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CORRESPONDENCE ANALYSIS: A BIBLIOMETRIC STUDY ON THEIR USE IN THE EDUCATIONAL RESEARCH

ANÁLISIS DE CORRESPONDENCIAS: ESTUDIO BIBLIOMÉTRICO SOBRE SU USO EN LA INVESTIGACIÓN EDUCATIVA

by

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Resumen

Revisamos la difusión de las técnicas de Análisis de Correspondencia entre distintas disciplinas y medios culturales, a partir del análisis de diversas bases de datos académicas. Los resultados muestran una muy escasa implantación en el ámbito de la investigación educativa, y muy en particular en la española.

Palabras clave: Análisis de Correspondencia, bibliometría, datos cualitativos

Abstract

We revise the diffusion of the techniques of Analysis of Correspondence between different disciplines and cultural environments, analysing several academic databases. The results show a very scarce installation in the educational research, and specially in the Spaniard.

Key words: *Analysis of Correspondence, bibliometrics, qualitative data*

Introduction

One first elementary approach to the knowledge of some topic of research consists of making a bibliometric approach to the same one. With it we were not only able to know the importance in specialized Literature, but also to make a pursuit of its evolution, particularly interesting with regard to the last years, inasmuch as it can reveal the increase or diminution to us of the interest waked up by this subject.

In our case we are interested in knowing the diffusion a concrete technique of analysis of data, the Correspondence Analysis. One is a procedure that allows to study the relation between data or qualitative variables (Henry, 1997). One is a type of analysis created by Benzecri (1963) whose purpose is to graphically represent the originating data of a contingency table.

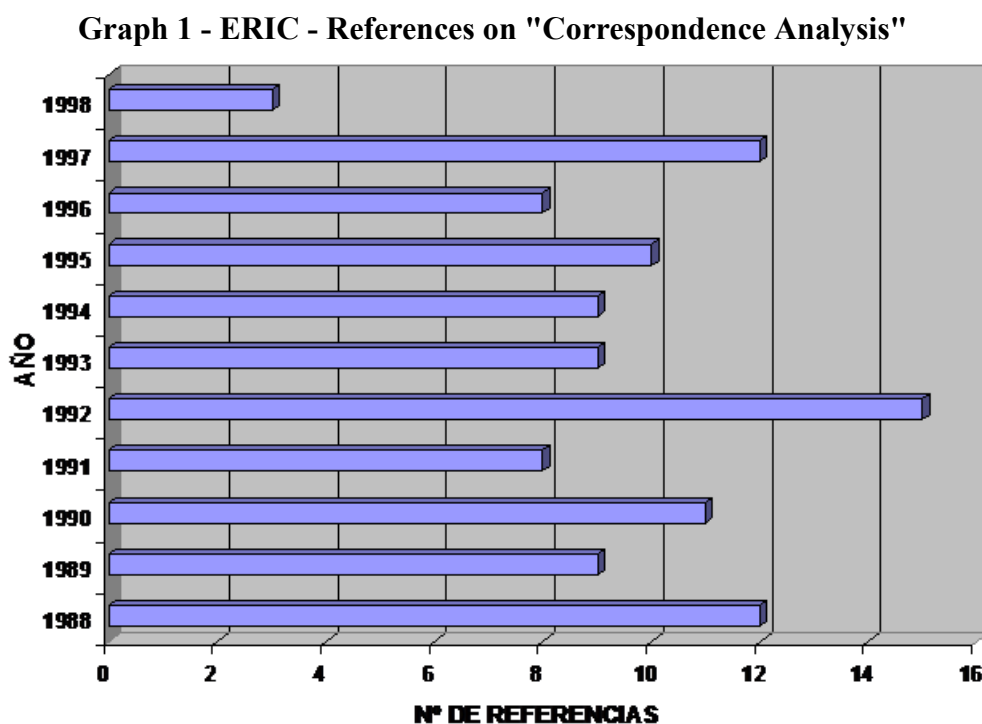
With the objective mentioned one, we will analyze the use of this technique in different contexts, linguistic-cultural as in disciplines as much varied, in order to see its implantation differential.

Since we are working in surroundings of educative research, any approach of this type has to count, necessarily, with the use of Base de Datos ERIC, who is the one that has a greater record number on electronic publishings (RIE and CIJE). It is evident that in the case of the research on a topic as is the one of Correspondence Analysis, a procedure that had their origin and main impulse in the context of the French school of analysis of data, to resort to a data base of marked slanted Anglo-Saxon can imply certain limitations. Nevertheless, we will try to diminish this problematic one, as we see more ahead, with the joint use of other sources of intelligence that can complement the extracted information of ERIC.

Results

For the search in the data base ERIC we have used the WebSPIRS program, that allows an efficient *interface* with the data, simultaneously that its use in network, so and as has organized the access to ERIC in the University of Valencia. In concrete we have limited our research the data of the ERICS who go from 1982 to the update of June of 1998, because the information contributed by older data would little give an excellent information at the present time. In any case, the reference older than we have foundÂ talks about publications of year 1985.

We have made in ERIC a search of the term "*Correspondence Analysis*" that has shown a total to us of 23 references



1982-6/1998

As we can verify, the document number that includes references to the Analyses of Correspondences is certainly low, and enough uniform, if we excepted the 1988 tip.

The fact that is specially significant something more than half of publications (52'2%) has appeared in an only magazine of noticeable methodologic character, *Psychometrika*. If to it we added that, although to enough distance, second source by importance order is also another methodologic magazine (*Multivariate and Behavioral Research*, with three references), we have them two third parts of publications referenciadas in the ERICS who use or analyze the technique of the multiple comparisons confine themselves to periodic publications of character almost exclusively methodologic of the predominant scope of psychology. On the other hand, only three of the references have been published in magazines that could be considered applied (*Child Development*, *Rehabilitation and Counseling Bulletin* and *the Journal of for Marketing Higher*

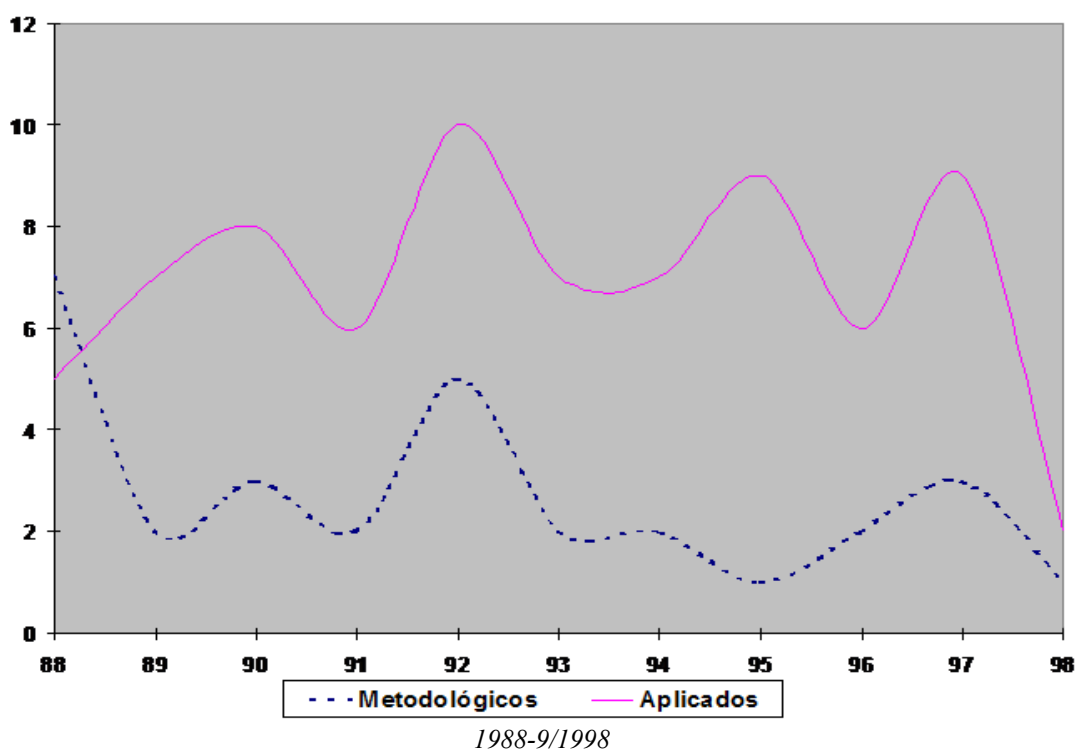
Education), being the unique ones that presents/displays empirical works applying the technique of the Correspondence Analysis . It is possible to emphasize other two references of communications to Congresses (one of them originally in French, and the other an empirical study) and other three of documents of different institutions (some in Dutch), of which only one (South African) refers an empirical study.

The use of the Multiple Correspondence Analysis is still more little, appearing references to this technique only in four of the 23 studies selected, treating the subject from a methodologic point of view. Of them three appear have been published in *the Psychometrika* magazine, and peculiarly, three of the four are written by authors of Dutch origin

Of the panorama that we finished reviewing, so and as us ERIC raises, we can conclude that she in the last exists a use very little in applied works of the technique of the Correspondence Analysis twelve years, at least in the Literature (mainly Anglo-Saxon) that is considered in this data base. The most common publications talk about theoretical developments of the own analytical technique, although its number also very is restricted, and are practically limited a same publication (*Psychometrika*). The reference to the Analysis of multiple correspondence is still more little, limiting itself four publications, all of them theoretical ones, and most of nonAnglo-Saxon origin. Practical applications of the procedure reviewed to any properly educative study, but rather of psychological cut almost do not exist (excepting one on reasons for election of the university from the point of view of marketing and another one on determination of points of cut in the access to the university).

Due to the shortage of properly educative studies, and to that most of originating references of our search in ERIC they had a psychological profile rather, we decided to review a more specific data base of this discipline, to try to clarify the type of use that is made in Human Sciences of the Analysis of Correspondence. We went to PsycLIT, commercial name of it data bases PsycINFO, sponsored by *American Psychological Association* (APA), that includes information coming from several sub-you base, such as *the Psychological Aabstracts* and *the Dissertation Abstracts International*, and that empty more than 1300 magazines, in addition to another gray Literature (communications to congresses, administrative documents, etc.). The version that we have used includes from 1988 to September of 1998. We have looked for the term "*Correspondence Analysis*" in anyone of the fields (titles, description, summary, etc.), having obtained a total of 110 references.

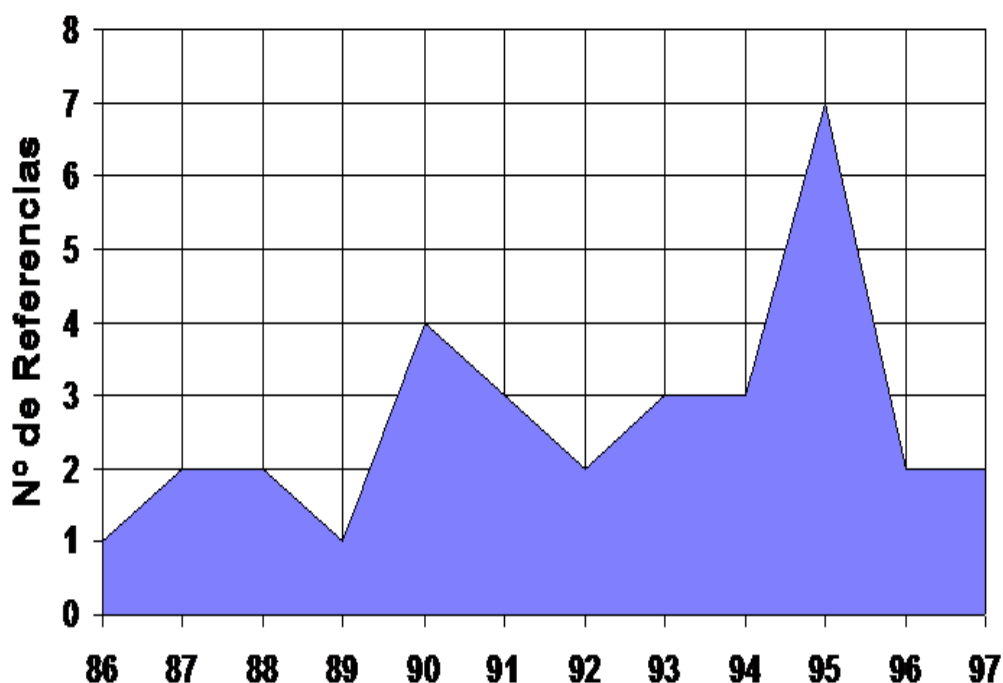
Graph 2 - PsychLIT
References on "Correspondence Analysis"



First which it is possible to stand out is the much more frequent use of the Correspondence Analysis, either like object of theoretical development or like applied procedure, in the scope of the magazines of Psychology that of those of Pedagogía, occurring the circumstance that, if we did not consider to the Psychometrika magazine (of noticeable methodologic character and from one more a psychological perspective), there are years in which PsycLIT finds the more references that ERIC, the greater educative data base, in all one decade. Since both are centered fundamentally in the Anglo-Saxon cultural scope, the result would have to make us reflect on the very moderate diffusion that this procedure has reached in the educative research.

Has to do to notice, in addition, that of 110 references found in PsycLIT, only 30 are of works methodologic, whereas the rest (almost 73%) is applied works in which this analytical technique has been used, frequently along with others, values that also contrast with hardly 33% of references of works applied in the scope of the education, so and as it is deduced of the data that we have presented/displayed previously of ERIC.

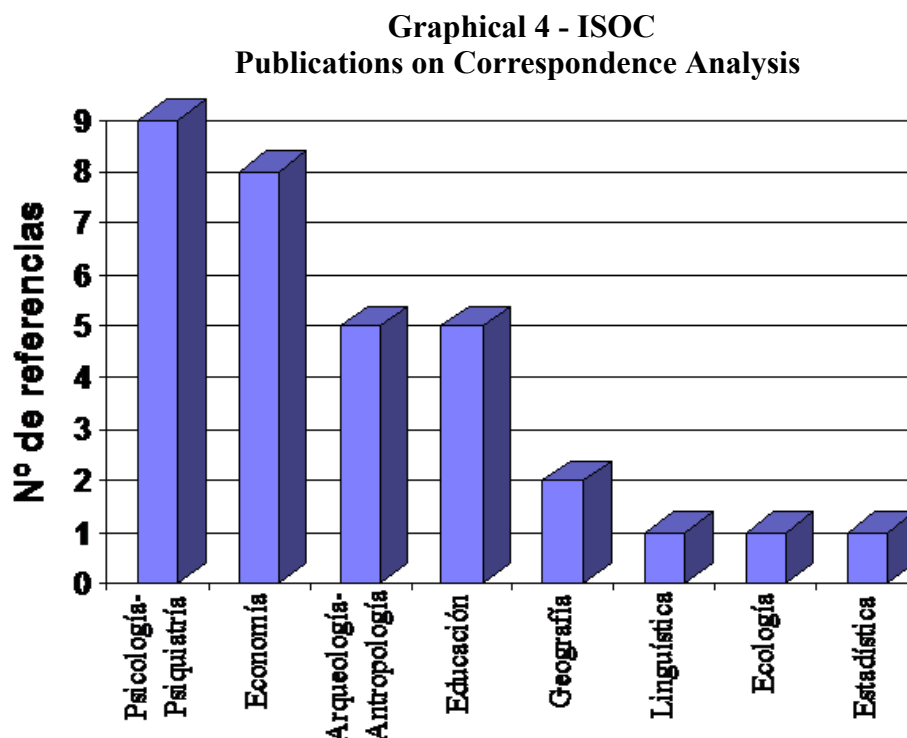
Graph 3 - PsychLIT
Relation between methodologic and applied articles



As we can verify in Graph 3, except the first year, exists a notable (and even increasing) predominance of the works applied on the theoreticians the psychological texts, like on the other hand it would be to hope in a discipline that is not predominantly methodologic. Since we have commented previously, the referring data to year 98 are partial, reason why they do not have to be considered to establish the tendency. The results obtained in PsycLIT on the superiority of the studies applied on the theoreticians contrast vividly with whom we have commented previously originating of the educative scope (ERIC).

Since the previous data bases, although are the greater ones of the world in their respective scopes, are centered in a cultural scope something distant to ours, we have seted out to study the use of the Correspondence Analysis in our country. For it we have gone to the data base ISOC, produced by the Superior Council of Scientific researches through its information center and Documentacio'n Científica (CINDOC), being centered in Spanish magazines of Humanities and Social Sciences, draining more than 1600. One is a compound data base as well by the information of diverse specialized data bases more, such as ECOSOC (that it covers subjects with economy, sociology and policy), ISOC-DC (on subjects of scientific Documentation), HISTORY (on auxiliary history and sciences) or the PSEDISOC, most interesting for our scope of work, that covers subjects with Psychology, Sociology and Sciences of the Education.

The search on the subject "Correspondence Analysis " has given a result of 32 references, that per years present/display the tendency that is in Graph 4.

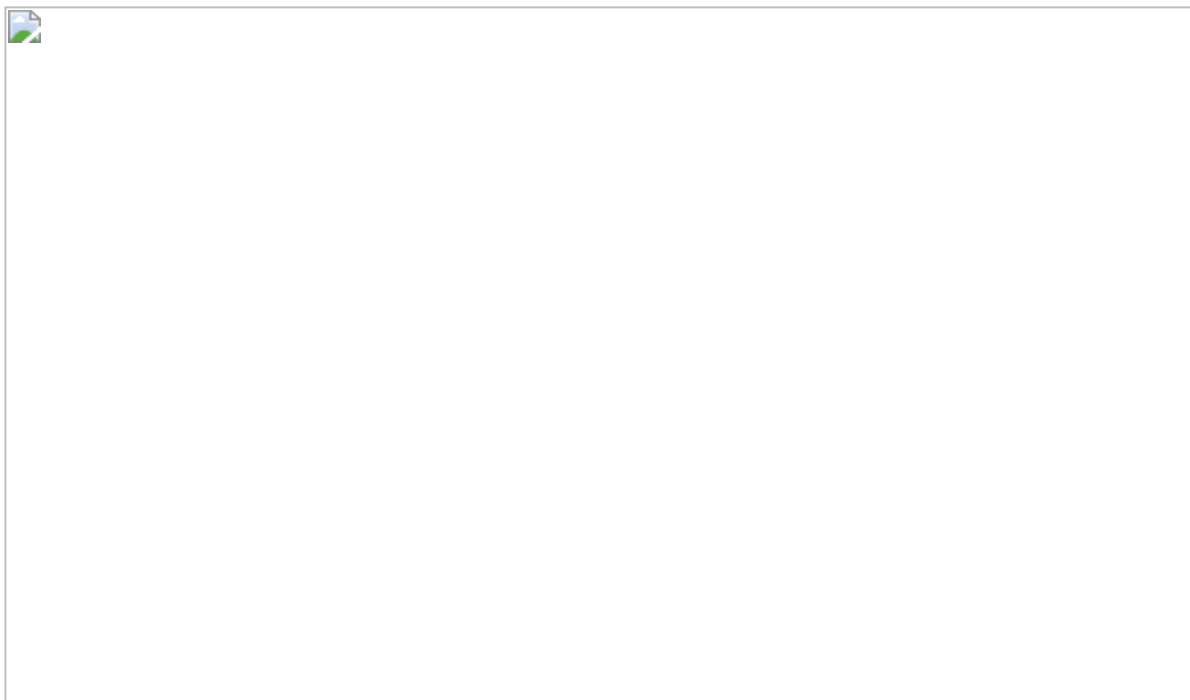


As we can see, there is a slight ascending tendency in publications on Correspondence Analysis , that undergoes a slight reduction in years 96 and 97, after the great tip produced in year 95. This apparent reduction can be explained, partly at least, because the referring publications to these last years have not been considered completely still.

The analysis of the use that makes of the Correspondence Analysis the different disciplines from Humanities and Social Sciences shows Graph 5. In the same one we can observe that there are eight different Social or Human Sciences (although two of them closely are related to Natural Sciences) that have gone to this procedure of analysis of data, which gives idea of its versatility.

The specialty that uses of more habitual way the procedure of Correspondence Analysis is Psychology (we have including in this discipline a publication of clinical psychiatry, to the being the scope closest in Social Sciences), something totally coherent with the ample use revealed in the PsycLIT. Second the science social that more uses east type of procedures is Economy, that in addition is one of the first disciplines that used it, already in the decade of the 80.

Graph 5 - ISOC
Publications on Correspondence Analysis by disciplines



Next is Arqueologi'a-Antropologi'a, with the same number of publications of Correspondence Analysis that the Education, although we have put it in the first place for antiquity reasons, since publications exist that use this type of analysis of data from 1986.

Other disciplines that use this type of procedures, although to a lesser extent, are Geography (2), the linguistic one (1), the ecology and the statistic (1). This ample variety of disciplines that make use of the techniques of Correspondence Analysis demonstrates to their flexibility and adaptation to a great variety of circumstances, data and purposes.

Reason why it makes reference to the publications of education that include articles *on* or *with* Correspondence Analysis, since we have already said are limited five (although the data bases of the ISOC specifically do not collect on the used analytical techniques, reason why all the cases have perhaps not taken shelter). They are distributed temporarily at the rate of a publication per year from 1990 to 1995, except 1991, in which no of them was published (Carballo, 1990; Grandson, 1992; EtxeberrAa, 1993; Gil, Garci'a and Rodriguez, the 1994 and Greater one, 1995). That is to say, the use of this type of procedures does not respond to no "precise fashion", but that shows a very gradual diffusion. Nevertheless, it also emphasizes that in the most recent years articles have not been published *on* or *with* Correspondence Analysis,

With respect to the publications in which they have appeared these articles, it stands out excessively that they are concentrated exclusively in two titles, *the Revista de Investigación Educativa (Review of Educative Research)*, the three older, and *Enseñanza - Anuario Interuniversitario de Didáctica (Education - Interuniversity Yearbook of Didactics)*, both more recent. First it is the organ of expression of the *Interuniversity Association of Pedagogic Research* (Asociación Interuniversitaria de Investigación en Pedagogía, AIDIPE), the one that probably is the professional association in which they appear a greater amount of metodologists of educative research. The second publication is located in Seville, locality that is parallelly the center of one of the most active nuclei of our country in qualitative researchapplied to the education.

Conclusions

Scientific Literature has been only reviewed using data bases on periodic publications, which mainly leaves of side works that can be important, from the theoretical and/or didactic point of view (for example, Cornejo, 1988). Nevertheless, we think that the vision that contributes east type to us of information, with respect to the use of the Correspondence Analysis, is sufficient to do an idea to us of its diffusion and use, that is objective of the present work.

In summary, we can affirm that the publications *on* or *with* Correspondence Analysis in the Spanish scope educative are extraordinarily little and that, in addition, they are centered in very few publications (only two) very specialized, and oriented, in good average, to specialists in educative research more than to professionals. These data are coherent with the results derived from the analysis of Anglo-Saxon data bases, in which a little use of this type of procedures in the educative research is revealed, in any case far below to the made one by other near disciplines. We considered simultaneously that he would be advisable to spread the use of this type of analytical techniques of a ampler way, than the knowledge of the same ones would be due to plan, at least of its interpretation, between the professionals of the education, in order that these also could take advantage of their evident advantages. The diffusion of simpler computer science procedures to make the analyses can fulfill, in this sense, a facilitador effect that there is to consider very.

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