

# WHAT ROLE DO LIBRARIANS PLAY IN ALTMETRICS?

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**Abstract:** Our aim is to identify the steps that librarians can take concerning altmetrics within the framework of the research support services offered by librarians. The current bibliography on altmetrics has been reviewed, especially that which refers to librarians. A survey has also been carried out of librarians of Spanish universities to find out their degree of involvement in the matter and the setting up of relevant initiatives.

**Keywords:** Altmetrics, librarians, academic library, researchers, scientific production metrics.

## 1. INTRODUCTION

The social web has become a means which enables a better knowledge of the impact of scientific research beyond the information provided by indices of citations (Borrego, 2014). There is evidence that researchers are using the social media to discover papers, contact and communicate with other colleagues and disseminate their work and recommendations. This is shown by the results of a study published in *Nature*<sup>1</sup>, although it is true that they do not use these media on a massive scale (You, 2014).

In the Horizon Report 2014, devoted to university libraries, altmetrics are spoken about as an open bibliometric technology which is based on the social web for the analysis of scientific publications and whose use by libraries will be applied in two or three years<sup>2</sup>. Although much remains unknown about how to interpret the data, what is being measured and what it represents, a large number of university libraries are showing an interest in this innovative approach to the quantifying of the scientific impact of their institutions. They understand them as being more complementary than alternative metrics<sup>3</sup>.

Our question in this work is: what is the role that librarians must play in the scenario of altmetrics as complementary metrics of the impact of scientific publications?

## 2. METHODOLOGY AND OBJECTIVES

The question we pose is: what is the role that librarians should play on the stage of the altmetrics as complementary metrics impact of scientific publication?

Our goal is to define the role of the library and the librarian as bridges between altmetrics and researchers and to list the actions that should be carried out as a road map. We present a literature review providing the theoretical framework, the state of the art and the identification and description of the main agents involved. This study, together with the professional experience of the authors, led us to ask the reasons why librarians should incorporate altmetrics in their daily activity and the steps, showing good practices carried out by several libraries.

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In order to provide data we have carried out an online survey of libraries at Spanish universities. The limited number of responses cannot be representative of the entire population but can offer a panoramic view of the situation in the Spanish university libraries. This can be considered a first approach to the practices of altmetrics at Spanish libraries.

To carry out our survey, several questions were selected in order to give an overview from the point of view of librarians, regarding their level of knowledge and training in this area and that of its researchers, the degree of publicity of their products for libraries and researchers on their web sites, the level of responsibility of librarians in the dissemination and training of altmetrics and the tasks that are being carried out.

Finally the conclusions of our work are presented.

### 3. RESULTS: STATE OF THE ART AND ACTIONS TO BE TAKEN

The results include reference to altmetrics, identifying the agents involved, initiatives at reference libraries and the opinion of respondents. We offer ten reasons why librarians should take part in the dissemination and training of altmetrics and ten steps to be taken.

#### 3.1 Facts about altmetrics from the literature

Until now, traditional metrics have served the scientific community to measure the impact of research, but in recent years they have shown their lack of adaptation to the new academic ecosystem. They are, for example, difficult to apply to common research products such as technical reports, work documents, datasets, software, conference communications and multimedia products (Konkiel, 2013).

A wish to find alternative metrics is a symptom that something is not going well in the evaluation of research<sup>4</sup>. This leads us to ask the following questions. Are citations the sole elements that should be measured? Do real readings which consolidate later research not matter? How do we measure these readings? By downloads, accesses, recommendations? What happens with those that are not reflected in the scientific production but which triumph in training areas, even in those which train new researchers? What happens with those that are fermenting and which it is still not possible to publish for one reason or another?

The concept of altmetrics appears in this context. It is considered as “*the study and use of scholarly impact measures based on activity in online tools and environments*” (Priem, Groth & Taraborelli, 2012), or as it is defined by Galloway, Pease and Rauh (2013) “*Altmetrics are the tools that help track a scholar’s influence and relevance beyond traditional citation metrics. Altmetrics provide immediate feedback because they rely on real-time data and interactions and can be quantified quickly*”.

As we see, alternative metrics appear at a moment when both authors and editors are beginning to understand that traditional metrics are not enough to know the interest that their publications arouse. They set out a change in the conception of scientific impact. This has until now been centered on valuing on the whole the place of publication - the journal - instead of taking into account the influence of the unit - the paper - and the research products stemming from it.

These tools are capturing different types of impact. They can give an idea not only of the interest which the paper awakens in the academic world, but also of the social impact which it is having. This provides scientists with new filters to keep abreast of the publications with a greater social impact in their research fields.

There has recently been a remarkable growth in the interest in the field of alternative metrics and this has been reflected in the appearance of an increasingly greater number of **scientific publications**. These aim to put these new tools of measuring academic impact into context. Accepting the invitation proposed in the Altmetrics Manifesto (Priem, et al, 2012) –the text which is the genesis of this new approach – a large number of researchers specialized in the field have dealt with the subject since its publication. Since 2012 various texts have been published once the first phase of skepticism had been overcome.

The approaches have been diverse but there are some main streams: 1) Altmetrics as an indicator or sign of the research quality; 2) The way in which researchers use the social web; 3) The ease of measuring the research’s social

impact; 4) The correlation between altmetrics and traditional metrics; 5) The use of alternative metrics in institutional repositories and the relation with Open Access.

Scientific journals specialized in bibliometric subjects are the ones which have shown most interest in the matter. Among the publications most cited, the Manifesto (Priem, et al, 2012) stands out above them all. Since its publication it has been referenced in more than a hundred publications. Likewise, in this group there are various publications of the founders of the tool ImpactStory<sup>5</sup>, which is very prolific in the matter.

However, the conversation about altmetrics is currently found in traditional places that do not belong to the academic context (Galligan & Dyas-Correia, 2014) such as **the Web**. In this way, as well as the most extensive scientific blogs, websites of all kinds and social networks themselves have picked up on the story of the new bibliometric “hot topic” (Yew, Foon & Wee, 2014). The emergence of altmetrics has generated much of a stir in the scientific community and interest in the public at large and its impact is therefore academic but also popular (Konkiel & Scherer, 2013).

If we base ourselves on the scientific bibliography which has appeared until now, the author who has the most publications dealing with the characteristics of altmetrics is Mike Thelwall<sup>6</sup> (h index Scopus=38), Professor of the University of Wolverhampton, whose research is focused on the study of big data. In the social network Twitter, we find other influencers in altmetrics such as Keita Bando (@KeitaBando) (klout=47), a Japanese researcher who runs the non-profit organization MyOpenArchive; and Todd Carpenter (@TAC\_NISO) (klout=58), Executive Director of NISO.

On the other hand, since 2011 various academic events have dealt with alternative metrics in their programs. Advances in the matter have been presented in different congress papers. However, workshops have mainly been the format chosen to make the tools of altmetrics calculation known. The ones that stand out are those held in the framework of the ACM Web Science Conference and those organized by the Alfred P. Sloan Foundation and PLOS. It was not until 2014 that a meeting completely devoted to the new measures of the evaluation of academic impact was held. This was the 1st Altmetrics Conference (London)<sup>7</sup> which included the participation of Altmetric.com and publishing houses such as Springer, Elsevier and Thomson Reuters.

### 3.2 Who are the agents involved in altmetrics?

The actors affected in this context and which have a role in these new metrics are especially: 1) suppliers, 2) editors, firms and organizations which measure the impact of research with alternative metrics; 3) scientific journals; 4) repositories; 5) researchers and 6) librarians.

#### 1) The suppliers

Regarding suppliers of altmetrics services, there are three main tools which compile these data from different sources and which can be disseminated through public APIs that are at the disposal of the other agents involved. For example, PLUM Analytics, a payment service currently owned by EBSCO, supplies altmetrics data from a large number of sources and is commercialized for universities and research institutions (González-Fernández-Villavicencio, 2014). Both Altmetric.com<sup>8</sup> and PlumX manage to connect the profiles of researchers with their ORCID Identifiers (EBSCOhost, 2014), although in the latter case this is only possible when the institution becomes a client of PlumX.

#### 2) Editors and scientific journals

Among the editors which supply altmetrics data we note the Public Library of Science (PLOS). This was the first to supply this type of data in their publications through their article-level-metrics (ALMs). They have been followed by other major publishing houses such as the Nature Editorial Group, Springer, Elsevier, and, more recently, Wiley. Elsevier has launched “The Metrics Development Program”<sup>9</sup> whose point 2 incorporates “Altmetrics”. Elsevier expands metrics perspectives with the launching of new altmetrics pilots<sup>10</sup>. HighWire, offers an optional Article Level Metric (ALM) for the editors which use their platform and more than 15 subscribing editors take part in KUDOS<sup>11</sup>. This is a new free service which started up at the end of April 2014 to help researchers and their institutions to maximize the visibility and impact of their published scientific papers, including indicators of downloads, citations and alternative metrics.

Elsevier also participates in the project NISO Altmetrics<sup>12</sup> –sponsored by the Alfred P. Sloan Foundation- to explain, identify and advance in “standards” and “recommended practices<sup>13</sup>” and improve the academic community’s methods of evaluation.

As has been set out, firms and organizations are very interested in Altmetrics, but much remains to be done regarding normalization, transparency, time coverage, etc. (Zahedi & Costa, 2014).

Scientific journals are incorporating altmetrics scores individually or benefitting from the platforms of databases which they are part of. Some outstanding examples that we find are, for instance, a paper published in the New England *Journal of Medicine* November 21st. 2013 which obtained an altmetrics qualification of 1837 and another article that was published November 8th. in *PLOS ONE*, and received 960.<sup>14</sup>

In November 2013, journals of the importance of *The Lancet*, *Neuron*, *American Journal of Preventive Medicine*, etc., of Elsevier, were already pilots in a 6-month initiative with the firm Altmetric.com, to include altmetrics data at a paper level in 26 journals of ScienceDirect<sup>15</sup>. The firm Altmetric.com annually provides the 100 main yearly papers.<sup>16</sup>

### 3) The repositories

With respect to repositories, the close relationship between altmetrics and the open access to science movement is to be highlighted. In fact, the arrival of altmetrics is an opportunity for authors, editors and repository administrators to be able to obtain new data others than the use and downloads statistics which were until now retrieved. To do so, repositories worldwide are incorporating altmetrics to follow up the use and exchange of scientific production in the social web. For Konkiel & Scherer (2013):

*“University administrators are increasingly trying to find new ways to measure the impact of the scholarly output of their faculty, students and researchers through quantitative means. By reporting altmetrics (alternative metrics based on online activity) for their content, institutional repositories can add value to existing metrics – and prove their relevance and importance in an age of growing cutbacks to library services”.*

In Spain Digital.CSIC was the first repository which, in 2013, enriched the statistics on use that they obtained with altmetrics (CSIC Abierto, 2013).

In January 2014, the Ranking Web of Repositories announced, in its 14th edition dedicated to 2014, that it had included altmetrics indicators from the following sources: Academia.edu, Facebook, LinkedIn, Mendeley, ResearchGate, Slideshare, Twitter, Wikipedia and YouTube.<sup>17</sup>

### 4) The scientific community

Regarding the world of the **scientific community**, the social web has given researchers the opportunity to create, note, reuse and represent information in a way that was difficult to imagine some years ago (Procter et al., 2010). Increasingly more **researchers and research groups** have a greater presence in social networks such as Twitter, Facebook, Google, etc. This presence is essential to achieve reliable statistics altmetrics data.

Universities are already realizing the possibilities of altmetrics data. Thus, in Spain there are universities such as Rovira i Virgili which disseminate in their news<sup>18</sup> that it is among their research staff that we can find the second scientific paper of greatest global impact in the social networks in 2013, according to the ranking of Altmetric.com.

Against this background, NISO, aware of the dilemma and the need to retrieve data in a normalized manner, began a project in 2013 (NISO, 2014) to develop standards and good altmetrics practices. This was because, among other advantages, they could potentially be useful for the evaluation of the professors and in the accreditation process. Undoubtedly, this will be a decisive step and a turning point in the valuing of these alternative metrics, especially if it is adopted institutionally.

### 5) The librarians

The librarians of university and specialized libraries usually manage, organize, train and inform their researchers about citations and impact. This is why ACRL (2014) states that university libraries have the qualifications needed to appropriately use altmetrics and foster among the academic community the impact and value of the research produced in their institutions. Due to this, librarians should train and inform about these alternative metrics as one service more

of the Library, as they are “*well positioned to inform and support researchers and decision makers in their use*” (Lapinski, Piwowar & Priem, 2013). Moreover, the resources endorsed by libraries are incorporating altmetrics both in repositories (Konkiel & Scherer, 2013), and in databases and electronic resources.

### 3.3. 10 reasons for librarians to incorporate altmetrics in their daily activity

Librarians play a star role in the area of alternative metrics as assessors, trainers and advocates in matters of scientific publication.

The ACRL report (2014) on trends in university libraries discussed above, states that “*university libraries serve research, offering information resources and helping in the different phases of the process of scientific research*”...

For Merlo-Vega (2011), librarians “*are agents who foster resources, designing learning objects, producing information contents and carrying out training actions*” and Science 2.0 “*presents libraries with the opportunity to fulfill their commitment to serving research. Researchers subscribe to the blogs and lists of libraries to find out about the resources that they describe. But they also are enrolled in their training courses and are the main users of tutorials about documentation techniques, not only oriented at seeking resources but expanded to subjects such as bibliographic management, obtaining citations indices and signs of quality of publications, and the handling of participatory tools to share research projects*”.

In this context of the social web and Science 2.0, alternative metrics, or altmetrics, are seen to be strongly linked to the librarian’s task of supporting research but also to the figure of the liaison librarian or one who is integrated into teaching and research. For Sutton (2014), altmetrics are the natural extension of what libraries and librarians did before. Not in vain Plum was founded in 2012 by a librarian and a technologist. This situation is reflected in the countless congresses and seminars for librarians over these last years, as has already been mentioned.

In the White Paper on altmetrics (NISO, 2014), which counted on the presence of librarians, it is indicated that “*Libraries and librarians have the necessary qualification to train and disseminate the appropriate use of altmetrics to promote the global academic community, the impact, the attention and the value of the research produced in their institutions*”. Many librarians are actively taking part in the dissemination of these metrics, so they are authorities in their institutions. Both NISO (2014) and ACRL (2014) see signs that libraries are incorporating information about altmetrics by including in their subject guides resources for scientific communication, impact and citations management. As evidence, they cite the great number of results in Google which include both “LibGuides” and “altmetrics” (106,000 in September 2014). Authors, such as Bando (2013), wonder when librarians are going to include alternative metrics in their day-to-day activities.

For Galligan (2013) and other authors, there are various reasons why altmetrics are interesting for librarians in their daily activities. The following is a summary of them:

1. As librarians supporting research, they are consultants who help researchers to know, improve and build their own scientific impact, measuring this thanks to these alternative metrics, in real time and showing the value of their research, its impact and the attention that it gets. This is because altmetrics complement the traditional methods which measure academic impact and the peer review process. Different authors state that these practices transform the librarian into a genuine specialist in the scientific communication process (Priem, Piwowar & Hemminger, 2012; Galligan, 2013; Lapinski, S. et al., 2013), as they give evidence of the possible quality and usefulness of academic facets about which traditional metrics did not previously inform (ACRL, 2014). This information may prove to be important for the promotion and accreditation of the research professors given that they must continuously show the impact of their efforts in different circumstances. They also have to identify emerging trends in research and obtain financing for research projects. The involvement and know-how of librarians in an activity of vital importance for professors and researchers guarantees their strategic role in the process of academic scientific production and communication (Holmes, 2014).

2. Librarians who monitor the impact of their institution’s scientific activity are a way of showing the ROI of public investment in higher education (Sutton, 2014). Altmetric.com, one of the altmetrics firms, has announced the institutional edition of its product<sup>19</sup>. This offers librarians, research administrators and researchers in general an easy and intuitive way of monitorizing and registering the online impact of the publications and scientific papers of the members of the institution. They thus get the best result for the scant resources of the library and its corresponding institution. This monitorizing is interesting for university managers, as they can present the internal and external

stakeholders with supplementary results along with traditional metrics. They can hence demonstrate the value of the institution with different aims, such as identifying trends<sup>20</sup> or seeking financing (Sutton, 2014).

3. As institutional assessors in issues of scientific production. University managers are demanding librarians to take a stance on these alternative metrics or on buying products which include them (Delasalle, 2014). This is an opportunity to train university managers and researchers in their strengths and weaknesses (Roemer & Borchardt, 2013). Likewise, librarians can recommend them to the editorial committees of the academic journals which accept evidence of alternative metrics in their editorial policy (Lapinski, S. et al. 2013).

*“Librarians can help administrators understand the limitations of using altmetrics for certain purposes and how they compare with other measures of influence”* (Brigham, 2014).

4. As trainers in information and scientific literacy and in alternative science systems, the specific skills of scientific communication are having an increasingly greater relevance in the training plans of libraries (González-Fernández-Villavicencio, 2013). With training in the concepts of Ciencia 2.0, libraries include platforms which enable the free sharing of all kinds of information, management tools, storing and networking in the scientific area, the use of managers of social reference, such as Mendeley, of social media such as Twitter, of open encyclopedias such as Wikipedia, of open information access systems such as Meneame, of social publications such as Slideshare, of social networks such as Academia.edu and ResearchGate, of open repositories and scientific blogs, etc. All these media generate statistics about the activity and interaction between their users in social media (Google+1s, tweets, Likes, Shared, etc.), in reference managers (downloads, commentaries, readings), in scientific blogs (comments, inbound links), in repositories (views, downloads), etc. These metrics affect any kind of scientific and academic material and are complementing the evaluation of the science. It is necessary to tackle their limitations when including training in alternative systems (Galligan, 2013).

Davis-Kahl et al. (2014) offer examples of university libraries which have integrated these information and scientific competences and we have already commented on how libraries have included the concepts of altmetrics in their LibGuides.

5. As trainers in the use of these new metrics within specific scientific competences for researchers (Roemer & Borchardt, 2012; Roemer & Borchardt, 2013) and encouraging experimentation with emerging altmetrics tools (Lapinski et al. 2013). Researchers have realized that there are buttons and symbols which show ranking symbols embedded in papers, repositories and databases, so they ask the library for information. In 2014, EBSCO acquired PLUM Analytics, Springer includes Altmetric.com in SpringerLink, Wiley added Altmetric.com to its open access journals<sup>21</sup> and Scopus added reading statistics from Mendeley and Altmetric.com<sup>22</sup>. This is an opportunity to offer a guide and advice in training sessions (Konkiel & Scherer, 2013).

6. It is of interest for librarians in their activity of selecting information resources for the developing of collections. This is because it takes into account the impact of the publications for their inclusion in the libraries' collections. Impact data which offer resources, such as Mendeley, can be considered (Galligan, 2013). Librarians and researchers get extra information about citations and altmetrics uses of resources (downloads, favorites, mentions, recommendations, etc.) when they purchase these altmetrics from suppliers of resources such as EBSCO (which acquired Plum Analytics). This is in addition to the data which traditional statistics such as COUNTER offer, which are statistics that librarians already use to account for and know the users' employment of the collections of electronic resources (Sutton, 2014).

7. It is interesting for librarians as a source of information to know the needs and interests of their users (Borrego, 2014). We have already commented that altmetrics are a natural extension of what librarians now do – in this case, monitoring the behavior of users for decision-making in relation to their collections, especially that which is electronic (Galligan & Dyas-Correia, 2013, p. 58).

8. To enrich their own collections and repositories. The value of altmetrics in repositories is clear. This is because they help to have a view of the whole of the collection. They also encourage the depositing of more material by confirming the advantages of the materials being in open access. They can be used to persuade and stimulate potential depositors in open access, by complementing the existing statistics of use. In this sense, it will have to be decided if the costs of the service, the technical support needs, the restrictions of the platforms and the real interest of the users have been taken into account when including these new metrics in repositories.

As well as the most known altmetrics services, there are other forms of implementing these utilities through APIs and open access tools, such as PLOS's Article Level Metrics, web sites and services which trace the impact of

scientific publications through various points of their scientific cycle, from reading to post-publication peer reviews (Scopus, Mendeley, PubMed, Faculty 1000, blogs and social networks).

On the other hand, the use of repositories outside the academia has been seen to increase by adding these metrics, as they indicate the impact of each material deposited, letting us know in what way the content is used and shared (Konkiel & Scherer, 2013; Delasalle, 2014). The institution can use them to carry out both the internal and external dissemination activities of the repository and, as a consequence, of the scientific production deposited in it by its researchers. They can also be used by the evaluation committees as a complementary impact measure.

9. As the librarians/researchers that they are, they must foster and disseminate their skills in the use and practice of altmetrics, knowing the tools firsthand and using them for the impact of their own publications (Roemer & Borchardt, 2013; Lapinski et al. 2013), including them in their CVs (Curriculum Vitae).<sup>23</sup>

10. As a bridge with the suppliers of altmetrics. Librarians have to be always attentive to the existing metrics of the evaluation of scientific publications and can function as a bridge between the needs of the researchers and institutions and the suppliers of alternative metrics to indicate the errors that exist.

### 3.4. Ten steps that librarians must take to incorporate altmetrics

Most authors generally agree that librarians should involve themselves in alternative metrics by offering their support in three directions: offering information about the latest trends in emerging research, supporting trying out innovative tools and getting involved with training in and with the results of alternative metrics (Lapinski et al. 2013).

We propose that librarians should take the following 10 steps:

1. Train in alternative metrics (Lapinski et al. 2013). Gain firsthand knowledge of the services and tools that these metrics offer and try them out. Create profiles in different services and know better their functionalities, as in, for example, Altmetric for institutions.

2. Use these tools in their own profiles and CVs as researchers.

3. Contact other university scientific community support services and researchers to initiate projects of collaboration with them for the study and implementation of altmetrics.

4. Advise the institution about their use and disseminate both their advantages and the limitations of using them. Recommend them to the committees which award financing and the editorial teams of journals which accept different impact metrics including phrases such as "Evidence of alternative impact forms is accepted".

5. Train their users of any kind in scientific competences and information literacy competencies, including training in bibliography management tools, such as Mendeley, Social Markers, Social networks, Open Access, Sites to share materials, etc. (Lapinski et al. 2013). Incorporate them into training materials, in the subject guides, such as LibGuides.

6. Train their researchers in scientific competences including alternative metrics and trying them out. Help the researchers to place their papers ideally with these services, depositing a copy of all the results of their research, including codes and data, in the appropriate repositories (Gunn, W. 2014). Include altmetrics in their CV and take into account the researchers in the evaluation of the research. Encourage researchers to tell their own impact stories in their curricula. Elsevier specifically recommends librarians to use a series of steps as a sample of their known infography<sup>24</sup>.

7. Incorporate Altmetrics in the selection of information resources and collection development.

8. Implement them in repositories, databases, library catalogs, etc. (Lapinski et al. 2013). There are various institutional repositories which incorporate altmetrics, such as the University of Indiana, IUScholarWorks Repository<sup>2526</sup>. It is recommended that if there is not activity, the button must not appear along with the paper and the author should decide if he/she wishes to include it or not in his/her materials (Delasalle, 2014).

9. Incorporate them into user study procedures (detecting their needs).

10. Disseminate the use of these metrics, their advantages and limitations, as well as accessing these services through mobile technologies and applications.

### 3.5. Reference initiatives in libraries

There is really a boom of opinions and postures among librarians at the same time that there is a deepening or seeking of a closer collaboration with researchers and with the process and result of their duties - research that is in some cases fostered by more wide-ranging university policies or by consortia.<sup>27</sup>

One of the most widespread uses is the creating of guides<sup>28</sup> (some excellent) with different formats and lengths in which there is a compiling of relevant information, an explanation of how to use them, what the pros and cons are, significant examples, etc. They have also created websites (LibGuides is one) and specific blogs<sup>29</sup> in which they speak about them. They include as well posts in their general blogs, organize specific congresses<sup>30</sup> and devote a section within them<sup>31</sup> to cover it. Of course they have included training within what is most generic or specific about the evaluation of research activity or exclusively created training<sup>32</sup> dedicated to altmetrics.

Not only at the level of individual libraries, but also in consortia and major associations which publish states of the art or key data about the issue (Roemer & Bonchardt, 2014; Sutton, 2014; King & Thuna, 2013). Some important suppliers have signed up<sup>33</sup>. This is certainly interesting but they continue analyzing the role of librarians, who tend to be their direct intermediaries.

Some examples of good practices in which libraries have experience with these low risk tools are:

1.- The University of Pittsburgh Library System (one of the most largest in the United States) is collaborating with Plum Analytics to find ways of evaluating the impact of its university's research through less traditional means such as institutional repositories and social media platforms (Rodgers, 2013). In 2012 it contracted the services of Plum Analytics to create a directory of research and include in it a list of the publications of its researchers, metrics obtained from open access, social networks, repositories of data, blogs and other sources, with the aim of improving their profiles<sup>34</sup>. It has started to practice and disseminate the use of these tools in its community.

2.- P. Scott Lapinski (research support librarian of the Harvard Medical School and the Harvard School of Public Health for the NIH Public Access Policy) offers users training and advice in the use of altmetrics to demonstrate to researchers the benefits of their work being in open access (Rathemacher, 2014)

3.- Lisa Palmer, librarian of the institutional repository Lamar Soutter Library, University of Massachusetts Medical School, promotes Altmetric.com in the repository eScholarship@UMMS via training and the use of altmetrics products. To demonstrate a paper's impact level, she has included the API of Altmetric.com in *The Journal of eScience Librarianship*<sup>35</sup>. Donuts of Altmetric.com appear in every paper, as they have a DOI assigned. Altmetrics have a great value for showing the impact of materials other than articles included in repositories that traditional metrics do not consider. They also offer training courses on altmetrics and LibGuides in open access. They have created profiles in ImpactStory for a group of researchers to use it as an example (Rathemacher, 2014).

4.- John Furfey, of the MBLWHOI Library, incorporated altmetrics into the system of profiles of researchers and their publications (Bibapp project). Through an API, they included the metrics of Altmetric.com and ImpactStory in the system<sup>36</sup>. Researchers began to ask questions and the library offered training courses in altmetrics to both researchers and students. One of the great advantages is the grouping of trends in the publications and offering those of the research groups<sup>37</sup>. Departments use this information to decide on the research lines which they are going to follow. In this way, librarians have for the first time become assessors of researchers (Rathemacher, 2014).

5.-The University of New South Wales (UNSW) Library has over the last seven years provided the university's research community with a service called RIMS, the Research Impact Measurement Service. The aim of the service was to support research outcomes via measuring the publishing impact, for both authors and departmental units. Often while developing and delivering RIMS we have questioned whether the Library is the most appropriate provider of impact measurement services and whether these services are in general valued by the research community. Now they include training in altmetrics tools (Drummond, 2014).



6.- **Lucy Ayre** is the manager of the institutional repository LSE Research Online and works within Research Support Services at LSE Library. In an interview in the blog LSE<sup>38</sup> Ayre states that they already collect statistics for publications downloaded from LSE Research Online. These statistics can afford useful data together with traditional citation counts. In more recent times they have added an altmetrics tool with the aim of measuring how LSE research is being employed in this broader social panorama. The altmetrics badge, which is displayed on every item in LSE Research Online with a DOI, indicates a score of attention and other metrics that go with it to help researchers to track online attention concerning their work.

### 3.6. The situation in spanish libraries. Results of the survey

At the Spanish level it is noted that they devote some space in the web or in institutional blogs<sup>39</sup> and/or give training<sup>40</sup>, normally included in the general area of the evaluation of research activity<sup>41</sup>. Likewise, they make these options known in the assessing requested by researchers, although the feeling is that until there is a real recognition, researchers are not going to pay too much attention. Perhaps this is more so in the case of those who are beginning and who have published little. They want to have an idea of the impact that their publications can have - if they are downloaded, if managers link to them, if they will have, ultimately, more possibilities of being cited.

On the other hand, there is an aim in training in these matters. One of the references is the Grupo EC3<sup>42</sup> which addresses itself to both universities and university libraries and which receives (in its parent university, Granada, Spain) the consultations which arrive at the library. University and specialized libraries have taken part in some of its Seminars (as in the 4<sup>th</sup> on altmetrics).

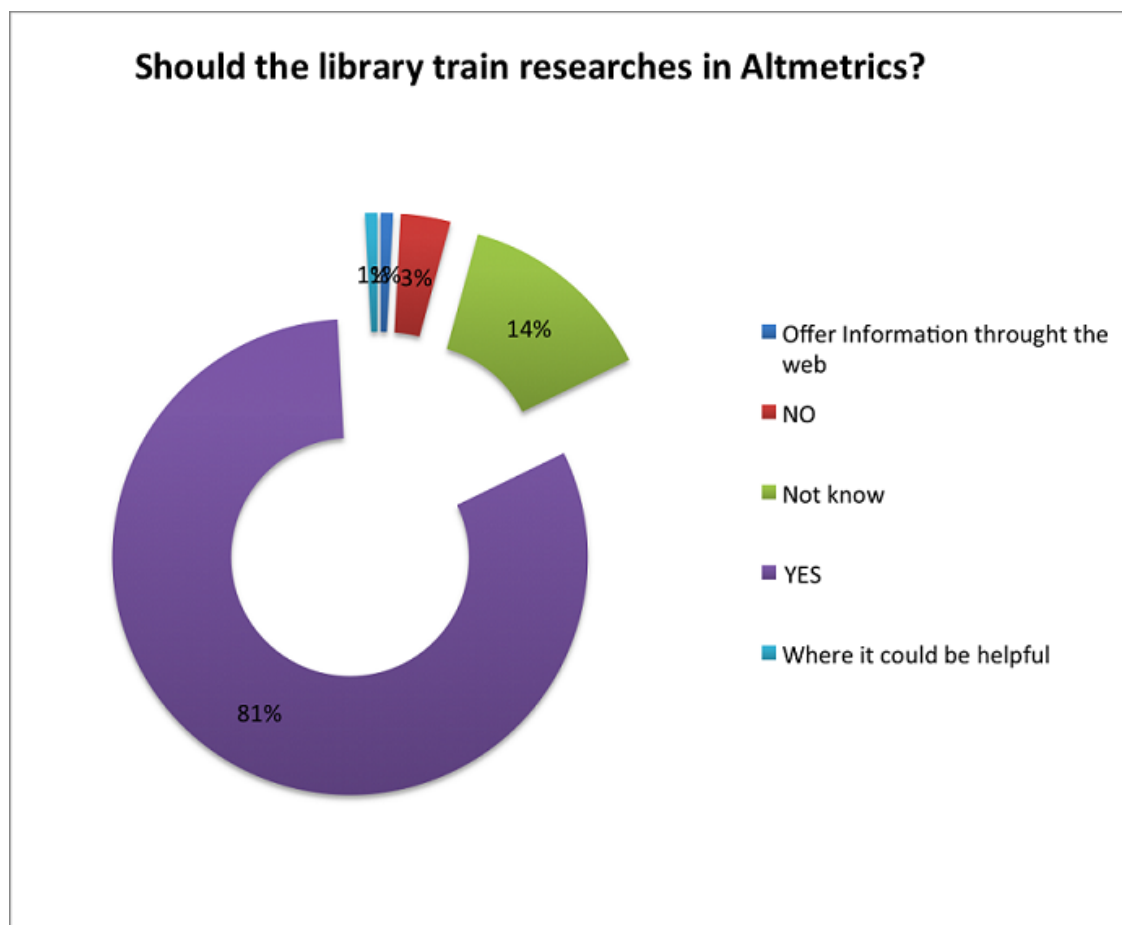
There are other libraries which show that they are getting ready to be able to give a timely answer and/or are receiving information about initiatives which aim at commercialization, such as PlumX which is offering the creation of individual profiles for institutions to value the opportunity of extending them to a greater number of researchers. As is reflected in the survey which we have carried out, in some cases they have also asked Altmetric.com for a test to include the data referring to their researchers in CRIS (Current Research Information Systems) institutional.

In order to contribute recent data to this research about librarians and altmetrics, the authors of this work have carried out an online survey<sup>43</sup> of Spanish university librarians with the aim of obtaining a general view of the perception of the librarians irrespective of the library where they work. There is also a first statistical approximation concerning the specific training which they have received and the activities related to altmetrics that they carry out. The answers were received between April and August 2014. There were 112 valid answers which came from 43 university and specialized libraries.

The results show that only in 13 cases has training in altmetrics been received directly from their institution (question 1 of the survey), although a considerable number (44) have trained themselves. This is a sign of their professionalism.

Twenty three libraries provide information in their web (question 2), which is more than those who train their librarians. This means that there is interest, although this is not materialized in more decisive steps.

A great majority (90) believe that the library should train or advise their researchers in altmetrics (question 3) (Figure 1). The librarians show a categorical interest in and commitment to the improving of the visibility of their researchers and have a clear view that it may be interesting to train them in altmetrics, even if this is via prior self-training.



**Figure 1. Responses of libraries to the question about the need to train their researchers in altmetrics.**

This last percentage is less when we move from personal opinions to what libraries have proposed with respect to training in or assessing about altmetrics (question 4). About a third of the answers to this are positive. This can denote various realities: the ignorance of the matter by a great majority of librarians, libraries and universities, the low interest of the researcher as they are not being considered in the official evaluations (and as a consequence that of their institution and the Library) or that they are waiting for others to make a move.

Regarding practice (libraries providing some training in the subject: question 5), we find that most Spanish university libraries do not train in altmetrics. Some of them integrate some information within broader contents, one of them shows that it is working on it, and another library channels this information to the Grupo EC3 in Granada (Spain).

It is really strange that there is a great number of librarians who do not know whether their library offers some kind of information in altmetrics or not. Is there a lack of internal communication? Are there hermetic compartments in the library which make them detached from and unaware of what their colleagues dedicated to training are doing? And so on.

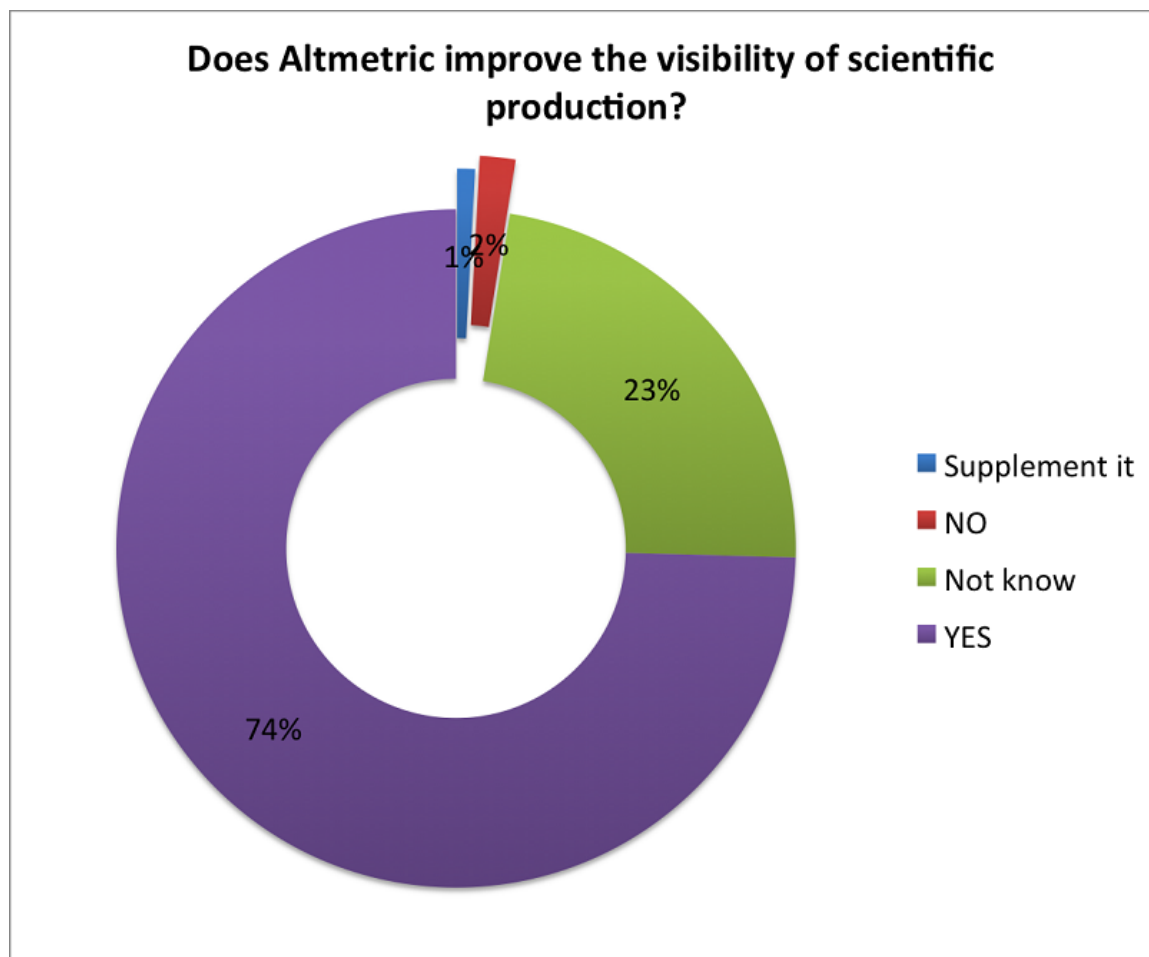
Regarding supplying assessment (question 6), the percentage of those who do it is similar to that of those who train, but the number of answers which consider assessing to be positive increases considerably. There is again a paradox: it is believed to be advisable but it is not done.

When training or assessing about altmetrics is provided to the university community (question 7), the contents it deals with are those shown in the graph (there can be various answers to the question).

The answers which have been received are mainly about more traditional training, such as institutional repositories and social networks, as well as training in Open Access. The effect decreases slightly when the contents refer to bibliographic managers, such as Mendeley, Google Scholar and scientific social networks. The training which the

libraries offer barely touches subjects of social markers and social networks sharing options or in alternative social methods and services to evaluate scientific publications.

It is surprising to verify how three quarters of the answers received (Figure 2) believe that altmetrics can increase the visibility and impact of scientific production (question 8) or at least complement it, when information, training and assessment in Spanish university libraries has not been generalized.



**Figure 2. Level of Spanish librarians opinion considering the impact of altmetrics regarding visibility scientific production.**

At least 75% consider that the Library should collaborate in the evaluation of its institution's research with altmetrics (question 9). This reveals the character of the service that the librarians have, as they are ready to add more content if this is required by the institution. A proactive attitude of the Library which informed its institution of the possible benefits for its researchers of counting on altmetrics indicators would be desirable. That is to say, the Library has the obligation of informing, training and offering those services which can be beneficial for the institution and hence its researchers. However, the training that they offer has a very slight influence in these aspects (as can be seen in question 7).

In the light of the answers of the librarians (question 10), it does not seem that researchers know the potential advantages of altmetrics (more than 50% consider that they do not take them into account). Not only that, there are also very few researchers who use the social networks of research (these are more inclined to the use of altmetrics) or at least the librarian is unaware (more than 40% of the answers) of this use of altmetrics by its researchers.

The answers, which come from 43 university and specialized libraries, also propose action lines (question 11) centered mainly on the training of librarians – as trainers – and researchers – with whom they must tighten bonds. Incorporating altmetrics into institutional repositories and the compiling of relevant information and advertising it in the web are other possibilities that they note.

A practical approach to the researchers involved is suggested in the centers in which, due to its characteristics, training is not possible. Carrying out a study about how to tackle it, considering all the possible questions mentioned is also shown.

There is therefore a multiple challenge. If, as is being demonstrated in the professional literature, altmetrics can be beneficial for researchers and their institutions, it must be known and valued by librarians - known, valued and motivated by the institution and recognized and valued by the research evaluation committees.

## 8. CONCLUSIONS

Alternative or rather complementary metrics are all metrics (*Allmetrics*), which must welcome other attempts at measuring. They are not only those which have to do with social networks, they are also those which foster visits, downloads, uses, relations between researchers (the origin of the citations indices), those which appear in different supports, those which are compiled in information managers that perhaps one day will produce an impact. Some do not have to displace others: they should be complementary, attain their place in everything that really analyzes, in which their biases, their frontiers and their failures are also uncovered.

Just as libraries face the flood of information which undermines their very foundations they must be prepared and have a proactive attitude to be able to support those who show that they deserve it, to weigh up the real dimension of the candidates, to help the researchers (and citizens) who need help. Even if they are not considered, they must assert their daily experience of dealing with information in all its aspects, taking advantage of any circumstance to show their usefulness, driving themselves in the alliances which trust them. They must also know how to introduce themselves as a solution to real needs, creating tools which facilitate comprehension and the obtaining of results, training those who require training, training themselves.

Also from the academic library perspective, these tools must aid the developing of the value of the functionalities offered by institutional repositories, library databases, catalogs, etc., by making its most talked about institutional research available for legal and free download. It would also be useful for both researchers and the libraries to be assured that these conversations concerning the research can be authoritatively traced back to the authors and their original works<sup>44</sup>.

“The continued growth of altmetrics seems inevitable, although their widespread application appears less certain. Acceptance of altmetrics will largely depend on their usefulness and quality. Librarians can help others understand the complexities that come with using altmetrics and how to properly incorporate them with other impact measures” (Brigham, 2014).

There is still some way to go toward the aim of validating alternative metrics compared to traditional metrics, but it is certain that these tools are for the moment going to help researchers to know where their works are being discussed, cited, seen, kept, marked as favorites and for them to have an idea of the social impact of their research. The role of librarians in this new scenario has an extraordinary scope due to the multiplicity of fronts that they must deal with and the great expectations that exist due to their know-how. It is a question of a new opportunity, which appears precisely when their continuity is being reconsidered, and when the continuing evidence of the profitability of their actions is being required.

## NOTAS

<sup>1</sup> Study of Nature: “Online collaboration: Scientists and the social network”: <<http://www.nature.com/news/online-collaboration-scientists-and-the-social-network-1.15711>>.

<sup>2</sup> Horizon report on university libraries: <<http://cdn.nmc.org/media/2014-nmc-horizon-report-library-EN.pdf>>.

<sup>3</sup> It was defined in this sense in the closing conference of the first congress on altmetrics <<https://www.youtube.com/watch?v=HKbm8Cz54xM>>, in which it was established what the current priorities were: “*Definitions; Persistent identifiers; Improve data quality and normalisation across numerous providers; Identify research output types that are most applicable to the use of metrics; Standardization of APIs or download exchange; Audit process for data reproducibility*”.

<sup>4</sup> «Alternative Metrics», *Nature Materials* 11, n.º 11 (November 2012): 907-907, doi:10.1038/nmat3485.

<sup>5</sup> Web site of ImpactStory <<https://impactstory.org/>>.

<sup>6</sup> «Mike Thelwall - altmetrics, big data, sentiment analysis, webometrics, link analysis, social network sites, blog analysis, methods girl - not to be confused with Michael Thelwell», s. f., <<http://www.scit.wlv.ac.uk/~cm1993/mycv.html>>.

<sup>7</sup> «1:AM: London - The Altmetrics Conference», s. f., <<http://www.altmetricsconference.com/>>.

<sup>8</sup> In: Hacking Altmetrics, post of the blog, of the 1:AM: London - The Altmetrics Conference 2014:

<<http://altmetricsconf.wordpress.com/2014/09/26/hacking-altmetrics/>>. Matt MacLeod, Maciej Gajewski and Scott Matthewman (2014) of Altmetric and Ben Blackburne of Papers. "Their project, combining Altmetric data with ORCID profiles. Their code can be found at <<https://github.com/amconference/altmetric-orcid-profiles>> and a test version is running at <<http://altmetric-orcid-profiles.herokuapp.com/>>: given an ORCID ID, their web application will present a profile of that person's papers with any relevant altmetrics data, giving a breakdown of their mentions".

<sup>9</sup> The Metrics Development Program: <<http://emdp.elsevier.com/index.asp>>.

<sup>10</sup> More information at <<http://editorsupdate.elsevier.com/issue-42-march-2014/elsevier-altmetric-pilots-offer-new-insights-article-impact/>>.

<sup>11</sup> More information at <<https://www.growkudos.com/>>.

<sup>12</sup> NISO Alternative Assessment Metrics (Altmetrics) Initiative: <[http://www.niso.org/topics/tl/altmetrics\\_initiative/](http://www.niso.org/topics/tl/altmetrics_initiative/)>.

<sup>13</sup> NISO to Develop Standards and Recommended Practices for Altmetrics:

<[http://www.niso.org/news/pr/view?item\\_key=72efc1097d4caf7b7b5bdf9c54a165818399ec86](http://www.niso.org/news/pr/view?item_key=72efc1097d4caf7b7b5bdf9c54a165818399ec86)>.

<sup>14</sup> According to the algorithm of altmetric.com. Interactions: November high five: <<http://www.altmetric.com/blog/interactions-november-high-five/>>.

<sup>15</sup> Journals participating in the ScienceDirect pilot: <<http://www.altmetric.com/blog/news-roundup-altmetric-in-elsevier-journals-addendum/>>.

<sup>16</sup> Example: 2013: <<http://www.nature.com/srep/2013/130429/srep01742/full/srep01742.html>>.

<sup>17</sup> Ranking web of repositories: <<http://repositories.webometrics.info/es/node/24>>.

<sup>18</sup> <[http://www.urv.cat/es\\_noticies/341/la-urv-firma-el-segundo-articulo-cientifico-de-mayor-impacto-mundial-en-las-redes-sociales-en-2013-segun-el-ranking-altmetric](http://www.urv.cat/es_noticies/341/la-urv-firma-el-segundo-articulo-cientifico-de-mayor-impacto-mundial-en-las-redes-sociales-en-2013-segun-el-ranking-altmetric)>.

<sup>19</sup> Institutional version of Altmetric: <<http://www.altmetric.com/institutional-edition.php>>.

<sup>20</sup> See an example in the Bibapp project of the MBLWHOI Library: <<http://research.mblwhoilibrary.org/static/en/trending/trending.html>>.

<sup>21</sup> More information at: <<http://exchanges.wiley.com/blog/2014/07/08/altmetric-is-now-on-board-for-all-wiley-journals/>>. An example can be seen at: <<http://onlinelibrary.wiley.com/enhanced/doi/10.1002/ece3.1051>>.

<sup>22</sup> More information at: <<http://science.okfn.org/2014/05/31/all-metrics-are-wrong-but-some-are-useful/#sthash.TQ7ULAb.dpuf>>.

<sup>23</sup> 4 things every librarian should do with altmetrics: <<http://blog.impactstory.org/4-things-librarians-altmetrics/>>.

<sup>24</sup> Librarians and Research Impact Infography (Elsevier): <<http://libraryconnect.elsevier.com/articles/2014-06/librarians-and-research-impact-download-and-share-new-infographic-0#sthash.P72QvRrY.tXWGXqUp.dpuf>>.

<sup>25</sup> More information at: <<https://scholarworks.iu.edu/dspace/>>.

<sup>26</sup> Guide example: <<https://blogs.libraries.iub.edu/scholcomm/2014/02/25/social-media-metrics-for-iuscholarworks-content-now-available/>>.

<sup>27</sup> Case of agreement of the Consorcio de bibliotecas universitarias andaluzas (CBUA) and ORCID: <[http://www.cbua.es/?page\\_id=957](http://www.cbua.es/?page_id=957)>.

<sup>28</sup> LibGuides in the AngloSaxon world, which are websites (in some cases portals or a major part of one). We link with some library pages of different universities: University of Pittsburg <<http://pitt.libguides.com/c.php?g=12107>>; University of Maryland: <<http://lib.guides.umd.edu/altmetrics>>; Virginia Tech: <<http://www.lib.vt.edu/research/metrics/altmetrics/index.html>>.

<sup>29</sup> University of Leiden: Measuring online impact of research through altmetrics: <<http://www.library.leiden.edu/news/altmetrics-weblog.html>>;

University of Indiana: <<https://blogs.libraries.iub.edu/scholcomm/2013/11/25/17-more-essential-altmetrics-resources-the-library-version/>>.

<sup>30</sup> Stanford University: <<http://library.stanford.edu/blogs/stanford-libraries-blog/2014/07/altmetric-workshops-monday-august-4-2014-updated-info>>; 3<sup>rd</sup>. workshop on scientific information management (JGIC-2014): <<http://bibliotecas.csic.es/widget/inicio/-/contenido/6fd7f039-1104-46c5-ad7f-166d9f2c6515;jsessionid=B87ADFC4AB6A524B402F7F16AAC5E4B2>>.

<sup>31</sup> LIDA 2014: <[http://ozk.unizd.hr/lida/theme\\_two/](http://ozk.unizd.hr/lida/theme_two/)>. Internet Librarian International 14 <<http://www.internet-librarian.com/2014/Wednesday.php>> (as it was held in London).

<sup>32</sup> Examples: University of Massachusetts Medical School: <[http://libraryguides.umassmed.edu/altmetrics\\_instruction](http://libraryguides.umassmed.edu/altmetrics_instruction)>.

Texas Tech University: <<http://library.ttu.edu/news/stories/altmetrics.php>>; Canadian Health Libraries Association: <<http://www.chla-absc.ca/node/1298>>.

<sup>33</sup> There are various posts in which Fin Galligan speaks of Altmetrics. They can be seen in a link with other questions in which altmetrics are also mentioned: <<http://www.swets.es/blog/selection-management>>. This has a series of 3 consecutive posts devoted to altmetrics and libraries.

<sup>34</sup> Plum Analytics Maps Success in Open Access Scholarship: <<http://newsbreaks.infotoday.com/NewsBreaks/Plum-Analytics-Maps-Success-in-Open-Access-Scholarship-83478.asp>>.

<sup>35</sup> <<http://escholarship.umassmed.edu/jeslib/>>.

<sup>36</sup> An example can be seen at <<http://research.mblwhoilibrary.org/works/39340>>.

<sup>37</sup> See an example at <<http://research.mblwhoilibrary.org/static/en/trending/trending.html>>.

<sup>38</sup> Blog LSE. Interview with Lucy Ayre. <<http://blogs.lse.ac.uk/impactofsocialsciences/2013/08/22/altmetrics-why-the-library-can-embrace-them/>>.

<sup>39</sup> More information in the following webs: <<http://www.universoabierto.com/7232/altmetrics-evaluacion-del-impacto-de-los-medios-sociales/>>, <[http://biblioteca.ucm.es/blogs/boletinbibliotecario/8132.php#.VA8ievl\\_tuI](http://biblioteca.ucm.es/blogs/boletinbibliotecario/8132.php#.VA8ievl_tuI)> o <<http://canalbiblos.blogspot.com.es/2014/03/altmetrics-impacto-en-la-web.html>>.

<sup>40</sup> More information in the following webs: <<http://ddd.uab.cat/record/117830?ln=ca>>, <<http://euskampus.ehu.es/events/curso-altmetrics/#&panel1-2>>, <<http://formacionbuva.blogs.uva.es/2014/01/28/webinar-bibliotecarios-y-altmetrics/>> o <[http://secretariageneral.ugr.es/pages/tablon/%noticias-canal-ugr/victor-henning-co-fundador-de-la-popular-red-social-mendeley-participa-en-un-seminario-en-la-ugr?lang=en#.VA8xCfl\\_tuI](http://secretariageneral.ugr.es/pages/tablon/%noticias-canal-ugr/victor-henning-co-fundador-de-la-popular-red-social-mendeley-participa-en-un-seminario-en-la-ugr?lang=en#.VA8xCfl_tuI)>.

<sup>41</sup> More information at: <<http://www.slideshare.net/BiblioUCA/ndices-de-citas-y-factor-de-impacto-e-indicios-de-calidad-en-publicaciones-academicas-para-procesos-de-acreditacion-y-sexenios-para-ciencias-de-la-salud>> o <[http://www.buc.unican.es/sites/default/files/DOCS/guia\\_herramientas\\_de\\_evaluacion\\_2013.pdf](http://www.buc.unican.es/sites/default/files/DOCS/guia_herramientas_de_evaluacion_2013.pdf)>.

<sup>42</sup> Grupo EC3 of the University of Granada: <<http://seminarioec3.wordpress.com/>>.

<sup>43</sup> Online Access to the survey: <<http://goo.gl/forms/FdTQJx4xqP>>.

<sup>44</sup> More information at: <<http://blogs.lse.ac.uk/impactofsocialsciences/2013/08/22/altmetrics-why-the-library-can-embrace-them/>>.

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