

Education for Sustainable Development through policies and strategies in the Public Portuguese Higher Education Institutions

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Abstract

Many European countries, particularly in Northern Europe, have conducted integrated studies on Sustainable Development in Higher Education. In Portugal, no attempt has been made to evaluate in detail how Public Higher Education Institutions (HEI) are incorporating Education for Sustainable Development (ESD) at policy and strategy level and how it was implemented within Ministry of Education and Science. This study aimed to determine how sustainability was integrated into policies and strategies of 14 HEI in Portugal within the framework and goals of the United Nations Decade of Education for Sustainable Development (DESD) 2005-2014. Based on grounded theory strategy, multi case studies and documental content analysis a deductive approach was undertaken. Pre-selected key terms based on literature search were used for the content analysis. Documentary research on polices, plans and programs from the Governmental Great Planning Options as Governmental Constitutional Plans and the Portuguese Ministry of Education and Science was performed through the analysis of the possible forms of implementation of DESD, and their consequent impacts on strategies of the public Institutions taking part of the Portuguese Council of Rectors. Given that 2014 was the final year of DESD 2005-2014 and 2005 was the Millennium Development Goals (MDG) assessment year, the approach of sustainability in public policies and strategies in the Portuguese HEI is on schedule. Notwithstanding some international drivers and a few practical examples at University level, preliminary results showed that ESD is still in its early stages of development and that there is a lack of national integrated strategies or policies. There is an absolute need for a change in the paradigm of Portuguese HEI and several barriers to overcome, both through learning and application of best practices from other European and worldwide countries.

1. Introduction

In the last decade many research have been developed to evaluate how Sustainable Development has been applied and implemented in Higher Education Institutions (HEI) (Lozano *et al.*, 2105). In Portugal, no attempt has been made to evaluate in detail how Public HEI are incorporating Education for Sustainable Development (ESD) at policy and strategy level and how it was implemented within Ministry of Education and Science. This study aimed to determine how sustainability was integrated into policies and strategies of 14 HEI in Portugal within the framework and goals of the Decade of Education for Sustainable Development (DESD) 2005-2014.

The 14 HEI belong to CRUP – Portuguese University Rectors Council (PURC). Taking into account that the Decade finished in 2014 (the last year of this UNESCO program), we feel this to be an opportunity to verify if the aforementioned principles have been applied in the Portuguese context by the implementation of policies and/or strategies of the multiple HEI. To accomplished this two main goals were defined: 1) how and the extent to which the Portuguese Government integrated the sustainability in their plans, programmes and policies; and 2) the extent to which the Ministry of Education and Science had done so with some of the documentation produced in the period 2005-2014.

2. Theoretical framework

The General Assembly of the United Nations proclaimed the International Decade for Education for Sustainable Development concerning 2005-2014 (DESD 2005-2014) in December 2002. And Hopkins (2012) refers that despite all “(...) it is almost impossible to identify the exact origin of education for sustainable development (ESD). Each of us in the field has a story of our initial reaction when and where we first became aware of it.

The final document about Sustainable Development from United Nations Conference, which is globally known as Rio+ 20 Conference (2012) was approved in 22th June 2012 and adopted by far more than 190 countries. About Sustainable development (SD) one can read:

We encourage Member States to promote [its] awareness among youth, inter alia by promoting programmes for non-formal education in accordance with the goals of the United Nations Decade of Education for Sustainable Development, 2005-2014.

According to DESD (2005-2014): International Implementation Scheme (2005), the aims were quite clear namely those related to (1) helping countries to make progress towards and attaining the Millennium Development Goals (MDG) through ESD efforts and (2) providing countries with new opportunities to incorporate ESD into education reform efforts (UN, 2005). At the time there was a broad approach: DESD implementation efforts were linked to multiple processes: a) MDG as there were 8 goals and 18 measurable targets where education was a major asset and an important input as to “ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling”, b) the movement “Education for All” (EFA) (whose focus is to provide education of quality for all) and c) “United Nations Literacy Decade” (UNLD) (concentrating on promoting the key-tools for all forms of structured learning) (UN, 2005).

The milestones for DESD were listed in the implementation scheme as well as the strategies for integrating ESD as there was “(...) a commitment that will be implemented by Member States according to their priorities and approaches (UN, 2005).

It was reported by Tilbury and Mulà (2009) that the path to SD required new mental framework and action which enables us to transform the way we create choices and view the future. Education and learning are therefore key activities in order to facilitate the critical process and change mentalities, according to DESD (2005-2014) and HEI was a critical "actor" of this whole process because it prepares the policy-makers and leaders of today and tomorrow.

On the one hand, the HEI leaders' signature and commitment made them as SD catalysts and gave a promotional sustainable “signal” as reported by Karatzoglou (2013), which can be verified from multiple Declarations, Letters or Initiatives concerning ESD in Higher Education in a previous DESD period. The Talloires Declaration was determinant in the definition of sustainability in terms of HEI as it had been signed in 1990 by more than 265 presidents in 40 countries on five continents as admitted by Clugston and Calder (1999). On the other hand and taking into account ESD applicability, the Copernicus Charter (CO-operation Programme in Europe for Research on Nature and Industry through Coordinated University Studies) (Copernicus, CRE, 1993) resulted from the Conference of European Rectors (CRE), which was signed in 1988 by far most than 2 hundred universities, mentions that:

“Universities and equivalent institutions of higher education train the coming generations of citizens and have expertise in all fields of research, both in technology as well as in the natural, human and social sciences. It is consequently their duty to propagate environmental literacy and to promote the practice of environmental ethics in society”.

Given the very rapid political changes after 1989, taking the word of AdomBent and others (2014): “the many claims on scarce resources and the at times bewildering need for creative thinking in order to adjust quickly to a rapidly changing environment, it is understandable that CEE governments and ministries of education have given relatively low priority to what they perceive (or better, misperceive) as a ‘fashionable trend’”. Even though The Council of the European Union (2010) emphasizes the need for greater recognition of ESD:

Education is a prerequisite for promoting the behavioral changes and providing all citizens with the key competences needed to achieve sustainable development.

Higher educational leaders have to be committed to sustainability by integrating it into policies and strategies; showing the commitment by signing a declaration, charter, or initiative; establishing short-, medium-, and long-term plans for its institutionalization; and ensure that sustainable development is implemented throughout the HE system (Lozano et al. (2015)).

And so many European countries, particularly in Northern Europe had conducted integrated studies on SD in HE, and despite Tilbury (2004) criticism about the lack of investment in ESD area, it is recognized that the drive for HE in Wales to be at the forefront of reaffirming its role in contributing to a sustainable future coming from the top is required to support possible success. The Welsh model is considered to be a Capability Maturity Model and there was adherence to Government priorities in strategic plans aligned with strong leadership according to Glover and Peters (2013). Even in Spain, where there is a lack of sufficient studies that investigate

sustainable development in higher education, there were increasing attraction levels of attention from both the public and policy makers in recent decades, namely a number of previous studies that have called for a more comprehensive integration of sustainable development into university operations and curricula according to Lárran (2015). And so in 2002, Alba and Blanco (2008) mentioned that the Committee of Rectors of the Spanish Universities (CRE) approved the creation of a Work Group about the environmental quality and the SD in the Spanish Universities. A top-down action or a cascade process took place as to initiate the commitment process and the subsequent actions in HEI:

One of their main goals is to encourage the participation of Spanish HEI's by means of the exchange of experiences and through the development of joint projects. This group is made up of thirty universities, and its most important actions are the thematic seminars organised within different conferences and workshops twice a year.

As a step forward the Universidade Autonoma de Madrid (UAM) did a survey as to assess the Universities situation concerning sustainability up to date (2006) using the *Sustainability Assessment Questionnaire (SAQ)* of *United Leaders for a Sustainable Future (ULSF)*, that allowed the analysis of the commitment and the planning for sustainability through technical questions and inclusion of the thematic in the Strategic Plans. From the survey results it was concluded that the sustainability in Spain was implemented by the great involvement of the CRUE.

Portugal, as a southern European country, neighbor of Spain, hasn't yet done any evaluation in detail how Public Higher Education Institutions (HEI) are incorporating ESD at policy and strategy level and how it was implemented through Ministry of Education and Science.

3. Methods

3.1. Sample, data collection, analysis and treatment

In order to measure and analyze how and the extent to which the Portuguese Government had integrated the sustainability in their plans, programmes and policies, a content analysis of all the Great Planning Options (GPO) (2005-2009, 2007, 2008, 2009, 2010-2013, 2012-2015, 2013, 2014 and 2015) as well as the three Constitutional Governmental Programmes (CGP) (XVII (2005 to 2009), XVIII (2009 to 2011), and XIX (2011 to 2015)) was carried out. Those documents were available at the Portuguese Parliament website.

The qualitative approach using content analysis, based on Bardin (2007) methodology consisted of classifying the information disclosed in different categories that represented different dimensions of integrating sustainability in the plans, programmes and policies under analysis.

The data collection was carried out in October 2015. In order to analyze and treat the data we developed a coding system bearing in mind the selection of terms or mix terms (see table 1) that were gathered after a content analysis of systematic review.

In order to evaluate the integration of sustainability in plans, programmes and policies at the Ministry of Education and Science we did also a content analysis as we intended to study "if and how Portugal in its Education Reform implemented Sustainability through strategies and policies during DESD 2004-2015 in the public Universities?" Nevertheless the documentary sources were not so easy to gather as it seemed there was a lack of national integrated strategies or policies, plans or programs concerning integration of DESD 2005-2014 into Portuguese HEI. The documents were collected through internet, library search and personal contacts to employees of the Ministry.

The documents were gathered and organized chronologically:

1. *Law n.62/2007, 10th September - Legal status of higher education institutions. Republic Diary, 1st serie, number 174 [Lei n.º 62/2007 de 10 de Setembro - Regime jurídico das instituições de ensino superior. Diário da República, 1.ª série — N.º 174 — 10 de Setembro de 2007],*
2. *Portuguese Institute for Development Support (2009). National Strategy for Development Education (2010-2015) [IPAD (2009). Estratégia Nacional de Educação para o Desenvolvimento (2010-2015)],*
3. *UNESCO National Commission Forum – Portugal (2006). Decade of United Nations for Education for Sustainable Development (2005-2014): Contributions for its dinamization in Portugal. 31th may, Lisboa [Comissão Nacional da UNESCO – Portugal (2006). Década das Nações Unidas da Educação para o Desenvolvimento Sustentável (2005-2014): Contributos para a sua dinamização em Portugal, 31 de maio, Lisboa],*

4. *State of Education 2012: Autonomy and Decentralization* [Estado da Educação 2012: Autonomia e Descentralização],
5. *A trust agreement in higher education for the future of Portugal: Investing in the future* [Um contrato de Confiança no Ensino Superior para o futuro de Portugal: Investir no futuro (2010-2013)].

The “National Strategy for Development Education” 5 year participatory strategical document involved Portuguese Institute for Development Support (IPAD – Instituto Português de Apoio ao Desenvolvimento) and other governmental and non-governmental actors as UNESCO is the responsible organization for the DESD implementation because it is their responsibility the invitation of the Governments to be involved on the inclusion of ESD in their Educational as ED should be assumed as an important instrument for the universal and quality access in the long run and so contribute to the solid commitment of all the people.

NVIVO version 10 software was used for the quantitative content analysis of the selected documents, and it was “searched” for word(s), text (see table 1) and build some codification matrixes in order to look for:

- a. the most frequent words (top 20 with length less or equal to 10 characters) (see figures 1, 2, 3 and 4);
- b. the text after analysed the data in order to have a cluster analysis; then we organized in nodes or categories (see figure 5);
- c. the document coverage and the number of codified references taking into account the key words and the systematic review (5 documentary sources) in order to obtain a codified matrix and understand if, and how was the implementation of DESD in HE (see figure 6).

1. DESD – Decade for Education for Sustainable Development	8. Development
2. Environmental Education	9. Transdisciplinary
3. Sustainable Development	10. Holistic
4. Science for Sustainability	11. Integration
5. Environmental Management	12. Higher Education/Universities
6. Sustainability/Sustainable	13. Curricula/Curricular Plan/Curricular Programme
7. Environment/Environmental	14. Campus

Table 1: Selected key words after a content analysis of systematic review

4. Results and Findings

4.1. Governmental planning and Education for Sustainable Development

After computing the key words (see table 1) in the defined coding system we obtained the following results (figures 1, 2 and 3).

In 2005-2009 CGP when searching for the main keywords by descendent order, “Development” was the main reference found, followed by “sustainability” or “sustainable” which didn’t seem to be so strange as in 2007 Portugal had had the approval of National Strategy for Sustainable Development (ENDS). Nevertheless what we would expect was a large number of “Sustainable Development” (SD) references in 2005-2009 Governmental Programme which seemed not to be so high (only 6 references).

Concerning “universities” as well as “integration” altogether, both accounted for 20% of all the references and decreased in 10 year period time by 63% and 50%, respectively.

Even with a small number of references words related to “curricula”, it seemed to have enlarged their implementation during DESD period (figure 1).

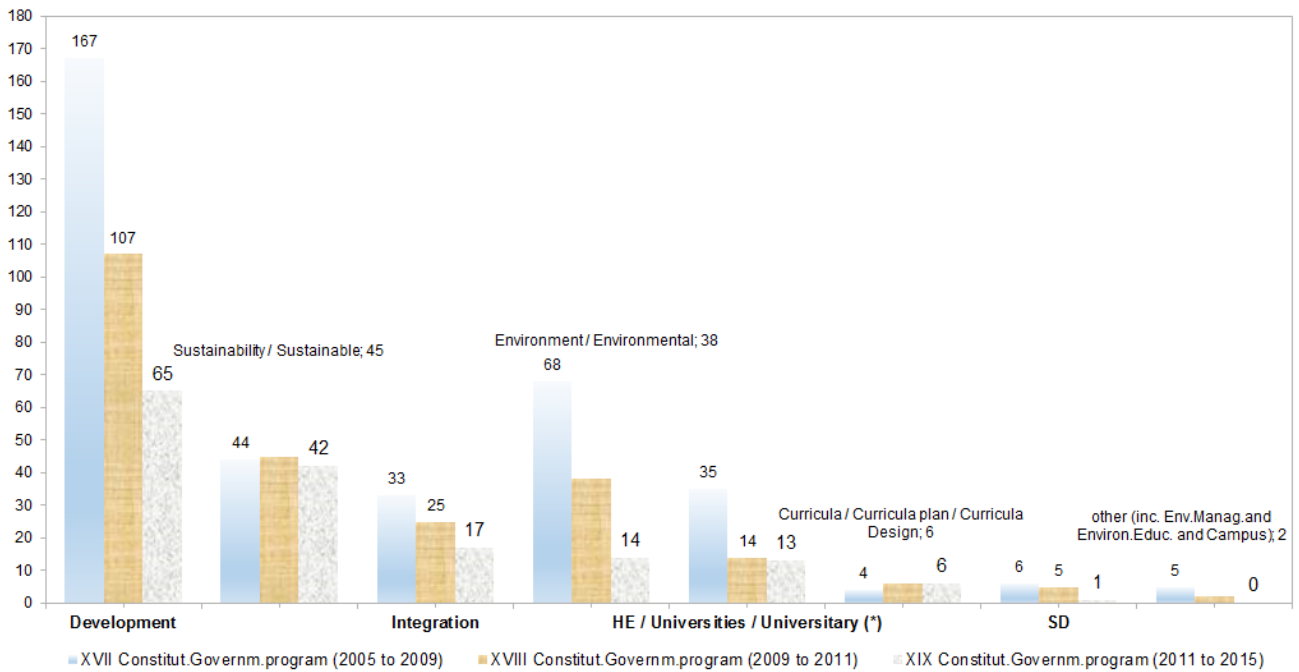


Figure 1: Number of key words (words or text) references through the Portuguese Governmental Programmes (from 2005 to 2015)

From figure 2 we observed that governmental results all over the DESD (2005 to 2014) period change: less “development” (decreased about 2/3 in 3 different Constitutional Government Programmes); less “environment” (-80%), less “sustainable development” which didn’t seem to have happened to “sustainable” or “sustainability” references (See figure 1) despite PIENDS (ENDS Implementation Programme) in the XVII the Constitutional Government;

So it was questioned if there hadn’t been other focus or if a change of paradigm had happen, from a narrow concept (“environment”) to a holistic and transdisciplinary concept, like “sustainability” or “sustainable”?

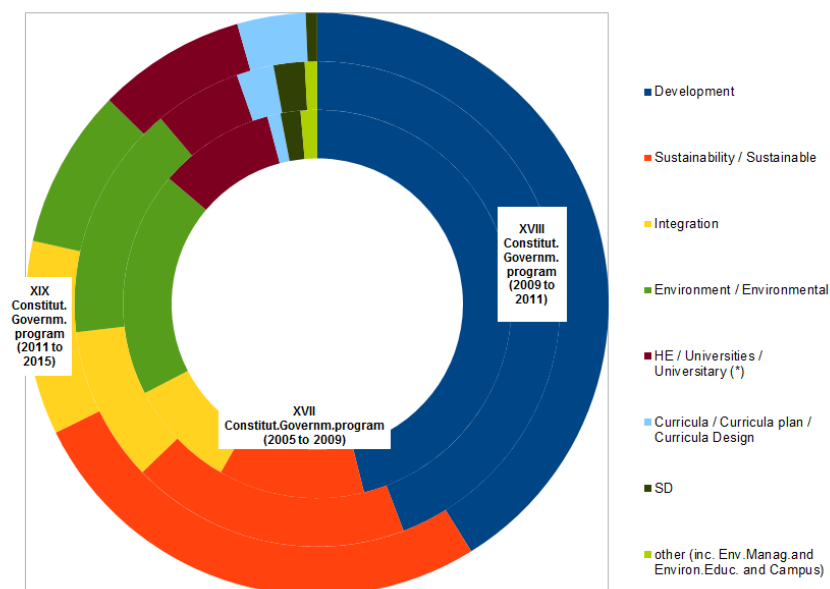


Figure 2: Number of key words (words or text) references in the three Constitutional Governmental Programmes (2005-2009); 2010-2013 (a); 2012-2015

(a) This is a quadrennial GPO so it is not totally comparable to the use of annual GPO

“Sustainability” or “sustainable” trough the 3 different Governmental Programmes maintain the number of references in spite of the multiple scope they might have acquired. “Sustainability has entered the lexicon on

the Growth Agenda (...) and innovation (...) associated with serious delays in the process of qualification (...)” in 2005-2009 CGP; in 2009-2011 CGP one could read “the commitment to sustainability (...) refers to the policy of Development of scientific and technological capabilities, and scientific institutions, universities (...)” and these two contrasted with 2011-2015 CGP as “the sustainability is linked to budgetary commitments, Social Security (...), the National Health System (SNS)”, amongst other matters. Nevertheless it didn’t happen when analyzing the number of key terms references in GPO during the same period (see figure 3).

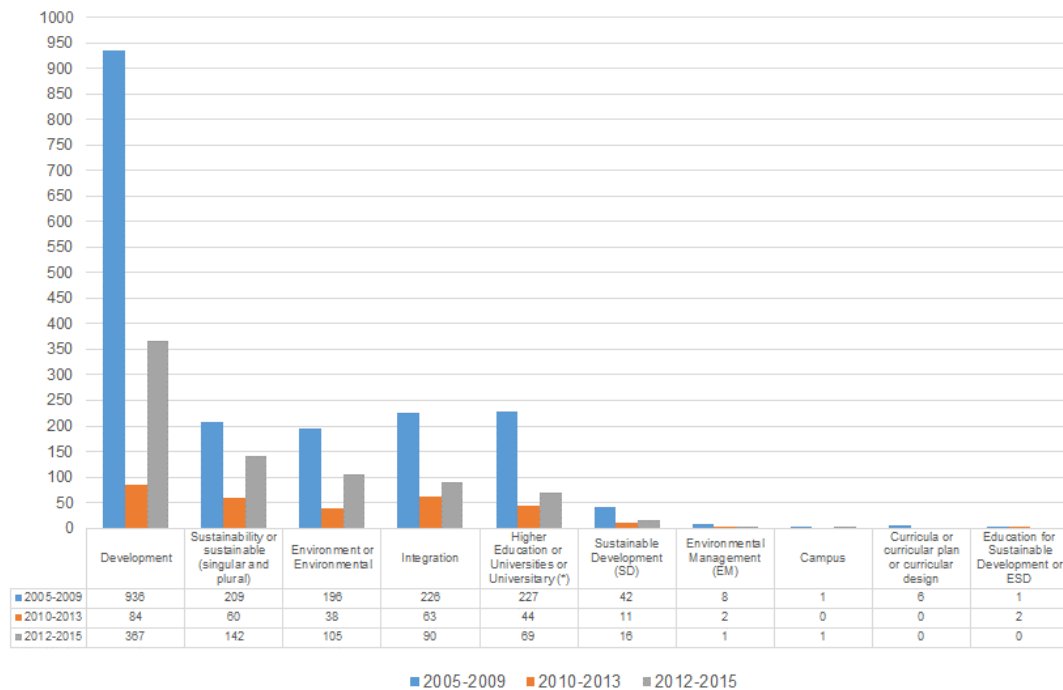


Figure 3: Number of key words (words or text) references in the Great Planning Options (GPO) (*) from 2005 to 2014 in Portugal ()**

Remark (*): We are referring to Constitutional Governmental Programmes and Great Planning Options and these Plans and Programmes are those that are not the specified ones referred in CRUP or within Universities.

Remark (**): GPO 2005 and 2006 are included in GPO 2005-2009 analysis as 2010 to 2013 in GPO 2010-2013 and lastly, 2012 to 2015 includes 2013 to 2015

Although we obtained the same descending order when analyzing the frequency of keywords references that we had in figure 1 but the results here are not so conclusive. Nevertheless we obtained references to ESD in Portugal, even in small number.

4.2. Ministry of Education and Science policies and the (un)leverage effect on HE

According to the Law n.62/2007, universities as other HEI are high level institutions oriented for the creation, transmission, and dissemination of culture, knowledge, science and technology through the linkage amongst studying, teaching, investigation and experimental development.

In figure 4 “institutions”, “development” and “sustainable” appeared in the top 10 ranking (see figure 4) out of top 20 ranking when we analyzed the words not as text but as individual words though when studying them in detail they were not exactly in the context of ESD. And this findings resulted from the analysis of the 5 documents.

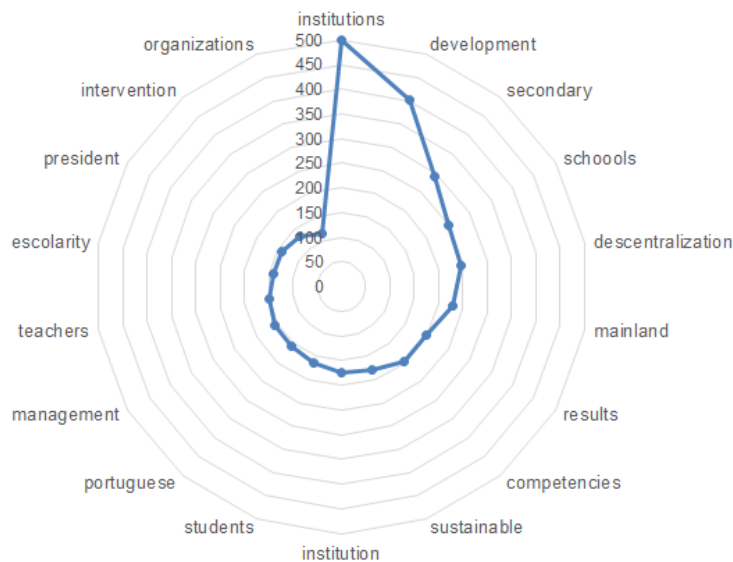


Figure 4: The top 20 of words references in the national documents related to ESD and DESD 2005-2014 in Portugal

When we analyzed the data we decided to organize it in nodes or categories in order to have a cluster analysis. The nodes percentual distribution for the most frequent words (top 20 ranking) according to the documents can be seen in figure 5.

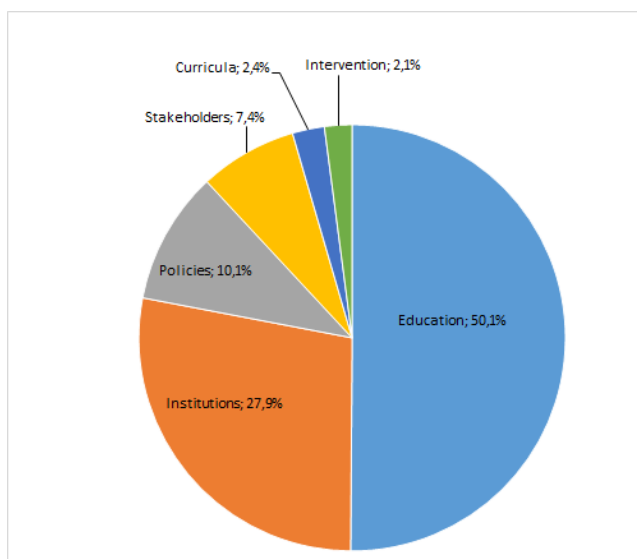


Figure 5: The nodes percentual distribution for the most frequent words (top 20 ranking)

The node “Education” had had 50% of the references and here was included the Education for Development, followed by “Institutions” (28%) and then “policies” (10%) but when we looked up in detail it had not much to do with Plans, programmes or strategies related to ESD. “Institutions” are related not to HEI but to secondary institutions (79%), establishments or decentralization and “policies” related to public policies (44%).

From what can be read in *UNESCO National Commission Forum – Portugal (2006)* it seemed that the civil society made by itself a kind of a implementation movement towards ESD, as so we could not yet found any clear evidence that the integration of sustainability was led by Ministry of Education and Science through plans, programmes and policies until this point.

When analyzing document coverage and the number of codified keywords references (text/wording related to 14 key words (see table 1) to obtain a codified matrix in order to evaluate the integration of sustainability in

plans, programmes and policies within the Ministry of Education and Science we accomplished the following results (figure 6):

- (a) A greater document coverage corresponds to the least codified references and there was a document that didn't show a single reference (the case of "A trust agreement in higher education for the future of Portugal: Investing in the future") and so we obtained data in 4/5 of the documentation analyzed;
- (b) The document "UNESCO National Commission Forum-DESD (2005-2014): Contributions for its dinamization in Portugal (2006)" had a great coverage and not so many references as it was a 37 page document written by a Work Group whose purpose was to identify areas of priority intervention, propose transversal actions to create dynamism in multiple society sectors, and identify concrete projects capable of changing processes; nevertheless this document was aiming an application at all levels of education and not only at HEI level.
- (c) On the opposite side there was "State of Education 2012: Autonomy and Decentralization", a document that had the greatest references comparing to the others, but it was a report, and not a law, programme or a plan;
- (d) With this analysis we couldn't have enough information to affirm categorially that there wasn't a top down or even a mixed implementation of how sustainability was implemented in Portugal within the Ministry of Education and Science.

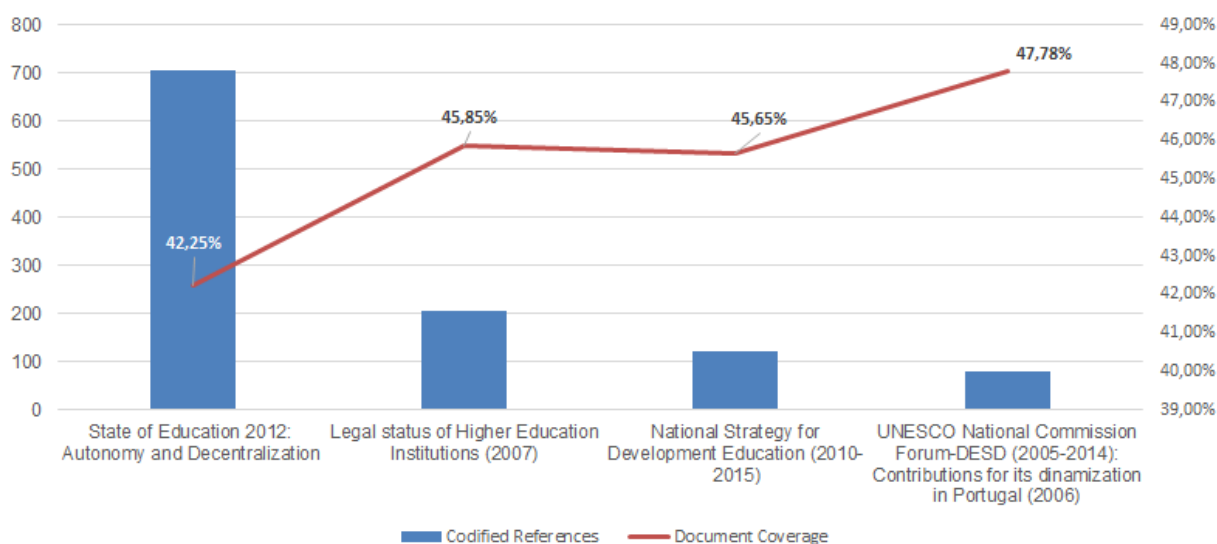


Figure 6: Number of codified keywords references and document coverage

5. Discussion

Lozano et al. (2015) mentioned as the result of an international survey to a large number of HEI that there has been a stronger interest in SD integration in HEI in Europe compared to other regions of the world and many higher education institutions have become involved in embedding sustainable development into their academic systems.

The results and findings suggested that in Portugal there hasn't been any incorporation of ESD at governmental policy and strategy level as through the Ministry of Education and Science in the Public Higher Education Institutions (HEI). As highlighted by Aleixo et al. (2016) Portuguese public HEI are predominantly at an early stage of SD and, based on their policies and strategies, SD seems to be incremental. Nevertheless in Portugal six universities (Universidade do Minho, Universidade do Porto, Universidade de Lisboa, Universidade Técnica, Universidade Nova de Lisboa and Universidade Católica Portuguesa) signed the University Charter for Sustainable Development (Copernicus (1993)).

From Lozano et al. (2015) point of view there are strong linkages between the institution's commitment to sustainability, implementation, and signing a declaration, charter, or initiative and that the academic leadership's commitment was a leading cause for signing a declaration, charter, or initiative, and implementing sustainable development.

For example in Wales, a "small nation" of around 3 million people, the Government and Higher Education Funding Council for Wales have had plans and strategies of ESD implementation in HEI and adding these the

sense of cultural identity that contributed to the cohesion within the citizenship agenda. These facts altogether could be seen as a great commitment from HEI with ESD.

On the one hand, the Committee of Rectors of the Spanish Universities (CRE) was responsible for the approval of the creation of a Work Group for the environmental quality and the SD in the Spanish Universities that had issued a set of guidelines to incorporate sustainability into the curriculum which indicated a top-down action or a cascade process, in a 47 million inhabitant's country. Both processes were top down approaches for the implementation of sustainability in HEI and showed commitment with ESD.

At this point the findings as well as the non-institutional group that wrote the document "the *UNESCO National Commission Forum – Portugal (2006)*" created in 2006 proactively by the Ministry of Education and the Presidency of Ministry's Council had the responsibility to lead the process, discussed the Strategy of DESD 2005-2014 and facilitated its linkage with different areas of the educational sector aiming social transformation. But it didn't show neither political or strategical, nor institutional implementation of sustainability in HEI. As far as universities are concerned, this group determined a follow up effect as to promote the interaction between multiple actors and institutions likewise the involvement of public administration institutions, investigation laboratories, non-governmental institutions, universities and mass media amongst others.

Notwithstanding some international drivers as mentioned, and a few practical examples at University level, preliminary results showed that ESD is still in its early stages of development and that there is a lack of national integrated strategies or policies. There haven't been any plans or programmes at least integrated to let us conclude safety that it was quite intentional.

Further research is needed to continue in order to better understand how sustainability was integrated in the Higher Education Institutions (HEI) through governmental policies and strategies and within the Ministry of Education and Science in Portugal, through surveys and interviews with key actors that can also lead to other widen or not accessible plans, policies and programs. Also it will be important to analysis the plans, policies and strategies at HEI level as real implementation practices at those institutions.

6. Conclusions

The meanings of "sustainability" or "sustainable" varied through time. Results between the Governmental Programmes and GPO analysis in the same period of time didn't seem to have produced any dramatic change. Nevertheless, it seemed clear that "sustainability" or "sustainable", although more recent, is far a more adopted and accepted concept than before, even with other meanings.

When we studied the extent to which Ministry of Education and Science integrated sustainability in their plans, programmes and policies through the documentation that we had accessed to in the period 2005-2014, "institutions", "development" and "sustainable" appeared in the top 10 ranking of the most frequent words, not as part of a composite text but as individual words, and that suggested that even Education (and here education for development) was a major issue but the implementation of ESD was not of a matter of major importance for the Ministry.

The conclusions for Portugal are important as they are innovative, however more detailed studies must be undertaken, namely through interviews to key stakeholders. The methodology we used is described but we ought to move a step further through:

1. Interviewing key-actors concerning the implementation of sustainability in HEI through DESD 2005-2014 as from the governmental as from the non-governmental society.
2. Analyzing the plans, policies and strategies at HEI level, as well as by submitting a questionnaire to the main actors in the universities, namely the Rectoral Team and the Responsible for Pedagogical and Scientific Councils of the HEI;

There is an absolute need for a change in the paradigm of Portuguese HEI and several barriers to overcome, both through learning and application of best practices from other European and worldwide countries.

The main limitations of the study arise of the relatively small number and quality of the documentary sources we were able to gather, despite our efforts. In any case, even the fact that we were not able to find a larger number of programmes, plans or strategies applied to DESD within the Ministry of Education and Science, can also show the lack of commitment from the governmental institutions towards ESD.

References

- Adom̂ent, M; Fischer, D.; Godemann, J.; Herzig, C.; Otte, I.; Rieckmann, M.; Timma, J. (2014). Emerging areas in research on higher education for sustainable development and management education, sustainable consumption and perspectives from Central and Eastern Europe. *Journal of Cleaner Production*, 62, pp. 1-7.
- Alba, David & Blanco, Dora. (2008). *Indicators for Sustainability at Spanish Universities*. Retrieved in 12th July 2014.
- Aleixo, Ana Marta; Azeiteiro, Ulisses; Leal, Susana. (2016). Towards Sustainability through Higher Education: Sustainable Development Incorporation into Portuguese Higher Education Institutions. (Springer, Ed.) *Changes in Higher Education for Sustainability, Management and Industrial Engineering*, pp. 159-185.
- Bardin, Laurence. (1977). *Content analysis [Análise de conteúdo]*. Lisboa: Edições 70.
- Clugston, R.M. & Calder, W. (1999). Critical dimensions of sustainability in higher education. In W. L. Filho, *Sustainability and university life* (pp. 31-46). New York: Peter Lang.
- Copernicus, CRE. (1993). *The University Charter for Sustainable Development [Carta Copernicus]*. Obtained in 25th April 2015, from utemsustentable.blogutem.cl: <http://utemsustentable.blogutem.cl/files/2011/08/CARTA-COPERNICUS.pdf>
- DESD (2005-2014): International Implementation Scheme. (31 de outubro de 2005). *United Nations, UNESCO*. (UNESCO, Ed.) Obtained in 19th August 2015, from <http://www.unesco.org/new/en/unesco-world-conference-on-esd-2014/resources/what-is-esd/>: <http://www.unesco.org>
- Glover, A. & Peters, C. (2013). A whole Sector Approach: Education for Sustainable Development and Global Citizenship in Wales. In S. & Caeiro, *Sustainability Assessment Tools in Higher Education Institutions: Mapping Trends and Good Practices Around the World* (p. 217). Switzerland: Springer International Publishing Switzerland.
- Hopkins. (2012). *Twenty years of Education*. Centre for Environment Education.
- Karatzoglou, Benjamim. (2013). An in-depth literature review of the evolving roles and contributions of universities to Education for Sustainable Development. *Journal of Cleaner Production*, 49, pp. 44-53.
- Lárran, M.; Herrera Madueno, Jesús; Cejas, Maria; Pena, Maria. (2014). An approach to the implementation of sustainability practices in Spanish universities. *Journal of Cleaner Production*, 106, pp. 1-11.
- Lozano, R.; Ceulemans, K.; Alonso-Almeida, Mar; Huisingh, Donald; Lozano, Francisco; Waas, Tom; Lambrechts, Wim; Lukman, Rebeka; Hugé, Jean. (2015). A review of commitment and implementation of sustainable development in higher education: results from worldwide survey. *Journal of Cleaner Production*, 108, pp. 1-18.
- Ministry of Science and Higher Education [Ministério da Ciência, Ensino Superior]. (2010). *A trust agreement in higher education for the future of Portugal: Investing in the future [Um contrato de confiança no Ensino Superior para o futuro de Portugal: Investir no futuro (2010-2013)]*. Lisboa: MCTES.
- National Education Council [Conselho Nacional de Educação]. (2012). *State of Education 2012: Autonomy and Decentralization [Estado da Educação 2012: Autonomia e Descentralização]*. Lisboa, Lisboa, Portugal: CNE.
- Portuguese Institute for Development Support [Instituto Português de Apoio ao Desenvolvimento]. (2009). *National Strategy for Development Education (2010-2015) [Estratégia Nacional de Educação para o Desenvolvimento]*. Lisboa: IPAD.
- Portuguese Parliament Assembly. (14th October 2015). www.parlamento.pt. Retrieved from Parliament: www.parlamento.pt
- Republic Diary, 1st serie [Diário da República, 1^a série]. (2007, setembro 10). Law n. 62/2007, 10th September [Regime jurídico das Instituições de ensino superior]. *Republic Diary, 1st serie - n. 174 - 10th September 2007 [Diário da República]*, 32. Lisboa, Portugal: Casa da Imprensa Nacional.
- Rio+ 20 Conference. (2012). *Sustainable development*. (U. Nations, Editor) Obtained in 29th August 2015, from <https://sustainabledevelopment.un.org/unsystem.html>
- The Council of the European Union. (2010, October 4). *Council conclusions of 19 November 2010 on ESD*. (O. J. Union, Ed.) Retrieved in 28th February 2016, from [eur-lex.europa.eu](http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52010XG1204(01)&from=EN): [http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52010XG1204\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52010XG1204(01)&from=EN)

- Tilbury, D. & Mulà, I. (2009). *Review of Education for Sustainable Development Policies from Cultural Diversity and Intercultural Dialogue: Gaps and opportunities for Future Action*. Paris: UNESCO.
- Tilbury, D. (2004). Environmental education for sustainability: A force for change in higher education. In A. & Corcoran, *Higher education and the challenges of sustainability problems, promise, and practice* (pp. 97-112). Netherlands: Kluwer Academic Publishers.
- UNESCO National Commission Forum – Portugal . (2006). *Decade of United Nations for Education for Sustainable Development [Década das Nações Unidas para Educação para Desenvolvimento Sustentável]*. Lisboa.
- United Nations Conference about Sustainable Development (Rio+20). (2012). A/conf.216/L.1. Rio de Janeiro, Brazil, 20-22 June: United Nations.