

Comparative analysis of the quality of the Spanish scientific and technical journals of Physical Activity and Sports Sciences (2000-2005)

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Abstract

The increase in productivity and Spanish periodic publications of Physical Activity and Sports Sciences (CCAFD) of the last years, do not correspond to the improvement of the journals judging, among other things, due to their scarce international visibility. Therefore, we approached a comparative study of the quality of Spanish CCAFD journals between 2000 and 2005 with the purpose of contributing to improve their quality and consolidate the field. Method. From the direct observation of the magazines of the inventories of the year 2000 and 2005, a series of formal indicators of scientific content and diffusion are analyzed. The formal quality is obtained from the adequacy of the journals to the standards ISO 8-1977 and ISO 215-1986, and the General Degree of Normalization (GGN) and Fundamental Degree of Normalization (GFN). Content quality derives from the editorial board, the origin of its members and the original selection system. The diffusion of the publications is observed from the indexing in databases and different types of presence on the Internet. Conclusions The quality of the Spanish CCAFD magazines has improved slightly, although they have lower standards than other fields in Spain. It has gone from a medium level to a high level in the GGN and there is still a wide margin for improvement in the adaptation to ISO standards. There is a low utilization of rigorous selection systems, a very limited diffusion, a certain instability in the titles and a high number of periodicals.

Introduction

The academic field of the Sciences of Physical Activity and Sport (CCAFD) has increased its university prestige thanks, among other things, to a greater presence of its scientific contributions in the international circuits of knowledge circulation. This phenomenon has been observed especially in the periodical publications, the most agile documents of certification and communication of knowledge and of more immediate repercussion. It has reached the subdisciplines of the social sciences, traditionally less given to the use of these communication channels, as a consequence of the growing choice of journals as a means of presenting research results by the authors. CCAFD articles and journals

are also circulated by prestigious international databases (eg Medline, ERIC, PsycINFO) for several decades, and the Journal Citation Reports includes a large group of periodicals from the field, mainly biomedical (see Hopkins 2003 , 2004 , 2005 , 2006). Even institutions dedicated to sports information and documentation have emerged, such as the Sport Information Resource Center (SIRC) of Canada, which uses the documentation source of Thesaurus Sport of the International Sports Documentation Association (IASI) or the Sportcom, which brings together a considerable number of Ibero-American documentation centers. The emergence of large databases specific to the field such as Spolit, Sport Discus, Heracles or Atlantes, linked to documentation institutions, as well as the increase and expansion of publishers, magazines and other specialized publications, are also a reflection of international evolution of the field (Aquesolo 2000 ; Remans 2000 ; Ghent 2001).

However, the visibility of Spanish titles among the CCAFD journals that appear in international databases is very scarce. Only a small number of journals circulate through databases such as Sport Discus, EMBASE / Excerpta Medica, CAB Abstracts or the Latindex Catalog, as well as some Spanish databases, and there is even a limited presence of journals in open dissemination systems as Internet (Devís et al. 2003 ; Villamón et al. 2005). This situation does not correspond to the increase in the scientific production of the field and the number of Spanish journals that have emerged in recent years. In addition, in this period the access of its researchers to the economic and structural resources necessary for the development of their activity has increased, stable research groups have been formed in the universities and doctoral programs of the field have been established (Pastor 2003).

Given this situation, it is pertinent to ask whether the scarce circulation of periodicals is due to the fact that they have not adopted the editorial quality levels necessary to effectively serve the functions of communication, dissemination and collective certification of knowledge. It is also worth asking whether the editors and institutions responsible for improving the Spanish scientific system are making efforts to increase the quality and international visibility of the periodical publications of the CCAFD field. Promoting the quality of these bodies of scientific communication is essential to ensure the presence of Spanish journals in international academic circuits. Otherwise, the authors prefer to disseminate their work in foreign or Spanish magazines of related fields that have solved this issue. On the other hand, quality periodicals are fundamental for the scientific development of the field because they become a key element in the dynamization of the scientific community and because they serve as a reference in the evaluation of the research activity of its members. In short, as I pointed out Kuhn (1987) , scientific journals help consolidate a certain field and ensure their position in the academic world. Therefore, we have approached this work whose objective is to compare the editorial quality of Spanish CCAFD journals and to know if the quality of these publications has been improved during the period between 2000 and 2005.

In the field of CCAFD there is a certain tradition in the study of scientific productivity (Sarig et al. 2001), but there are few studies that have dealt with the quality of their periodical publications or some of their aspects. Probably, the multidisciplinary nature of the field has not favored it, since it brings together biomedical, human and social journals, and

complicates its analysis and interpretation to researchers. Still, some studies have addressed the field as a whole, just as they did Miranda and Mongau (1991) to determine the most prestigious journals. However, recent work has focused on specific subdisciplines and on specific aspects. For example, the study of the quality of a group of sports medicine journals through an analysis of the methodology used in the research articles (Bleakley and MacAuley 2002 ; Brophy et al. 2005) or the analysis of the impact factor of the Journal of Teaching in Physical Education compared to other journals in the field (McBride 2006). On the other hand, in this article we try to evaluate the editorial quality of the set of Spanish scientific-technical journals of CCAFD, taking into account the formal aspects, scientific content and dissemination, as well as the evolution suffered during a period of five years.

With a research of this kind we not only cover all the Spanish scientific-technical publications in the field, but we do it from the methodological perspective that offers opportunities to improve the journals themselves. In this sense, the results derived from a study of these characteristics can be very useful for different agents involved in the scientific activity of the field. In the first place, it is useful for journal editors because it can help them to increase the quality standards of their periodicals, and also for potential authors, whether Spanish or foreign, because it allows them to select the most appropriate place to be informed. publish your research articles in Spanish journals. Second, the utility reaches the Spanish and European institutions and agencies that must subsidize and ensure the improvement of journals, as well as evaluate the research activity of researchers in this field.

Methodology

The comparative nature of this study requires using the same methodology in the two moments chosen for the analysis. For the elaboration of this article we have repeated the analysis carried out in previous occasions (Devís et al. 2003 ; Devís et al. 2004), whose methodological characteristics are detailed in the following sections.

Inventories of scientific-technical journals

The Spanish periodic publications of CCAFD subjected to the analysis are those valid for the years under comparison and which are part of the inventories corresponding to the year 2000 and 2005 respectively (see Devís et al. 2003 ; Villamón et al. 2005). In this way, in addition to the quality of the set of journals, continuities, discontinuities and new incorporations of periodicals in this field can be observed.

Quality indicators

The quality indicators for the comparative analysis include a formal dimension, another of indirect quality of scientific content and another related to dissemination. The formal quality is studied from the adequacy of the journals to the international standards of publication ISO 8-1977 and ISO 215-1986 (ISO 1988). In particular, paragraphs 3, 4, 5, 8, 10 and 12 of the first rule and 4 and 5 of the second. To facilitate the comparison, we have developed second-order indicators, the General Standardization Grade (GGN) and the Fundamental

Standardization Grade (GFN). These indicators have been taken and adapted from other works on evaluation of scientific journals because they offer a global view of the standardization status of journals (Delgado and Ruiz 1998 ; Redero 2002).

In order to analyze the quality of content, indirect indicators related to the editorial board, the origin of its members and the system of selection of originals that they use are considered. In particular, it is checked whether the journals have this management body and if they require the institutional membership of its members. Likewise, the process by which the journals accept or reject the works they receive is noted, noting who evaluates the articles and if they use a blind system for the review.

On the other hand, the dissemination of publications is analyzed through indexing indicators in databases and presence on the Internet. In this last aspect, the degree of said presence is gathered, that is, if only information or news of the journal is offered, if access to summaries is provided or if it is a totally electronic publication.

Process

The application of the indicators is carried out through direct observation of the inventory magazines. The sample subject to evaluation is the one corresponding to the last number of the years that were the object of our study, that is, the year 2000 and 2005. For the requirement of some indicators, the rest of the numbers of the same year or previous years are observed in the case of the annual magazines.

The perspective of analysis adopted in formal indicators of first order consists of observing compliance (Yes - No) or degree of compliance (Never - Almost Never - Almost always - Always) of the regulatory requirements. For the calculation of the second order indicators, this compliance is scored as follows: Yes = 1; No = 0; Never = 0; Almost never = 0.25; Almost always = 0.75; Always = 1. The GGN, second order indicator, is obtained by applying the following formula:

$$GGN = \frac{Ne}{Nt} \quad \text{where,}$$

- Ne is the number of normative elements fully or partially fulfilled and
- Nt is the total number of evaluable elements in each case.

The GFN, on the other hand, is obtained from those regulatory requirements considered as fundamental. That is, the location of the summary and the data it includes, the existing data on the cover of the journal and in the title of each page, as well as the identification elements of the articles. It is calculated in the following way:

$$GFN = \frac{Nef}{Ntf} \quad \text{being,}$$

- Nef, the number of fundamental elements fulfilled in whole or in part and
- Ntf, the total number of fundamental elements that can be evaluated in each case.

The scale that allows us to interpret the value of degrees of normalization and understand their meaning is detailed in Table 1. For the analysis of indirect indicators of content quality, only

the information offered by the publications themselves was considered in the analyzed number, since it is a first sign of quality that the journal publishes its management bodies and its editorial processes for review and acceptance of works. Only in the case of dissemination, has it gone beyond the information offered by the magazines to check what kind of electronic version they offer on the Internet.

Results and Discussion

The following is the result of the comparative analysis, organized by the sections that account for the main aspects of this work: the inventories of the Spanish scientific and technical journals of CCAFD; formal quality; the quality of content; and the quality of dissemination of periodicals.

Comparison of journal inventories

The updated inventory of journals for the year 2005 includes a total of 32 publications, compared to the 26 that were included in the inventory for the year 2000 (see Table 2). At first, this increase can be interpreted as a symptom of the growing activity of the CCAFD field, but it can also mean a low quality of the publications due to the difficulty of maintaining a high number of periodical publications. When comparing the number of journals in this field with that of other fields in Spain, we find quantities similar to those existing in Anthropology with 29 publications, Library Science and Documentation with 25 and Urbanism with 35 (Roman et al. 2002). It would also be similar to the 33 journals of Agricultural Sciences and the 29 of Sciences of the Earth and Space (Urdín et al. 2003). Even the number would be close to the 35 British journals of the CCAFD field during the year 2005 (1), although we must take into account the Spanish university delay in this field compared to the British and also the size of the academic community.

A large number of periodicals must correspond to a scientific community large enough to maintain the journals and their level of quality. On the other hand, if the community is proportionally smaller than the number of publications, the quality may be resented. This means that Spanish CCAFD scientists, compared to the British community for example, have a much harder time maintaining a high number of journals because they must send, proportionally, more originals and employ more evaluators. As they point out Olcina and Román (2004), this need leads to low competition for the selection of articles or a delay in the editorial process, which inevitably has an impact on the quality of the publications.

On the other hand, Table 2 also shows a certain fluctuation in the registrations and cancellations of the journals when comparing the inventory of the year 2000 and 2005, since in the five years between them, 5 journals have disappeared and they have included 11 new titles. To this instability we must add the considerable delay suffered by some of the journals, which in certain cases question its continuity. Some explanatory reasons for this situation may be low quality scientific productivity, lack of budget and adequate or permanent infrastructure and that the journal is the result of an individual and not collective initiative, as indicated Ramos (2001) when analyzing Latin American academic journals. In any case,

these ups and downs in the number of journals show a certain immaturity of the field because its main and most immediate organs of communication and dissemination of certified knowledge are not yet consolidated. One of the ways to increase the quality of the Spanish periodical publications of CCAFD associated with the number of journals, consists of the reduction of the titles when grouping the publications of related subjects. It is a strategy already pointed out in other areas (Krauskopf and Vera 1995 ; Rojas 1998 ; Giménez et al. 2001a ; Ramos 2001) and that is aimed at increasing competition among the works submitted by the potential authors of the field, with the added benefit of attracting more authors interested in publishing their originals in Spanish journals due to the increase in quality experienced with said measure .

Comparison of formal quality

The global situation of the formal quality of the periodic publications of the field of CCAFD in the years 2000 and 2005, as well as the evolution suffered between said period, can be observed in the table 3 in which the scores of each magazine in the GGN are shown and GFN, the second order indicators developed for this purpose. The comparison of the mean values of the GGN of the journals shows an overall improvement of the periodical publications of the field during the five years that mediate between one analysis and another. In addition, it is an important qualitative improvement, since this evolution (from 0.68 to 0.73) has meant that the average value of this indicator goes from the 'medium' level to the 'high' level. This is due, fundamentally, to the fact that 15.63% of the publications of the year 2005 have reached the rank of 'very high' when in the year 2000 there were no journals at that level.

Regarding the particular evolution of the journals, four have risen from a 'high' level to a 'very high' level: "Journal of Sport Psychology", "International Journal of Medicine and Physical Activity and Sports Sciences" , "Selection", and "Apunts, Physical Education and Sports". From a 'medium' level to a 'high' level, four other journals have done the same: "Motivation Skill", "Spanish Journal of Physical Education and Sports", "Water and Management" and "Sports Medicine Archives". The only magazine that has shown a regression has been "Motricity", which has gone back from a 'high' level to a 'medium' level by neglecting elements such as the situation of the summary or the correlative numbering of the fascicles.

In the case of the GFN, the comparison of the results also shows a positive evolution (from 0.62 to 0.64), although not as marked as in the GGN. The improvement is clearly observed in the extreme levels, since there has been an increase in the percentage of journals that has reached the 'very high' level, from 3.80% to 12.50%, as well as a decrease in the percentage of journals of 'low' level, going from 23.10% to 12.50%. Specifically, the "Journal of Sport Psychology" has gone from the "high" to the "very high" level, "Motor Skill" has made it from the 'low' to the 'high' level, and the "Water and Management" magazines , "Football, Technical Notebooks" and "Advances in Traumatology, Surgery, Rehabilitation, Preventive and Sports Medicine" have gone from the 'low' to the 'middle' level. Only the "Juridical

Magazine of Sport and Entertainment" has regressed when going from the 'medium' level to the 'low' level.

This global evolution of normalization, derived from the second order indicators, is also reflected in the first order indicators used in our analysis. In this regard, we observe a slight improvement in compliance with the ISO 8-1977 and ISO 215-1986 standards that we have analyzed, although it is still insufficient if we compare it with the situation of journals in other areas. For this last, we will take as a reference the studies carried out on journals from three large areas of knowledge, which, when using a similar methodology, lend themselves to comparison with our results: the Social and Human Sciences (Román et al. 2002), the area of Science and Technology (Urdín et al. 2003) and Health Sciences (Vázquez et al. 2003). As an example, we will comment on the data of some indicators of these norms that can be observed in table 4.

The percentage of journals that include all the data that, according to the ISO 8-1977 standard should appear on the covers of the journals, has gone from 15.40% in 2000 to 25% in 2005. In particular, in the year 2000 were "Archives of Sports Medicine", "Biomechanics", "Magazine of Sports Psychology" and "International Journal of Medicine and Physical Activity and Sports Sciences", which were in that situation. In 2005, the first one does not reflect the ISSN, but the other three have been joined by "Sports Law Online", "Rendimientodeportivo.com", "Magazine of Traumatology of Sport", "Ibero-American Journal of Psychomotor and Body Techniques "and" Selection ".Despite the improvement, that 25% is far from the 62.7% observed in the area of Social and Human Sciences, of 90.7% of the Science and Technology area and 99.6% of the Health Sciences .

The percentage of journals that collect all the data that should be present in each of its pages of the issue, according to ISO 8-1977, has also increased slightly from 3.80% to 12.50% between the year 2000 and 2005. To the "International Journal of Medicine and Science of Physical Activity and Sport", the only magazine that did the same in 2000, we must add "Motor Skill", "Rendimientodeportivo.com" and "Revista of Sports Psychology ". Even with this increase, 12.50% of the CCAFD journals that are in such conditions is below 21.5% of the Social and Human Sciences, of 18.4% of the Science and Technology area or of the 59 , 4% of Health Sciences.

Regarding the data that the summary should reflect according to ISO 8-1977, the percentage of journals that include all the relevant elements has gone from 3.80% to 12.50%. In this way, the only magazine that was in that situation in 2000, "International Journal of Medicine and Physical Activity and Sports Sciences", have added "Rendimientodeportivo.com", "Retos" and "Revista of Sports Psychology ". In this case it is not possible to contrast these results because some of the elements analyzed in the summary differ from those considered in the three previous reference studies (Roman et al. 2002 ; Vázquez et al. 2003 ; Urdín et al. 2003).

The inclusion of abstracts and keywords in each of the articles of the journals, in accordance with the standard ISO 215-1986, have experienced a remarkable improvement with respect to the year 2000. The presence in all the articles of the summary corresponding to the language of the magazine has gone from 34,60% in 2000 to 65,63% in 2005. This last percentage is higher than the 40,3% observed in the Spanish periodicals of Social and Human Sciences, but lower than 74,5% of Science and Technology journals and 93.4% of Health Sciences. This situation is repeated, equivalently, when comparing the existence of abstracts in two languages, since 40.63% of the CCAFDs in 2005 is superior to 33.2% of the Social and Human Sciences, but lower than 48.7% of Science and Technology and 82.8% of Health Sciences.

Something similar has happened with the keywords, which have gone from being reflected in all the articles of a journal of 19.20% of the cases to 43.75%. This last percentage relative to the CCAFD journals of 2005 is greater than 20.63% of the Spanish periodicals of Social and Human Sciences, but lower than 49% of the Science and Technology journals and 83.2% of those related to Health Sciences. Finally, we highlight that ten publications, 31.25%, always present the keywords and the summary in two languages, while in 2000 there were only three, that is, 11.54% of the journals.

Once again, we must remember that standardization is a basic aspect of the quality of a journal, a prerequisite (Pérez 2001) to be an editorial product that facilitates the transfer and use of the scientific information it contains (Delgado 1997 ; Giménez et al. 2001b ; Ruiz-Pérez and Pinto 1990). Normalization favors the visibility of journals in different dissemination systems and, in this way, their knowledge on the part of the scientific community, a necessary condition although not sufficient for the subsequent recognition that all of them crave. Therefore, it is urgent that those responsible for publications improve this aspect of quality that, on the other hand, does not require great efforts or resources.

Comparison of content quality

The comparison of the indirect indicators of the quality of content chosen for the analysis also indicates an improvement in the set of periodical publications of the field of the CCAFD of the year 2005 with respect to the situation in which said publications were in 2000. Table 5 shows the data related to the quality of content of the journals in the two years chosen in the study to facilitate the comparison. As can be seen, the percentage of journals that have an editorial board has increased with respect to 2000. As in 2000, only the journals "Biomecánica", "Técnicas Comunicas" and "Fútbol. Cuadernos Técnicos" continue without give an account of an organ like this. The percentage of Spanish periodic publications of CCAFD that indicates the existence of a editorial board reaches 90.62% in 2005, a figure higher than 75.8% of the Social and Human Sciences and 79.7% of Science and Technology, although less than 100% of the Spanish publications of Health Sciences.

The percentage of periodical publications that indicate the institutional affiliation of all members of the editorial board, has also increased from 7.70% in 2000 to 25% in 2005,

although with percentages much lower than the existence of the council. Even so, 25.93% of the CCAFD journals of 2005 is superior to 23.9% of the observed in the Social and Human Sciences and, interestingly, to 14.3% of the Health Sciences, that in the rest aspects are in much better conditions. The journals in the area of Science and Technology are the ones that comply most with this precept when indicating it in 30.6% of the publications.

In line with the previous results, the CCAFD journals have experienced a general improvement in the article selection systems. In the first place, the percentage of journals that do not specify the selection system used has decreased, since 50% of the publications that did not indicate anything have gone to 31.25%, which constitutes an advance in favor of the transparency of the review processes. Secondly, the external evaluation procedure, blind and not blind, has gone from using it in 7.70% of journals in 2000 to 18.75% in 2005.

However, although review procedures have improved, there are still very few journals that employ the most rigorous mechanisms. Thus, for example, only four journals use external evaluation by blind procedure in 2005 ("Motricity", "Journal of Sports Psychology", "Journal of Sports Traumatology" and "International Journal of Medicine and Activity Sciences"). Physics and Sport"), while two others claim to use external evaluators, although they do not explicitly state that they do so through a blind procedure ("Biomechanics" and "Ibero-American Journal of Psychomotor and Body Techniques"). In relation to the Spanish periodical publications of the fields that we have been comparing in this work, the 18,75% of CCAFD journals that use external evaluation is superior to 14% of Science journals Social and Human, but substantially less than 34.6% and 46.3% of the publications of Science and Technology, and Health Sciences, respectively.

These data regarding the quality of journal content, especially the article selection systems, highlight the need for editors and directors of CCAFD journals to seek to establish the review processes of a scientific journal, the blind peer review. Despite the objections that have been made to this system (Buela-Casal 2003, Campanario 2002, Dalton 1995, Kaplan 1995), it is admitted that blind peer review is, from the existing ones, the best method to determine the quality of a scientific contribution (Camí 1997; Giménez and Román 2001; Sancho 2002; Weller 2002).

The dissemination of the Spanish scientific and technical journals of CCAFD is a worrying topic as far as the indexing in databases is concerned. In the year 2005, only 18.75% of the journals are included in at least one of these systems, although it is true that it is a percentage somewhat higher than that observed in the year 2000. The journals indexed on some basis of data in the year 2005 are: "Apunts, Physical Education and Sports", "Apunts, Sports Medicine", "Sports Medicine Files", "Motricity", "Magazine of Sport Psychology" and "Selection". In the case of Motricity, it should be noted that in some copies the databases in which it is indexed are not declared, an omission that we have attributed to a printing error. This percentage of 18.75% can not be compared with the Spanish reference studies that we have used in the formal and content quality due to having methodological differences. However, the data reflects a limited international projection of publications, when the

dissemination of a journal is an aspect considered by potential authors to select the fate of their articles. These aspire to the greatest possible impact among the scientific community and, for this, they opt for those communication channels that can give them more visibility to their work (Giménez et al. 2001a).

Something better is the visibility of the Spanish scientific-technical journals of CCAFD on the Internet, since it has increased some type of presence in the network. If in the year 2000 there were no journals that offered access to their summaries through the network or that they combined the paper version with the electronics, in 2005 there were 31.25% and 6.25% of publications, respectively, They do. In addition, exclusively electronic journals have gone from constituting 7.70% to 12.50% of the total during these five years. The on-line magazines currently in force are "Sports Law Online", "Rendimientodeportivo.com", "International Journal of Medicine, Physical Activity and Sports Sciences" and "Ibero-American Journal of Psychomotor and Body Techniques". Despite the improvement, in the year 2005 there is 18.75% of publications that do not have any type of presence on the Internet. This figure is considerably lower than 64.4% and 48% of the Spanish journals of Social and Human Sciences and Science and Technology, respectively, which do not have any type of presence in the network, although curiously somewhat larger than the 16 , 7% of the periodic publications of Health Sciences.

Conclusions

The results of this study indicate that the quality of the Spanish scientific and technical journals of CCAFD has improved slightly between the five years between the two analyzes performed, although they have lower quality levels than other fields in Spain. Therefore, a greater effort is required by all the agents involved in the editorial process to raise the quality standards that, at least, would correspond to the increase experienced in the productivity of the last decades in the field studied. Here we present the main conclusions of our work:

The number of Spanish scientific and technical journals of CCAFD has increased from 26 to 32 publications between 2000 and 2005.

The set of Spanish periodicals of the field of study is unstable, since in the five years between one analysis and another there have been five casualties and eleven incorporations in the inventory of journals.

The GGN of the journals has substantially improved by increasing the average value of this second-order indicator (from 0.68 to 0.73), which implies the passage of this value from the 'average' level in the year 2000 to the level 'elevated' in the year 2005.

The GFN has also evolved positively, although the average values in the two years of our analysis (0.62 and 0.64) remain within the same level of normalization, the 'average'.

The adequacy of the journals to ISO 8-1977 (Presentation of periodicals) has improved slightly with respect to the inclusion of all the data on the covers of the journals (from 15.40%

to 25%), as well as in each of the pages of the fascicles and in the summary (in these two cases from 3.80% to 12.50%), although the percentages reached are still low.

The adjustment of the publications to the norm ISO 215-1986 (Presentation of articles in periodic publications) has experienced a remarkable improvement, since 31.25% of the magazines of the year 2005 always present the key words and the summary in two languages, while in the year 2000 it was only 11.54%. The presence, in all the articles of a journal, of a summary in the language of the publication, has gone on to include 34.60% to 65.63% of the journals and the inclusion of the keywords of 19.20% in 2000 to 43.75% in 2005.

The percentage of journals that have editorial boards has increased from 88.50% to 90.62% between the two years of analysis. The percentage of periodical publications that indicate the institutional affiliation of all members of the editorial board has also increased (from 7.70% to 25%), although it is a much lower percentage compared to the journals that have this body.

The CCAFD journals have experienced an advance in favor of the transparency of the review processes, since 50% of the publications that did not indicate anything in the year 2000 have gone to 31.25% in 2005. However, the improvement is very poor in the use of more rigorous evaluation mechanisms, external and blind review (from 7.70% to 12.50%).

The dissemination of the Spanish scientific and technical journals of CCAFD is a worrying topic, since only 18.75% of the publications of the year 2005 are indexed in at least one database, a percentage only slightly greater than 15 , 40% observed in 2000.

The visibility of the Spanish scientific and technical journals of CCAFD on the Internet has improved during our period of analysis by increasing the different levels of presence in the network. However, 18.75% of the publications still do not have any kind of presence on the Internet.

In short, the Spanish scientific and technical journals of CCAFD must actively advance in that positive trend they point to. Despite this, there is little use of rigorous selection systems, very limited dissemination, a degree of instability in titles and a large number of periodical publications, as well as a wide margin for improvement in the standardization of journals.

From our point of view, with this type of analysis of the quality of scientific journals we are emphasizing the interdependence between the formal aspects, the scientific content and the diffusion of the global quality of the periodicals. The standardization of a journal contributes to its indexing and dissemination and, with it, to its circulation and knowledge among the scientific community, which may consider it as a tool of interest for the consumption of information and the sending of originals. As the influx of jobs grows, competition will increase to be selected and, consequently, the quality of those that were finally published. If we add to this the prestige of the members of the editorial board and the rigorous nature of the original selection systems, Not only would the number of originals increase, but higher quality articles would be received. Therefore, the shortcomings that this work has identified must be

repaired urgently. As it was advanced in the introduction, the Spanish scientific community of CCAFD needs to equip itself with magazines that do not get out of step with their degree of development and productivity to consolidate the field and contribute to the improvement of the contributions of its members.

Notes

(1) Data obtained from consulting the catalog of journals of the British Library in June 2005 with the following search words: dance, exercise, fitness, games, leisure, PE, physical activity, physical education, physiology, recreation, sport and sports.

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