

Vocational Guidance and Psychology in Spain: a Scientometric Study

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Abstract

Introduction. Studies that investigate research activity are possible by quantifying certain variables pertaining to articles published in specialized journals. Once quantified, numerical data are obtained that summarize characteristics of the research activity. These data are obtained through scientometric indicators. This is an objective and verifiable method whose results are both reproducibe and applicable to a large amount of data, allowing significant results to be obtained from statistical studies.

Method. In this paper we carried out a scientometric study on Vocational Guidance and Psychology in Spain (1990-2008) by analysing the following scientific journals: *Revista Española de Orientación y Psicopedagogía* (REOP), *Bordón Revista de Pedagogía*, *Revista de Investigación Educativa* (RIE) and *Revista de Psicología General y Aplicada*. Of all the articles published, we selected those that expressly refer to vocational guidance; we then focused the study on analysis of personal productivity, institutional productivity, article content, instruments that researchers used in their studies, and bibliographic references.

Results. From these results, we note that most of the authors who publish in Spain in this area are affiliated with Spanish universities. Also, the most pertinent topic areas addressed are *Vocational Counseling / Vocational Guidance*, and *Intervention Programs / Systems*.

Discussion and conclusion. These types of publications provide direct communication between researchers and guidance professionals, allowing science to reach everyone.

Keywords: Vocational Psychology, Vocational guidance in Spain, Scientometric indicators, ICT.

Received: 10/30/12

Initial acceptance: 01/21/13

Final acceptance: 03/10/13

Psicología y Orientación Vocacional en España. Estudio Cientimétrico

Resumen

Introducción. El estudio de la actividad investigadora es posible recurriendo a la cuantificación de determinadas variables presentes en los artículos publicados en las revistas científicas. Una vez cuantificadas obtenemos cifras que reflejan resumidamente las características de la actividad investigadora. Estas cifras las obtenemos a través de los Indicadores Cientimétricos. Se trata de un método objetivo y verificable, cuyos resultados son reproducibles, y que puede aplicarse a un gran volumen de datos, lo que hace posible la obtención de resultados significativos en los estudios estadísticos.

Método. En el presente trabajo llevamos a cabo un estudio cientimétrico de la Psicología y Orientación Vocacional en España (1990-2008), a través del análisis de revistas científicas: Revista Española de Orientación y Psicopedagogía, Bordón. Revista de Pedagogía, Revista de Investigación Educativa y Revista de Psicología General y Aplicada. De estos artículos, hemos seleccionado aquellos que hacen referencia expresa a la Orientación Vocacional, con el fin de realizar un análisis cientimétrico de los mismos. Así nos hemos centrado, por un lado, en el estudio de la Productividad Personal, Productividad Institucional, en el Análisis del Contenido y de los Instrumentos que los investigadores han utilizado en sus trabajos, y por otro lado, en el estudio de las Referencias Bibliográficas.

Resultados. De los resultados obtenidos, señalar que la mayor parte de los authors que publican en España, dentro de este ámbito, pertenecen al ámbito universitario nacional. Las temáticas más relevantes han sido la de *Asesoramiento Vocacional y Orientación Vocacional*, y, *Programas/Sistemas de Intervención*.

Discusión y conclusiones. Este Type de estudios facilitan la comunicación directa entre los investigadores y los profesionales de la Orientación, permitiendo que la ciencia llegue a todos.

Key words: Psicología Vocacional, Orientación Vocacional en España, Estudios cientimétricos, TIC.

Recepción: 30/10/12

Aceptación inicial: 21/01/13

Aceptación final: 10/03/13

Introduction

Among the influences that have come to bear on *the science of science*, one noteworthy example is “Documentation Science”, which arose out of an effort to control the enormous quantity of documentation that had begun to be produced in different disciplines near the end of the 19th century. Belgians P. Otlet and H. Lafontaine played the pioneering role in this endeavor. In the 1960s, based on Vickery’s *theory of information retrieval* (1948), Documentation Science evolved into Information Science, largely due to the Anglo-American influence, but also the German and Soviet influences. The appearance of this discipline was also very important in the development of *bibliometrics* and *scientometrics*, methodology tools used for working in *the science of science* (Terrada, 1983). This influence has been increasing in recent years with the development of new information technologies that made it possible to create large scientific databases. Especially noteworthy are Eugene Garfield’s Institute for Scientific Information (ISI), in Philadelphia, and the publication of the well-known reference indices (*Science Citation Index*, *Social Science Citation Index*).

Scientometrics can be seen as a concept analogous to Bibliometrics. It is a new, emerging area of research, using measurement techniques to evaluate the progress of Science and its stage of development, impact and relevance in society. Originating in the former Soviet Union, it was pursued first in Eastern Europe. The term was defined by Dobrov (1966) as the “measurement of informatics processes”, informatics in the Slavic sense, that is, “the study of the structure and properties of scientific information and the laws of scientific communication processes” (as cited by Sengupta, 1992). It is an interdisciplinary field, not in the sense that it deals with a topic area that straddles two traditional disciplines, but in the sense that it involves a large number of disciplines, given the scope of its objectives. One of the specialists that attempted to establish a definition of this specialty was Vinckler (1991): “Scientometrics is a scientific discipline dedicated to the quantitative aspects of Science and scientific research”.

Dobrov affirmed that Scientometrics has been mainly devoted, on the one hand, to the analysis of “informational” parameters of scientific development (the number of papers, journals, authors), and on the other hand, to its laws (aging, dissemination, structure, document flow, citation processes, etc.). From this point of view, the objective would be “to determine a series of dynamic indices that describe the system of science in its process of

development, taking into account that Science is a system of probability and its results have a probabilistic nature”, adds this same author.

Likewise, from an institutional perspective, the journal is the place where scientific work has its chance to be published, to acquire social existence and to be preserved. In this way, journals express the state of science at a given moment, they reveal the topics of concern, the most active authors or groups, and the most influential work. In summary, journals offer a set of essential data for understanding the state of a given discipline.

The arrival of automated systems in the 1960s transformed information storage systems. The process of information storage and retrieval has been closely tied to technology development, with the most significant change happening at present – a complete transformation of the information industry.

Thus, while the conceptualization of Science is evolving rapidly, Vocational Guidance is also undergoing profound changes in order to adapt to new social reality, despite its relative youth (the authors agree that it originates with Parson in 1909 after the publication of his work, *Choosing a vocation*). And so we wish to respond to a number of pressing questions: What is happening with Vocational Guidance? Is it mostly talk and little action? Society, legislators, etc., claim that it is very important, but later is nothing really implemented? Where are we, really? Where should we direction our inventions in the counseling process, in order to be effective?

In recent years, Vocational Psychology has not only been amassing a set of interesting scientific literature, but it has also taken certain steps professionally and politically. Even so, there are still certain deficiencies and gaps (for example, certain topics and populations have not been studied, connections to other spheres of research have been missed, and contextual and cultural variables have been overlooked). A number of dangers and opportunities await vocational psychology in the coming decade. Some of the dangers (for example, the availability of Internet-based services) also represent big opportunities, depending on how they are deployed within this context.

Objectives

Based on the work that we have done, we are able to state the strengths and weaknesses of Vocational Guidance and Psychology in our country with respect to the needs of current society. We therefore set two broad objectives for this investment. First, to gain an understanding of the scientific production in Spain in the area of Vocational Guidance during the period of 1990-2008, and so give continuation to previous work:

- *25 años de investigaciones españolas sobre Orientación Vocacional. Revisión bibliográfica sobre Orientación Vocacional (1952-1978)* [25 years of Spanish research in Vocational Guidance: a bibliographic review on Vocational Guidance (1952-1978)], by Carlos Castaño López-Mesas.

- *Psicología Escolar, Psicología Vocacional y Orientación Escolar a través de las Revistas Bordón, Revista Española de Pedagogía y Revista de Psicología General y Aplicada. (1970-1985)* [School Psychology, Vocational Psychology and Scholastic Guidance through the journals *Bordón*, *Revista Española de Pedagogía* and *Revista de Psicología General y Aplicada. (1970-1985)*], by Rafael Reig Peiró.

- *Orientación y Psicología Vocacional en España: Revisión y estado de la cuestión (1970-1999)* [Vocational Guidance and Psychology in Spain: Review and state of the art (1970-1999)], by M. Teresa Adame Obrador.

Analysis of these prior studies offers an abundant source of information regarding the topics, materials, resources, research methods, etc., that have been used in the area of Vocational Psychology throughout these years in Spain.

The second objective was to develop a Vocational Guidance Research Database (Flores, Gil, Caballer & Martínez, 2012) with the objective to not only to record information, but to provide a tool for research along scientometric indicators.

Method

Sample

The investigation is based on data gathered from the study of the following research journals:

- a) *Revista Española de Orientación y Psicopedagogía* (REOP): mouthpiece of the Spanish Federation of Guidance and Educational Psychology (FEOP)
- b) *Bordón. Revista de Pedagogía*: published by the Spanish Society of Pedagogy (SEP)
- c) *Revista de Investigación Educativa* (RIE): belonging to the Inter-university Association of Pedagogy Research (AIDIPE).
- d) *Revista de Psicología General y Aplicada*: first journal published in Spain to focus on the field of Psychology, founded by Dr. Germain in 1927.

The four Spanish journals have been selected based on the scientometric criterion of gemination. These journals have certain common characteristics that make it possible to carry out a number of comparative studies. While it is true that the *Revista de Psicología General y Aplicada* does not fit all the aspects of gemination, it was selected based on the criterion that it was the mouthpiece of the first Spanish Society of Psychology (SEP), making it an important scientific outlet. For this reason this journal contains a large number of articles that do not focus on Vocational Guidance, since it encompasses all areas of Psychology.

Drawing from these journals, we examined all their articles published during one period of time: from 1990 to 2008. The total number of articles was: *Revista Española de Orientación y Psicopedagogía*, 331; *Revista de Investigación Educativa* (RIE), 558; *Bordón. Revista de Pedagogía*, 664 and the *Revista de Psicología General y Aplicada*, 305. The articles were classified through a system of judges, bearing in mind theoretical conceptualizations (Flores, 2010) in the spheres of Educational Guidance, Vocational Guidance, Professional Guidance, Health and Methodology.

For the present study, we selected out of the total articles those that fall within the scope of Vocational Guidance. To do so, we adopted the theoretical assumptions proposed by Castaño (1983) and Rivas (2003) regarding Vocational Guidance and Vocational Psychology, respectively. In this fashion, the final sample was formed as shown in Table 1:

Table 1. Study Sample

Journal	Nº Articles	Nº Authors	Nº Signatures	Nº Institutions	Nº Bibliographic References
<i>Revista Española de Orientación y Psicopedagogía (REOP)</i>	54	78	89	27	1032
<i>Revista de Investigación Educativa (RIE)</i>	40	61	84	16	1005
<i>Bordón. Revista de Pedagogía</i>	18	27	34	7	378
<i>Revista de Psicología General y Aplicada</i>	8	13	17	6	167
Total	120	179	224	56	2582

Procedure: Scientometric Indicators

The indicators used in the present study are:

1. *Personal productivity*: the number of papers published by each author during the time period studied.

2. *Institutional productivity*: the number of papers published by authors' work affiliations during the period studied.

3. *Content areas*: the different subject matters addressed. This represents the best indicator of the journals' scientific orientation, since it reveals the topics that they cover.

For the content study, we designed a layout with a number of variables that enable us to analyze all the aspects that are involved in this indicator (Flores, 2007). The variables are:

a) Area: Vocational Guidance

b) Field/Topic area: We determined the fields with the highest incidence in the scientific output, making use of the "*Clasificación Temática de Orientación Vocacional*" [Topical Classification of Vocational Guidance] (Flores, 2010), which is an update of Adame's proposal (Adame, 2000).

c) Impact: The sphere in which the article is most directly applicable: adolescence, guidance counselors, teachers, adults, family, *Bachillerato* (post-compulsory secondary education), compulsory secondary education and university.

d) Type: Classification of articles as being theoretical, empirical or practical. For the empirical articles, we also analyze the design methodology.

e) Key words: Qualitative analysis of the key words that appear in the articles, determining those that were most often used.

4. *Bibliographic References*: these allow us to learn which documents and which authors were most often cited in the bibliography used for the target articles of our study. We can thus infer the theoretical trends and the most influential authors in the field of Vocational Guidance.

Finally, even though it is not a scientometric indicator itself, we analyzed the *Instruments* that were used by the authors in their studies, classifying them as: tests, self-designed instruments, programs and ICT material.

Instruments

In order to analyze these indicators, we developed and made use of the *Vocational Guidance Research Database* (Flores, 2010; Flores, Gil, Caballer & Martínez, 2012), which not only offers a record of all the articles that make up our sample, but also facilitates the realization of scientometric studies. The database includes an Administration Module and another module for Users. Only the members of the research team have access to the Administration Module. Some of the available functions are:

1) *Master table maintenance*: In this section we have access to the data that has been entered in the Database. Here we can enter new data or modify existing data. The master tables are dynamic, providing real-time data updates whenever modified, thus enabling automatic calculation of the different variables that make up the database.

2) *Article maintenance*: Data can be modified, added or eliminated here. This data is reflected directly in the master tables. Each article includes the following information: Journal where published, page numbers, volume, issue and year; title of article; authors; abstract; area that it belongs to; type of article (study or experience); methodology followed (theoretical, empirical, or practical); language; whether it has useful appendices; field to which it belongs; impact sphere and key words. From this section we can make general searches using one or more of the fields mentioned above.

3) *Queries and reports*: We can perform key word searches and author searches. In both cases, Glossaries are offered with the data. We wish to stress the value of our contribution in preparing a Key Word Glossary with terms related to Vocational Guidance. This glossary includes 245 terms that are presented in three languages (Spanish-English-

French), making it possible to search for articles in any of these three languages without making mistakes in translating the search terms.

4) *Results*: This section quantifies the data from the different variables that make up the database (data and graphics).

The User Module offers all three types of the queries mentioned above, and it also provides access to the glossaries.

Data analyses

We have carried out a systematic, controlled, empirical and critical study of the present state of Vocational Guidance as observed through the articles published in the different research journals. For this purpose we used an empirical-type study with a descriptive design, applied to describing the state of the Vocational Guidance area.

Results

Analysis of Personal Productivity

If we analyze the relationship between the number of articles published and the number of undersigned authors, we observe that, for five of the nineteen years analyzed, the number of authors compared to the number of published articles is more than double; in seven years the number of undersigned authors is practically double; and only in five years is the difference a minimal one. From this data we observe Spanish authors' tendency to carry out research investigations in teams. Moving on from this global analysis, we proceed to identify each author individually. For this purpose, we present Table 2, showing the authors who have published the greatest number of total articles in the four journals studied, and their productivity index. The Productivity Index was calculated following Lotka: $PI = \log \text{ of productivity}$.

Table 2. Author productivity in the journals analyzed

Author	Total articles	Individual contribution	Group contribution	Productivity Index
			4 (4 authors), 1 (2 authors), 1 (3 authors)	0.95
Álvarez Rojo, Víctor	9	3		

			2 (2 authors),	0.69
Álvarez Pérez, Pedro Ricardo	5	1	2 (4 authors)	
Anaya, Daniel	5	5		0.69
			1 (2 authors),	0.69
			1 (4 authors),	
Álvarez González, Manuel	5	2	1 (5 authors)	
Gil Beltrán, José Manuel	4	1	3 (3 authors)	0.60
Muñoz Sastre, M. Teresa	4	3	1 (2 authors)	0.60
Repetto Talavera, Elvira	4	2	2 (2 authors)	0.60
			3 (2 authors),	0.60
Rocabert Beut, Esperanza	4	0	1 (3 authors)	
Romero Rodríguez, Soledad	4	1	3 (4 authors)	0.60
			2 (2 authors),	0.60
			1 (4 authors),	
Santana Vega, Lidia	4	0	1 (3 authors)	
Sanz Oro, Rafael	4	2	2 (2 authors)	0.60
			1 (5 authors),	0.60
Sobrado Fernández, Luis	4	0	3 (2 authors)	

From this list we observe that the most productive author is Pedro Ricardo Álvarez, with a total production of 9 articles, of which three are undersigned as a single author and the remaining represent group work where two, three or four authors have intervened. One noteworthy data point is that all these authors who published their papers in the journals analyzed are from Spain, no single foreign author appears. This reflects an eminently Spain-centered orientation, where research studies carried out outside Spain are not included in any significant way.

Based on these authors we have made an estimate of the bibliographic production of one person. When the authors are part of a group contribution, we made the estimate using the *whole counting* method (Pascual, 1981). We found that of the total 120 articles published in Vocational Guidance in the four journals during the period analyzed, productivity is expressed in articles with one author (28.5%), two authors (27.6%), three authors (16.74%), four authors (15.83%), five authors (9.04%) and six authors (2.26%).

One fundamental aspect in the study of multi-authorship is the Collaboration Index (CI). This is the most widely used indicator for the degree of co-authorship between

colleagues, since it is a single figure that indicates the average number of authors that have intervened in one's articles or papers. This is calculated as the ratio between the number of undersigned authors and the number of articles. If we look at the CI, we observe how this has been increasing irregularly (ups and downs from year to year) over time. However, there is a clear rise in the periods from 1990 to 1993 and from 1999 to 2002, after which we see a tendency to decline.

The mean for this index is 1.8, or less than 2, the average value for Educational Sciences (Fernández & Bueno, 2002). Nonetheless, we can note that during eight years, the CI did reach 2 or higher, especially in the year 2002 when the CI reached 3.2. In short, the values that we found are practically a constant in Educational Sciences output.

Analysis of Institutional Productivity

This section focuses on the institutions that have contributed the greatest number of articles to the set of Spanish journals being analyzed. The universities that contributed the most articles are: the University of Seville (15), UNED (National University of Distance Education) (12) and the University of Barcelona (10).

Of the 29 institutions that published papers on Vocational Guidance in these journals, all are universities. Most are Spanish universities, with just 6 universities from other countries.

Content Analysis

Field

Keeping in mind the Topical Classification of Vocational Guidance (Flores, 2010), the field most represented is that of *Programs/Systems for Vocational Behavior Intervention and Counseling/Guidance*, with 33 contributions. This is followed by the *Vocational Guidance Counselor, Teams or Services* (13), *Origin and Historical Development* (12), *Vocational Behavior / Vocation: Vocational Theories, Concept* (9), and *Choice of Vocation* (8).

Impact

If we look at the sphere of impact addressed in these published papers, there are three main areas: Secondary Students (31), Guidance Counselors (30) and the University (22).

These spheres of impact are addressed through different fields of interest, represented in each paper, as reflected in Table 3.

Table 3. Fields studied within each sphere of impact represented in the journals analyzed

Field / Impact	Adolescence	Adults	Bachillerato	Work world	Counselors	Secondary	All	University	Total
A.1. Origin and historical development					9		2	1	12
A.2. Vocational behavior/ vocation: concept, vocational theories					5	2	1	1	9
A.3. Vocational Counseling / Vocational Guidance	1		1					1	3
A.3.1. Approaches to Counseling / Vocational Guidance: theoretical-technological foundations			1	2					3
A.3.2. Vocational Diagnosis/ Evaluation								1	1
A.3.3. Programs / Systems for vocational behavior intervention and counseling /guidance	3	1	2	5	15			7	33
A.3.4. The Vocational Guidance counselor, teams or services					3	2	2	4	11
A.3.5. Vocational Counseling / Guidance in the school curriculum		2						1	3
A.4. Vocational development / career development			2	1	2			2	7
A.4.10.2. Functional minorities: physical, mental and sensory defects	1		1		1			1	4
A.4.3. Vocational interests / preferences			2	1	4				7
A.4.4. Vocational decision-making			3	1					4
A.4.5. Vocational indecision	1		1						2
A.4.6. Vocational choice			4			2		2	8
A.4.7. Vocational maturity			2			1			3
A.4.9. Vocational behavior and gender						1	1	1	3
A.5. Vocational information						1			1
A.6. Research in Vocational Guidance / Psychology					1				1
A.6.1. Instrumentation					2		1		3
A.7. Vocational Guidance / Counseling by countries, regions / comparative situation.				1			1		2
Total	1	2	11	1	8	14	7	10	120

As seen in the data, the field *Programs / Systems for vocational behavior intervention and counseling / guidance*, addressed to Secondary Education, and secondly, the field of

Origin and Historical Development, addressed to Guidance Counselors, stand out with the highest representation.

Type

As for type of article, generally speaking the empirical articles are predominant, followed by the theoretical. Practical applications represent a very low number with respect to the rest. After studying the type of design used in empirical papers, we present the results in Table 4.

Table 4. Type of empirical studies in the journals analyzed

Type of empirical study	Nº	%
Cross-sectional survey	39	78%
Quasi experimental designs	3	6%
Ex post facto designs	2	4%
In depth interviews	2	4%
Bibliometric studies	2	4%
Experimental study using group comparison	1	2%
Longitudinal survey design	1	2%
Total	50	

We observe that all design types used in the empirical articles correspond to experimental and quasi experimental methodologies and to survey methodology. No paper followed an observational or qualitative methodology.

Key words

As for key words, we found that the authors had used a total of 353 different key words. If we make a qualitative analysis of these, the key words that were most applied correspond to: Vocational Guidance, Decision Making, Secondary Education, Guidance Programs, Guidance Services, University Guidance, University, Vocational Counseling, Career Development, Vocational Interests and Guidance Counselor.

*Analysis of Bibliographic References**References by author*

The authors who were most often referenced in the journals analyzed in this scientometric study are shown with their data below in Table 5.

Table 5. Authors most often referenced in the journals analyzed

Authors most often referenced	Nº References
Repetto Talavera, E.	43
Super, D. E.	42
Álvarez Rojo, V.	39
Holland, J. L.	37
Rivas Martínez, F.	34
Rodríguez Moreno, M. L.	33
Rodríguez Espinar, S.	31
Echevarria, B.	25
Watts, A. G.	24
Sanz Oro, R.	21
Bisquerra, R.	20
Álvarez, M.	19
Gysberg, N.C.	16
Hoyt, K. B.	16

From this list, only five of these most-referenced authors do not come from Spain. These authors can be considered the most representative authors in the Area of Vocational Psychology internationally. As for the Spanish authors, we infer that they have the greatest influence in Spain both in terms of theoretical foundations for research and practical applications for guidance counselors in their professional work.

Document Type -Language

The type of document most often used as a reference for the articles was the Book (1061), followed by Research Journals (955), and thirdly we find Book Chapters (279). The majority of these documents referenced were written in English (52.14%), as well as Spanish (44.79%) and French (2.56%). The number of examples in other languages was negligible. Another data point is that any Presentations referenced were quite predominantly in Spanish. These were taken from Proceedings of conferences that were held in Spain. Finally, although

the figures are not high, one can note an increasing trend toward referencing online documents. With the incorporation of new technologies, certain documents and materials can only be located on Internet.

Publication Year of the Reference Document

In this section we analyze the references used by the authors of the Vocational Guidance articles, according to the year the referenced document was published.

Can the bibliography used for the articles published during this period be considered up to date? We observed that the decades most often referenced were from 1981 to 1990 and from 1991-2000. If we compare these references to the year when the pertinent issue of the journal was published, we observe that the endnote references show primarily bibliography from the ten years prior to publication of the article, such that we consider the bibliography used to be sufficiently up to date.

- Reference Documents

In this section we carry out a study of the documents (books and research journals) that were used by the authors. Thus, among the Spanish books, the one most often referenced is the *Manual de Orientación y Tutoría* [Manual of guidance and homeroom teaching] by Álvarez González and Bisquerra, with 14 references. It is considered one of the books that has had most impact among Spanish guidance counselors. In second place we find the book *Calidad en la Universidad: Orientación y Evaluación* [Quality at University: Guidance and Assessment] by Apocada and Lobato, with 11 references, and in third place the book *Orientación e intervención psicopedagógica* [Guidance and School Psychology Intervention] by Rodríguez Moreno with 10. The fourth document is the book *Modelos de Orientación e Intervención Psicopedagógica* [Models of Guidance and School Psychology Intervention] by Bisquerra. This book is a classic in Vocational Guidance in the context of Spanish guidance counselors. The authors' uses of this book have referred to Book Chapters.

As for the international books most often referenced, we find: *Career Development Inventory* by D.E. Super and collaborators; *Comprehensive Guidance Programs that Work* by Gysberg, N.C. and *Self-Directed Search* by J.L. Holland.

On the other hand, among the Spanish journals, the most referenced are: *Revista Española de Orientación y Psicopedagogía* with 52 references, *Revista de Investigación Educativa* (RIE) with 41, *Bordón* with 24 and the *Revista de Psicología General y Aplicada* with 16; and in the category of international journals we find: the *Journal of Vocational Behavior* with 70 references, followed by *School Counselor* with 34 references, and in third place with 29 references, the *Journal of Counseling and Development*.

Discussion and conclusions

The sphere of *Vocational Guidance and Psychology* is not only very important within the Spanish educational context, but also in the international arena. Inasmuch as it applies to students' employability and mobility, it has been significantly incorporated into the educational systems of different countries. Different studies such as those shown in Table 6 reveal the research topics that are most often addressed by researchers. Such topics directly affect the effectiveness of a person's career development, while they also indicate the thrust of the training that Guidance Counselors should receive in order to face the challenges that the 21st century will place in their path. We draw from the following studies (see Table 6):

- Borgen (1991) analyzes 1029 papers published between 1971 and 1991 in the *Journal of Vocational Behavior*.

- Álvarez (1995) analyzes 37 papers from the journal *Career Development Quarterly* and 102 from the *Journal of Vocational Behavior* during the period 1987 to 1990.

- Nilsson et al. (2007), in his paper, analyzes 990 articles published in the following journals: *Journal of Vocational Behavior* (JVB, 1971–2004), *Career Development Quarterly* (CDQ, 1970–2004; previously *Vocational Guidance Quarterly*); *Journal of Career Assessment* (JCA, 1993–2004); and *Journal of Career Development* (JCD, previously *Journal of Career Education*, 1972, 1974–2004).

- Flores (2010) analyzed 561 articles published in the journals: *Revista Española de Orientación y Psicopedagogía* (1990-2008), *Bordón. Revista de Pedagogía* (1990-2008), *Revista de Investigación Educativa* (1990-2008), *Revista de Psicología General y Aplicada* (1990-2008), *L'Orientation Scolaire et Professionnelle* (1992-2008), *Journal of Vocational Behavior* (1990-2008) and the *International Journal for Educational and Vocational Guidance* (2001-2008).

Table 6. Most researched topic areas in Vocational Guidance

	Borgen (1991)	Álvarez (1995)	Nilson, et al (2007)	Flores (2010)
1	Occupational choice	Vocational Maturity	Countries, populations or specific cultures	Intervention and counseling programs and systems / guidance of vocational behavior
2	Workplace satisfaction	Career Counseling	Professional and academic attitudes	Research methodology
3	Vocational development	Career Development in organizations	Career interests/aspirations/ choice	Vocational behavior / vocation: vocational concept, theories
4	Decision making	Vocational Guidance in minority groups	Personality variables	Vocational interests / preferences
5	Vocational maturity	Decision making	Career development	Origin and historical development
6	Consistency of indicators	Vocational Diagnosis	Client / Counselor Career Counseling	Instrumentation
7	Work-related stress	Computer assisted Vocational Guidance	Theories / models	Vocational decision making
8	Self-efficacy	Vocational Interests	Structure and type of career	Vocational Guidance / Counseling by countries, communities / comparative situation
9		Work values	Career decision making and indecision	Vocational development / career development
10		Transition	Gender and sex roles	Counseling approaches / Vocational Guidance: theoretical-technological foundations

From an analysis of this table, one can infer that the most researched topics are: Decision Making, Vocational Interests, Work World, Vocational Development and Vocational Counseling.

The research we have carried out regarding Vocational Guidance and Psychology in Spain has enabled us to observe the power of scientometric methodology for gaining an understanding of the evolution and present state of a scientific field; such an understanding is important not only for progress in scientific knowledge, but also for better transmission of such knowledge to the scientific community. We also feel that another important contribution from this research has been the development of the Vocational Guidance Research Database,

which proved to be very effective not only in registering the information, but also in handling the data, since it produces reports and updates them in real time. The Database also makes it possible to extend this type of analysis to other areas of Guidance (educational, professional, etc.), and to other areas of Psychology (social, clinical, etc.). Keeping these two general premises in mind, we wish to underscore the following aspects of our study:

a) The journals have a marked pedagogical nature as can be seen when analyzing the distribution of articles by Areas, since the Area of Educational Guidance was the most representative. In this regard, we wish to state that there is no journal in our country which represents the Area of Vocational Guidance, within the broader field of Psychology, as can be found with journals from other countries.

b) The scarcity of contributions from authors of other countries reveals the eminently national scope of research carried out in Spain.

c) The greatest productivity can be found in two periods, the years 1990 and 1992, and the years 1998, 2001 and 2005. We feel this is due to the appearance of two laws addressing education in Spain: the LOGSE (1990), which stresses the importance of Guidance, and leading up to LOE (2006), where the importance of Guidance and Guidance Services is further developed in a context where Guidance Departments have already been established in secondary schools. It should be noted that Spanish authors show a clear tendency to produce articles within a team, as can be seen when obtaining the CI of personal productivity.

d) The institutions that have the greatest productivity are the University of Seville, the National University of Distance Education (UNED) and the University of Barcelona.

e) There is little presence of non-university authors, most are university professors. We consider this to be a handicap, since there is little relationship between research and practice. The researcher must be familiar with present reality, and the guidance counselor must be familiar with the research. This is one of the aspects pointed out by Savickas (1995) when he proposes that the future of Vocational Psychology involves sharing across experience and research; this way the publications can reach everyone and not be limited to a number of journals that are only read and consulted by university researchers. This seems paradoxical in our case, since most of the journals analyzed pertain to associations that are

made up of guidance counselors. Thus, there ought to be increased participation of these professionals in disseminating the experiences that they carry out at their schools.

f) An understanding of the most important topic areas that are being researched in our Area allows us not only to understand the present, but also be able to make decisions regarding the future. The topic areas that have most impact are: *Vocational Counseling and Vocational Guidance, Intervention Programs/Systems, Vocational Behavior Counseling/Guidance and the Vocational Guidance Counselor, Teams and Services*. We consider these to be the most important fields within Vocational Psychology, and can further affirm that they are a constant throughout all the years studied.

We also found it notable that fields such as Vocational Maturity, Vocational Information and Decision Making have been practically passed over by the researchers. And these are precisely the fields that should be seen most in future research studies.

g) It is meaningful that most articles address the realm of Guidance Counselors. Similarly, the other sphere of most impact is secondary students (this seems logical with respect to how Guidance is configured within our educational system); even though recently there have been a considerable number of articles related to Vocational Guidance at the University.

h) The eminently theoretical and empirical nature of the published articles is also noteworthy, with practical applications having only a slight representation. Among the empirical articles, the design types used are the experimental and quasi-experimental methodologies, and survey methodology.

i) One aspect that we wish to emphasize is the study of indexation, which has allowed us to work effectively with the databases. We have developed and included in our Database a glossary of key words about Vocational Guidance in Spanish, French and English. The key words most often utilized are Vocational Guidance, Decision Making and Secondary Education.

j) As for the instruments used by researchers in their studies, we most often observe standardized tests and self-designed instruments, most of them focusing on aspects related to

students' vocational development. We also encounter a number of programs that primarily address students' vocational and professional choice. To a lesser degree, there are also ICT tools that focus on training of guidance counselors.

k) The study of Bibliographic References is an important contribution for understanding the Area of Vocational Guidance. The scientometric layout that we have used (Flores, 2007) allowed us to collect information on the different fields as well as their interrelationships, proving the database's capability of cross-matching different fields.

- Regarding the most referenced authors, these fall into two major groups. The first incorporates authors from other countries, whose line of research focuses more specifically on Vocational Psychology. The second group is the Spanish authors, who can be classified as belonging to the sphere of Educational Psychology.

- The language mainly used in bibliographic reference documents is English, though there is variability according to the type of document. Thus, the predominant language in the journals referenced is English, while the books referenced are primarily in Spanish.

- In general, we can affirm that the bibliography used is sufficiently up to date, since the authors use mostly documents from the last decade prior to the publication year of their articles, with even greater emphasis on the last five years.

- Finally, the documents making up the reference base for these authors are primarily Journals and Books.

In the terms described above, we observe how little attention the scientific community has given to Vocational Guidance. This fact contrasts starkly with the important role that Guidance has taken on in the different stages of Spain's educational system, both in non-university education (LOE), and more recently at the university (Statute on the University Student), in addition to the guidelines given by the European Community through its different reports: Trend I (1999), Trend II (2001), Trend III (2003), Trend IV (2005) and Trend V (2007).

In short, we believe that studies such as we present here not only reveal the current state of affairs, but they also reveal the lines of study that are important to pursue in the future in order to respond effectively to the challenges facing Guidance Counselors in 21st century society. Such work will enable us to establish direct communication between researchers and professionals in Vocational Guidance, allowing science to reach all.

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