

# World Scientific Production in Psychology\*

## Producción Científica de Psicología a nivel mundial

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### ABSTRACT

This study examines world scientific production in Psychology based on bibliometric indicators (scientific production, production's percentage variation, average citations per document, normalized citation, impact, etc.), for the period 2003–2008. The analysis is made by country, by research institutions, and scientific journals, using the Scopus (Elsevier), database of scientific literature. The results show that total world production has increased over the period studied. Four groups are acknowledge for each country, institutions, and journals, taking into account their values of scientific production, normalized citation, and subject specialization.

#### Key words authors:

Global Psychology, Scientific Production, Bibliometrics.

#### Key words plus:

Scientometrics, Journals Psychology, Elsevier.

### RESUMEN

Este estudio examina la producción científica mundial en psicología sobre la base de indicadores bibliométricos (producción científica, variación en los porcentajes de producción, promedio de citas por documento, impacto, etc.) para el periodo 2003-2008. El análisis se realiza por país, por instituciones de investigación y por revistas científicas, usando la base de datos de literatura científica Scopus (Elsevier). Los resultados muestran que la producción mundial total se ha incrementado durante el periodo estudiado. Se distinguen cuatro grupos de cada país, instituciones y revistas, basados sobre los valores de producción científica, citación normalizada y área de especialización.

#### Palabras clave autores:

Psicología mundial, producción científica, bibliometría.

#### Palabras clave descriptores:

Cienciometría, revistas de psicología, Elsevier.

In the 1970s, it was possible to observe an incipient interest in the analysis of scientific productivity in the field of Psychology, as evidenced by Endler, Rushton, & Roediger (1978), Levin et al. (1978), and Daniel (1979), apart from the analyses that E. Garfield published in *Current Contents* from 1975 until the 1990s.

However, it was not until the beginning of this century that there was really a major interest in the analysis of scientific research in general. This was due, in addition to the traditional interest in the field of science's history, to policy-makers' need to evaluate the growing production of researchers, and the researchers' own desire to see where they were positioned in their specialization. Following Hjørland (2002), there have been different approaches to these studies. One of them is represented by psychology's traditional historiography done in Italy by Ceccarelli et al. (2010), and the other by Hjørland's (1998) own epistemological and critical studies. But perhaps the mainstream approach in the field in the present day is the use of bibliometric methods to study structures and institutions in scientific communication. For example: Haggblom et al. (2002), apply citation analysis to determine which have been the eminent authors in Psychology; López, García-Cepero, Bustamante-Aguilar, Silva & López (2010), examine the patterns of behavior of authors publishing in *Psychology In Latin America*; Ribas et al. (2009), study the authors in *Social Psychology In Brazil* to reveal the salient topics in this category; and Jevremov, Pajic, & Sipka (2007), consider the intellectual structure of Personality Psychology's specialization based on author co-citation.

Other studies have been clearly delimited geographically by having a focus of a country's particular national context. Liberatore and Hermosilla (2008), deal with the volume, visibility, and impact of the scientific production on *Psychology In Argentina*. Pfrang and Schneider (2006), make a comparative study of the situation of *German Psychology* in relation to other countries in Europe, and Hadjistavropoulos (2009), a similar comparison of the impact of *Canadian Psychology* with respect to other G8 countries. García Pérez (2001), and De Tejada and Tedó (2001), address psychological

research in Spain distinguishing by specialization, and García Martínez et al. (2008a, 2008b, 2009), consider the same topic in Spain and Latin America. Shortening the context even further, Krampen (2008), evaluate university Psychology Departments based on citation analysis, and Mahoney, Buboltz, Calvert, & Hoffmann (2010), give an overview of the production of Psychology's institutions through a publication's analysis in journals of the *American Psychology Association*. Globally speaking, Navarrete-Cortes, Fernández-López, López-Baena, Quevedo-Blasco, and Bucla-Casal (2010), describes a countries' qualification according to their impact and scientific output in Psychology journals including the *Web of Science*.

Therefore most of these scientometric studies have been limited to a subdiscipline of psychology, or to a particular country or region, and does not deal with the subject area as a whole. They also take restricted methodological approaches in both the data retrieval strategy, and the indicators' calculation.

In this work, we analyze scientific production in the Area of Psychology using bibliometric indicators (production, normalized citation, and their percentage variations, the Subject Specialization Index, citations per document, SJR, excellence, etc.), for the period 2003–2008. As independent variables, we consider countries, major research institutions, and scientific journals.

## Material and Methods

In November 2004, the largest multidisciplinary scientific bibliographic database on the market, Scopus, was made available with more than 17 000 journals' coverage (Hane, 2004; Pickering, 2004). Despite its short time on the market, this product has already been the object of several studies addressing its characterization and analysis (Archambault, Campbell, Gingras, & Larivière, 2009; Leydesdorff, Moya Anegón, & Guerrero Bote, 2010; Moya Anegón et al., 2007). In the present work, we use the Scimago Institutions Rankings (SIR) resource, a Scopus-based science evaluation tool to assess universities and research-focused institutions

(government agencies, research laboratories, hospitals, etc. See <http://www.scimagoir.com/methodology.php>), to study those countries and institutions with a production (Ndoc), of at least 200 and 520 documents, respectively, and journals in the subject area of Psychology.

The SJR (Scimago Journal Rank), index was developed by the SCImago research group<sup>1</sup> to represent the visibility of the journals contained in Scopus since 1996 (González Pereira, Guerrero Bote, & Moya Anegón, 2010; Bollen et al., 2009). It's based on the diffusion of prestige or influence from journal to journal, through references. It is size-independent, and weights the citations received by the journals within a three-year window with the privileged of the cited journal.

The Normalized Citation scores are the scientific impact measures that institutions have on the scientific community as a whole. In order to obtain a fair measurement of this impact, their calculation removes the influence due to the institutions' sizes and research profiles, making it ideal for comparing research performance. The Normalized Impact values are the ratios between an institution's average scientific impact, and the world publications' average impact with the same time frame, document type, and subject area.

Prestige SJR (PSJR), reflects the prestige of entire journals (González Pereira et al., 2010). The Percentage Variation of Production (PVP), for the period studied (2003–2008) is the difference percentage in the number of works in 2008 relative to the total production of 2003.

The Percentage Variation of the Normalized Citations (PVNC) for the period studied (2003–2008) is the percentage difference of the normalized citations in 2008 in relation to the total normalized citations of 2003.

The Subject Specialization Index (SSI), reflects the concerned activity (Moya Anegón et al., 2004), in a particular subject area determined through the level of specialization, understanding it as the relative effort that a community, or agent devotes to a

discipline or subject area. It is quantified in terms of documents' numbers produced in a particular discipline by a given group regarding another. The SSI of subject area C for group E, regarding group M, is calculated as:

$$SSI_{E/M} = \frac{\frac{Ndocc_E}{Ndocc_M}}{\frac{\%Ndocc_E}{\%Ndocc_M}}$$

Where

- NdoccCE is the number of documents in the field C in the group E (and analogously for NdoccCM);
- NdoccE is the total number of documents of group E (and analogously for NdoccM);
- %NdoccCE is the percentage of documents of group E in the field C relative to the total of that group's primary documents (and analogously for %NdoccCM).

We selected the twenty most cited papers in each of the study period years as works of excellence. This allowed us to calculate an indicator of excellence that we named Top20, for each of these years.

## Results

### Countries

Of the 230 worldwide countries publishing in all subjects, 69% do so in the field of Psychology, 159 of these, we selected the 40 most productive in the period 2003–2008. Particularly these countries produced more than 200 papers in this period – the position at which there was a clear gap in output with the following country. These 40 countries (representing 17.39% of the total), published 98.33% of all documents produced in the period 2003–2008, with the remaining 1.67% distributed among the 119 countries that weren't included in the selection.

<sup>1</sup> <http://www.scimagojr.com/SCImagoJournalRank.pdf>

Table 1 presents the production data and its evolution and variation over the covered time period, the subject specialization's level of the forty countries, and their overall world ranking compared to their ranking in Psychology. For example, is clear to observe that the U.S. is ranked number one, both in overall scientific production and in Psychology, representing 43% of worldwide psychological output. But this is not the case with the world's overall number two: China, which ranks only number 24 in Psychology, due to its low subject specialization index. The U.K. is world's overall number three, and second ranked in Psychology, consistent to its high subject specialization index. The same is also the case for Australia and The Netherlands, which present a noticeable advance in ranking in Psychology, in relation to their overall positions.

All the countries except Russia show fairly large growth in this period. The U.S. is the largest producer and continues to grow throughout this period. It is followed by the U.K. but with a gap of 75%, and then by Canada with a bigger gap of almost 50% of the U.K.'s production. From this point onwards, the differences between countries are less seen.

Israel and New Zealand are the two countries with the largest Psychology's specialization, despite ranking only 11 and 16 respectively in production. China, India, and Russia, are the countries with least specializations.

Regarding the production's variation, there are 25 countries above both the global average in Psychology, and the mean for these 40 most productive countries. This group does not include the countries that are already the most productive such as the U.S., U.K., or Canada. The countries with greatest growth in the period are Brazil, Poland, and Colombia despite they didn't ranked near the top of production. This is especially noticeable for Colombia, which is ranked second to last in production.

Table 2 presents the citation data, with each country's score on the total data citations, citations per document, and percentage of cited documents, and the evolution of the normalized citation and its percentage variation over the study period.

Of the total citations (1 249 152), received by the area of Psychology in this period, 98.96% correspond to the 40 most productive countries. The countries receiving most citations are the U.S. with 49.28% total, followed at a distance by the U.K. with 10.97%. From this point on, the distribution of citations is more homogeneous.

The citations per document index of the forty countries (6.86), is above the Psychology world average in this period, but slightly below the general world average.

The meant normalized citation for the 40 countries (0.89) is clearly above the Psychology world average (0.79), but only slightly greater than the general world average (0.87). 22 countries in total surpass the general world average, and 26 the Psychology world average, with the Netherlands, U.S., Canada, Belgium, and the U.K. exceeding it by 50%.

We established four groups of countries according to their production's values, subject specialization, normalized citation, and the percentage variation of these last two indicators (Table 3).

Group 1, of fourteen countries, is characterized by a high production of documents (the meant number of documents exceeds the world meant for Psychology), normalized high citation, and high specialization index. The ranking of these countries in Psychology is higher than their general ranking, with the exception of U.S., which is top-ranked in both. In Figure 1, this group is in the upper right quadrant. Represents the most prominent countries in Psychology's production, it includes the two most specialized countries in the world (New Zealand and Israel), and accounts for 62.5% of the countries with works of excellence. The Netherlands, U.S., Canada, and Belgium, are the countries with the highest values of normalized citation, and the group also includes the countries with the highest percentages of cited documents (Finland, Netherlands, Sweden, and Hong Kong), and two of the countries with the highest number of citations per document (Netherlands, U.S.) This group accounts for 82.11% of the total Psychology's production, and received 88.69% of the total citations.

**TABLE 1***Temporal evolution of the production, its percentage variation (PV), and SSI by country (period 2003–2008)*

Rank Psych	Country	Rank Gen	Ndoc						Total NDoc	PV	SSI
			2003	2004	2005	2006	2007	2008			
1	United States	1	9006	9485	9810	10584	10945	11385	61215	26.42	1.82
2	United Kingdom	3	2091	2281	2450	2591	2924	2994	15331	43.19	1.67
3	Canada	7	1238	1431	1378	1506	1666	1642	8861	32.63	1.78
4	Germany	5	1099	1099	1264	1344	1450	1547	7803	40.76	0.95
5	Australia	11	668	769	827	918	980	1118	5280	67.37	1.63
6	Netherlands	13	625	684	754	766	954	1028	4811	64.48	1.84
7	France	6	607	664	712	719	788	913	4403	50.41	0.74
8	Spain	9	396	457	528	612	689	867	3549	118.94	0.95
9	Italy	8	389	412	493	487	542	537	2860	38.05	0.61
10	Japan	4	354	434	434	424	520	415	2581	17.23	0.3
11	Israel	22	351	307	285	325	370	432	2070	23.08	1.87
12	Belgium	21	251	286	320	338	354	427	1976	70.12	1.32
13	Sweden	18	291	225	253	298	307	329	1703	13.06	0.97
14	Switzerland	17	175	187	271	268	343	396	1640	126.29	0.87
15	Brazil	15	84	90	123	376	447	498	1618	492.86	0.72
16	New Zealand	34	166	177	175	223	230	238	1209	43.37	1.96
17	Hong Kong	28	124	164	142	150	176	195	951	57.26	1.05
18	Finland	27	130	147	153	158	158	183	929	40.77	1.02
19	Norway	32	130	132	142	143	161	211	919	62.31	1.24
20	Taiwan	16	66	82	114	160	227	246	895	272.73	0.45
21	South Africa	35	102	113	121	160	138	215	849	110.78	1.48
22	Turkey	20	86	84	121	131	155	167	744	94.19	0.46
23	Austria	23	85	86	102	110	118	143	644	68.24	0.64
24	China	2	58	77	71	94	137	187	624	222.41	0.05
25	Denmark	25	74	81	107	115	105	114	596	54.05	0.63
26	Ireland	39	66	88	87	92	114	118	565	78.79	1.22
27	Mexico	29	78	73	80	85	94	148	558	89.74	0.65
28	South Korea	12	56	58	78	116	128	119	555	112.50	0.19
29	Greece	26	67	89	89	100	86	91	522	35.82	0.56
30	Poland	19	24	32	50	60	127	132	425	450	0.25
31	Portugal	33	36	43	56	76	85	89	385	147.22	0.59
32	India	10	48	53	47	63	89	78	378	62.5	0.12
33	Russian F.	14	65	57	52	68	81	44	367	32.31	0.14
34	Singapore	30	45	28	44	58	66	99	340	120	0.43
35	Iran	24	43	38	40	47	56	61	285	41.86	0.32
36	Argentina	36	27	35	48	45	46	77	278	185.19	0.5
37	Chile	44	22	25	22	44	61	84	258	281.82	0.75
38	Colombia	54	15	20	16	32	93	74	250	393.33	1.67
39	Czech Republic	31	41	36	34	36	37	52	236	26.83	0.31
40	Hungary	37	38	34	37	20	41	42	212	10.53	0.39
<b>Total 40 countries</b>			19307	20663	21930	23942	26088	27735	139675	43.58	
<b>World Psychology</b>			19607	21028	22274	24361	26514	28261	142045	44.14	

Source: own Work.



TABLE 2

*Total Citations, Citations per Document, % Documents Cited, Normalized Citation and its Temporal Evolution, and Percentage Variation (PV) in the Normalized Citation (period 2003–2008)*

Country	Tot. Cit.	Cit. per Document	% Cited Docs	Norm. Cit.	Normalized Citation						PV Norm. Cit.	Top 20
					2003	2004	2005	2006	2007	2008		
United States	609198	9.95	83.72	1.27	1.29	1.28	1.25	1.25	1.28	1.27	-1.55	81
United Kingdom	135691	8.85	79.67	1.2	1.12	1.21	1.2	1.28	1.11	1.26	12.5	18
Canada	85267	9.62	85.05	1.22	1.2	1.19	1.32	1.26	1.18	1.21	0.83	8
Germany	69897	8.96	84.4	1.18	1.05	1.09	1.15	1.11	1.26	1.32	25.71	11
Australia	45458	8.61	84.58	1.15	1.11	1.2	1.16	1.2	1.09	1.14	2.70	5
Netherlands	52341	10.88	89.79	1.41	1.39	1.3	1.38	1.44	1.47	1.46	5.04	7
France	23160	5.26	60.55	0.63	0.61	0.69	0.68	0.62	0.58	0.62	1.64	7
Spain	20024	5.64	75.85	0.81	0.72	0.7	0.81	0.81	0.99	0.76	5.56	4
Italy	22448	7.85	76.92	0.98	1.08	0.9	0.91	0.93	0.97	1.1	1.85	4
Japan	12166	4.71	67.07	0.56	0.6	0.57	0.57	0.61	0.48	0.56	-6.67	-
Israel	18364	8.87	85.41	1.11	1.08	1.14	1.04	1.07	1.2	1.09	0.93	-
Belgium	18490	9.36	82.09	1.22	1.14	1.33	1.09	1.17	1.34	1.22	7.02	1
Sweden	15406	9.05	86.91	1.12	1.1	1.14	1.1	1.05	1.12	1.18	7.27	-
Switzerland	12834	7.83	82.13	1.15	0.75	0.97	0.96	1.22	1.28	1.39	85.33	1
Brazil	4523	2.8	45.36	0.37	0.77	0.75	1.02	0.27	0.3	0.25	-67.53	1
New Zealand	9435	7.8	81.39	1.06	0.98	0.91	0.92	1.35	1.07	1.08	10.20	2
Hong Kong	7825	8.23	86.33	1.02	0.95	1.23	0.94	0.93	0.98	1.04	9.47	-
Finland	8413	9.06	90.31	1.11	1.25	1.07	0.97	1.06	1.23	1.1	-12.00	-
Norway	7771	8.46	82.81	1.1	1.21	1.09	0.91	1.16	1.17	1.05	-13.22	1
Taiwan	5395	6.03	80.56	0.79	0.98	0.89	0.77	0.93	0.82	0.61	-37.76	-
South Africa	3587	4.22	68.55	0.56	0.53	0.66	0.8	0.45	0.52	0.48	-9.43	1
Turkey	3850	5.17	75.27	0.69	0.68	0.83	0.82	0.55	0.85	0.5	-26.47	-
Austria	4959	7.7	81.06	1.11	0.92	1.13	1.06	1.23	1.18	1.08	17.39	-
China	4890	7.84	85.26	1.1	0.87	1.75	0.8	0.96	1.22	1	14.94	-
Denmark	5759	9.66	82.05	1.2	1.42	1.15	1.14	1.04	1.18	1.33	-6.34	-
Ireland	3297	5.84	75.22	0.84	0.74	0.86	0.79	0.62	0.66	1.27	71.62	-
Mexico	2120	3.8	56.63	0.47	0.68	0.41	0.5	0.42	0.46	0.42	-38.24	-
South Korea	3847	6.93	83.42	0.94	0.89	1.01	0.92	1.03	0.91	0.87	-2.25	-
Greece	3024	5.79	81.8	0.73	0.49	0.73	0.82	0.64	1.05	0.62	26.53	1
Poland	1799	4.23	50.59	0.57	1.16	1.09	0.88	0.54	0.42	0.37	-68.10	-
Portugal	2524	6.56	74.81	0.87	1.34	0.96	0.68	0.75	0.98	0.77	-42.54	-
India	1661	4.39	66.4	0.61	0.55	0.54	0.92	0.72	0.49	0.56	1.82	-
Russian Federation	1300	3.54	44.14	0.45	0.36	0.58	0.65	0.32	0.3	0.68	88.89	-
Singapore	2233	6.57	82.65	1	0.69	0.9	1.11	0.96	0.92	1.19	72.46	-
Iran	1687	5.92	75.44	0.82	0.75	0.83	0.87	0.79	0.75	0.91	21.33	-
Argentina	951	3.42	55.76	0.43	0.64	0.65	0.42	0.4	0.47	0.25	-60.94	-
Chile	1077	4.17	63.18	0.62	0.62	0.38	1.21	0.88	0.48	0.5	-19.35	-
Colombia	437	1.75	48	0.28	0.34	0.37	0.4	0.43	0.16	0.31	-8.82	-
Czech Republic	1036	4.39	63.56	0.56	0.54	0.61	0.59	0.29	0.46	0.78	44.44	-
Hungary	2046	9.65	75.94	1.11	1.14	1.2	0.85	0.88	1.51	0.94	-17.54	-
40 countries	1236190	6.73										
World Psychology	1249152	5.97										

Source: own Work.

**TABLE 3**

*Countries' grouping in the Area of Psychology (period 2003–2008; in bold the countries that are the paradigms of each group, and in italics the countries farthest from the characteristics of the group)*

Group 1. Outstanding	Group 2. Recognized	Group 3. Productive	Group 4. Neutral
<b>United States</b>	<b>China</b>	<b>Colombia</b>	<b>Russian Federation</b>
<i>Hong Kong</i>	<i>Italy</i>	<i>Spain</i>	<i>Portugal</i>
<b>Netherlands</b>			
<i>Switzerland</i>	Austria	South Africa	Greece
	Denmark	Ireland	Poland
United Kingdom	Singapore		Argentina
Sweden	Hungary		India
Canada			Turkey
Germany			Iran
Australia			Taiwan
New Zealand			Chile
Israel			Mexico
Finland			Brazil
Belgium			South Korea
Norway			France
			Czech Republic
			Japan
Mdoc: 8192.71 PV: 50.8	Mdoc: 879.3 PV: 95	Mdoc: 1303 PV: 175	Mdoc: 905.5 PV: 115.65
NC: 1.17 PV: 10	NC: 1.08 PV: 16.18	NC: 0.62 PV: 14.73	NC: 0.63 PV: - 7.68
SSI: 1.43	SSI: 0.46	SSI: 1.33	SSI: 0.44

Mdoc: Document Output Average; NC: Normalized Citation; SSI: Subject Specialization Index; PV: Percentage Variation.

Source: own Work.

Group 2 is represented by six countries with normalized high citation index, but low subject specialization and production, except for Italy in this last indicator. In these cases, their ranking in Psychology is lower than their general ranking, with China being the clearest example (Austria and Denmark maintain their respective positions in the two rankings). This group is located in the upper left quadrant of Figure 1. These countries are recognized for their work quality, although they do not produce much in Psychology in relation to their total output. China is the paradigm of this group, and Italy is the only country with an index of excellence, and thus represents just 6.25% of the countries with works of excellence. The group includes two of the countries with most citations per document (Denmark and Hungary). It accounts for 3.77% of the total in Psychology's production, and received 3.42% of the total citations.

Group 3 comprises just four countries, with low normalized citations and high specialization.

Although their production is generally low, Spain's production is very high. All four countries advance in ranking in Psychology relative to their general rankings. This group is located in the lower right quadrant of Figure 1. These countries have a major subject specialization in Psychology, but little recognition. Colombia is the best example, and is also notable for its increase in production (see Figure 2). Spain and South Africa both have indices of excellence, thus representing 12.5% of the total of countries with works of excellence. The group accounts for 3.73% of the total in Psychology's production, and received 2.21% of the total citations.

Group 4 is the largest, comprising 16 countries with low normalized citations and subject specialization. Generally they also have low production, although France, Brazil, and Japan are exceptions in this case. In general the ranking of these countries in Psychology is lower than their general ranking, the exceptions are Portugal, Mexico, and Chile, which advance in positions, and Argentina and

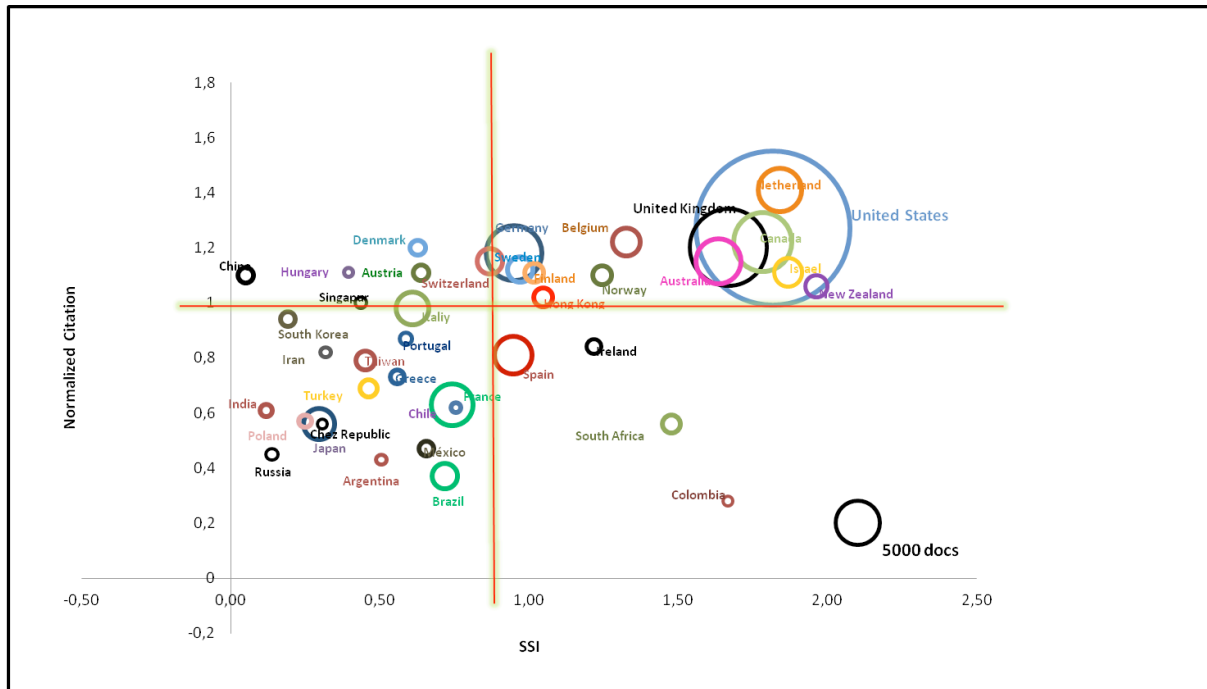


Figure 1. Subject Specialization Index and normalized citation of countries with a production of at least 200 documents (period 2003–2008.)

Source: own Work.

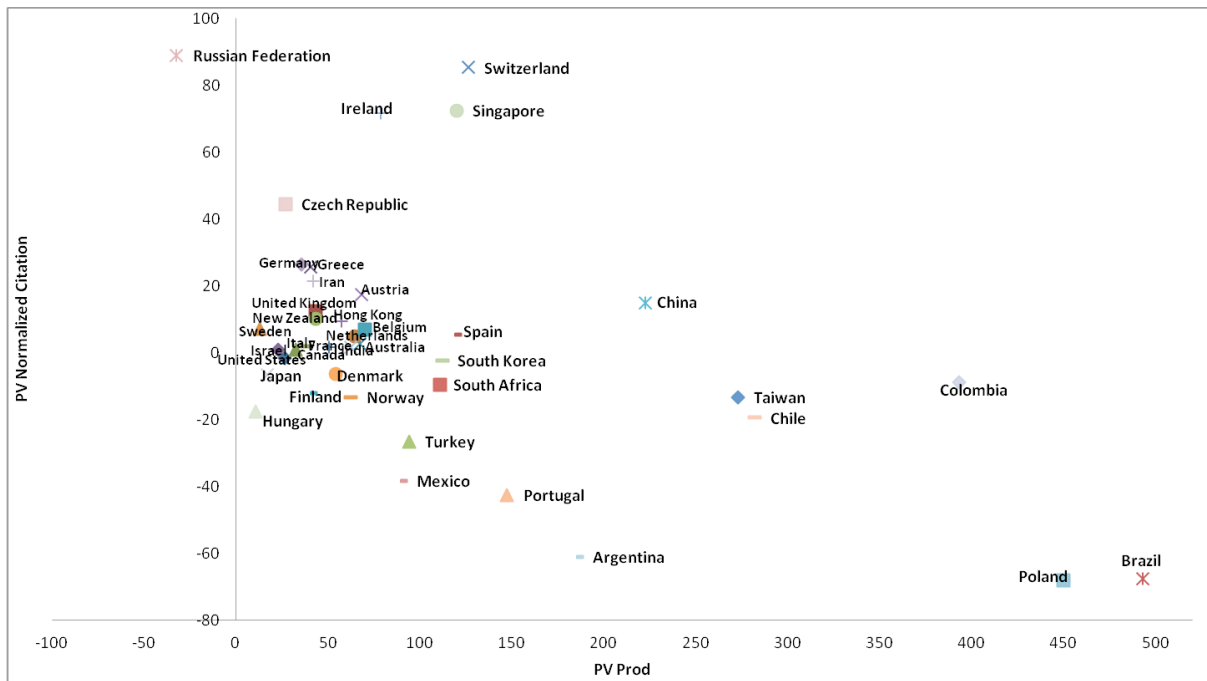


Figure 2. Percentage of product variation, and standard countries' citation with a production of at least 200 documents (period 2003–2008.)

Source: own Work.



Brazil that maintain theirs. This group is located in the lower left quadrant of Figure 1. These countries are neither specialized nor widely recognized. Although their absolute production is low, Brazil and Poland stand out for their growth in production (Figure 2.) France, Brazil, and Greece have contents of excellence in index, thus representing 18.75% of the countries with works of excellence. This group accounts for 10.37% of the total in Psychology's production, and received 5.83% of the total citations.

### *Institutions*

Of the 4686 institutions that published worldwide in the Area of Psychology, were selected the 70 most productive in the period 2003–08, in particular those with an exceeding production of 520 documents in this period. The corresponding data are presented in Table 4. This 1.49% of the institutions' total publishing in Psychology sum for 30% of world production in the Area.

Only three institutions correspond to the health sector, and two of those are of the governments'. Most of the 70 institutions are universities, 51 of which are American, six Dutch, four British, four Canadian, two Belgian, one German, one French, and one Australian.

They all showed growth in production in the study period except for the "National Institutes of Health U.S.", and the "University of Kansas" (Figure 3.)

This means that all institutions in Table 4 are above the world average in normalized citation, the only exception being the 0.98 of the Centre National de la Recherche Scientifique, which is thus only 2 percentage points below the world average.

The most productive institution in the period is Harvard University with the most citations, and Stanford University is the institution with most citations per document as well as the highest normalized citation, consistent with both having works in the Top20.

Although the 70 institutions selected for their importance belong to eight countries, the U.S. clearly predominates (51 institutions or 73% of the total.) Of the 1171 U.S. institutions of Psychology in

the overall ranking, only 4.36% are included here. However, considering that 48% of Psychology's world production is American, it can be concluded that American Psychology Institutions may be more important than those of the rest of the world. The Netherlands is represented in the table by 6 institutions (8.57% of the total), of its 40 publishing in Psychology, i.e., 15% of its Psychology Institutions are shown in the table. The U.K., and Canada have four Institutions (4.7%) each, and, since their totals in the overall Psychology ranking are 200 and 139, respectively, their institutions are of worldwide importance in terms of production represent 2% and 2.88% of their totals, also respectively. Belgium is represented by two Institutions, and by one Germany, France, and Australia.

The Institutions were grouped of Table 4 according to their production, citations per document, and normalized citation (Table 5.)

The first group comprises 14 Institutions, characterized by having the highest values of production, citations per document, and normalized citation. While these institutions showed increases in production in the period, with the mean growth of the group being 43.82%, most of them had a negative variation in normalized citation, the mean for the group being -0.97%. There were negative correlations of citations per document and normalized citation with production. This group is mainly American, with only one British and one German Institution. With its high production and wide recognition of its publications, this group represents the most prominent institutions in Psychology.

All the institutions of this group have works of excellence, being outstanding Columbia University and Stanford University with 6 each.

The second group comprises 24 institutions, characterized by lower production than the previous group, but still have high values of both citations per document, and normalized citation. In general their variations in normalized citation was negative, with a mean value of -3.77%. This figure contrasts with the 62.38% mean growth in production in the period. By nationalities, 88% are American, two are British, and one Dutch. The institutions produced less in Psychology than the

**TABLE 4**

*Most productive institutions in the Area of Psychology (institutions with a production of at least 520 documents, period from 2003–2008)*

Institution	Country	Ndoc	Cit.	Cit. per document	% Cited documents	Normalized citation	Top 20
Harvard University	USA	1531	22619	14.77	88.18%	1.83	4
Columbia University	USA	1303	15775	12.11	87.95%	1.59	6
University College of London	GBR	1235	16093	13.03	87.05%	1.62	3
University of Toronto	CAN	1209	14051	11.62	88.92%	1.46	-
University of California, Los Angeles	USA	1180	17446	14.78	89.66%	1.85	3
University of Minnesota, Twin Cities	USA	1134	13288	11.72	89.15%	1.6	-
University of Michigan, Ann Arbor	USA	1082	16958	15.67	91.03%	1.92	5
University of Washington	USA	1069	15342	14.35	91.30%	1.75	1
Centre National de la Recherche Scientifique	FRA	1057	8677	8.21	75.12%	0.98	3
Yale University	USA	1041	14475	13.9	88.86%	1.91	2
Veterans Affairs Medical Centers	USA	1020	12546	12.3	91.08%	1.59	-
University of Illinois, Urbana-Champaign	USA	981	13773	14.04	91.95%	1.65	2
University of Pennsylvania	USA	981	13377	13.64	88.79%	1.66	4
Pennsylvania State University, Univ. Park	USA	996	10121	10.16	89.86%	1.3	2
University of Pittsburgh	USA	959	14306	14.92	90.72%	1.84	3
The University of British Columbia	CAN	929	11189	12.04	89.13%	1.6	1
University of California, San Diego	USA	922	12970	14.07	91.11%	1.72	3
Stanford University	USA	899	16257	18.08	91.21%	2.13	6
University of North Carolina, Chapel Hill	USA	897	11956	13.33	89.86%	1.73	3
Max Planck Gesellschaft	DEU	843	12347	14.65	93.12%	1.73	3
New York University	USA	850	11174	13.15	85.76%	1.79	3
University of Texas, Austin	USA	826	9770	11.83	87.89%	1.52	2
Utrecht University	NLD	807	8467	10.49	92.07%	1.5	-
Free University	NLD	785	9137	11.64	91.46%	1.48	-
University of Amsterdam	NLD	766	9785	12.77	92.04%	1.52	2
University of Wisconsin, Madison	USA	777	12437	16.01	92.15%	1.94	4
Arizona State University	USA	724	8506	11.75	86.33%	1.52	1
Michigan State University	USA	719	9548	13.28	85.26%	1.66	2
Ohio State University, Columbus	USA	744	9589	12.89	85.89%	1.66	2
University of Florida	USA	751	7588	10.1	89.08%	1.25	2
National Institutes of Health United States	USA	750	11848	15.8	91.87%	1.93	1
Indiana University-Bloomington	USA	684	9557	13.97	87.86%	1.51	2
University of California, Berkeley	USA	705	9713	13.78	85.81%	1.67	4
University of Oxford	GBR	678	8401	12.39	85.25%	1.68	3
Johns Hopkins University	USA	695	7931	11.41	91.23%	1.42	1
The University of Queensland	AUS	673	6403	9.51	89.15%	1.27	1
Rutgers University	USA	672	6285	9.35	83.93%	1.21	-
University of Virginia	USA	639	8436	13.2	85.76%	1.79	-
Florida State University	USA	646	6807	10.54	89.47%	1.43	-
Vanderbilt University	USA	632	8991	14.23	90.67%	1.71	1
University of Iowa	USA	666	9892	14.85	91.59%	1.77	-
Washington University in Saint Louis	USA	630	8364	13.28	90.32%	1.66	2
University of Connecticut, Storrs	USA	650	7152	11	89.39%	1.44	-

Institution	Country	Ndoc	Cit.	Cit. per document	% Cited documents	Normalized citation	Top 20
Catholic University of Leuven	BEL	588	5897	10.03	88.94%	1.32	-
Leiden University	NLD	622	7294	11.73	90.84%	1.52	1
Partners HealthCare System	USA	604	8500	14.07	87.25%	1.8	-
McGill University	CAN	610	6804	11.15	87.38%	1.43	-
University of Southern California	USA	615	6714	10.92	88.29%	1.42	-
Northwestern University	USA	574	8458	14.74	91.29%	1.91	5
Ghent University	BEL	582	6247	10.73	91.06%	1.48	1
University of Groningen	NLD	570	5192	9.11	86.67%	1.17	1
University of South Florida	USA	610	6138	10.06	86.06%	1.28	-
Boston University	USA	612	7720	12.61	86.44%	1.62	2
University of California, Davis	USA	593	8862	14.94	89.04%	1.81	3
University of Kansas	USA	606	6024	9.94	86.30%	1.25	-
University of Maryland, College Park	USA	578	6675	11.55	89.62%	1.47	-
The University of Manchester	GBR	559	5837	10.44	85.51%	1.41	1
Radboud University Nijmegen	NLD	548	5748	10.49	90.88%	1.38	2
University of California, Irvine	USA	543	7534	13.87	88.77%	1.67	1
Purdue University	USA	551	5097	9.25	87.66%	1.27	-
University of Georgia	USA	541	5207	9.62	87.61%	1.3	1
Cornell University	USA	565	7269	12.87	82.30%	1.73	2
Kings College London	GBR	524	7941	15.15	87.98%	2.05	-
Brown University	USA	559	7595	13.59	89.80%	1.69	-
Duke University	USA	520	7876	15.15	91.92%	1.99	-
University of Chicago	USA	536	6780	12.65	91.04%	1.72	-
State University of New York, Buffalo	USA	559	6187	11.07	89.81%	1.59	-
University of Arizona	USA	521	7175	13.77	88.48%	1.6	3
Universite de Montreal	CAN	531	5742	10.81	85.50%	1.32	2
University of Illinois, Chicago	USA	526	6928	13.17	90.30%	1.54	-

Source: own Work.

previous group, but are well recognized, with 62.5% of them having works of excellence although to a lesser extent than the previous group.

The third group comprises 10 Institutions, characterized by high production, but have lower values of citations per document, and normalized citation. Except for two institutions, they show strong growth in normalized citation, the mean for the group being 6.73%, while the mean growth in production was 54.89%. By nationalities, 50% are American, two are Canadian, two Dutch, and one French. These Institutions have high subject specialization in Psychology, but little recognition, with only 50% of them having works of excellence.

The fourth group has low values of all three indicators – production, citations per document,

and normalized citation. Nevertheless, it stands out in terms of growth during this period, having the strongest growth in both normalized citation (mean growth of 8.17%), and production (mean growth of 70.31%). It is the most cosmopolitan group: With nine European Institutions, most of the nationalities of Institutions of the table are represented, although American institutions prevail (more than 50%). While 50% of the groups have works of excellence, these scored lower on the Top20 index than the previous group.

### *Journals*

The Area of Psychology includes 624 journals, of which 74 do not yet have an SJR index because they are of recent incorporation. Of the remaining 550

TABLE 5

Grouping of institutions in the Area of Psychology (period 2003–2008; C/D: Citations per document; in bold the institutions that are the paradigms of each group, and in italics the institutions farthest from the characteristics of the group)

Group 1. Outstanding	Group 2. Recognized	Group 3. Productive	Group 4. Neutral
- <b>Harvard University</b>	- <b>Kings College London</b>	- <b>Centre National de la</b>	- <b>University of Groningen</b>
- <b>Stanford University</b>	- <b>University of Wisconsin, Madison</b>	- <b>Recherche Scientifique</b>	- <i>Arizona State University</i>
- <b>University of Michigan, Ann Arbor</b>	- <i>University of Amsterdam</i>	- <i>Columbia University</i>	- <i>State University of New York, Buffalo</i>
- <i>University College London</i>	- <i>National Institutes of Health United States</i>	- <i>University of Toronto</i>	- <i>Florida State University</i>
- <i>University of California, Los Angeles</i>	- <i>Michigan State University</i>	- <i>University of Minnesota, Twin Cities</i>	- <i>University of Florida</i>
- <i>University of Washington</i>	- <i>Ohio State University, Columbus</i>	- <i>Veterans Affairs Medical Centers</i>	- <i>Johns Hopkins University</i>
- <i>Yale University</i>	- <i>Indiana University-Bloomington</i>	- <i>Pennsylvania State University, University Park</i>	- <i>The University of Queensland</i>
- <i>University of Illinois, Urbana-Champaign</i>	- <i>University of California, Berkeley</i>	- <i>The University of British Columbia</i>	- <i>Rutgers University</i>
- <i>University of Pennsylvania</i>	- <i>University of Oxford</i>	- <i>University of Texas, Austin</i>	- <i>University of Connecticut, Storrs</i>
- <i>University of Pittsburgh</i>	- <i>University of Virginia</i>	- <i>Utrecht University</i>	- <i>Catholic University of Leuven</i>
- <i>University of California, San Diego</i>	- <i>Vanderbilt University</i>	- <i>Free University</i>	- <i>Leiden University</i>
- <i>University of North Carolina, Chapel Hill</i>	- <i>University of Iowa</i>		- <i>McGill University</i>
- <i>Max Planck Gesellschaft</i>	- <i>Washington University in Saint Louis</i>		- <i>University of Southern California</i>
- <i>New York University</i>	- <i>Partners HealthCare System</i>		- <i>Ghent University</i>
	- <i>Northwestern University</i>		- <i>University of South Florida</i>
	- <i>Boston University</i>		- <i>University of Kansas</i>
	- <i>University of California, Davis</i>		- <i>University of Maryland, College Park</i>
	- <i>University of California, Irvine</i>		- <i>The University of Manchester</i>
	- <i>Cornell University</i>		- <i>Radboud University Nijmegen</i>
	- <i>Brown University</i>		- <i>Purdue University</i>
	- <i>Duke University</i>		- <i>University of Georgia</i>
	- <i>University of Chicago</i>		- <i>Universite de Montreal</i>
	- <i>University of Arizona</i>		
	- <i>University of Illinois, Chicago</i>		
MDoc: 1033 PV:43.82 NC: 1.8 PV: -0.97 C/D: 14.45	MDoc: 627 PV:62.38 NC: 1.73 PV: -3.77 C/D: 13.87	MDoc: 1006 PV:54.9 NC: 1.46 PV: 6.73 C/D: 11.2	MDoc: 612 PV: 70.3 NC: 1.37 PV: 8.18 C/D: 10.48

Source: own Work.

journals, we selected the 56 with the highest PSJR index in the period from 2003–08, and which satisfied the condition that their production was above the Area's average of 210 documents per journal. We allowed one exception to this last criterion – the *Annual Review of Psychology* – which, while having a production well below the average, ranked second in SJR, thirteenth in PSJR due to the its high SJR index in the period, and top in percentage varia-

tion of SJR (108.90%). This selection, equivalent to only 9% of the journals in Psychology, accounted for 28% of all documents published in the Area.

Table 6 presents these journals' total production, the percentage variation in production, the SJR its evolution by year, and the percentage variation in SJR, ordered by value of their PSJR.

By nationality, the journals are mostly American (66.63%), with the U.K. accounting for 20%,



Figure 3. Production's percentage variation and of the normalized citation of the most productive Institutions in the Area of Psychology (Period from 2003–2008.)

Source: own Work.

and the Netherlands for 14.54%. This factor will not be taken into account in the grouping of the journals that we shall describe below, because there was really a homogeneous distribution of countries in all four groups. The only exception perhaps was the British representation in the four journals comprising the first group, two of which were American and two Dutch. The only Swiss journal in the selection was classified into Group 4. The distribution of journals by countries reflects mainly the location of the major international publishers in the U.S. and Europe.

The most productive journal in the period was *Behavioral and Brain Sciences* (see Table 6), and the journals with greatest growth in production were *Emotion*, *Current Anthropology*, and *Acta Psychologica*, and with greatest growth in the SJR index were *Annual Review of Psychology*, *CNS Spectrums*, and *Developmental Science* (Figure 4).

In the following, we present a grouping of journals based on their values of production and SJR, and the corresponding percentage variations in the period (Table 7).

Group 1 comprises only four journals. It is the most elite group since it is characterized by high values of production and SJR, but only three of them have works of excellence, with *Trends in Cognitive Sciences* being clearly the most outstanding of the group. All of the journals except *Psychological Science* share subject area with the Medicine or Neuroscience categories.

Group 2 comprises 16 journals. These have a high SJR, but a relatively low production compared with the rest of the journals in the table. They generally show increases in production in this period, with a mean growth for the group of 48.91%. The growth in the SJR index of the *Annual Review of Psychology* is 108.9%, which contrasts with the overall group's mean growth in this index of 4.34% – the lowest of the four groups of journals. These are journals that published fewer articles, but are well recognized, as evidenced by 43.75% having works of excellence.

Group 3 comprises 19 journals. They are characterized by high production and low SJR compared to



the rest of the table. The group is well represented by four journals ranked in the top quarter of production – *Behavioral and Brain Sciences*, *Psychological Reports*, *Personality and Individual Differences*, and *Perceptual and Motor Skills*. While this group has the lowest mean growth in production of the four groups, its mean growth in the SJR index was 8.8%. These are journals which publish the most, but are in general still relatively little recognized, although 31.58% of them do have works of excellence, outstanding in this sense being *American Psychologist*.

Group 4 is characterized by journals of low production and low SJR. Besides occupying the lowest rungs of the PSJR ranking, this group of journals is also characterized by homogeneously increasing production in the period (92.79% mean growth), the highest of the four groups. It also stands out the growth in SJR (13.99%), the second highest of the four groups. These are the least prestigious journals of those selected for analysis, due to their lower levels of production and recognition. Indeed, only 11.76% of them have works of excellence.

## Conclusions

In this study, with a representation of less than 20% of the world's countries publishing in Psychology, we have been able to cover over 98% of the total world production in this subject area. The U.S. is the leading producer, followed by the U.K. and Canada. The three together make more than 60% of the total production, and, with the addition of Germany, Austria, and the Netherlands, this figure exceeds 70%. Outside the North American and European context, it stands out the subject specialization of Colombia and Israel, with the case of China being noticeable in the opposite sense.

The first group of countries was the only one with a greater percentage of citations than of production, and it was the group with the greatest percentage of countries with works of excellence. Despite the low values of all the indicators for the countries of Group 4, it managed to count for some of the works of excellence thanks mainly to France. With an average of 67% over the period, the U.S. predominated in works of excellence, although from 2005 onwards its lead

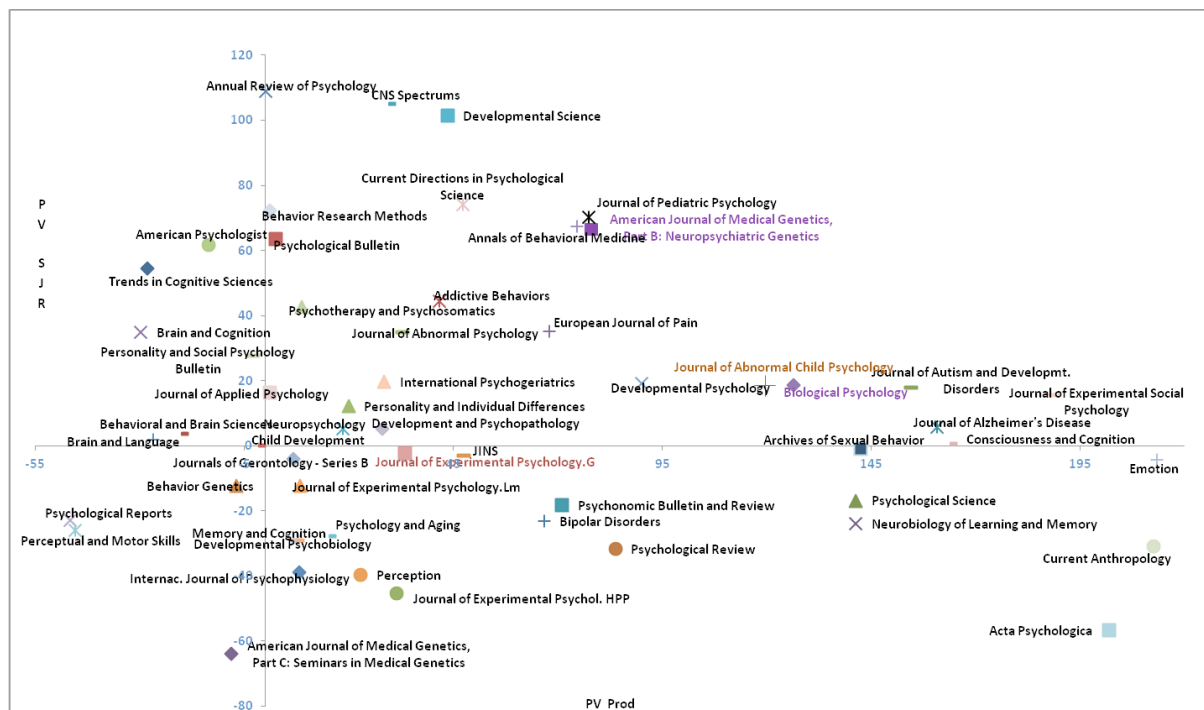


Figure 4. Production's variation percentage and the SJR of journals in the Area of Psychology (period 2003–2008).

Source: own Work.



**TABLE 6**

*Total documents, PV in production, SJR, evolution of SJR, and PV of the SJR for journals in the Psychology Area from 2003-2008*

Title	Top 20	PSJR 03-08	Total Docs	PV Prod	SJR	SJR						PV SJR
						2003	2004	2005	2006	2007	2008	
Trends in Cognitive Sciences	45	134.02	634	-28.35	1.30	1.13	0.96	0.93	1.35	1.68	1.74	54.53
American Journal of Medical Genetics, Part B: Neuropsychiatric Genetics	-	83.83	1005	78.03	0.50	0.30	0.42	0.65	0.63	0.50	0.49	66.44
Psychological Science	1	67.03	1014	85.59	0.40	0.40	0.46	0.39	0.37	0.45	0.33	-16.83
Neurobiology of Learning and Memory	1	46.07	527	141.27	0.56	0.51	0.72	0.74	0.54	0.48	0.39	-23.98
Journal of Alzheimer's Disease	1	44.18	627	160.71	0.42	0.41	0.46	0.43	0.43	0.37	0.44	5.83
Psychological Review	10	33.75	307	83.78	0.67	0.88	0.87	0.56	0.53	0.56	0.60	-31.60
Bipolar Disorders	1	31.09	555	66.67	0.34	0.42	0.35	0.34	0.32	0.31	0.32	-23.26
Behavioral and Brain Sciences	4	29.36	1971	-20.05	0.09	0.11	0.09	0.07	0.07	0.09	0.12	3.57
Journal of Autism and Developmental Disorders	-	29.15	804	154.44	0.21	0.19	0.22	0.23	0.19	0.25	0.22	17.84
American Journal of Medical Genetics, Part C: Seminars in Medical Genetics	-	27.06	226	-8.11	0.72	1.27	0.76	0.60	0.67	0.54	0.46	-63.89
Psychonomic Bulletin and Review	-	26.65	883	71.00	0.18	0.19	0.24	0.16	0.18	0.17	0.16	-18.23
Behavior Genetics	-	26.54	394	-6.90	0.41	0.45	0.42	0.49	0.33	0.37	0.39	-12.33
Annual Review of Psychology	10	26.36	146	0.00	1.09	0.58	0.93	1.30	1.15	1.35	1.22	108.90
Addictive Behaviors	-	25.57	1244	41.73	0.12	0.10	0.10	0.13	0.13	0.13	0.14	44.33
Journal of Experimental Psychology: Human Perception and Performance	-	24.80	582	31.33	0.26	0.36	0.31	0.25	0.24	0.21	0.20	-45.33
European Journal of Pain	-	24.06	540	68.00	0.26	0.23	0.16	0.23	0.27	0.34	0.31	35.24
CNS Spectrums	-	23.91	985	29.66	0.14	0.08	0.12	0.14	0.18	0.18	0.16	105.00
Journal of the International Neuropsychological Society: JINS	-	23.72	609	47.37	0.23	0.20	0.25	0.26	0.25	0.25	0.19	-3.06
International Journal of Psychophysiology	-	22.73	661	8.16	0.21	0.29	0.17	0.23	0.20	0.18	0.17	-38.95
Psychological Bulletin	7	22.43	278	2.50	0.49	0.38	0.39	0.41	0.54	0.59	0.62	63.42
Personality and Individual Differences	-	21.68	1800	19.85	0.07	0.07	0.08	0.07	0.07	0.07	0.07	12.12
Brain and Cognition	-	21.67	764	-29.94	0.18	0.13	0.12	0.21	0.20	0.24	0.17	34.88
Neuropsychology	-	21.01	467	18.57	0.27	0.25	0.28	0.23	0.28	0.33	0.26	5.26
Perception	-	20.67	841	22.73	0.15	0.18	0.23	0.13	0.13	0.13	0.11	-39.78
Brain and Language	-	20.16	862	-26.89	0.14	0.16	0.14	0.13	0.13	0.14	0.16	1.88
Child Development	2	20.03	695	-1.59	0.17	0.17	0.18	0.14	0.17	0.20	0.17	0.00
Journal of Abnormal Psychology	-	19.97	462	32.84	0.26	0.21	0.22	0.29	0.27	0.27	0.28	34.93
Biological Psychology	-	19.75	504	126.42	0.23	0.22	0.23	0.25	0.21	0.22	0.27	18.75
Developmental Science	-	19.32	492	43.66	0.23	0.15	0.19	0.19	0.21	0.32	0.30	101.35
Journal of Experimental Psychology: Learning Memory and Cognition	-	19.31	630	8.26	0.18	0.20	0.21	0.17	0.19	0.16	0.17	-12.24
Developmental Psychology	1	17.75	636	90.12	0.17	0.15	0.18	0.15	0.16	0.18	0.18	19.05

Title	Top 20	PSJR 03-08	Total Docs	PV Prod	SJR	SJR						PV SJR
						2003	2004	2005	2006	2007	2008	
Journal of Pediatric Psychology	-	17.28	578	77.46	0.17	0.12	0.12	0.17	0.19	0.22	0.21	70.25
American Psychologist	14	17.06	682	-13.51	0.15	0.11	0.12	0.13	0.22	0.15	0.18	61.82
Annals of Behavioral Medicine	1	16.97	413	74.51	0.24	0.17	0.19	0.27	0.29	0.24	0.28	67.26
Psychology and Aging	-	16.54	456	15.38	0.22	0.24	0.30	0.22	0.21	0.18	0.17	-27.92
Memory and Cognition	-	16.07	822	7.69	0.12	0.13	0.11	0.12	0.13	0.13	0.09	-29.01
Journals of Gerontology - Series B Psychological Sciences and Social Science	-	15.16	587	6.74	0.16	0.17	0.16	0.15	0.13	0.16	0.16	-4.19
Journal of Experimental Psychology: General	3	14.33	220	33.33	0.39	0.39	0.40	0.34	0.40	0.43	0.39	-2.28
Psychotherapy and Psychosomatics	-	14.22	379	8.77	0.22	0.16	0.19	0.26	0.26	0.24	0.23	42.50
Psychological Reports	-	14.19	1876	-46.81	0.04	0.05	0.05	0.05	0.04	0.04	0.04	-22.92
Perceptual and Motor Skills	-	13.69	1646	-45.45	0.05	0.06	0.05	0.05	0.05	0.05	0.04	-25.86
Cognitive Neuropsychology	-	13.53	293	70.97	0.29	0.46	0.35	0.21	0.31	0.20	0.19	-58.62
Emotion	1	12.82	360	213.33	0.21	0.23	0.22	0.21	0.19	0.22	0.22	-4.29
Consciousness and Cognition	-	12.76	424	164.00	0.19	0.16	0.26	0.21	0.20	0.14	0.16	0.62
Personality and Social Psychology Bulletin	1	12.74	786	-3.01	0.10	0.09	0.08	0.10	0.10	0.11	0.11	27.59
Development and Psychopathology	-	12.01	351	28.00	0.21	0.23	0.23	0.19	0.17	0.19	0.24	5.29
Acta Psychologica	-	11.94	434	201.89	0.18	0.29	0.25	0.13	0.14	0.14	0.13	-56.66
International Psychogeriatrics	-	11.75	519	28.41	0.14	0.11	0.14	0.13	0.13	0.16	0.13	19.64
Developmental Psychobiology	-	11.57	417	6.94	0.17	0.22	0.19	0.18	0.12	0.16	0.15	-29.36
Current Directions in Psychological Science	-	10.90	403	47.27	0.16	0.12	0.13	0.15	0.16	0.18	0.21	74.17
Current Anthropology	-	10.83	423	212.50	0.16	0.20	0.12	0.17	0.17	0.14	0.14	-30.88
Journal of Abnormal Child Psychology	-	10.45	423	119.61	0.15	0.14	0.16	0.15	0.13	0.14	0.17	18.44
Archives of Sexual Behavior	-	10.14	451	142.55	0.14	0.11	0.14	0.14	0.19	0.14	0.11	-0.92
Journal of Experimental Social Psychology	-	9.92	572	188.52	0.10	0.11	0.09	0.10	0.09	0.09	0.13	15.45
Behavior Research Methods	2	9.44	580	72.37	0.10	0.08	0.10	0.09	0.10	0.09	0.11	44.30
Journal of Applied Psychology	3	9.44	637	16.30	0.09	0.08	0.08	0.10	0.09	0.09	0.10	25.97

Source: own Work.

over the next countries – the U.K., Germany, and Canada – started to become less marked.

In terms of institutions, those of the U.S. predominated, with its 51 Institutions representing 73% of the top producers considered. This proportion is far greater than the 25% that American Institutions represent of all the Psychology Institutions in the world. In relative terms with respect to their total numbers of Institutions publishing in Psychology, the Netherlands stands out with a proportion that is twice the one of the U.S., and this in turn is

about twice the proportions corresponding to the U.K. and Canada. In these four countries, it seems that authors in Psychology are more concentrated in certain institutions that what happens in the rest of the world. Of these other countries, France has a single Institution in the table of top producers.

We grouped Institutions according to their production, citations per document, and normalized citation. The groups characterized by lower production were found to have greater growth in production, while the groups characterized by higher

TABLE 7

Journals' grouping in the Area of Psychology (period 2003–2008; SJR: Scimago Journal Rank; PSJR: Prestige SJR; in bold the journals that are the paradigms of each group, and in italics the journals farthest from the characteristics of the group).

Group 1. Outstanding	Group 2. Recognized	Group 3. Productive	Group 4. Neutral
<ul style="list-style-type: none"> <li>- <b>American Journal of Medical Genetics, Part B: Neuropsychiatric Genetics</b></li> <li>- <i>Trends in Cognitive Sciences</i></li> <li>- Psychological Science</li> <li>- Journal of Alzheimer's Disease</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Psychological Review</b></li> <li>- <b>American Journal of Medical Genetics, Part C: Seminars in Medical Genetics</b></li> <li>- <b>Psychological Bulletin</b></li> <li>- <i>Journal of the International Neuropsychological Society : JINS</i></li> <li>- <i>Journal of Experimental Psychology: Human Perception and Performance</i></li> <li>- Annual Review of Psychology</li> <li>- Neurobiology of Learning and Memory</li> <li>- Behaviour Genetics</li> <li>- Journal of Experimental Psychology: General</li> <li>- Bipolar Disorders</li> <li>- Cognitive Neuropsychology</li> <li>- Neuropsychology</li> <li>- Journal of Abnormal Psychology</li> <li>- European J. of Pain</li> <li>- Annals of Behavioural Medicine</li> <li>- Biological Psychology</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Personality and Individual Differences</b></li> <li>- <b>Perceptual and Motor Skills</b></li> <li>- <b>Psychological Reports</b></li> <li>- <b>Behavioural and Brain Sciences</b></li> <li>- <i>Journal of Autism and Developmental Disorders</i></li> <li>- <i>Journal of Experimental Psychology: Learning Memory and Cognition</i></li> <li>- International Journal of Psychophysiology</li> <li>- Psychonomic Bulletin and Review</li> <li>- Brain and Cognition</li> <li>- Child Development</li> <li>- Developmental Psychology</li> <li>- Perception</li> <li>- American Psychologist</li> <li>- CNS Spectrums</li> <li>- Brain and Language</li> <li>- Addictive Behaviours</li> <li>- Memory and Cognition</li> <li>- Personality and Social Psychology Bulletin</li> <li>- Journal of Applied Psychology</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Journal of Abnormal Child Psychology</b></li> <li>- <b>Current Directions in Psychological Science</b></li> <li>- <i>Developmental Science</i></li> <li>- <i>Psychotherapy and Psychosomatics</i></li> <li>- <i>Psychology and Aging</i></li> <li>- Emotion</li> <li>- Development and Psychopathology</li> <li>- Consciousness and Cognition</li> <li>- Acta Psychologica</li> <li>- Journal of Paediatric Psychology</li> <li>- Developmental Psychobiology</li> <li>- Current Anthropology</li> <li>- Journals of Gerontology - Series B Psychological Sciences and Social Sciences</li> <li>- Archives of Sexual Behaviour</li> <li>- International Psychogeriatrics</li> <li>- Journal of Experimental Social Psychology</li> <li>- Behaviour Research Methods</li> </ul>
MDoc: 820 PV: 74 SJR: 0.65 PV: 27.5 PSJR: 82.27	MDoc: 407 PV: 48.9 SJR: 0.42 PV: 4.34 PSJR: 24.47	MDoc: 1011 PV: 74.87 SJR: 0.14 PV: 8.8 PSJR: 20.10	MDoc: 461 PV: 92.8 SJR: 0.17 PV: 13.99 PSJR: 12.77

Source: own Work.

normalized citation values had negative values of the variation in this index, but greater growth in citations per document, and accounted for most of the works of excellence. They were also eminently American groups. This may reflect the incorporation of new institutions into the elite, and hence increased competition and difficulty for those already in the elite to remain in that position. The nationality of the most prestigious journals in Psychology was seen to be mainly American, followed by Britain and Deutschland. The higher that was

the SJR and PSJR of the journal group, the greater was its number of works of excellence.

*Trends in Cognitive Sciences* have the highest value of SJR, and is the predominant journal in the Top20. This may be because its interdisciplinary nature, since this journal is intended to have a platform for interaction among such disciplines as neuroscience, artificial intelligence, psychology, linguistics, philosophy, and computing science. It has thereby managed to attract greater citation traffic and thus gain in prestige.

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