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How to measure the internationality of scientific publications

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Although the term “internationality” has never been defined by consensus, it is commonly used as a synonym of quality. Even though its meaning has never been established, internationality is frequently used to evaluate scientists, publications, or universities in many different countries. The present investigation is based on the opinion about the meaning of the concept “internationality” of the members of scientific community, represented by a broad sample of 16,056 scientists from 109 countries working in all the fields of knowledge defined by UNESCO. The sample was randomly selected from the Web of Science database from the scientists who have published at least one article in one of the journals indexed by the database. A questionnaire based on eleven criteria was designed for the purpose of the study. As a result, the first measure of internationality has been obtained. The most important criteria of internationality are: the publication language, online access, and international publication standards. There are significant differences among geographic zones and fields of knowledge.

Cómo medir la internacionalidad de las publicaciones científicas. El término “internacional” está siendo utilizado como sinónimo de la calidad a pesar de no haber sido definido de manera consensuada. Aunque su significado no esté establecido, se utiliza frecuentemente para evaluar a los científicos, publicaciones o universidades en diferentes países. El presente estudio está basado en la opinión sobre el significado del concepto “internacionalidad” de una amplia muestra de 16.056 científicos de 109 países diferentes, quienes trabajan en todos los campos de conocimiento de la UNESCO. La muestra fue seleccionada aleatoriamente de la base de datos Web of Science entre los científicos que han publicado al menos un artículo en una revista indexada en la misma. Para el presente estudio, se creó un cuestionario basado en once criterios. Como resultado, se creó la primera medida de la internacionalidad. Los criterios más importantes de la misma son: el idioma de publicación, acceso por Internet y las normas internacionales de publicación. Hay diferencias significativas entre las zonas geográficas y los campos del conocimiento.

The term “international” has been used for many years among the members of the scientific community as a synonym of the quality. In most of the countries the international publications are much more important than the national ones, although the meaning of the word “international” has never been established by consensus. In Spain, for example, it is quite common to confuse the foreign and the international publications (Buela-Casal, 2001; Buela-Casal, Perakakis, Taylor, & Checa, 2006). Moreover, the term is widely utilized to make important decisions (Zych & Buela-Casal, 2007) for example, while evaluating research institutions (Buela-Casal et al., 2011; Buela-Casal, Bermúdez, Sierra, Quevedo-Blasco, & Castro, 2009) doctoral degree programs (Buela-Casal & Castro, 2008; Musi-Lechuga, Olivas-Ávila, & Buela-Casal, 2009) or scientists (Buela-Casal, 2010; Buela-Casal, Olivas-Ávila, Musi-Lechuga, & Zych, 2011; Galán-González & Zych, 2011; Olivas-Ávila & Musi-Lechuga, 2010a, 2010b; Sierra, Buela-Casal, Bermúdez, & Santos, 2009).

In many countries, the international journals are understood as the journals included in the Web of Science (WOS) and its Journal Citation Reports (JCR) (Garfield, 2003; Ruiz-Pérez, Delgado López-Cózar, & Jiménez-Contreras, 2006). It seems that the articles published in the journals included in the WOS and JCR are thought to be more important and as a result the authors tend to cite them more in their own works. As the publications are cited by the authors from different countries they become more international and more important at the same time. This process can also be understood as a vicious circle in which once a publication is highly cited it becomes more cited and more international as the citations produce more citations. Nevertheless, the internationality is not the same as the inclusion in the WOS or the impact factor. The number of journals indexed by the WOS is scarce in comparison with the total number of journals edited in different countries. For instance, only 5 % of all Iberoamerican journals are evaluated by the WOS and the impact factor of the rest has never been calculated. For this reason, among others, it cannot be used as a unique measure of the internationality. The impact factor is a measure of propagation of a publication among members of the scientific community and all further interpretations are risky and usually erroneous (Aksnes & Rip, 2009; Buela-Casal, Zych, Sierra, & Bermúdez, 2007). There are also many different aspects, not related to the quality, which influence the impact factor (Buela-Casal et al., 2009). On the other

hand, some authors claim that it is the best quantitative measure of the scientific productivity (Moed, 2005) and some studies confirm that the quality is related to the impact factor (Buela-Casal & Zych, 2010). As it is a measure of the journal's proliferation among the scientific community (Delgado López-Cózar, Ruiz Pérez, & Jiménez Contreras, 2010) and is based on the number of citations from different parts of the world, it is related to the internationality, although never should be used as its synonym.

Although the term has never been defined by consensus, the literature on the topic gives some hints on its possible criteria. For example, a scientific paper can be read and utilized by the public who understands the language in which it is written. Thus, an international paper would be the one that can be read in many countries all over the world. Some authors claim that English is the most dominant language in the world (Ardila, 1982, 2002; Gibbs, 1995) and in some non-English speaking countries even nearly 100% of the scientists in some fields consider English their work language (Graddol, 2000).

Another possible criterion is the existence of an "international" editorial board. The editorial board of a journal is the body responsible for the evaluation of the submitted papers. Thus, if its members come from different countries, the assessment of the articles is made from more international perspective.

Although the inclusion of a term "international" in a journals name itself does not mean that a journal is, or is not, international, its founders normally choose a name which is related to its content and its whole policy. Thus, a journal which is called "international" probably is intended to be such kind of publication.

Another important criterion which would contribute to the internationality of a scientific publication is that the authors of the papers come from different countries. This criterion is probably the most intuitive one as it is understood that an international journal would be a one which includes research from various geographic zones.

The standards of publication utilized by the scientific journals in different countries contribute to a greater proliferation and also make easier their use. The standards of citations, for example, make possible the inclusion of the articles in databases, which increase the number of users in different parts of the world. Also the publications are easier to read as the standards indicate different sections which should be included in the paper and thus, understood better by the readers. Thus, a publication which utilizes the abovementioned standards probably would be also more international.

According to Internet World Stats (www.internetworldstats.com), probably the most important website in the world dedicated to the elaboration of the Internet usage statistics, in March 2009 there were 1 596 270 108 internet users from all the continents. This means that more than 23% of the world population has internet access. Taking into account its rapidity and availability, if a publication can be accessed online, it would be read by people from all over the world. If the online access is free, a journal would probably be even more international as it could be accessed by more scientists from richer and poorer parts of the world.

A journal included in databases together with other publications from different countries would also be more accessible and visible. The researchers from various geographic zones would know it and would be able to use it and/or submit and publish their own papers.

As the impact factor is not a good measure of the internationality, it seems crucial to establish the meaning of the

term by consensus. It is difficult to define, as it is a natural concept and, as a result, everybody utilizes it without an exact definition, knowing its meaning intuitively. The review of the most important encyclopedias of psychology (Buela-Casal, Perakakis, Taylor, & Checa, 2006) reveals that the term international is commonly used although it has never been defined and its meaning is unclear. The importance of the word can be seen on a simple example of a Google search in which the word "international" produces about 5,650,000,000 results. In the field of psychology, there are 22 journals in JCR which contain the word "international" in their names. Taking into account its importance, it is crucial to establish a good measure of the internationality by means of a survey answered by a representative worldwide sample. This would probably be the best way the concept can be measured and thus, defined. Thus, the objective of the current work consists of defining what the meaning of "internationality" is according to the scientific community worldwide.

Method

Participants

The survey was answered by 16,056 scientists from 109 countries and all the UNESCO fields of knowledge (Education; Humanities and Art; Social Sciences, Business and Law; Science; Engineering, Manufacturing and Construction; Agriculture and Health and Welfare). The mean age of the participants was 45.5 years ($SD = 12.71$), 68% were men and 32% were women. The most important characteristics of the participants are shown in tables 1 and 2.

The number of participants by geographic zone was not equal and most of them were from Europe, USA and Asia, as expected. This is also true in case of the fields of knowledge with most of the scientists working in Science, Engineering and Health and Welfare. These results are not surprising as the number of articles (and thus authors) included in the WOS is not equal throughout different disciplines or geographic zones.

Instruments

A questionnaire about the internationality which includes 12 questions based on the 11 criteria of the internationality mentioned in the introduction can be seen in the table 3. Each item included a Likert scale ranging from 1 (very low) to 5 (very high).

Table 1
The number of participants in each UNESCO field of knowledge

Field of knowledge	Number of participants
Science	9,991
Engineering, Manufacturing and Construction	2,244
Health and Welfare	1,916
Agriculture	448
Social Sciences, Business and Law	495
Education	262
Humanities and Arts	42

Note: 658 participants did not report their field of knowledge

Table 2
The number of participants in each geographic zone.

Geographic zone	Number of participants
Europe	7,283
Usa-Canada	3,537
Asia	2,977
Central-South America	820
Oceania	424
Africa	303
Note: 712 participants did not report their country	

Table 3
The questionnaire about the internationality

1. How important is the publication language? How important is the academic impact of the following languages:
• English.
• Spanish.
• Chinese.
• Italian.
• French.
• If you consider a language different from those listed to be important; please indicate it here and rate its importance.
2. How important is the Impact Factor as calculated by ISI?
3. How important is it that editorial board members are from different countries?
4. How important is it that the journal's name includes the word "international"?
5. How important is it that the journal is included in the Journal Citation Report?
6. How important is it that the authors are from different countries?
7. How important is it that the journal uses international standards of publication?
8. How important is it that the journal has online access?
9. How important is it that online access is free?
10. How important is the inclusion of a journal in databases that include journals from different countries?
11. How important is journal's affiliation to associations which include in the name the word "international"?

Design and procedure

The present work is a study of populations by means of a survey (Montero & Leon, 2007) following the editing norms proposed by Ramos-Álvarez, Moreno-Fernández, Valdés-Conroy, & Catena (2008) and Hartley (2012).

Based on the articles published by Bucla-Casal (2001) and Bucla-Casal, Perakakis, Taylor, & Checa (2006) the authors of the current study proposed 11 criteria of the internationality.

A questionnaire about the internationality based on the eleven criteria was created. Then, the scientists who have published at least one article in a journal indexed by the WOS database were asked to fill it in indicating the level to which each criterion determines the internationality. They were also encouraged to propose more criteria by contacting the authors by e-mail.

The sample was randomly selected from the WOS database. All the participants received an email in which they were asked to fill in the questionnaire available online. The scientists were instructed to click on a link which was provided with the message and fill in the questionnaire within 10 days. The response rate was impossible to calculate because the number of scientists who received and opened the e-mail is unknown.

Data analysis

Data analyses were performed utilizing PASW Statistics 18 software. Descriptive statistics were used to find out the importance given to each criterion of the internationality. To find out whether the means in each criterion were statistically different among geographic zones and fields of knowledge, Welch's ANOVA was applied taking into account the heterogeneity of the variances. The next step consisted of conducting post-hoc Games-Howell comparisons, also bearing in mind the heterogeneity of the variances.

Results

The criteria of the internationality

The mean in each criterion, taking into account the whole sample, beginning with the most important and finishing with the least important is represented in the table 4.

Taking into account the number of participants, the confidence level is superior to 97% (97% corresponds to 1,308 subjects in the infinite populations and the present sample is more than 10 times bigger).

The alpha and omega values were acceptable (.72 and .81, respectively). These values did not increase with the elimination of any items. Thus, all the items were included in the analyses.

The criteria of the internationality by geographic zone

Taking into account different sample sizes among the continents, it is not surprising that Levene's test showed unequal variances

Table 4
The mean level to which each criterion should be used to measure the internationality, beginning with the most important and finishing with the least important

Criterion of the internationality	Level of the internationality M (SD)
The publication language	4.68 (.62)
The academic impact of the following languages:	
English	4.89 (.51)
French	2.23 (.98)
Spanish	2.08 (.96)
Chinese	1.77 (.97)
Italian	1.72 (.85)
German	.32 (.94)
Russian	.10 (.57)
Japanese	.05 (.44)
Portuguese	.02 (.27)
The online access	4.53 (.77)
The international standards of publication	4.36 (.85)
The inclusion in the Journal Citation Report	4.11 (.97)
The inclusion of a journal in databases that include journals from different countries	4.06 (.98)
That the editorial board members are from different countries	4.01 (.95)
The free online access	4 (1.04)
The impact factor as calculated by ISI	3.77 (.90)
That the authors are from different countries	3.18 (1.35)
The journal's affiliation to associations which include in the name the word "international"	2.40 (1.12)
That the journal's name includes the word "international"	2.19 (1.15)

Table 5
Means and standard deviations in the criteria of the internationality depending on the geographic zone

	Africa M (SD)	Asia M (SD)	Central-South America M (SD)	Europe M (SD)	Oceania M (SD)	Usa-Canada M (SD)	F
Publication language	4.55 (.81)	4.56 (.77)	4.69 (.61)	4.71 (.64)	4.78 (.52)	4.75 (.60)	29.68*
English	4.79 (.70)	4.82 (.65)	4.92 (.41)	4.91 (.48)	4.91 (.42)	4.92 (.43)	12.06*
Spanish	2.23 (1.05)	2.11 (.95)	2.71 (.96)	1.94 (.91)	2.17 (.95)	2.22 (.99)	121.56*
Chinese	1.81 (1.09)	2.13 (1.09)	1.55 (.86)	1.58 (.85)	1.90 (.98)	1.92 (.99)	159.92*
Italian	1.83 (.95)	1.91 (.88)	1.77 (.84)	1.58 (.78)	1.87 (.88)	1.84 (.88)	86.15*
French	2.55 (1.10)	2.35 (.99)	2.37 (.95)	2.10 (.94)	2.33 (.99)	2.31 (.99)	51.87*
Impact Factor	3.82 (.89)	3.89 (.85)	3.96 (.86)	3.82 (.88)	3.80 (.90)	3.58 (.97)	49.15*
Editorial Board	3.99 (1.05)	4.09 (.88)	4.34 (.79)	4.06 (.94)	3.91 (1.02)	3.81 (1.02)	62.05*
“International” in the journal’s name	2.71 (1.26)	2.52 (1.15)	2.57 (1.31)	2.06 (1.11)	2.08 (1.07)	2.10 (1.11)	96.34*
Inclusion in the JCR	4.18 (.91)	4.05 (.92)	4.33 (.84)	4.18 (.95)	4.13 (.92)	4.01 (1.06)	26.36*
Authors	3.25 (1.28)	3.44 (1.21)	3.36 (1.35)	3.17 (1.37)	2.96 (1.33)	3 (1.37)	43.97*
International Standards of Publication	4.33 (.92)	4.37 (.82)	4.52 (.73)	4.41 (.82)	4.50 (.73)	4.23 (.96)	28.19*
Online Access	4.51 (.83)	4.54 (.78)	4.70 (.63)	4.50 (.78)	4.48 (.77)	4.59 (.75)	18.59*
Free online access	4.14 (1.07)	4.18 (.96)	4.42 (.89)	3.92 (1.06)	3.74 (1.08)	3.92 (1.05)	74.11*
Databases	4.20 (.89)	3.99 (.93)	4.40 (.83)	4.08 (.99)	4.06 (.94)	4.02 (1.02)	32.47*
Affiliation	2.86 (1.19)	2.81 (1.08)	2.58 (1.22)	2.27 (1.09)	2.36 (1.07)	2.28 (1.11)	125*

* p<.000
Note: Due to the heterogeneity of the variances, the table shows Welch’s ANOVA

Table 6
Games-Howell post hoc pairwise comparisons between the geographic zones

	Africa -Asia	Africa- Central -South America	Africa -Europe	Africa -Oceania	Africa- Usa- Canada	Asia- Central -South America	Asia- Europe	Asia- Oceania	Asia- Usa-Canada	Central -South America -Europe	Central -South America- Oceania	Central -South America -Usa-Canada	Europe- Oceania	Europe- Usa-Canada	Oceania Usa-Canada
Publication language	-.01*	-.15*	-.17*	-.23*	-.20*	-.14*	-.16*	-.22*	-.19*	-.02*	-.08*	-.06*	-.06*	-.04*	.03*
English	-.03*	-.14*	.12*	-.12*	-.13*	-.10*	-.09*	-.08*	-.09*	.01*	.02*	.01*	.01*	-.00*	-.01*
Spanish	.11*	-.48*	.29*	.05*	.01*	-.60*	.17*	-.06*	-.11*	.77*	.54*	.49*	-.23*	-.28*	-.05*
Chinese	-.31*	.26*	.24*	-.08*	-.10*	.58*	.55*	.23*	.21*	-.03*	-.34*	-.37*	-.32*	-.34*	-.02*
Italian	-.07*	.07*	.25*	-.04*	-.00*	.14*	.32*	.04*	.07*	.18*	-.10*	-.07*	-.29*	-.25*	.03*
French	.20*	.17*	.45*	.22*	.23*	-.02*	.25*	.02*	.04*	.28*	.04*	.06*	-.23*	-.22*	.02*
Impact Factor	-.06*	-.14*	.01*	.02*	.25*	-.07*	.07*	.09*	.31*	.14*	.16*	.38*	.02*	.24*	.22*
Editorial Board	-.10*	-.35*	-.07*	.08*	.18*	-.26*	.02*	.18*	.27*	.28*	.44*	.23*	.15*	.25*	.09*
“International” in the journal’s name	.19*	.14*	.64*	.62*	.61*	-.05*	.46*	.44*	.42*	.50*	.48*	.47*	-.02*	-.04*	-.02*
Inclusion in the JCR	.13*	-.15*	-.00*	.05*	.16*	-.28*	-.13*	-.08*	.03*	.15*	.20*	.32*	.05*	.17*	.11*
Authors	-.19*	-.11*	.09*	.30*	.25*	.08*	.27*	.48*	.44*	.19*	.40*	.36*	.21*	.17*	-.05*
International Standards of Publication	-.04*	-.18*	-.07*	-.16*	.11*	-.15*	-.04*	-.13*	.15*	.11*	.02*	.29*	-.09*	.18*	.27*
Online access	-.03*	-.20*	.01*	.03*	-.08*	-.17*	.04*	.06*	-.05*	.21*	.23*	.12*	.02*	-.09*	-.11*
Free online access	-.04*	-.28*	.22*	.40*	.21*	-.24*	.26*	.44*	.25*	.50*	.68*	.49*	.18*	-.00*	-.18*
Databases	.21*	-.20*	.12*	.14*	.17*	-.41*	-.09*	-.07*	-.04*	.32*	.34*	.37*	.02*	.06*	.04*
Affiliation	.06*	.29*	.59*	.50*	.58*	.23*	.53*	.44*	.52*	.31*	.22*	.30*	-.10*	-.01*	.08*

* p<.05

($ps < .05$). Thus, Welch's ANOVA test was conducted to compare scores among geographic zones.

Table 5 shows the mean levels of the internationality of each criterion depending on the geographic zone. All the differences are statistically significant. Publication language is the most important criterion in all the continents but Central-South America (where it is the second), the online access is the second most important criterion in all the zones except Oceania (where it is the third) and Central-South America (where it is the first) and the international standards of publication are the third most important criterion in all the continents except Oceania (where it is the second).

Table 6 shows the results of Games-Howell post-hoc pairwise comparisons between the geographic zones.

As already mentioned, the participants of the current study were also encouraged to propose other criteria of the internationality. As can be seen in Table 7, other publication languages were considered important for the internationality and differed depending on the geographic zone. The most proposed language was German.

The criteria of the internationality by field of knowledge

The mean levels of the internationality for each criterion by field of knowledge are shown in Table 8. As most of the participants work in three fields of knowledge, the means are presented for each one of them and the rest was grouped in other category. The variances among the fields of knowledge were unequal and thus Welch's ANOVA was used for the comparison.

Once again, there are significant differences in all the criteria but publication language - English. Table 9 includes the results of Games-Howell post-hoc comparisons among the groups.

Geographic zone	Language	Mean (SD)
Africa	German	.21 (.77)
	Arabic	.13 (.66)
	Russian	.11 (.63)
Asia	German	.17 (.73)
	Japanese	.19 (.78)
	Russian	.06 (.43)
Central-South America	German	.27 (.86)
	Portuguese	.30 (.89)
	Russian	.06 (.40)
Europe	German	.41 (1)
	Japanese	.02 (.23)
	Russian	.13 (.62)
Oceania	German	.25 (.87)
	Japanese	.04 (.37)
	Russian	.12 (.62)
Usa-Canada	German	.34 (.99)
	Japanese	.05 (.40)
	Russian	.12 (.61)

Note: The scores were calculated by assigning 0 in case of the participants who did not proposed a language and including the scores gave to a language by those who did propose it

Table 10 shows other publication languages proposed by the participants and divided by field of knowledge. Once again, the most proposed language, in all the fields, was German.

Discussion

The current study shows that it is possible to establish how to measure the internationality by asking the members of the scientific community about its meaning. The particular scientists can propose criteria, but what is really important is the opinion of the scientific community.

The most important criterion is the publication language which is English. It is probably because one is able to communicate with people from different countries only if they speak a common language. As expressed by UNESCO, we experience a globalization of the communication. As a result it is recommended

	Science M (SD)	Engi- neering M (SD)	Health and Welfare M (SD)	Other M (SD)	F
Publication language	4.70 (.66)	4.67 (.65)	4.69 (.61)	4.63 (.74)	4.18**
English	4.90 (.51)	4.89 (.51)	4.90 (.45)	4.86 (.56)	2.39
Spanish	2.02 (.95)	2.10 (.93)	2.29 (.98)	2.28 (1.02)	61.35**
Chinese	1.72 (.94)	1.97 (1.03)	1.77 (.95)	1.88 (1.07)	42.99**
Italian	1.68 (.83)	1.76 (.83)	1.86 (.88)	1.81 (.93)	29.22**
French	2.18 (.97)	2.28 (.96)	2.29 (.97)	2.36 (1.03)	20.04**
Impact Factor	3.77 (.90)	3.71 (.93)	3.90 (.88)	3.79 (.92)	15.65**
Editorial Board	4.02 (.96)	4.06 (.91)	3.99 (.98)	3.99 (.95)	2.93*
"International" in the journal's name	2.08 (1.12)	2.48 (1.19)	2.33 (1.13)	2.38 (1.21)	94.54**
Inclusion in the JCR	4.12 (.98)	4.03 (.98)	4.24 (.88)	4.08 (.96)	18.94**
Authors	3.14 (1.36)	3.33 (1.29)	3.20 (1.32)	3.27 (1.33)	15.34**
International Standards of Publication	4.38 (.85)	4.26 (.87)	4.41 (.81)	4.33 (.91)	15.34**
Online access	4.57 (.75)	4.47 (.80)	4.55 (.72)	4.40 (.87)	23.25**
Free online access	4.02 (1.03)	3.90 (1.06)	4.11 (.97)	3.87 (1.13)	21.95**
Databases	4.08 (.99)	3.94 (.97)	4.13 (.93)	4.08 (.99)	17.36**
Affiliation	2.31 (1.11)	2.62 (1.14)	2.54 (1.09)	2.54 (1.14)	66.06**

** $p < .01$, * $p < .05$

Table 9
Games-Howell Post hoc comparisons among the fields of knowledge

	Science – Engineering	Science-Health and Welfare	Science-Other	Engineering- Health and Welfare	Engineering- Other	Health and Welfare-Other
Publication language	.03*	.01*	.07*	-.02*	.04*	.06*
English	.01*	-.01*	.04*	-.02*	.03*	.05*
Spanish	-.08*	-.28*	-.26*	-.20*	-.19*	.01*
Chinese	-.25*	-.06*	-.17*	.20*	.08*	-.11*
Italian	-.08*	-.18*	-.13*	-.10*	-.05*	.05*
French	-.10*	-.11*	-.18*	-.01*	-.08*	-.07*
Impact Factor	.06*	-.13*	-.02*	-.19*	-.07*	.11*
Editorial Board	-.05*	.03*	.03*	.08*	.08*	-.00*
“International” in the journal’s name	-.40*	-.25*	-.30*	.15*	.10*	-.05*
Inclusion in the JCR	.09*	-.12*	.04*	-.21*	-.04*	-.17*
Authors	-.19*	-.06*	-.14*	.13*	.06*	-.07*
International Standards of Publication	.12*	-.03*	.06*	-.15*	-.07*	.08*
Online access	.10*	.03*	.17*	-.08*	.07*	.15*
Free online access	.12*	-.10*	.15*	-.12*	.03*	.24*
Databases	.15*	-.05*	.00*	-.19*	-.14*	.05*
Affiliation	-.31*	-.23*	-.23*	.08*	.07*	-.00*

* p<.05

Table 10
Proposed language by field of knowledge

Field of knowledge	Language	Mean (SD)
Science	German	.34 (.95)
	Japanese	.05 (.40)
	Russian	.13 (.64)
Engineering	German	.30 (.91)
	Japanese	.12 (.62)
	Russian	.11 (.60)
Health and welfare	German	.30 (.89)
	Japanese	.05 (.41)
	Portuguese	.03 (.26)
Other	German	.35 (.99)
	Japanese	.04 (.35)
	Portuguese	.03 (.29)

Note: The scores were calculated by assigning 0 in case of the participants who did not propose a language and including the scores gave to a language by those who did propose it

to study the mother language and also a second language which enables a dialogue between cultures and countries (Resolution

12 of UNESCO’s 30th General Conference, 2006). Nowadays, the language which is most commonly studied as the second language is English. This is probably why this criterion is considered the most important. USA-Canada, Europe and Oceania are the countries with the highest means in this criterion and are statistically different from Asia and Africa. The importance given to English is the same in all the fields of knowledge, but there are differences related to other languages.

The online access is also very important as it makes a publication accessible from any part of the world. This facilitates the international communication as the articles can be easily downloaded. The mean in this criterion is especially high in Central-South America which is statistically different from the rest. Science and Health and Welfare are the fields of knowledge with the highest means in this criterion. It is better if the access is free but it is not a crucial factor of the internationality. The word “international” either in the journal’s name or in the name of the institution to which it is affiliated are the least important criteria.

For the first time, the meaning of “internationality” was established by consensus of the scientists worldwide. This new way of measuring the concept can be applied to any scientific publication (Zych & Buela-Casal, 2007, 2009, 2010).

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