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Enhancing European Higher Education;

"Opportunities and impact of new modes of teaching"

Enhancing European Higher Education

"Opportunities and impact of new modes of teaching"

Overview of papers on enhancement of European Higher Education as presented during the Online, Open and Flexible Higher Educaiton Conference in Rome, October 2016

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Cultural dynamics of Education, Science and Social Representations in the worldwide research landscape and contemporary media scenario

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Abstract

Aim: The study examines how the thematic areas of Education and Science are positioned in the literature produced worldwide by the research community inspired by the Social Representations theory*. The dynamic between the reified universe (science) and the consensual common sense knowledge through educational and communication systems has been the founding focus of the theory (Moscovici, 1961/1976; Moscovici & Duveen, 2000) and it remains its core element after more than 50 years of the literature development.

Data sources and Method: Extracted from more than 10,000 texts - filed in the SoReCom"A.S.de Rosa"@-; (de Rosa, 2014b, 2015, 2016, 2016 forthcoming; de Rosa, Dryjanska & Bocci, 2016a, 2016b, forthcoming).- we have analysed the sources related to education, science, social representations and communication through the lens of a systematic meta-theoretical analysis using the Grid designed by de Rosa

Exploratory Hypotheses:

We expect that the results will show:

- at what extent the thematic areas of Education and Science are interrelated or treated as distinct objects of empirical research, reproducing a split between "reified" and "consensual" universes of knowledge;
- the socio-cultural contexts (with different ideologically oriented policies and specific societal issues) and the time dimension affect both the agenda of education and science popularisation and the way it is constructed through media.

*http://www.europhd.eu/SoReComJointIDP: ITN-People MSCA-IDP 2013

Keywords: education, science, social representations, meta-theoretical analysis, media

1. Introduction

This paper features a study that examines how the thematic areas of Education and Science are positioned in the literature published throughout the world by the academic community inspired by the Social Representations theory introduced by Moscovici (1961/1976; Moscovici & Duveen, 2000) more than fifty years ago.

It is based on an empirical meta-theoretical analysis of the literature on Social Representations, within the framework of a specific project aimed at taking stock of the scientific field, mapping its development, the related research methods, the thematic areas and their impact on the various applied fields within the multi-generational community of scientists and across different geo-cultural contexts. In particular, the specific thematic objects of education and science belong to the focus on "Taking stock of the literature in the thematic field of "Science, Social Representations and Communication".

This contribution presents a selection of results of a research project carried out within the EC-approved SoReCom-Joint-ID (**http://www.europhd.eu/SoReComJointIDP**) built on the top of an on-going project led since more than 20 years (1994) by A.S. de Rosa at the *European/International Joint PhD on Social Representations and Communication Research Centre and Multimedia Lab (de Rosa, 1994, 2002, 2013a, 2013b;* de Rosa, 2014b, 2015, 2016, 2016 forthcoming; de Rosa, Dryjanska, Bocci, 2016, forthcoming).

2. Theoretical Framework

The theory of social representations has been defined as a supra-disciplinary field due to its great consistency in terms of epistemological and theoretical inspiration (de Rosa, 1994, 2002, 2013a, 2013b). Its rich diversity is evident:

- from the paradigmatic point of view - as developed by the "structural approach" to S.R and central core theory; by the "social positioning approach", guided by the socio-dynamic perspective; by the "monographic" and "anthropological" approaches; by the "dialogical", "conversational" and "biographical-narrative" approaches, and by the integrating "modelling" approach;
- in terms of methodological approaches (qualitative, monographic, anthropological, experimental, descriptive, structural, visual-figurative, multi-methodological, etc.) developed by the network research teams in a synergic and complementary way;
- from the thematic point of view - as expressed in the variety of research topics. These relate to hot societal issues in contemporary society, including: Science and Social Representations (S.R.); Culture, Globalization and S.R.; Communication, Media and Social Representations; Collective Memory, Identity, Gender, Politics, Health, the Environment, Education, Economics and Finance, Marketing and Organizational Contexts, Risk and Community Life;
- with respect to the applied contexts and domains of expert and lay knowledge production and transmission: education, health, economics, environment, tourism, politics, organisations, media industry, etc.

Since the inception of the theory, the dynamic between the reified universe (science) and the consensual common sense knowledge through educational and communication systems has been the founding focus (Moscovici, 1961/1976). Social representations are the product of interaction and communication, taking their particular form and shape at any moment as a consequence of the specific balance of these processes of social influence (Moscovici, 2001):

> Social representation is a system of values, ideas and practices with a twofold function: first, to establish an order which will enable individuals to orientate themselves in their material and social world and to master it; and secondly to enable communication to take place among the members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual and group history (Moscovici, 1976, p. xiii).

There is a long history of application of the theory of social representations in the field of education, given the importance of communication in both. In particular, the theory has an added value in taking into account the effects of not only the institution and the group, but also the relationships between these two on the shaping of the contents of social representations (Räty & Snellman, 1998). In this context, the relationships to the school system include the dimension of expertise and the dimension of socio-educational position, associated with cultural capital (Bourdieu & Passeron, 1977).

Tuval and Orr (2009) emphasize that a theory whose main subject is common sense enables the researcher to investigate incompatibilities within societal thinking and doing, offers a unique perspective to investigate verbal and active elementary school representations, by which some children are identified as normative and others as outsiders who are distinctively treated and represented with a variety of outcast labels.

A fundamental function of the theory of social representations concerns the capacity of a person to explain the inexplicable, turning what unfamiliar into the familiar, which plays a crucial role in the context of science at large, and in particular education (Addessi & Carugati, 2010).

3. Methodology

This contribution concentrates on “interviewing” publications on social representations by retrieving data and meta-data, in order to explore to what extent in different thematic areas the paradigmatic conjunction of social representation with other theories and constructs has stimulated the impetus for a methodological pluralism that can be pursued by scholars that do not comply with the dominant trend.

The tool that enables such “interviewing” is the meta-theoretical grid of analysis (de Rosa, 2013), organized on two levels. This paper features the results stemming from the first level, aimed at reviewing literature with a traditional bibliographic approach. It allows organizing information on authors and countries in which their institutions are located, years of publication, whether the publication is a journal, conference presentation or book, language of the publication, type of paper (theoretical, empirical). This kind of information is commonly used to map the diffusion of the Social Representation theory and its development over time and space, in a sort of epidemiology of knowledge.

Subsequently, the retrieved abstracts and keywords of publications have been subject to textual analysis, using IRAMUTEQ (Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires) software, developed by Pierre Ratinaud (2009). Classical textual statistics, descending hierarchical classification and similarity analysis obtained offer a deeper insight into the symbolic content derived from textual materials as an important kind of research data (Camargo, 2013).

We expect that the results will show at what extend the thematic areas of Education and Science are interrelated or treated as distinct objects of empirical research, reproducing a split between "reified" and "consensual" universes of knowledge. We also anticipate that the socio-cultural contexts (with different ideologically oriented policies and specific societal issues) and the time dimension affect both the agenda of education and science popularisation, as well as the way it is constructed through media.

4. Results

The publications classified under the thematic areas of Education and Science were extracted from a larger number of 10,902 bibliographic references (as of July 2016), of which 9,743 items specifically related to social representations and communication (including also books, book chapters, conference presentations, web documents, manuscripts, university reports, Master and PhD theses, etc.) filed in the repositories of the SoReCom "A.S. de Rosa" @-Library (de Rosa, 2014b, 2015, 2016, 2016 forthcoming; de Rosa, Dryjanska, Bocci, 2016, forthcoming; de Rosa, Dryjanska & Bocci, 2016, forthcoming).

As of September 2016, the publications classified under the thematic areas of Education and Science summed up to 2296. The world map in Figure 1 below offers an overview of the dissemination of the publications on social representations in the field of science, based on the country in which the institution of the first author is located.

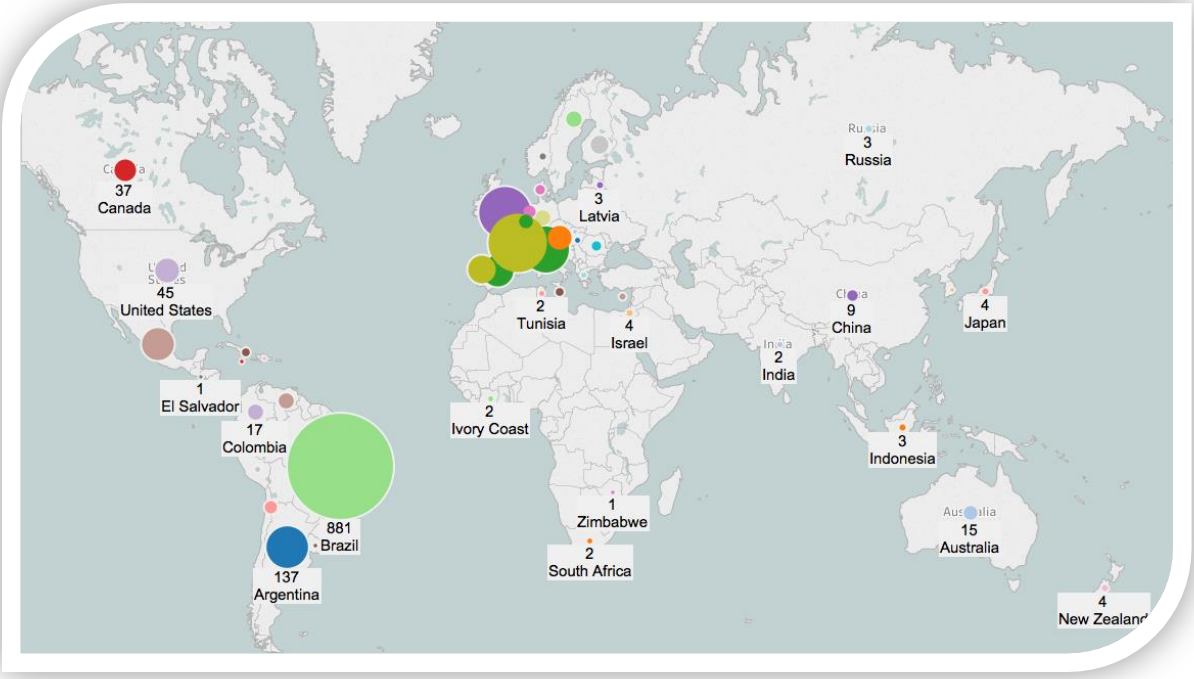

Figure 1: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across the world

It is evident that in the field of science, social representations and communication, the geo-cultural contexts of Europe and Latin America play a key role. Figure 2 demonstrates that in Europe (the theory's homeland) especially France and United Kingdom constitute significant settings, most probably due to the fact that the former provided institutional arrangements for Moscovici, the founder of the theory who since beginning paid attention to science and communication; while the latter is home to such researchers

as Bauer and Gaskell who dedicated their efforts to research on social aspects of biotechnology and science at large.

A zoom on the geo-cultural context of Latin America (known as the most fertilised scenario) demonstrates the crucial role of Brazil with a very rich production on social representations, science and communication. This may be partially explained by the general growth trend in this country, thanks to bi-annual scientific conferences on social representations that take place there and result in numerous presentations. The other countries, Argentina and Mexico, also have a consolidated tradition and a number of prominent authors who publish on the topic of education, as shown in Figure 3 below.

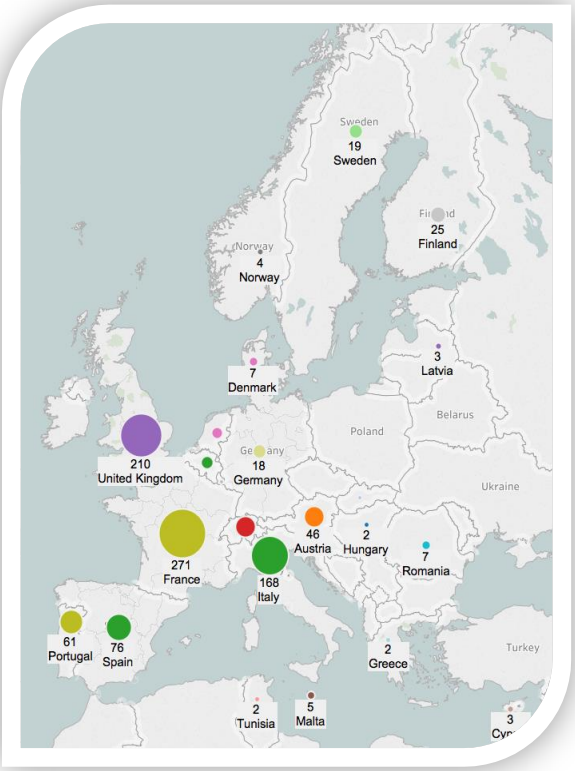

Figure 2: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across Europe

Figure 3: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across Latin America

Figures 4,5, 6 and 7 below illustrate respectively the dissemination of Social Representations literature concerning Science, Education and Communication respectively in North-America (USA and Canada) and in the new emerging scenarios for the diffusion of this scientific literature in other continents (Asia and Africa).

Figure 4: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across North America

Figure 5: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across Oceania

Figure 6: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across Asia

Figure 7: Science, Social representations and Communication filed in the repositories of the SoReCom "A.S. de Rosa" @-Library by the "Author's Institution Country" across Africa

The textual analysis using IRAMUTEQ software was carried out by deleting not recognized forms, numbers and articles, which resulted in 655 texts, 103,310 occurrences, 5,531 forms and 1882 hapax, ensuring the stability of analysis. The descending hierarchical analysis produced the following three clusters:

1. Education, professionalization, and their context and target/actors;
2. Communication, science and system of knowledge transmission;

3. Social representations and common-sense knowledge: the raw of social psychology.

Among these clusters, of specific interest to this contribution is certainly the first one. However, looking at the corpus on science, social representations and communication enables us to note how it is positioned. Indeed, it accounts for 66.7% of the corpus, demonstrating the importance attributed to education and school context in the field of social representations.

Figure 8 below shows the dendrogram produced as a result of the descending hierarchical analysis (DHC), resulting in three clusters with the most significant words for each one of them.

The Figures 9,10 and 11 below illustrates the word clouds for each of the three cluster 1, 2, and 3 detected by the descending hierarchical analysis (DHC).

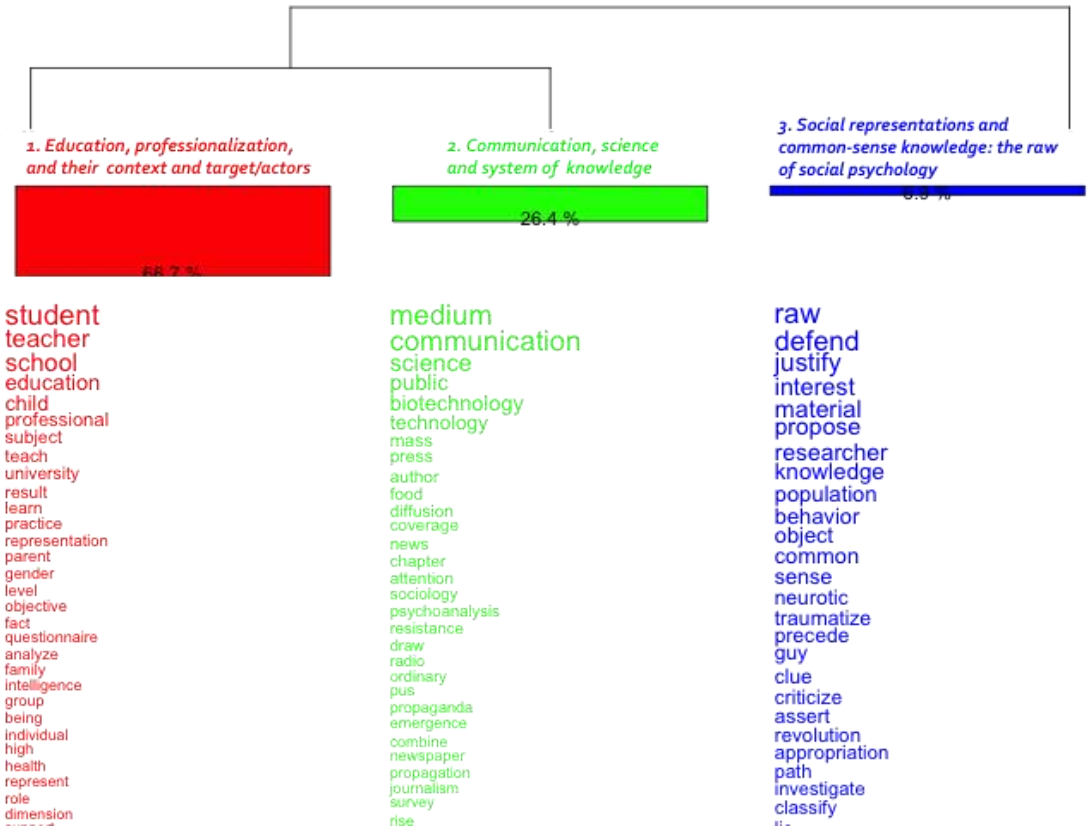

Figure 8: DHC dendrogram

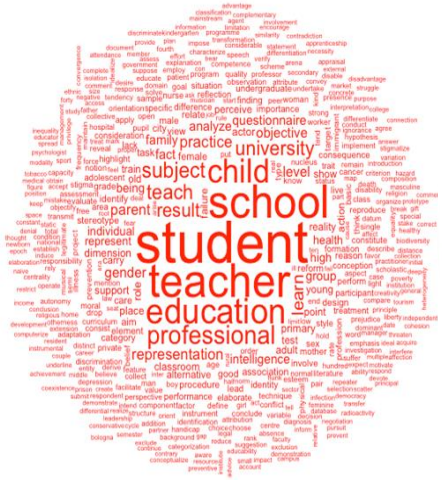

Figure 9: Cluster 1. Education, professionalization, and their context and target/actors

Figure 10: Cluster 2. Communication, science and system of knowledge production and transmission

Figure 11: Cluster 3. Social representations and common-sense knowledge: the raw of social psychology

In order to better comprehend the distribution of clusters, correspondence factorial analysis situates each one on a factorial plane. In Figure 12 below, it is possible to observe that the first cluster's position on the negative side of the X and Y axes singles it out as clearly distinct from cluster dedicated to a theoretical reflection on social representations and common sense understood as the raw material of social psychology, yet sharing common elements with communication, science and system of knowledge transmission.

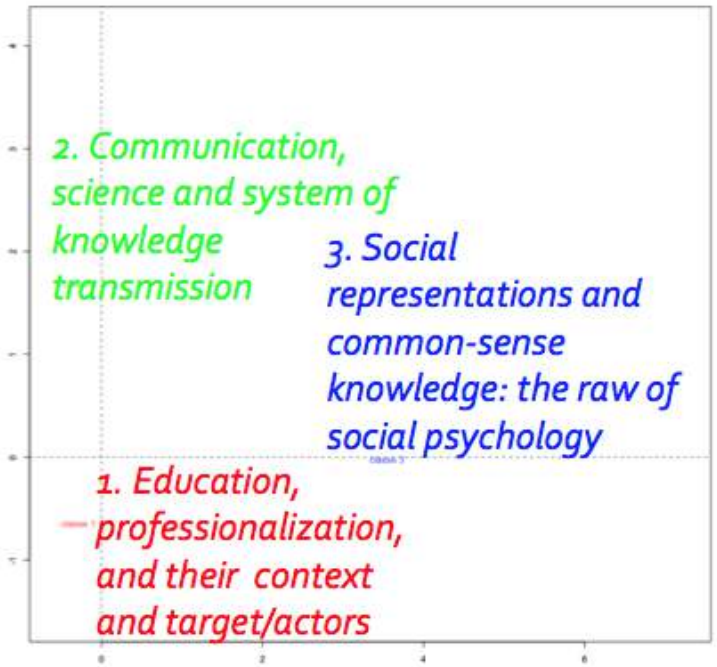

Figure 12: Distribution of clusters

The first cluster, interpreted as “Education, Professionalization and their contexts and target/actors” refers to:

- the different levels and institutional contexts for knowledge socialization (“school”, “university”, “family”) and target/ actors (“child”, “student”, “teacher”, “parent”) of education,
- also as professionalization (“professional”, “practice”, “learn”) especially in the sector of health.

It is also crucial to pay attention to the second factor, as it reveals cultural dynamics of science. Moreover, it is positioned on the negative side of the X-axis just like the first factor centred on education, which reveals some common features of the two inter-related themes.

The second cluster, interpreted as “Communication, Science and System of Knowledge Production and Transmission“ is focused on science communication, starting from the seminal work on psychoanalysis (Moscovici, 1961/1976) to the more recent studies on the public understanding of the science and technology like in biotechnology, biogenetic modified foods, impact of new technologies, etc.

The interest concentrates on the system of knowledge production (“survey”, “chapter”, “author”, “sociology”) and transmission involving “medium” (“mass media”, “press”, “news”, “radio”, “newspaper”, “journalism”) addressed to the public and stimulating several processes (“emergence”, “attention”, “coverage”, “resistance”) and the three canonical system of communication (“diffusion”, “propagation”, “propaganda”).

In order to gain a deeper understanding of clusters, it is necessary to consider the illustrative variables. Figure 13 shows their distribution as a result of correspondence factorial analysis, with the most significant ones written in larger font.

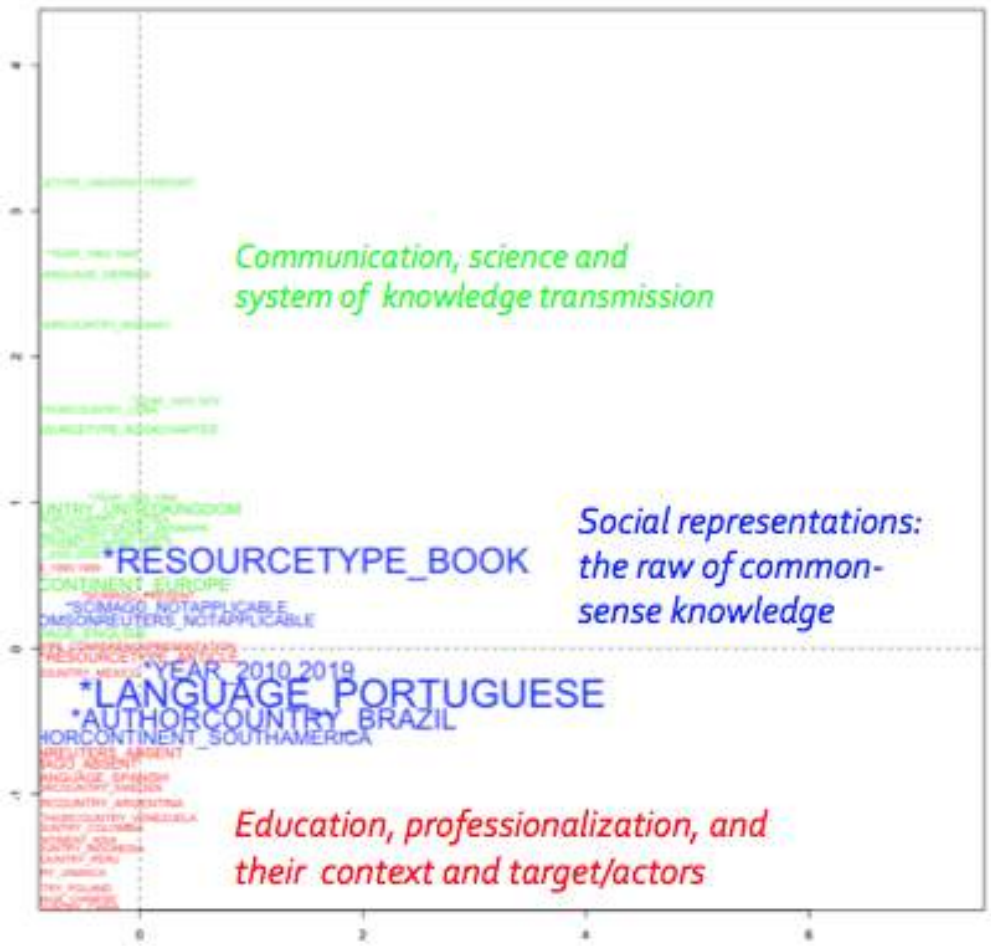

Figure 13: Distribution of illustrative variables

The significant positioning on the first cluster ("Education, Professionalization and their contexts and target/actors") of the illustrative variables, shows:

- the dissemination of the Social Representations theory in Latin America and the specific interest for the area of Education by authors from Argentina, Mexico, Venezuela, Colombia, and in some cases also by European authors form Sweden, Spain and France and from Asia,
- the resource type is especially based on journal articles (in some cases also present in the bibliometric data bases Scimago-Scopus and Thompson & Reuters) and conference presentations,
- in Spanish and French as language of publication,
- over two decades 1990-1999 and 2000-2009.

On the other hand, the significant positioning on the second cluster ("Communication, Science and System of Knowledge Production and Transmission") of the illustrative variables, shows that:

- communication and the dynamics of expert knowledge and common sense (as core interest of the Social Representations theory) is significantly related to literature produced in Europe in particular by authors from United Kingdom, Italy, Portugal, Germany, Norway, Austria, Denmark, but also authors from Cuba,
- resource type refers mainly to Book chapters, Books, and publications in some cases included in the bibliometric database Thompson & Reuter-Web of Science, besides University Report,

- the years of publication for this cluster cover transversally all four decades since the 1960-1969, 1970-1979, 1980-1989 until 2000-2009, with the unique exception of the last one since 2010.

Similarity analysis shows the links between significant words that organize different clusters. Given the interest in cultural dynamics of education, it is interesting to consider “education” as the semantic centre, as demonstrated in Figure 14 below.

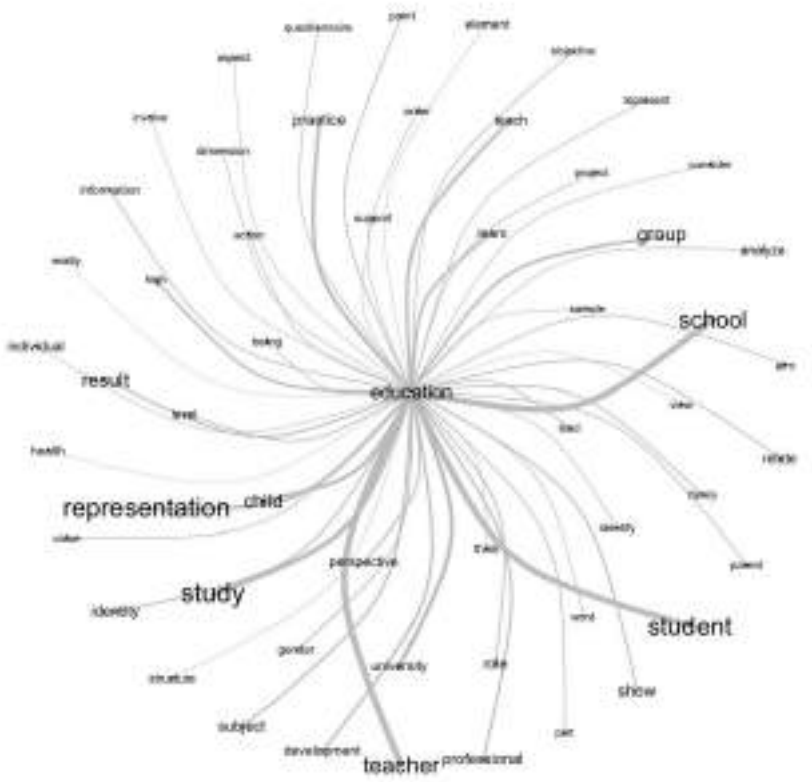

Figure 14: Similarity analysis centred on “education”

We may observe the strongest links with already mentioned key actors of education, such as “teacher”, a “student” and a “child”, as well as its common context – “school”. Moreover, activity related to “study” takes a relevant position, probably given the interest of social representations in practices and behaviour. Finally, the frequent reference to “representation” further illustrates the relevance of the theory, which attracts not only academicians, but also professionals, especially in the field of education, on various levels, starting from elementary school, through high school and to university. The theory has also been successfully employed when it comes to training professionals, such as nurses, as well as lay people, in order to inform and sometimes even transform their practices related to health, hygiene and other issues.

Concerning the second cluster, it is worthwhile to turn to similarity analysis centred on the “medium”, more commonly referred to as different types of media, as shown in Figure 15 below.

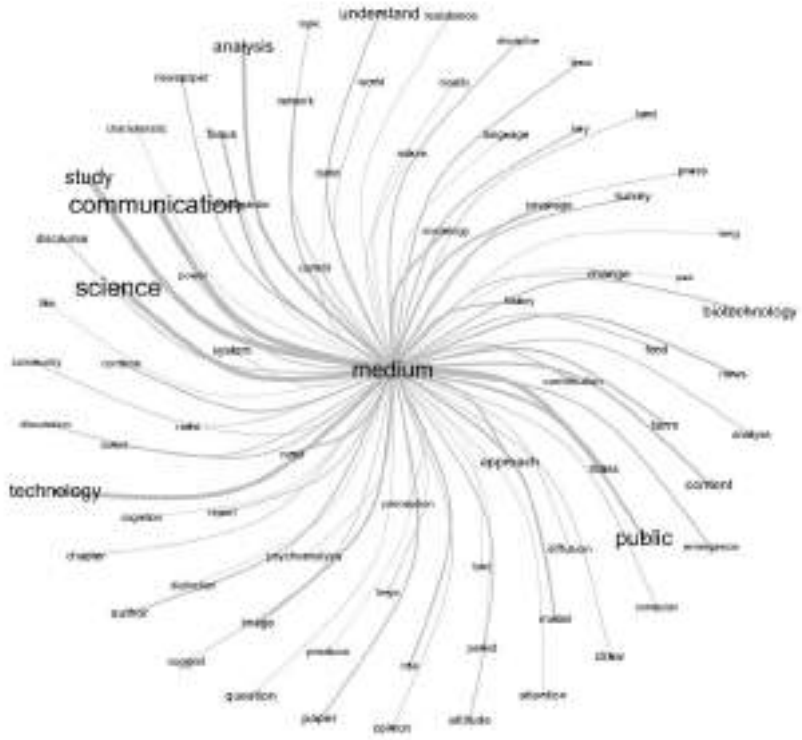

Figure 15: Similarity analysis centred on "medium"

In case of media, obviously the strongest link concerns "communication", the core interest of the theory of social representations. There is also the significant role of "mass" media in the modern world, where besides face-to-face interpersonal communication, innovative vehicles of meaning, through the Internet, such as social networks, websites, portals, forums and others, enable sharing and shaping of representations. Finally, the interest in "science" introduces again the realm of education, often concerning the "study" and "analysis" of topics related to "technology". The process of making unfamiliar familiar becomes necessary especially when dealing with complex scientific discoveries, which potentially have an impact on daily life of the "public" at large, the target of most media.

5. Discussion

A careful consideration of cultural dynamics related to publications on science, social representations and communication reveals a confirmation of the exploratory hypotheses.

The expected inter-relation of the thematic areas of Education and Science, nevertheless treated as distinct objects of empirical research indeed reproduces a split between "reified" and "consensual" universes of knowledge. In the context of education, the main actors such as teachers, students and professionals are all involved in the act of transmitting knowledge, during which social representations play a key role. The common-sense reasoning has to be taken into account when teaching and learning, especially if practices rooted in collective memory are challenged, also in such spheres as health and hygiene. Especially in more traditional societies, as evidenced by illustrative variables, successful education strategies have to deal with common social representations. However, the cultural dynamics between "reified" and "consensual"

universes of knowledge is not limited to education, but also closely related to science. Latest discoveries that concern everyday socio-cultural practices, such as eating or traveling, need to be properly communicated to the general public. How this process occurs is the focus of the second factor, where the relationship between experts and the public tends to be mediated by different channels.

Also the explorative hypothesis concerning the socio-cultural contexts (with different ideologically oriented policies and specific societal issues) and the time dimension has been partially confirmed. The inter-relatedness of the factors centred on "Education, Professionalization and their contexts and target/actors" and "Communication, Science and System of Knowledge Production and Transmission" proves that socio-cultural and temporal contexts affect both the agenda of education and science popularisation and the way it is constructed through media. While there is a marked interest in education, with numerous studies carried out in Latin America, in particular Argentina, Mexico, Venezuela and Colombia, in some cases this concern is also shared by European authors from Sweden, Spain and France, and some from Asia. Such dynamic, applied knowledge tends to be disseminated in the form of journal articles and conference presentations. On the other hand, a more theoretical and conceptual interest in social representations and communication of science finds a more fertile ground in Europe, in particular by authors from the United Kingdom, Italy, Portugal, Germany, Norway, Austria and Denmark, but also authors from Cuba. Books and book chapters appear as more suitable publication form in this case, probably allowing authors to develop at greater length the theoretical reflections illustrated by empirical studies.

6. Conclusion

To conclude, education appears as a privileged field for the study of transformations of social knowledge, enabling the researchers to explore "how social representations are constructed and how they develop and are transformed in the heart of social groups, and to illuminate the role of these constructions in the relations of these groups and their representations (Gilly, 1989, p. 384). Education scientists in this scientific community are therefore faced with a double challenge (Chaib, 2015). On the one hand, they sustain that the theory of social representations, with its emphasis on the importance of common-sense knowledge, might constitute an alternative to psychologically based theories of learning. On the other hand, they look at the theory with new eyes, evaluating its ability to integrate new elements such as the Internet, globalisation and multiculturalism.

The genesis of social representations involves the classification and conceptualization of an unfamiliar phenomenon, such as a techno-scientific endeavour, into a set of well-known categories. This process can be effectively accomplished with the use of metaphors (Christidou, Dimopoulos, & Koulaidis, 2004) and numerous non-verbal channels. Therefore, a promising direction for further studies of the cultural dynamics of Education, Science and Social Representations in the worldwide research landscape and contemporary media scenario, would surely benefit from adopting the modelling paradigmatic approach (de Rosa, 2013, 2014a), which takes into account iconic aspects, while integrating diverse methods, related hypotheses and data analysis strategies.

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