently discussed in Public Administrations, and specifically in the case of Universities. As has been stated by UNESCO, universities have the specific mission of contributing to sustainable development and the overall improvement of society. Having observed the scarce importance that universities give to informing about SR on their webpages, we think that it is a subject that requires special attention, especially if universities are to consider SR as a strategic and differentiating factor.

## Appendix

**TABLE 1. General SR Reporting**

Concept	Description	Items	Score
G1. Statement of vision and strategy of the university on issues about social responsibility	In this section we observe if universities describe their strategy regarding SR including a declaration from the governing body.	a) If main SR commitments are disclosed. b) If the webpage or Sustainability Report includes a declaration on SR from the governing body.	0/0.5 based on the absence-presence of each item
G2. Information about profile of stakeholders	Disclosure of the identity of stakeholders as well as the informational needs of each group of stakeholders.	a) If the university webpage or the SR/Sustainability Report identify the stakeholders. b) If there is specific information about the informational needs of each group of stakeholders.	0/0.5 based on the absence-presence of each item
G3. Centralized or decentralized disclosure of SR information by universities	Information about how SR information is disclosed through the university.	a) If the disclosure of SR information is developed in a centralized way on the university webpage. b) If this disclosure is developed through dependent centres at said university.	0/0.5 based on the absence-presence of each item
G4. Data on performance indicators	Disclosure of performance indicators that measure the impact or effect of the informing organization.	a) economic indicators. b) social indicators. c) environmental indicators.	0/0.33 based on the absence-presence of each item
G5. Index of contents or a table to locate different elements of information about SR	Disclosure of an index that facilitates the location of SR contents	Provides the reader with an index or a table to locate different SR elements.	0/1 based on the absence-presence of that item

Source: Own elaboration based on the GRI guidelines and adaptations about SR Reports published by universities

**TABLE 2. Specific SR Reporting**

<b>SPECIFIC SR INFORMATION</b>		
<b>Concept</b>	<b>Description</b>	<b>Score</b>
S1. Energy	Information is disclosed about the installation of systems that save electricity such as movement sensors, incandescent lightbulbs or other alternative sources of energy.	0/1 based on the absence/presence of this item
S2. Buildings and grounds	Information is disclosed about criteria for construction, renovation and rehabilitation of existing buildings in line with “green criteria”.	0/1 based on the absence/presence of this item
S3. Purchasing management	Information is disclosed about the need to prioritize the purchase of reusable, ecological materials that require a minimum of packaging.	0/1 based on the absence/presence of this item
S4. Waste management and recycling	Information is disclosed about questions related to the promotion of the recycling of office material and solid waste providing recipients for articles such as paper, printer cartridges and batteries.	0/1 based on the absence/presence of this item
S5. Transportation	Information is disclosed about the creation of incentives for the university community to use public transport or alternative means of transport such as bicycles and bus.	0/1 based on the absence/presence of this item
S6. Food	Information is disclosed about fair trade and sustainable food through the provision of ecological products in campus cafés and shops.	0/1 based on the absence/presence of this item
S7. Academic	Information is disclosed about courses, seminars and conferences related to SR.	0/1 based on the absence/presence of this item
S8. Research	Information is disclosed about University research centres linked to SR.	0/1 based on the absence/presence of this item

Source: Own elaboration based on the SR Reports published by universities

**TABLE 3. Qualitative characteristics of the SR Reporting**

<b>QUALITATIVE CHARACTERISTICS OF SR INFORMATION</b>			
<b>Concept</b>	<b>Description</b>	<b>Items</b>	<b>Score</b>
Q1. Completeness	Refers to the possibility of checking and/or downloading SR Reports on the university webpage.	It is possible to check and/or download the Report online.	0/1 based on the absence-presence of that item
Q2. Timeliness	The information must be offered in a timely way since if the data are out of date they are of little use. Any information offered on less than a yearly basis has an added value that makes it more relevant.	It offers SR information more frequently than on a yearly basis (monthly, termly, etc).	0/1 based on the absence-presence of that item
Q3. Comparability	There is a possibility for users to obtain information from over several years in order to make longitudinal and comparative reports.	a) It is possible to compare information from two or more years. b) It offers comparative summaries on sustainable information provided by the university.	0/0.5 based on the absence-presence of each item
Q4. Understandability	Its aim is to ensure that users can properly understand and interpret the SR information provided.	a) It offers ratios and graphics to help to clarify the SR information included in the Reports. b) It includes comments on the SR information provided.	0/0.5 based on the absence-presence of each item
Q5. Relevance	The information must be significant and useful for the objectives set. In order to make the information useful to different stakeholders, the university will provide technical SR Reports in an ordered and classified manner.	a) It provides technical SR reports made by the University b) It presents SR information in an ordered and classified manner.	0/0.5 based on the absence-presence of each item
Q6. Reliability	The information must be checked and reviewed and therefore we must examine if the SR information is subject to a process of accreditation that certifies its authenticity and veracity.	The information has been accredited.	0/1 based on the absence-presence of that item

Source: Own elaboration based on the recommendations of FASB, 1980; IASB, 1989

**TABLE 4. Usability**

<b>USABILITY</b>			
<b>Concepto</b>	<b>Description</b>	<b>Items</b>	<b>Score</b>
U1. Reading and scanning	The webpages have a specific section called "sustainability" or "social responsibility" which includes information about SR. The possibility of using different formats means that users find it easier to process and read the data. Given that the Web offers information to the general public, it should be disclosed in other languages and not only in the official language of the country, thus allowing the data to be used and understood by as many people as possible.	a) A specific section on the universities' websites for disclosing sustainability information exists. b) Electronic formats used to process the sustainability reporting: - html - pdf doc - xml o xbrl - xls) c) Sustainability reporting is disclosed in different languages	0/0.33 based on the absence-presence of each item. REgarding the type of format (item b), the score of 0.33 is split in the following way: - html: 0.066 - pdf or doc: 0.066 - xml or xbrl: 0.099 - xls: 0.099
U2. Search	We observe if the university provides basic search tools and if it provides an advanced search option and thus give a higher score	a) A basic search tool is included in the university website. b) An advanced search tool is included in the university website.	0/0.5 based on the absence-presence of each item
U3. Link characteristics	In order to improve the navigability of the webpage, it may be of interest to include hyperlinks to extend the information shown on the webpage, helping the user to obtain further information.	A system of hyperlinks for the information offered is provided.	0/1 based on the absence-presence of that item
U4. Structure of the web page	A web map is useful to show the structure of the webpage, since it helps tp quickly search for information and to locate the servcies and information provided.	A web map showing the contents is available	0/1 based on the absence-presence of that item
U5. Characteristics of accesibility	The university webpage provides all of the information without charge and allows it to be downloaded; the fact that it is free makes it available to a wider group of people.	All information provided on the website is freeware and it can be downloaded	0/1 based on the absence-presence of that item

Source: Own elaboration based on CYPRG lines 2010 and previous literature (Fang, 2002; Holzer and Manoharan, 2007; Holzer and Kim, 2008)

**TABLA 5. Stakeholder Participation**

STAKEHOLDER PARTICIPATION			
Concept	Description	Items	Score
SK1. Characteristics of interactivity	The objective is for the user to contact directly with the person responsible for the information provided in order to make requests or complaints; providing a different address from that of the webmaster, contact addresses for those responsible for the informatio and/or through the inclusion of a mailing list to update information for those users who request it.	a) A different e-mail address to the webmaster's is provided to request information or explanations. b) Personal contacts with responsible persons of the university for the information provided are supplied on the website c) The website has a mailing list to update information to those information users that apply this service	0/0.33 based on the absence-presence of each item
SK2. Forums/chats	The University webpage provides an online forum or chat to allow discussion of subjects	a) Forums with general contents b) Forums related to SR or sustainability	0.5 if the online forum/chat used allows discussion of general subjects and 1 if there is a specific forum/chat used for SR subjects
SK3. Web 2.0 technology	Use of Web 2.0 technology such as facebook, tuenti and twitter.	a) Web 2.0 technology about the University in general b) Web 2.0 technology about aspects of SR or sustainability	0.5 if the use of Web 2.0 technology is aimed at general university subjects and 1 is the Web 2.0 technology is used for
SK4. Online surveys	The University webpage offers online surveys	a) Surveys not specific to SR b) Surveys specific to SR	0.5 of the university uses online surveys of a general nature and 1 if the university uses surveys about SR
SK5. Newsletter	The University webpage provides online news bulletins	a) General news b) Specific news about SR or sustainability	0.5 if the news disclosed by the university is of a general nature and 1 if it is SR news

Source: Own elaboration based on CYPRG lines 2010 and previous literature (Fang, 2002; Holzer and Manoharan, 2007; Holzer and Kim, 2008)

**TABLE 6. Privacy and security**

<b>PRIVACY AND SECURITY</b>			
<b>Concept</b>	<b>Description</b>	<b>Items</b>	<b>Score</b>
P1. Data collection	We examine if the privacy policy is aimed at data collection on the webpage	The university collects specific data from the user	0/1 based on the absence-presence of that item
P2. Digital signature	Use of digital signature to identify users.	A digital signature can be used	0/1 based on the absence-presence of that item
P3. Notificación de privacy policy	The webpage allows secure access to information with protection through a safe server	If there is notification of a privacy policy	0/1 based on the absence-presence of that item
P4. Access to private info	There is private information which can be accessed through a password	If there is restricted information	0/1 based on the absence-presence of that item
P5. Uso de cookies	Use of techniques such as cookies that collect information on user access or behaviour on the webpage	Use of information collection techniques about web visitors such as cookies	0/1 based on the absence-presence of that item

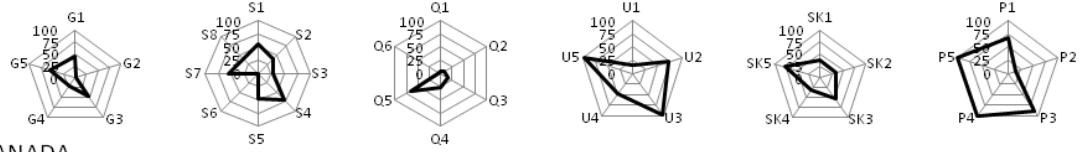
Source: Own elaboration based on CYPRG lines 2010 and previous literature (Fang, 2002; Holzer & Kim, 2007; Holzer and Manoharan, 2007)

**TABLE 7. Descriptive Statistics**

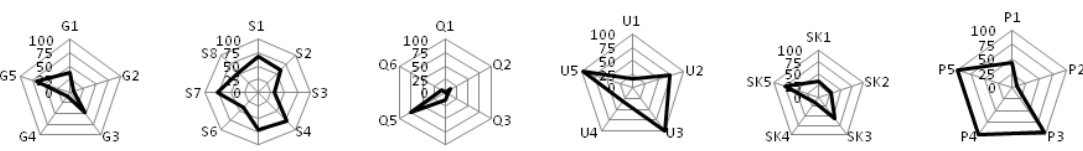
a) CONTENT OF THE SR INFORMATION DISCLOSED ON THE WEBPAGES OR ON SUSTAINABILITY REPORTS	AUSTRALIA					CANADA					IRELAND					NEW ZEALAND					UNITED KINGDOM					UNITED STATES					TOTAL					
	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	N	MEAN	MEDIAN	SD	CV	MEAN
<b>a.1) General SR content</b>	125	<b>1,68</b>	<b>1,83</b>	<b>1,00</b>	<b>0,60</b>	125	<b>1,69</b>	<b>2,00</b>	<b>0,84</b>	<b>0,50</b>	105	<b>0,64</b>	<b>0,50</b>	<b>0,39</b>	<b>0,61</b>	75	<b>0,77</b>	<b>0,00</b>	<b>1,00</b>	<b>1,30</b>	125	<b>1,81</b>	<b>2,00</b>	<b>1,01</b>	<b>0,56</b>	125	<b>1,95</b>	<b>2,00</b>	<b>0,85</b>	<b>0,44</b>	<b>1,42</b>	<b>0,24</b>				
G1. Expression of the vision and strategy of the university in SR subjects	25	0,44	0,50	0,33	0,76	25	0,38	0,50	0,22	0,57	21	0,12	0,00	0,22	1,83	15	0,23	0,00	0,32	1,37	25	0,52	0,50	0,37	0,71	25	0,60	0,50	0,35	0,59	0,38	0,07				
G2. Information on the profile of stakeholders	25	0,02	0,00	0,10	5,00	25	0,06	0,00	0,17	2,76	21	0,00	0,00	0,00		15	0,03	0,00	0,13	3,87	25	0,08	0,00	0,28	3,46	25	0,02	0,00	0,10	5,00	0,04	0,09				
G3. Centralized or decentralized disclosure of SR information by Universities	25	0,46	0,50	0,20	0,43	25	0,48	0,50	0,10	0,21	21	0,29	0,50	0,25	0,89	15	0,23	0,00	0,32	1,37	25	0,50	0,50	0,00	0,00	25	0,52	0,50	0,10	0,19	0,41	0,12				
G4. Data on performance indicators	25	0,20	0,00	0,33	1,67	25	0,09	0,00	0,28	3,01	21	0,00	0,00	0,00		15	0,00	0,00	0,00		25	0,11	0,00	0,25	2,34	25	0,17	0,00	0,30	1,77	0,09	0,15				
G5. Index of contents or a table to locate different elements of SR information	25	0,56	1,00	0,51	0,90	25	0,68	1,00	0,48	0,70	21	0,24	0,00	0,44	1,83	15	0,27	0,00	0,46	1,72	25	0,60	1,00	0,50	0,83	25	0,64	1,00	0,49	0,77	0,50	0,03				
<b>a.2) Specific SR content</b>	200	<b>3,40</b>	<b>4,00</b>	<b>2,27</b>	<b>0,67</b>	200	<b>4,76</b>	<b>6,00</b>	<b>2,76</b>	<b>0,58</b>	168	<b>1,29</b>	<b>1,00</b>	<b>1,87</b>	<b>1,46</b>	120	<b>1,67</b>	<b>0,00</b>	<b>2,38</b>	<b>1,43</b>	200	<b>4,28</b>	<b>5,00</b>	<b>1,90</b>	<b>0,44</b>	200	<b>5,36</b>	<b>5,00</b>	<b>1,96</b>	<b>0,36</b>	<b>3,46</b>	<b>0,35</b>				
S1. Energy	25	0,56	1,00	0,51	0,90	25	0,68	1,00	0,48	0,70	21	0,14	0,00	0,36	2,51	15	0,27	0,00	0,46	1,72	25	0,68	1,00	0,48	0,70	25	0,76	1,00	0,44	0,57	0,51	0,05				
S2. Buildings and grounds	25	0,40	0,00	0,50	1,25	25	0,60	1,00	0,50	0,83	21	0,10	0,00	0,30	3,16	15	0,13	0,00	0,35	2,64	25	0,32	0,00	0,48	1,49	25	0,68	1,00	0,48	0,70	0,37	0,09				
S3. Purchasing management	25	0,28	0,00	0,46	1,64	25	0,32	0,00	0,48	1,49	21	0,10	0,00	0,30	3,16	15	0,07	0,00	0,26	3,87	25	0,48	0,00	0,51	1,06	25	0,56	1,00	0,51	0,90	0,30	0,11				
S4. Waste management and recycling	25	0,72	1,00	0,46	0,64	25	0,76	1,00	0,44	0,57	21	0,14	0,00	0,36	2,51	15	0,27	0,00	0,46	1,72	25	0,84	1,00	0,37	0,45	25	0,84	1,00	0,37	0,45	0,59	0,05				
S5. Transportation	25	0,48	0,00	0,51	1,06	25	0,72	1,00	0,46	0,64	21	0,14	0,00	0,36	2,51	15	0,20	0,00	0,41	2,07	25	0,64	1,00	0,49	0,77	25	0,64	1,00	0,49	0,77	0,47	0,06				
S6. Food	25	0,00	0,00	0,00		25	0,40	0,00	0,50	1,25	21	0,05	0,00	0,22	4,58	15	0,00	0,00	0,00		25	0,04	0,00	0,20	5,00	25	0,40	0,00	0,50	1,25	0,15	0,22				
S7. Academic	25	0,56	1,00	0,51	0,90	25	0,76	1,00	0,44	0,57	21	0,43	0,00	0,51	1,18	15	0,40	0,00	0,51	1,27	25	0,56	1,00	0,51	0,90	25	0,84	1,00	0,37	0,45	0,59	0,06				
S8. Research	25	0,40	0,00	0,50	1,25	25	0,52	1,00	0,51	0,98	21	0,19	0,00	0,40	2,11	15	0,33	0,00	0,49	1,46	25	0,72	1,00	0,46	0,64	25	0,64	1,00	0,49	0,77	0,47	0,04				
<b>a.3) Qualitative characteristics of SR information</b>	150	<b>1,24</b>	<b>1,00</b>	<b>1,12</b>	<b>0,90</b>	150	<b>1,16</b>	<b>1,00</b>	<b>0,92</b>	<b>0,79</b>	126	<b>0,24</b>	<b>0,00</b>	<b>0,60</b>	<b>2,54</b>	90	<b>0,47</b>	<b>0,00</b>	<b>0,74</b>	<b>1,59</b>	150	<b>1,00</b>	<b>1,00</b>	<b>0,72</b>	<b>0,72</b>	150	<b>1,08</b>	<b>1,00</b>	<b>1,09</b>	<b>1,01</b>	<b>0,86</b>	<b>0,21</b>				
Q1. Completeness	25	0,04	0,00	0,20	5,00	25	0,00	0,00	0,00	21	21	0,00	0,00	0,00		15	0,00	0,00	0,00		25	0,00	0,00	0,00		25	0,04	0,00	0,20	5,00	0,01	0,10				
Q2. Timeliness	25	0,08	0,00	0,28	3,46	25	0,12	0,00	0,33	2,76	21	0,00	0,00	0,00		15	0,13	0,00	0,35	2,64	25	0,08	0,00	0,28	3,46	25	0,12	0,00	0,33	2,76	0,09	0,13				
Q3. Comparability	25	0,16	0,00	0,37	2,34	25	0,06	0,00	0,22	3,66	21	0,00	0,00	0,00		15	0,00	0,00	0,00		25	0,04	0,00	0,14	3,46	25	0,04	0,00	0,14	3,46	0,05	0,14				
Q4. Understandability	25	0,26	0,00	0,41	1,58	25	0,14	0,00	0,34	2,42	21	0,10	0,00	0,30	3,16	15	0,07	0,00	0,26	3,87	25	0,14	0,00	0,31	2,19	25	0,20	0,00	0,32	1,61	0,15	0,05				
Q5. Relevance	25	0,66	1,00	0,43	0,65	25	0,76	1,00	0,41	0,54	21	0,14	0,00	0,32	2,25	15	0,27	0,00	0,46	1,72	25	0,70	1,00	0,43	0,62	25	0,68	1,00	0,41	0,60	0,53	0,05				
Q6. Reliability	25	0,04	0,00	0,20	5,00	25	0,08	0,00	0,28	3,46	21	0,00	0,00	0,00		15	0,00	0,00	0,00		25	0,04	0,00	0,20	5,00	25	0,00	0,00	0,00		0,03	0,13				
<b>b) CONTEXT OF THE SR INFORMATION ON THE WEBPAGES</b>																																				
<b>b.1) Usability</b>	125	<b>3,28</b>	<b>3,13</b>	<b>0,64</b>	<b>0,20</b>	125	<b>3,17</b>	<b>3,13</b>	<b>0,59</b>	<b>0,19</b>	105	<b>3,53</b>	<b>3,63</b>	<b>0,69</b>	<b>0,20</b>	75	<b>3,26</b>	<b>3,57</b>	<b>0,72</b>	<b>0,22</b>	125	<b>2,97</b>	<b>3,13</b>	<b>0,43</b>	<b>0,14</b>	125	<b>3,11</b>	<b>3,13</b>	<b>0,48</b>	<b>0,15</b>	<b>3,22</b>	<b>0,12</b>				
U1. Reading and scanning	25	0,16	0,13	0,09	0,60	25	0,17	0,13	0,11	0,66	21	0,13	0,07	0,12	0,92	15	0,13	0,13	0,02	0,13	25	0,13	0,13	0,01	0,10	25	0,21	0,13	0,14	0,68	0,15	0,05				
U2. Search	25	0,72	0,50	0,25	0,35	25	0,72	0,50	0,25	0,35	21	0,69	0,50	0,29	0,43	15	0,67	0,50	0,24	0,37	25	0,76	1,00	0,25	0,34	25	0,74	0,50	0,25	0,34	0,72	0,02				
U3. Link characteristics	25	0,96	1,00	0,20	0,21	25	1,00	1,00	0,00	0,00	21	1,00	1,00	0,00	0,00	15	1,00	1,00	0,00	0,00	25	0,96	1,00	0,20	0,21	25	1,00	1,00	0,00	0,00	0,99	0,10				
U4. Structure of the web page	25	0,48	0,00	0,51	1,06	25	0,32	0,00	0,48	1,49	21	0,76	1,00	0,44	0,57	15	0,53	1,00	0,52	0,97	25	0,16	0,00	0,37	2,34	25	0,16	0,00	0,37	2,34	0,40	0,06				
U5. Characteristics of accessibility	25	0,96	1,00	0,20	0,21	25	0,96	1,00	0,20	0,21	21	0,95	1,00	0,22	0,23	15	0,93	1,00	0,26	0,28	25	0,96	1,00	0,20	0,21	25	1,00	1,00	0,00	0,00	0,96	0,09				
<b>b.2) Stakeholders participation</b>	125	<b>2,34</b>	<b>2,33</b>	<b>0,62</b>	<b>0,26</b>	125	<b>2,08</b>	<b>2,16</b>	<b>0,60</b>	<b>0,29</b>	105	<b>1,52</b>	<b>1,50</b>	<b>0,40</b>	<b>0,26</b>	75	<b>1,83</b>	<b>1,83</b>	<b>0,41</b>	<b>0,22</b>	125	<b>2,22</b>	<b>2,16</b>	<b>0,53</b>	<b>0,24</b>	125	<b>2,18</b>	<b>2,16</b>	<b>0,63</b>	<b>0,29</b>	<b>2,03</b>	<b>0,11</b>				
SK1. Characteristics of interactivity	25	0,38	0,33	0,26	0,69	25	0,34	0,33	0,20	0,59	21	0,19	0,00	0,22	1,18	15	0,26	0,33	0,26	0,97	25	0,44	0,33	0,28	0,65	25	0,32	0,33	0,24	0,77	0,32	0,03				
SK2. Forums or chats	25	0,34	0,50	0,24	0,70	25	0,28	0,50	0,29	1,04	21	0,21	0,00	0,25	1,18	15	0,30	0,50	0,25	0,85	25	0,34	0,50	0,24	0,70	25	0,22	0,00	0,25	1,15	0,28	0,02				
SK3. Uses 2.0 Web technology (facebook, twitter...)	25	0,54	0,50	0,14	0,26	25	0,56	0,50	0,17	0,30	21	0,50	0,50	0,00	0,00	15	0,50	0,50	0,00	0,00	25	0,52	0,50	0,10	0,19	25	0,60	0,50	0,25	0,42	0,54	0,10				
SK4. If there are online surveys on university matters	25	0,32	0,50	0,24	0,77	25	0,14	0,00	0,23	1,64	21	0,12	0,00	0,22	1,83	15	0,20	0,00	0,25	1,27	25	0,32	0,50	0,24	0,77	25	0,22	0,00	0,33	1,48	0,22	0,04				
SK5. If there is a university newsletter	25	0,76	1,00	0,25	0,34	25	0,76	1,00	0,25	0,34	21	0,50	0,50	0,00	0,00	15	0,57	0,50	0,18	0,31	25	0,60	0,50	0,20	0,34	25	0,82	1,00	0,24	0,30	0,67	0,10				
<b>b.3) Privacy and security</b>	125	<b>3,72</b>	<b>4,00</b>	<b>0,61</b>	<b>0,16</b>	125	<b>3,48</b>	<b>3,00</b>	<b>0,65</b>	<b>0,19</b>	105	<b>3,24</b>	<b>3,00</b>	<b>1,00</b>	<b>0,31</b>	75	<b>3,40</b>	<b>4,00</b>	<b>1,24</b>	<b>0,37</b>	125	<b>3,76</b>	<b>4,00</b>	<b>0,66</b>	<b>0,18</b>	125	<b>3,72</b>	<b>4,00</b>	<b>0,84</b>	<b>0,23</b>	<b>3,55</b>	<b>0,25</b>				
P1. Data collection	25	0,68	1,00	0,48	0,70	25	0,44	0,00	0,51	1,15	21	0,38	0,00	0,50	1,31	15	0,60	1,00	0,51	0,85	25	0,52	1,00	0,51	0,98	25	0,68	1,00	0,48	0,70	0,55	0,02				
P2. If a digital signature can be used	25	0,16	0,00	0,37	2,34	25	0,08	0,00	0,28	3,46	21	0,10	0,00	0,30	3,16	15	0,20	0,00	0,41	2,07	25	0,24	0,00	0,44	1,82	25	0,36	0,00								

**GRAPH 1. Performance of the items at universities by countries**

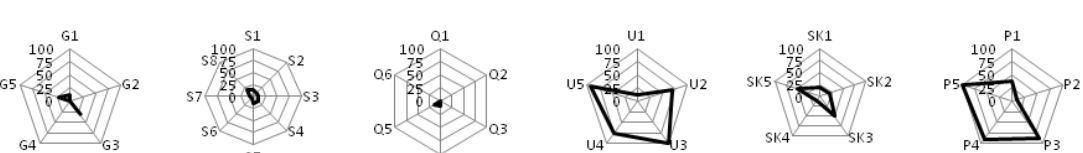
**AUSTRALIA**



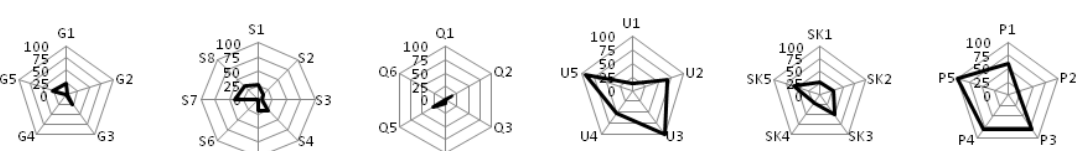
**CANADA**



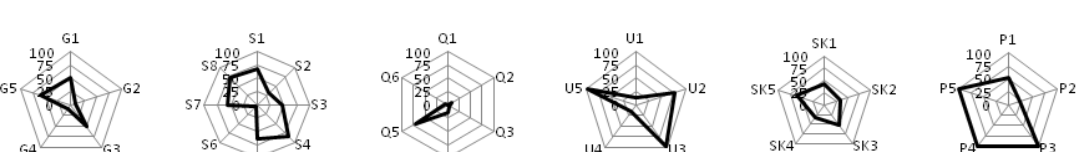
**IRELAND**



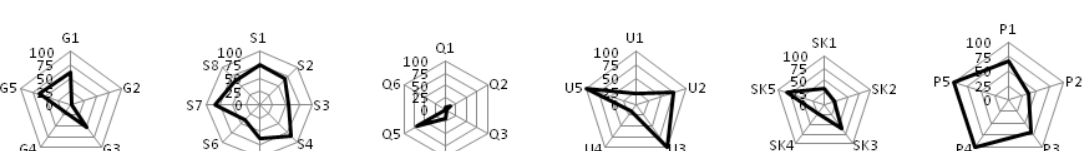
**NEW ZEALAND**



**UNITED KINGDOM**



**UNITED STATES**



**G:** General SR information, **S:** Specific SR information, **Q:** Qualitative characteristics, **U:** Usability, **SK:** Stakeholders participation, **P:** Privacy and security

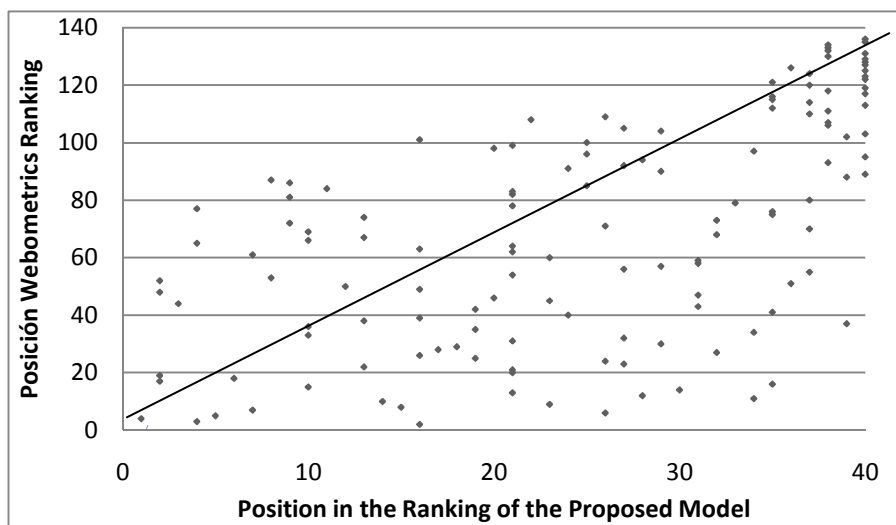
Source: Own elaboration

**TABLE 8. Coincidence Index**

Position in Webometric Ranking	Position in Proposed Model Ranking	Coincidence Index
1Q(1-34)	1Q(1-10)	26,47%
2Q(35-68)	2Q(11-20)	26,47%
3Q(69-102)	3Q(21-30)	35,29%
4Q(103-136)	4Q(31-40)	88,24%

Source: Own elaboration

**GRAPHIC 2. Position of the universities according to rankings**



Source: Own elaboration

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