

# The Vocational Guidance Research Database: a Scientometric Approach

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## Abstract

The scientometric study of scientific output through publications in specialised journals cannot be undertaken exclusively with the databases available today. For this reason, the objective of this article is to introduce the *Base de Datos de Investigación en Orientación Vocacional* [Vocational Guidance Research Database], based on the use of scientometric indicators.

The use of dynamic tables in the technical design of this database results in real-time updates. Moreover, the option of exporting data to other software programs enables researchers to expand their field of study. This is complemented by a topic-based vocational guidance classification, allowing us to identify the fields that are most researched, and a vocational guidance glossary containing 245 terms in three languages (Spanish, English and French). Furthermore, we can use this database for teaching purposes, as an introduction to scientometric research.

The flexibility of this database also makes possible an expansion to other areas and fields of psychology.

**Keywords:** Vocational Guidance Research Database, scientometric studies, guidance counsellors, ICT

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## Resumen

El estudio cientimétrico de la producción científica a través de las publicaciones periódicas de las Revistas especializadas no pueden llevarse a cabo exclusivamente con las bases de datos que actualmente existen. De ahí que el objetivo de este artículo sea presentar la *Base de Datos de Investigación en Orientación Vocacional*, basada en la utilización de Indicadores Cientimétricos.

El diseño técnico de la misma se realiza a través de tablas dinámicas, permite una actualización inmediata de los datos, así como su exportación a otros programas de cálculo, permitiendo de esta manera que el investigador pueda ampliar su campo de estudio. Todo ello, se complementa con una Clasificación Temática de Orientación Vocacional que nos permite establecer los campos objeto de mayor investigación, así como la confección de un Glosario de 245 términos de Orientación Vocacional en tres idiomas (español-inglés-francés). Por otro lado, esta Base de Datos, se puede utilizar desde una perspectiva docente como introducción a la investigación cientimétrica.

Dada la versatilidad de esta Base de Datos permite su utilización en otras áreas y campos de la Psicología.

**Palabras Clave:** Base de Datos de Investigación en Orientación Vocacional, Estudios Cientimétricos, Orientador, TIC.

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## 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 19<sup>th</sup> century. Belgians P. Otlet and H. Lafontaine played the pioneering role in this endeavor. In the 1960s, based on Vickery’s *theory of information recovery* (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*).

Science can be seen as a very complex organization devoted to the activity of producing and disseminating symbolic products for consumers in increasingly specialized intellectual and professional markets. Within such structures, communication plays a fundamental role. Science must be communicable and accessible to everyone in order to be disseminated and published through the established channels. This is where scientific journals have an important role.

Such journals began to appear in the 19<sup>th</sup> century. There was a growing need for new and ever more diversified communities of experts, all these groups undergoing the process of being defined socially and becoming incorporated into academia. This situation led to the multiplication of print publications. In the second half of the century, such publications became established as periodicals, soon to become fundamental pillars in the new disciplines, including Psychology (Osier & Wozniak, 1984).

From an institutional perspective, the specialized journal is a place where scientific work has the possibility to be published, to acquire social existence and be preserved. Thus, journals reveal the state of science at a given moment, they show what topics are of interest, who the most active and wide-reaching authors and groups are, and what studies have the

greatest influence. In short, they offer a set of data essential for understanding the current state of a discipline.

Our society's new computerized, technological context offers innovative conditions for document analysis. Documentalists such as Pinto, García and Agustín (2002) present the following as important changes:

- 2) Printed databases have given way to electronic versions.
- 3) The culture of cumulative document search gives way to selective search (pertinent, filtered documentation instead of excessive documentation).
- 4) The organizational aspects of documentation are to take on greater value, giving way to documentary re-engineering and increased user participation in meeting his or her own document needs.

The arrival of automated systems in the 1960s transformed the way information was stored. Bibliographic indices or abstract journals, which till that time had fulfilled the mission of storing information for later retrieval, now applied computers to documentation tasks in order to facilitate the handling of large quantities of information, and information began to be stored on magnetic media.

This information storage and retrieval process has been closely tied to technology development, with the most significant change happening at the present – a complete transformation of the information industry. This transformation is primarily due to the latest advances in computerization and communications introduced by the use of hypertext, where links make it possible to associate words, phrases or complete documents with self-referential information or information about other documents, along with the appearance of new multimedia technologies that integrate sound, text, graphics and images in a single information system (Tortosa & Civera, 2002).

Databases are an example of one of these advances. A database is a body of information structured into records and stored on electronic media, from which a document reference, a specific data element, or a text can be made available, when accessed from a computer or from remote terminals connected through telecommunications networks to large computers that perform information search and retrieval with the help of a computer program. Each rec-

ord represents an independent unit of information that may in turn be structured into different fields or data types that are stored in the database (Tortosa & Civera, 2002).

In Guidance, when we speak of databases, we refer almost exclusively to the large research bases, namely: ERIC (*Educational Resources Information Center*) ([www.eric.ed.gov](http://www.eric.ed.gov)), comprising articles from RIE (*Resources In Education*) and from the CIJE (*Current Index to Journals on Education*); PsycINFO/PsycLIT ([www.apa.org/psycinfo/about](http://www.apa.org/psycinfo/about)), a reference bibliographic database created by the American Psychological Association's PsycINFO (*Psychological Abstracts Information Services*), which offers a set of interrelated information services providing access to worldwide literature in Psychology, and to studies on psychological aspects as they are addressed from other related disciplines -- undoubtedly the most important, most accessed database in the area of Psychology; PSICODOC ([psicodoc.copmadrid.org/psicodoc.htm](http://psicodoc.copmadrid.org/psicodoc.htm)), a reference database developed by the Psychology Association of Madrid, in collaboration with the Faculty of Psychology library at the Complutense University of Madrid, a database that collects studies from scientific journals, conferences and books produced in Spain and Latin America that address Psychology and related disciplines; reference databases from the CSIC (*Consejo Superior de Investigaciones Científicas*, or, the Higher Council on Scientific Research) ([www.csic.es/cbic/bases.htm](http://www.csic.es/cbic/bases.htm)), gathering Spain's scientific production as published in Spanish specialized journals, such as PSEDISOC, a subfile of the ISOC database, which covers the area of Psychology and Educational Sciences.

At the present, most of these and other databases used in research are accessible via Internet or on CD-ROM, some require payment of a fee and others are free of charge (Sanz, Gil & Marzal, 2007). Nonetheless, the use of databases as a tool can and should be optimized, since they serve to convey the information generated in the teaching-learning process itself. All this should be implemented in the simplest possible manner, focusing on what is truly of interest to us as guidance professionals.

The database presented here is designed according to two fundamental premises accepted by scientific researchers:

a) *The technical implementation of the database follows from the theoretical conceptualization of scientometrics.* 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”. He stated the objective of Scientometrics, according to Sengupta (1992), as the quantitative assessment of the recent growth of any scientific discipline, and the factors responsible for continued activity and progress in that area of knowledge.

Despite opinions to the contrary, it seems clear that Scientometrics falls largely within the scope of Bibliometrics and Informetrics. There is practically total overlap in their techniques and methodologies. While Bibliometrics, Informetrics and Scientometrics share a large common area, differences lie in that (1) Bibliometrics, at least in theory if not in practice, deals with topics outside of the measurement of Science, and (2) Scientometrics is also interested in certain measurements not based on publications, for example, how Science is funded. Its social orientation and its application to planning, which different authors insist on, are other differentiating qualities. In general, the sub-specialty of Scientometrics places greater emphasis on the evaluation of science, and on procedures and indicators developed for this purpose.

An indicator is a parameter used for evaluating any activity. In the case of scientometrics indicators, they serve to measure the vicissitudes of scientific literature (Araújo & Arencibia, 2002). There are fundamentally four aspects studied in a scientometrics analysis, according to López (1996): productivity, collaboration, subject matter and bibliometric references.

b) *In the classification of different databases, the database presented here falls into the category of document-oriented databases.* These information systems seek to incorporate the greatest number of access possibilities for locating documents according to subject matter.

Each document is submitted to document analysis, indexing, classification, descriptors, identifiers, place names, abstracts, etc.

Keeping in mind all the above, and now focusing on Vocational Psychology, our database implementation enables us not only to learn about the current status of the discipline, but also its significance in the training of professionals who work in Vocational Counseling. This makes it possible to use vocational constructivism as an effective approach to youth counseling in today's society (Rivas, 2007).

### **The functional structure of the Research Database applied to Vocational Guidance**

The organizational structure of the Research Database on Vocational Guidance allows for access as a user or administrator.

#### *1. Administrator module [Módulo Administración]*

Only the members of the current research team have access to the Administrator Module. Database maintenance and information updates are addressed here.

The following screen reveals some of the different functions that the Database offers (see Figure 1):



**Figure 1: Administrator Module**



a) Maintenance of master tables [*Mantenimiento tablas maestras*]

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.

The master tables are as follows:

- *Autor* [Author]: information about the researchers who have published their work in the journals that are part of the database.
- *Institución* [Institution]: information on the authors' affiliation: universities, research centers, etc.
- *Palabras Clave* [Key words]: Here we find a glossary of terms related to Vocational Guidance. The glossary is in three languages: Spanish – English – French. It must be kept in mind that whenever a new term is entered it must be introduced in all three languages.
- *Revista* [Journal]: allows modification of any aspect of a Journal name as it appears in the Database, or its description. New journals may also be entered here.
- *Incidencia* [Impact]: details on the intended audience of the studies reported in the article: Guidance Counselors, Upper Secondary Education, etc.
- *Campo* [Field]: classification by Vocational Guidance topic (Appendix 1)

b) Article Maintenance [*Mantenimiento Artículo*]

Using the next form (see Figure 2) we can enter new articles or modify existing ones.

**Figure 2: Article Entry Form**

When entering a new article, the following Database fields are displayed and must be filled in:

- *Revista* [Journal]

The name of the Journal where the article is published must be indicated in this field. The articles entered refer to Vocational Guidance, and cover the period 1990-2008. The Journals included are:

- *Revista Española de Orientación y Psicopedagogía (REOP)*
- *Bordón. Revista de Pedagogía*
- *Revista de Investigación Educativa (RIE)*
- *Revista de Psicología General y Aplicada*
- *L'Orientation Scolaire et Professionnelle*
- *Journal of Vocational Behavior*
- *International Journal for Educational and Vocational Guidance*

Whenever a new journal is to be included in the Database, the administrators can create an entry for it within this module.

- *Artículo* [Article]

For each article entered, the following aspects must be identified:

- Title of article
- Page numbers where the article is located
- Year of publication
- Article abstract
- Volume and Number

- *Área* [Area]

In our study we consider three area groupings: Vocational Guidance, Educational Guidance and Professional Guidance, according to a number of theoretical assumptions that make up the scientific framework of these areas (Flores, 2007). Articles appearing in the database belong in their entirety to the sphere of Vocational Guidance. The articles are assigned to this area based on theoretical assumptions defined by Castaño (1983) and Rivas (2003). Nonetheless, the database is also set up to include articles that belong to the other areas mentioned above. In addition, it is possible to enter new areas of study.

- *Metodología* [Methodology]

Following the scientific nomenclature in common use, we have classified articles into the following types: theoretical, practical and empirical. A theoretical classification means the article discusses concepts, theories, and/or history from a concept and paradigm point of view. Practical articles discuss experiences and/or applications based on the text analyzed, sometimes including appendices that provide this applications side. Finally, empirical articles are those that follow the rules of scientific method: hypothesis, objectives, procedure, sample, conclusions.

Each of the empirical studies has been analyzed and classified according to the type of study design used, as follows (classification adapted from Reig, 1989):

1. Experimental and Quasi-experimental Methodology
  - a) Experimental designs with group comparison
  - b) Single case designs

- c) Quasi-experimental Designs
- d) Other
- 2. Survey Methodology
  - a) Cross-sectional survey designs
  - b) Longitudinal survey designs
  - c) Descriptive survey designs
  - d) Explanatory or analytical survey designs
  - e) Ex post facto designs
  - f) Other
- 3. Observational Methodology
- 4. Qualitative Methodology
  - a) In-depth interview
  - b) Discussion group
  - c) Other
- 5. Other
  - a) Meta-analysis
  - b) Bibliometrics
  - c) Other

- *Idioma* [Language]

Identifies the language the article is written in (Spanish, English, French, Italian, German, etc.).

- *Incidencia* [Impact]

This variable indicates the article's primary sphere of application. We have established two parameters for this purpose. The first encompasses different educational stages of the Spanish Educational System: Compulsory Secondary Education, *Bachillerato* and University. The second refers to wider aspects and more varied topics, such as: adolescence, adults, family, the work world, guidance counselors and teachers. We also include the category *All*, when the impact includes many of these spheres. The spheres of application can be extended to address new social or educational situations, etc., that affect vocational guidance. In this way, the database offers flexibility in adapting to new reality, since the spheres of impact can vary when one wishes to work in other areas.

- *Campo* [Field]

In its broadest sense, this is defined as Content Analysis. Thus, a topic or area classification of articles from a journal, over a specific time period, gives us an idea about the theoretical interests that were dominant within a certain scientific community during that particular time (Tortosa & Civera, 2002).

Here we include the *Topic Classification for Vocational Guidance* (Flores, 2010) (see Appendix 1). This classification is updated from the proposal by Adame (2000), and it may in turn be modified in order to address new aspects that appear in the scientific literature.

- *Anexo* [Appendix]

We consider this section to be of great interest, since on occasion an article may present appendices with information that is quite valid for both researchers and practitioners in Guidance. This may involve questionnaires, guidelines, scales, etc. In this way, such interesting information is not lost with the passing of time.

- *Autores* [Authors]

In the Bibliometrics literature, one of the scales traditionally used to measure scientific leadership is the number of studies published by each author in well-known scientific journals (Carpintero & Peiró, 1983; Prpic, 1996; Adair & Vohra, 2003). It is valuable to know about the distribution of a scientist's studies, overall and in detail, in accordance with the size of their written production. Based on productivity analysis, measured by the number of journal publications, publications by the authors, by a research group, by the institutions, in a given country, and over a particular period of time, we obtain growth rate of science (Smith et al, 1998).

The database offers a drop-down menu with all the authors that have published any study that has already been entered. These authors are linked to the Institution they are affiliated with (universities, institutes, organizations, etc.). In the case that an unregistered author is to be included, the database detects this and redirects the administrator to the Master Table of authors. Once the new author's data have been entered, they become part of the database.

- *Palabras clave* [Key words]

Information recovery systems, in order to be effective in practice, require mechanisms or symbols that allow a document's main content to be identified, selecting it from the rest of the collection without wasting the user's time. This process of isolating descriptive outlines is called indexing. UNESCO (1975) defines it from two angles: as a *process*, consisting of describing and characterizing a document with the help of representations of the concepts contained in the document; and in terms of its *purpose*, to make it possible to effectively search for the information contained in a documentary archive. Indexing is a documentary requirement not only for adequate storage, but also for timely information recovery.

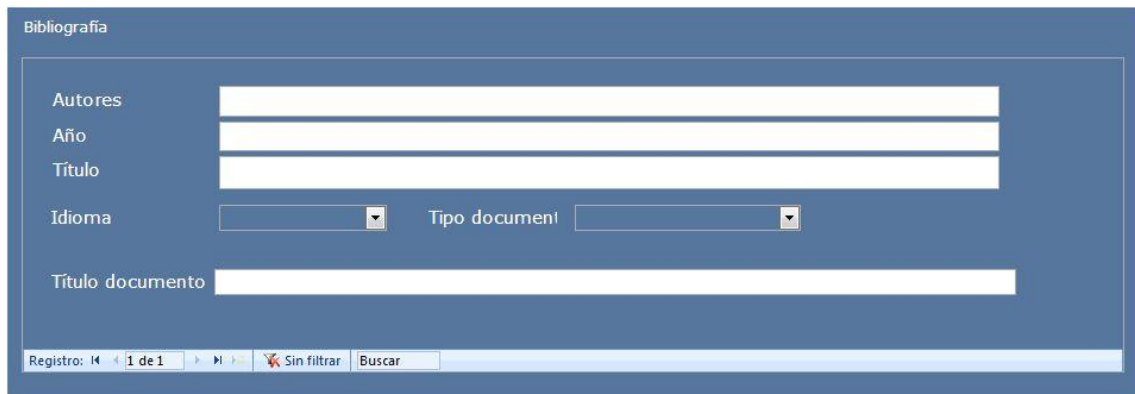
In this regard, we have developed a glossary of terms from Psychology and Vocational Guidance. In order to do so, we made use of the Thesaurus for Education Systems in Europe (European Commission, 2009), the Glossary of Guidance Terms from the AIOSEP/ONISEP (2001) (*Association internationale d'orientation scolaire et professionnelle-Office National d'Information Sur les Enseignements et les Professions*) and the Glossary of Scholastic and Professional Guidance, from the University of Santiago de Compostela (Sobrado & Porto, 2000). From this review, terms related to the vocational area were selected. The key words from the journal articles that we have analyzed were then incorporated into this set of terms.

The glossary is composed of 245 terms that are displayed in three languages "Spanish-English-French", thus facilitating the search for articles in any of these languages. As in other fields, when a new key word is being introduced, the database detects this and redirects the administrator to the key word Master Tables. Once the new data is entered, it becomes part of the database.

- *Bibliografía* [Bibliography]

Bibliographic references given by the authors of scientific articles offer plentiful information about usage in different scientific communities. For example, we find that social scientists make more references to books than do scientists from the "hard" sciences, who use a higher proportion of scientific articles. We can also see the obsolescence rate of scientific literature according to the half life of the studies referenced, which also varies as a function of the field being studied.

An analysis of bibliographic references indicates what authors, studies, topic areas, etc., are most prominent. For this reason we will analyze each article for its author, authors referenced, type of reference (book, book chapter or journal), year of the reference and language (see Figure 3).

The image shows a web form titled 'Bibliografía' with a dark blue background. It contains several input fields: 'Autores' (a long text box), 'Año' (a text box), 'Título' (a text box), 'Idioma' (a dropdown menu), 'Tipo documento' (a dropdown menu), and 'Título documento' (a long text box). At the bottom, there is a navigation bar with 'Registro: 14', '1 de 1', a 'Sin filtrar' button, and a 'Buscar' button.

**Figure 3: Article bibliography entry form**

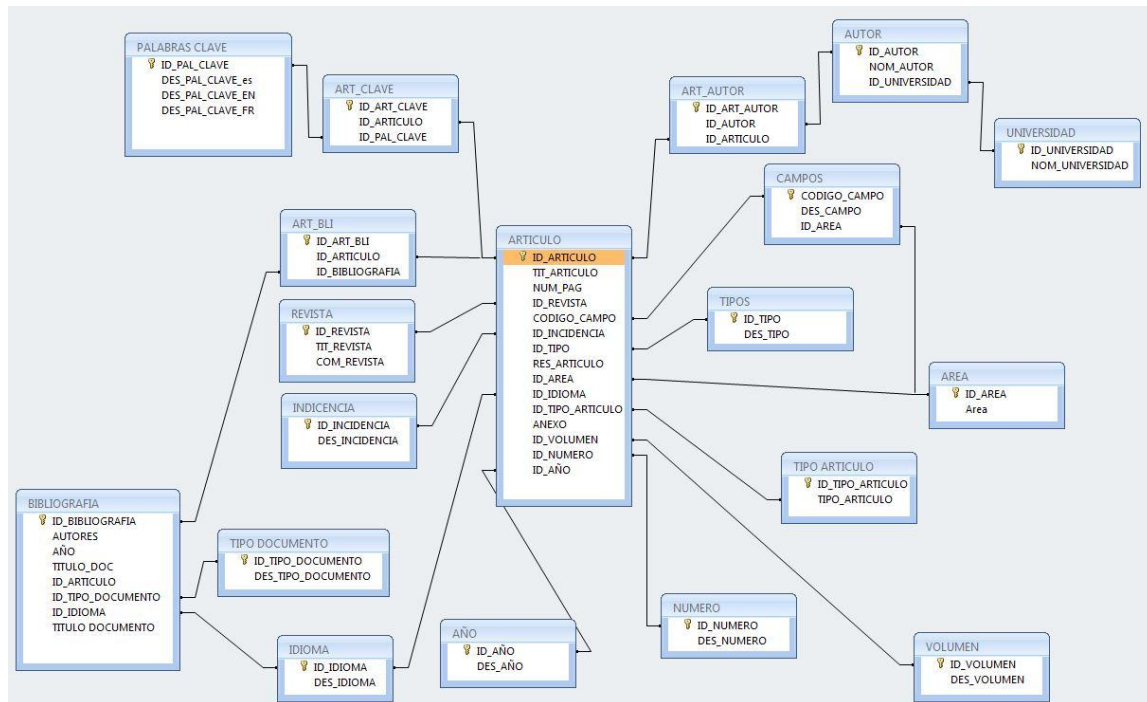
For each reference, the database administrators must indicate:

- *Autores*: Author(s) of the reference
- *Año*: Year of the reference
- *Idioma*: Language of the reference
- *Título*: Title (to be completed in the case of journal articles or book chapters)
- *Tipo documento*: Type of document (book, journal, book chapter, presentation, lecture, doctoral thesis, research study, on-line document, test, conference, other documents)
- *Título documento*: Document title

#### c) Queries and reports [*Consultas e Informes*]

Administrators may also perform article queries or searches using the administrator module. These searches can be based on author, key word and/or general queries where information is filtered through any field of interest.

It is possible to do such searches using previously established relationships. These relationships are defined in Figure 4.



**Figure 4: Relationships between fields in the database**

#### - Author search

This search allows us to obtain all the articles in the database that were written by a specific author. In order to facilitate the search, a glossary appears with the names of all the authors and their affiliation.

For each of the articles produced by the search, the following information is shown: the author's institution (affiliation); title of the article, the journal where it is published; location (issue, volume, year, pages); language in which it is written; article abstract; methodology followed; article type; the field of study to which it belongs; intended audience; whether there are any significant appendices (material); names of collaborating authors, in the case of multiple authors; and article key words.

#### - Key word search

Produces all articles where a specific key word was assigned. It is especially worth noting that, since the database logs key words in Spanish, French and English, a key word search in one language also produces all articles that have been assigned the same key word in the other two languages.

In order to facilitate this type of search, the queries and reports section presents a glossary with all the key words appearing in any database article. For each article produced by a given search, the same information is shown as for Author Search.



- *General search*

This type of search makes it possible to locate articles of interest based on any of the fields that appear in the form, and searches can be narrowed even further by combining different fields to limit search results. In this case, searches are defined using the *article entry form* (Figure 2), where we select the different fields that interest us. For each article produced by a given search, the same information is shown as for the above-mentioned searches (see Figure 5).

6 CAMPO por incidencia				
TIT_REVISTA	DES_INCIDENCIA	CODIGO_CAMPO	DES_CAMPO	TIT_ARTICULO
Revista de Investigación Educativa (RIE)	Orientadores	A.1.	Origen y desarrollo histórico	Roles y funciones de los orientadores
Journal of Vocational Behavior	Orientadores	A.1.	Origen y desarrollo histórico	Vocational Psychology and Career Counseling: Inventing the Future
Journal of Vocational Behavior	Orientadores	A.1.	Origen y desarrollo histórico	Adapting Vocational Psychology to Cope with Change
Journal of Vocational Behavior	Orientadores	A.1.	Origen y desarrollo histórico	The Developmental Perspective in Vocational Psychology
Journal of Vocational Behavior	Orientadores	A.1.	Origen y desarrollo histórico	John L. Holland's Contributions to Vocational Psychology: A Review and Evaluation
Revista de Investigación Educativa (RIE)	Orientadores	A.1.	Origen y desarrollo histórico	Y, ¿los servicios sirven?
Journal of Vocational Behavior	Orientadores	A.1.	Origen y desarrollo histórico	Dynamic Forces in the Growth and Change of Vocational Psychology
Revista de Investigación Educativa (RIE)	Universidad	A.1.	Origen y desarrollo histórico	Oferta de los servicios de orientación en las universidades españolas.
International Journal for Educational and Vocational Guidance	Orientadores	A.1.	Origen y desarrollo histórico	An analytical framework for career research in the post-modern era

**Figure 5: Example of report**

d) Results [*Resultados*]

This section allows us to quantify the data from the different variables that make up the database (see Figure 6).

BASE DE DATOS ORIENTACIÓN - Módulo Resultados

**Bibliografía**

Bibliografía-año Σ

Bibliografía-idioma Σ

**Artículo**

Artículo-año Σ

Autor-año Σ

Institución-año Σ

Campo-año Σ

Campo-incidencia Σ

Tipo Σ

↔

**Figure 6: Results module**

- With respect to *articles*, we can obtain results on:
  - *Artículo-año* [Article-Year]: how many articles on vocational guidance were published each year in each of the journals.
  - *Autor-año* [Author-Year]: the number of authors who published their studies each year in each of the journals.
  - *Institución-año* [Institution-Year]: for each year, what institutions have the most production in each of the journals.
  - *Campo-año* [Field-Year]: for each year, what topic areas were most often addressed by authors in each of the journals.
  - *Campo-incidencia* [Field-Impact]: for each journal, the number of published studies according to topic area and intended audience.
  - *Tipo* [Type]: the number of theoretical, empirical and practical studies that were published in each of the journals.
  
- Regarding the *bibliographic references* in the articles, the following results can be obtained:
  - *Bibliografía-año* [Bibliography-Year]: year by year, the number of bibliographic references that authors have used. These data can be viewed in graphic form where we may also select the years or the journals that interest us.
  - *Bibliografía-idioma* [Bibliography-Language]: information on the type of document used in the references and in what language it was published. These data may also be viewed in graphic form, where we may select the data that we wish to appear.

The database allows us to create reports according to the selected variables. It also offers the possibility of exporting data to Microsoft Excel, where the researcher can work with the data in broader terms.

## 2. User Module

Access to this Module is available to anyone wishing to obtain information from the database. Some of the functions available to the user are shown below (see Figure 7).



**Figure 7: User module**

a) Queries and reports [*Consultas e informes*]

From this module users can do article queries and searches. These queries may involve author, key word and/or other fields. Just as in the administrator module, users obtain a report with the data from their query. The structure and functions of this block are the same as those explained in the administrator module.

b) Contact [*Contacto*]

In this section users may make two different types of requests to the administrators. The first involves sending information on a given article in vocational guidance, published in one of the database journals, to request its inclusion. The user sends the article's identifying information to the administrators through the database itself. If the administrators consider that it should be included, they will enter the article data in the database, thus maintaining control over what articles are incorporated. The second type of inquiry involves requests to the administrators for any other type of information regarding the database itself, or how to obtain a certain data output.

## Conclusions

The *Vocational Guidance Research Database* constitutes an importance contribution to the study of psychology and vocational guidance from the scientometrics perspective, allowing us to quickly learn the current situation of the field through the scientific publications found in journals. The objective of this article has been met by presenting a database that makes it possible for the researcher to perform studies of a scientometric nature – distinguishing it from other databases in use (psicodoc, eric, psicinfo, scopus, etc.), which are usually used as “information search engines”. The technical contributions of our database have to do primarily with: use of dynamic tables, reports produced, printing options, and data transfer to other programs such as Excel. In addition to the above, the innovative nature of the database lies in its usefulness: for researchers, vocational guidance professionals, university teachers and students doing research practicums in vocational psychology.

The contributions from this Database can be grouped into the following categories:

### A) Regarding *Vocational Psychology and Guidance*:

- The possibility of performing studies with scientometric indicators, since other existing databases do not allow this type of study by any direct means.
- A real, current understanding of the state of the art in Vocational Guidance, allowing us to establish a baseline for developing intervention programs for preparing 21<sup>st</sup> century guidance counselors, and for promoting lines of research that correspond to the current needs of society.
- Provide guidance counselors and other professionals in this sphere with material that is useful to them in their work in assessment, diagnosis, intervention and advising, by increasing their access to specific studies and experiences of interest, making this information available in a systematic, approachable format.
- Offers researchers a compilation of the predominant literature in Vocational Guidance, highly useful to them in their information search and selection for any kind of investigation.
- Article searches, using a key word in one language, that automatically produce relevant documents in three major languages.

- The Vocational Guidance glossary included in this database is useful for performing searches, and also has educational value in the development of researchers, as it offers them the proper, unified scientific terminology in Vocational Guidance in three major languages.

B) Regarding its *general application*, we can affirm with certainty that this database will serve research in Educational Guidance and Vocational Guidance, since the specific parameters of these two areas have already been established (Flores, 2007). Moreover, the technical configuration of the database allows for easy extension to the study of other areas of Psychology: clinical, social, etc.

C) The technical structure of the database provides ease of use for researchers and other users.

- Data may be exported to statistical programs such as Microsoft Excel, facilitating data use and handling.
- The database serves as practical material for training university students, both for supplementing their knowledge as well as for becoming initiated in research in this field.
- It will be accessible to European guidance counselors through the Web, thereby narrowing the gap between research and professional practice.
- Reports based on selected fields may be produced, saved and/or printed.
- The presence of both dynamic tables and dynamic graphics results in real time updates.

Access to the database will be free of charge and will be integrated into the structure of the European Guidance Counselor portal (under construction). In summary, we believe that the use of new technologies can facilitate effective responses to the challenges faced by guidance counselors in 21<sup>st</sup> century society. In the specific case of this database, at the broadest level it makes an important contribution in connecting researchers and professionals in Vocational Guidance, such that Science can reach everyone.

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## **Appendix 1. *Topic Classification for Vocational Guidance***

### **A. VOCATIONAL PSYCHOLOGY / VOCATIONAL GUIDANCE**

A.1. Origins and historical development

A.2. Vocational behavior / vocation: concept, vocational theories

A.3. Vocational advising / vocational guidance

A.3.1. Approaches to vocational advising / guidance: theoretical and technological foundations

A.3.2. Vocational diagnosis / assessment

A.3.3. Vocational behavior programs / intervention and advising / guidance systems

A.3.4. Vocational guidance counselor, teams and services

A.3.4.1. Counselor training

A.3.5. Vocational advising / guidance according to age groups / stage of education or training

A.3.6. Vocational advising / guidance in the school curriculum

A.4. Vocational development / career development

A.4.1. Self-concept / Self-realization

A.4.2. Aptitudes / abilities for vocational development

A.4.3. Vocational interests / preferences

A.4.4. Vocational decision making

A.4.5. Vocational indecision

A.4.6. Vocational choice

A.4.7. Vocational maturity

A.4.8. Vocational fit- consistency

A.4.9. Vocational behavior and gender

A.4.10. Vocational development of minority groups

A.4.10.1. Ethnic minorities

A.4.10.2. Functional minorities: physical, mental and sensory impairment

A.4.10.3. Groups with social maladjustment

A.5. Vocational Information

- A.6. Research in Vocational Psychology / Guidance
  - A.6.1. Instrumentation
  - A.6.2. Research methodology
  - A.6.3. Sources, media
- A.7. Vocational advising / guidance according to countries, communities / comparative situation
  - A.7.1. Guidance Policies
- A.8. ICT
  - A.8.1. Computerized Advising Systems
  - A.8.2. Internet
- A.9. Culture and Multiculturalism
- A.10. Other