



Issue 21

# Editors' Update

Your network for knowledge

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ELSEVIER

Welcome to the latest issue of Editors' Update, which focuses on how to measure journal performance. We discuss the different ways of doing so by having an in-depth look at bibliometrics, feedback programs and measuring usage through ScienceDirect and Scopus. We also interview Carol Tenopir, who has been studying electronic academic readership patterns for the last 30 years. This issue was sent to you on behalf of your publishing editor.

Hans Kort, Associate Director Academic Relations

### STRATEGY AND POLICIES

## Readership trends: how they affect journal usage

How do readership patterns and usage statistics impact journal performance over time? Carol Tenopir, a professor at the School of Information Sciences at the University of Tennessee, Knoxville, and the Director of Research for the College of Communication and Information, has been researching electronic academic readership patterns for the past 30 years, and for the last 14 with colleague Donald W. King. She gives Editors' Update an insight into how readers' online experiences are helping to shape current trends in journal usage.



Carol Tenopir

One of Elsevier's core functions is to "On average, subject experts are reading more," Tenopir says. "The number of articles read by subject expert has been steadily increasing over the last 30 years." Several factors contribute to this growth. First, more research is being published than ever before, and experts need to keep up with new developments in their field. Second, as more scientific information becomes available online, researchers

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have access to more information, thereby increasing overall readership and usage. Electronic access also means that readers who are not also authors – such as researchers in scientific corporations and governmental bodies – are accessing more information than ever before.

Conversely, as the total amount of time and material being read increases, the time spent per article decreases, as researchers and students have tools that help them access and review key articles and extract the specific data they are seeking more quickly. As researchers are more pressed for time and expect quick and easy electronic delivery, so, too, must journals adapt to these changing conditions.

### Identifying the patterns

The availability of older journal issues through back files is also impacting journal readership trends. As libraries invest in back file purchases and expand their online databases, there has been an increase in the readership of articles after the first year of publication. In addition, readers are finding and reading articles from a wider variety of journal titles. This impacts a journal's exposure and continued use.

New tools and resources are increasing those numbers even further.

"Relevance rankings in search engines such as ScienceDirect mean that older articles are read more often," Tenopir explains. "This is contributing to a broadening of information used in scientific research."

This broadening also has an impact on the quality and depth of new research, and will thereby strengthen a journal's future publications with more substantial, well-researched contributions.

### Cultural differences

Until 2000, most of Tenopir and King's studies regarding electronic media were conducted using source material from North America. In the last eight years,

however, that research has expanded to Australia, Finland, Japan and other countries where electronic media is now becoming an industry standard among scientific publications. "We limit our research to countries or regions that have good access to electronic media," she says, "but the number of countries and regions is growing every year, and although our global work is not very systematic yet, I can envision a time when it will be."

Furthermore, Tenopir believes that cultural and societal norms play a role in the size and scope of available electronic media. "Even if the infrastructure controls remain constant, cultural differences might also influence our findings when it comes to usage and readership statistics, particularly in the humanities." For now, the major differences we find have to do with the discipline of the subject experts. Physicians, for example, rely much more on peer-reviewed journal articles for current awareness than engineers do. Scientists read more journal articles per year for research than do humanities scholars.

[ "In the electronic age, editors will need to organize and present their information attractively." ]

### Journals in the Internet age

Another key factor in determining the impact of electronic media on journal performance is researcher demographics, such as age and professional position. As one might expect, students and researchers under the age of 30 are much more likely to do their primary research and reading online.

While print is less popular among the under 30's, a printed PDF is still more popular than onscreen, and print remains the predominant medium for core titles, Tenopir reports. "The convenience, browsability and ease of access of print publications are still hard to beat." At the moment, core readers still

prefer print publications, especially in certain fields, including medicine. "An interesting case in point is pediatricians," Tenopir elaborates, "who are often known to carry their journals around with them to read between appointments at various locations. However, we think this will change as the current generation of students take their electronic reading habits with them and as portable electronic devices get better at displaying redesigned articles."

This means that, over time, as reading patterns move steadily toward an online environment, and as technology makes mobile access easier and less expensive, journal editors need to be aware that the choices they make in online publishing will have a direct impact on their journal's overall performance in the future.

### New ways of searching journal content

But how do trends like these translate into new responsibilities for editors? Tenopir explains. "In the electronic age, editors will need to continue to organize and present their information attractively. They will need to concentrate on the most salient facts in articles or papers when they register key words and search terms on electronic databases. We do know

that purpose affects reading usage and that, ultimately, relevant information will be sought and utilized. At the same time, the combination of more articles being read and less dedicated reading time per article is obviously not a sustainable pattern over the long term. There is an increased need for tools, graphics and other visual readership aids that will help readers get to the most essential parts of the article most quickly."

HTML coding in online articles also allows the opportunity for researchers to find information in a particular segment of a larger article or in a graph, photo or diagram. Editors need to be particularly aware of this new opportunity to make

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their journals as easily searchable as possible. "Until now, we haven't focused on driving people from indexing towards more marked-up versions of articles, but this is changing. Visuals must be strongly contextual, and sometimes, even just a graph in the article can make the difference. These factors will contribute to de-aggregating the journal," Tenopir reports.

That's why abstracts and article summaries are more important than ever before, especially when it comes to electronic media. But the next step will be to move beyond abstracts and to improve quality filters as well. Tenopir predicts that the electronic quality filter will soon manifest itself in student course management systems.

### Future focus

In her research, Tenopir discusses how both the implicit and explicit quality of a journal article has a direct impact on that journal's perceived value. Therefore, high-quality presentation and delivery of information influences the perceived value the journal offers.

"Bringing together the strengths of print with the access to information of the PDA could be a potent combination in the future. From a reader's perspective, core reading now favors print, with peripheral reading being more electronic. But this can easily change if the approach to electronic design and layout adapts to the changing readership needs and preferences. As electronic journals become more widely available to larger

audiences – students, government experts, scientific corporations and academics – non-author subject experts are on the increase. Forward-thinking editors will bear this in mind as they plan and execute electronic strategies."

To cite this article, please use: Toni Bellanca, "Readership trends: how they affect journal usage", Elsevier Editors' Update, Issue 21, February 2008.

### Useful links (click below)

[Carol Tenopir's homepage](#)



Donald Y.M. Leung

## STRATEGY AND POLICIES

# Behind the Scenes...

## The impact of bibliometrics on journal policy

Editors' Update talks with an editor who has successfully implemented policy changes in bibliometrics and achieved positive results with his approach.

Dr. Donald Y.M. Leung is currently Editor-in-Chief of *The Journal of Allergy and Clinical Immunology* (JACI) and The Edelstein Family Chair of Pediatric Allergy-Immunology at the National Jewish Medical and Research Center in Denver. The JACI is the official journal of the American Academy of Allergy, Asthma and Immunology (AAAAI). The journal is aimed at specialists in allergy-clinical immunology as well as anyone who treats or investigates allergies, asthma and immunologic diseases. The JACI strives to publish the very latest and best research in the allergy-clinical immunology specialty, with a special interest

in clinical medicine and basic science as it translates into optimal patient care.

The citation impact factor for the JACI was 3.7 in 1998, when the current Editorial Office took over the journal. The aim at that time was to further establish the journal within the asthma-clinical immunology specialty, so while bibliometric information was useful, the editors also took advantage of direct feedback from society members.

### Expansion beyond specialty

"The JACI was already the most-cited journal in its specialty; the next task was

to expand our readership beyond it," explains Dr. Leung. "We have done this in several ways: by working with Elsevier to make selected articles available to members of other related specialties; by working with our society's media relations team to increase promotion of our articles to the lay media; and recently by bringing in a medical writer to help improve readability and facilitate greater comprehension."

As the journal's audience widens, it has been necessary to rely on bibliometrics to see which articles are of the greatest interest to readers outside the specialty – this can be

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deduced by how frequently articles are cited in non-specialty journals. Bibliometrics is also used to locate the top authors and topics from related fields that would be of most interest to the journal's readership.

The biggest change over the past 10 years has been an increased awareness of the amount of information bibliometric data can yield, as well as an appreciation of how journal policies can impact some of the bibliometric measures. Increasing the stature of a journal benefits authors, readers, the scientific community and the journal itself, so it is important to understand the various methods of assessment and bear these in mind when making decisions that will affect the course the journal takes.

Dr. Leung explains:

"We noticed that our immediacy impact – how fast a published article makes it into the cited literature – was fairly static, so we started looking at ways to bring published articles to people's attention faster and more efficiently. This starts as early as initial submission, where improvements in Editorial Office processing and the introduction of new technology have allowed us to decrease the amount of time from submission to acceptance. In addition, the Articles in Press option means that we are able to get 'hot' articles published promptly – something our authors appreciate."

#### **Impact factor and submissions**

A decision was made to introduce bibliometric policy changes not only because impact factor is a recognized marker of a journal's success, but also because it is often used to determine promotions and funding of grant applications. It is also one of the elements authors consider when deciding to which journal to submit their work.

Dr. Leung says: "If we wanted to appeal to the best researchers and attract the

best work, we knew that we would need to make our impact factor competitive, and that meant understanding exactly what the impact factor is and what it measures."

Of course, impact factor is just one way to measure a journal's success, and several editors and members of the JACI's editorial board were wary of chasing that figure over other gauges of success, such as readership interest. This is one of the reasons why the JACI works with Elsevier and the AAAAI: to conduct regular readership surveys in order to obtain a more complete picture of readers' satisfaction with the journal. This is how the success of popular but non-citable sections of the journal is tracked.

**"The JACI was already the most-cited journal in its specialty; the next task was to expand our readership beyond it."**

#### **Insights into bibliometrics**

The most important step towards the introduction of changes in the journal's bibliometric policy was increased communication with Elsevier. David Tempest, from Elsevier's bibliometrics department, made a presentation at the JACI's Editors' Retreat, in which he explained what bibliometrics can tell you about your journal as well as its limitations. "Improving the journal and responding to the needs of both readers and authors is a team effort, so we wanted to make sure all of the editors had a chance to discuss these issues and ask questions. The important thing to remember is that these numbers are not the be-all and end-all. It is easy to get too caught up in a journal's impact factor. It is interesting to see which topics are most highly cited, as this is often an indication that readers are eager to read more about these topics," explains Dr. Leung. Although patterns do emerge, some of the 'hot' topics will change over time, so it is not possible to use only data from the past to determine the path to follow in the future.

The response to these policy changes is an ongoing process. As the impact factor has increased, so has the number of new submissions, which has forced the journal's editors to be more selective about which articles are accepted for publication. The Editorial Office staff works with the editors and reviewers to ensure that manuscripts are handled promptly and provides feedback from authors and reviewers. Regular surveys are carried out to ensure that the readership is satisfied. It is also understood that not every article is going to be highly cited. The journal has a large clinical audience and their interest in an article is more likely to be evident in the number of times it is downloaded than the number of times it is cited. One of the gauges used to determine whether to accept an article is its 'priority' for the journal's readership. Determining what is a 'high priority' to readers requires understanding all of the tools available for assessing this.

"For the short-term, at least, I don't see bibliometrics changing too drastically," concludes Dr. Leung. "However, as new technologies shape the ways in which people locate and access content, it will be particularly important to keep an eye on how efficiently readers are finding our articles. This is something bibliometrics will be able to help us determine."

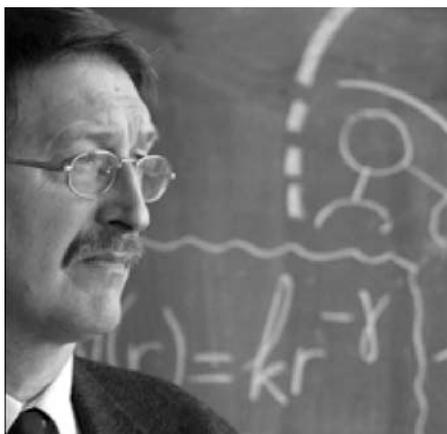
To cite this article, please use: Gloria Kenny, "Behind the Scenes... The impact of bibliometrics on journal policy", Elsevier Editors' Update, Issue 21, February 2008

#### **Useful links (click below)**

[\*The Journal of Allergy and Clinical Immunology \(JACI\)\*](#)

[\*The American Academy of Allergy, Asthma and Immunology \(AAAAI\)\*](#)

## STRATEGY AND POLICIES



Ton van Raan

# The role of bibliometrics in journal performance

Journals are the most important means of representing results in the field of science communication, particularly in the natural science and medical fields. With the use of bibliometrics, it is possible to analyze in detail the role of a journal in a specific field of science. Elsevier and the Centre of Science and Technology Studies (CWTS) at Leiden University in the Netherlands have been working together for the last 21 years to analyze journal performance.

Ton van Raan is the Director of CWTS. We talked to him about the relationship between bibliometrics and journal performance and asked him what tools are available to measure this performance.

“Bibliometrics is about how scientists cite each other and how many times a paper is cited, taking into account the citation characteristics of the field,” explains van Raan. “Citations of one specific publication might not be statistically significant in themselves but they will be as part of a larger entity or a network. Bibliometrics is a method by which citation analysis can provide information about the role of a journal such as scope, impact and prominent authors in a particular field.”

### Different tools for different uses

There are a number of tools that can be used for the purpose of measuring journal performance, depending on which information is required. A publisher of several journals might be interested in knowing what their share of the market is. “They might, for example, have five journals in the field of immunology and would like to know how many of these journals are increasing their market

share,” adds van Raan. This measure of journal performance is market-related and involves just figures.

The next step in citation analysis is to look at the impact of the papers in a journal, for instance how often the journal is cited by other journals. A publisher can own several journals but they might attract little interest and are therefore not being cited frequently. This means, as a publisher, that you have a strong share of the market in terms of the number of papers, but your journals may have very little impact. It is therefore necessary to carry out a citation analysis in order to establish the impact of the papers in your journal.

you look at the share of a journal within all the journals of a publisher as far as its impact is concerned, it is very possible that the share is not large but yet the journal is frequently cited, comparatively speaking,” according to van Raan. In certain fields, like mathematics, the citation level, or amount of references made in a paper to other papers, can be quite low, which can be rather different in other fields, such as molecular biology, where it is quite high. Therefore, it is of crucial importance to normalize the impact factor according to the standards of the field.

The next important issue to look at is the distribution of impact in terms

of citations of papers within a journal. This distribution is very skew. Only a few papers receive many citations, while most papers receive very few or none. It is important for a publisher to know who the most

impact-attracting authors or institutions in a journal are. “For Elsevier, we analyze which papers contribute most to the impact of the journal. We also establish for these highest-impact papers whether they come from only one or a restricted group of authors or institutions, or whether they are more evenly spread” explains van Raan.

“Bibliometrics is a method by which citation analysis can provide information about the role of a journal.”

Next, you need to analyze how the impact is developing over time, whether it is increasing or decreasing, and what the impact is per document type, such as letters, reviews, etc. Different document types have different citation characteristics. It is important to know what the contribution of these different documents to the total impact of the journal is. “If

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It is also important to look more precisely at the relationship of a journal with other journals. Impact is generated by papers in other journals which may come from a different field. If you analyze the citations received by your journal, you can build up a good impression of the influence of the journal in its own field and possibly also in other fields. You can make a profile of the journal, in which it becomes visible how it is cited by other journals and how it affects other fields.

### Network analysis

A further step in journal performance involves analyzing all the citation relationships between journals in a specific field of science. A network analysis of a journal is carried out, making it possible to establish how the citations from other journals give structure to this network of journals. Thus, on the basis of the 'citation traffic' between journals, it is possible to create a picture of all of these links between journals and to make a landscape of related journals, some close and others less so. This is what is known as journal mapping, which is a very important tool for editors of journals to establish what the positions of all journals in the network are and, especially, the position of their competitors. "Network analysis of related but different journals based on citation relations gives information regarding all these connections. This makes it possible for us to then build networks of journals in which often a number of smaller clusters can be identified which indicate separate subfields and, perhaps, even emerging research themes," concludes van Raan.

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### Useful links (click below)

[Centre of Science and Technology Studies \(CWTS\) at Leiden University](#)

# Journal citation network analysis: new developments



Clara Calero Medina

Clara Calero Medina has been a Ph.D. researcher at the Centre of Science and Technology Studies (CWTS) at Leiden University in the Netherlands since 2002. The main topic of her thesis is social research network analysis applied to bibliometric data.

"The introduction of social network analysis in bibliometrics is one of the principal developments in the field in recent years. The social network perspective bases itself on the relationships between different units, such as universities, scientists and journals. These relationships can be based on co-publication, citation or co-citation links. From the perspective of bibliometrics and journal performance, the goal with journal citation network analysis is to be able to provide a quick overview of which relevant journals a specific journal is related to, in terms of citations given and received.

First, it needs to be established what these journals are, how important they might be and what position they occupy in the network.

As a starting point, we focus on a specific journal, which is known as a 'seed' journal. It will have citation links with other journals, both given and received. When we have a set of journals, we are able to determine the connections between them based on the citations they give and receive. After that, we will extract the most prominent journals. In short, we could say journals that are cited often by others are called authorities, while those that tend to give many citations are called hubs. Authorities and hubs show what could be called a mutually reinforcing relationship: a good authority is a journal cited by many good hubs; a good hub is a journal citing many good authorities. This methodology was first developed in social network theory to separate web pages into authorities and hubs.

Finally, we create a network map that contains the most important hubs and authorities journals related to the 'seed' journal. In just one simple network map, we present the relevant citation environment of a 'seed' journal. This new approach is of obvious interest to those who work in journals, as well as to the publishers of these journals."

To cite this article, please use: Gloria Kenny, "Journal Citation Network Analysis: new developments", Elsevier Editors' Update, Issue 21, February 2008

## STRATEGY AND POLICIES



Adrian Mulligan

## Feedback with impact

Adrian Mulligan, Associate Director of Elsevier Research & Academic Relations, explains how data collected from authors and reviewers can have an impact on specific publications, or on the publishing process itself.

“Through our various feedback programs, we can clearly see the issues and concerns most relevant to key contributors, and we can address them directly,” Mulligan says. “This ensures that we have a benchmark for performance and that we are constantly honing and improving our processes.” In this way, he explains, Elsevier remains connected to the community it serves.

### Listening to our authors

The Author Feedback Program (AFP) is designed to collect relevant data from authors about their recent experience of publishing in a journal. It covers the whole range of the publishing experience, from submission through the peer-review process to final publication.

More than 86% of the journals eligible for involvement in the AFP are currently enrolled. “Each month, around 15,000 authors are invited to complete an AFP questionnaire,” Mulligan says. The corresponding author on each article is approached. “We have an average response rate of about 33%, which is remarkable for this type of survey.”

By collecting and analyzing feedback from journal authors, Elsevier is uniquely positioned to help guide development to make real improvements. Consistent

negative feedback about peer review, for example, would likely mean an evaluation of that journal’s peer-review process was required. The program highlights specific weaknesses and is a starting point for discussion on how best to improve performance. In addition to the snapshot reports available every six months, journal trend reports are also available. Journal performance can be seen over a three-year period, and reports show significant trends in overall journal performance. Impacts of any new processes can be easily discerned over these longer periods.

“Data collected through the Author Feedback Program affects global Elsevier policies and procedures.”

Data collected through the AFP is not only used to facilitate development on a specific journal’s performance, but affects global Elsevier policies and procedures as well. For example, consistent feedback about the importance of publication times ensured that Elsevier invested in and developed online submission channels. The introduction of this online service meant significant time savings during the entire publishing process, and led to higher author satisfaction. “Compared to previous methods of submitting manuscripts,

namely through regular or electronic mail, the online submission system offers significant time and cost savings, and allows for a more streamlined and efficient submission process,” Mulligan explains.

### Reviewers’ review

Similar to the AFP, the Reviewer Feedback Program (RFP) was established in June 2006 as a way for Elsevier to collect and analyze feedback from a reviewer’s perspective. The unique and critical role of reviewer carries with it a specific set of responsibilities – and concerns. By tracking reviewer opinion, we are ensuring that we are best placed to provide appropriate support.

“Reviewers have a specific set of expectations and criteria for determining whether a review process was satisfactory or not,

and this carries over into whether they are willing to review for a particular journal in the future,” explains Mulligan.

When invited to review an article written by a peer, a reviewer is most concerned about the relevance of the article. This makes the search and selection process critical to choosing the right reviewer for a manuscript.

“Reviewers are very busy people,” Mulligan elaborates. “They are first and foremost concerned with their own research and

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writing, and the good reviewers are often inundated with requests to review. Unsurprisingly, how relevant an article is to their expertise is absolutely key to the reviewer's decision making."

In addition to relevance, reviewers consider the quality of the article, the amount of time allotted for the review process and the reputation of the journal as key factors in their decision.

By employing the RFP, a journal can measure the effectiveness of their reviewer search and make adjustments to ensure that the right reviewers are engaged to review the right articles. Changes ranging from minor adjustments – such as revisions to keywords in databases – to substantial revisions to the peer-review process can result from the data collected and distributed by the RFP.

#### **The core of the matter**

In addition to the targeted surveys aimed at Elsevier authors and reviewers, Mulligan and his team are also involved in broader-scale, research projects. These broader studies seek to collect quantitative data regarding worldwide trends and general issues relating to publishing.

A recent study Elsevier commissioned investigated current trends and concerns in the industry – not just Elsevier publications. The results of this study were, at times, surprising. For example, it had been assumed that the technological advances of the last decade – the advent of the Internet and developments in electronic communications – would have a massive effect on the motivations and behaviors of researchers, and might even have an adverse effect on the publishing industry.

"What we came to discover," Mulligan

reveals, "is that although technology and electronic communication have improved the ways in which we transmit and process information, and certainly sped up the process, it has not radically changed authors' motivations for publishing, nor has it altered their desire to do so."

Ten years ago, authors published in scientific journals for four key reasons:

- 1) to facilitate dissemination of their research;
- 2) to have their research published in a reputable and respected journal;
- 3) to make their findings readily and publicly available; and
- 4) to ensure long-term archiving and a historical record.

“By employing the Reviewer Feedback Program, a journal can ensure that the right reviewers are engaged to review the right articles.”

The core trends study indicates that these are precisely the same reasons authors publish today. Despite radical changes in the way authors submit and process their manuscripts, their motivations remain remarkably similar.

#### **Peer review study**

Elsevier also participates in studies via the Publishing Research Consortium (PRC), an organization of society publishers, industry bodies and publishing houses, which supports global research into scholarly communication in order to enable evidence-based discussion. A recent study in which Elsevier participated concentrates on the peer-review process. "Peer review has been the focus of a number of discussions and debates recently. The PRC undertook a broad-scale, in-depth look at peer review," Mulligan continues. "The study examines all aspects of the topic – the merits or

otherwise of different types of peer review and the attitudes towards post-publication review. The study provides benchmarks for various aspects of the peer-review process and, importantly, will provide baseline data that will facilitate discussion."

This international study will report back on the opinions and perspectives of reviewers. Through this data, Mulligan hopes to identify the key issues and trends that will help Elsevier develop more effective and useful tools for facilitating the peer-review process.

"Like all of our studies, this research will help further understanding. It will also help ensure that we provide the best support through our innovative and leading-edge solutions."

To cite this article, please use: Toni Bellanca, "Feedback with impact", Elsevier Editors' Update, Issue 21, February 2008

#### **Useful links (click below)**

[Publishing Research Consortium \(PRC\)](#)

[“Is Peer Review in Crisis?”](#)

[“Journal Futures: Researcher Behavior at Early Internet Maturity” – 2006 UKSG Annual Conference Presentation](#)

[“Opportunities in Network Publishing” – STM Conference](#)

[Sense About Science's Voice of Young Science Workshops](#)

## STRATEGY AND POLICIES



Hanneke Steuten

## Measuring usage

As the Head of Elsevier's Usage Research Group, Hanneke Steuten is responsible for analyzing and reporting on the usage of Elsevier journals and articles through ScienceDirect and Scopus. She then reports her team's findings back to customers – predominantly subscribing university libraries – on a monthly basis.

“We monitor the number of articles downloaded per journal - as well as the number of searches made, articles most read, etc. – and produce reports that our customers can retrieve via our website,” Steuten explains. “Each customer has access to up to 20 reports per month, which are created automatically, on request.”

### Measuring impact

“In the past, before our journals were available online, we weren't able to gather any usage information whatsoever,” Steuten continues. “Customers subscribed to certain journals, which were placed in their libraries, but we had no way of knowing how many people were reading them. Our main source of feedback on the audience and impact of a journal was provided via bibliometrics based on citation data, which is still very important. We rank the journals we publish based on the impact factors provided by Thomson ISI on an annual basis.”

A high impact factor for a journal or a high number of citations for an article provides an indication of its importance within the academic community, thereby adding prestige to the article. “Citing an article is a very formal way of acknowledging the significance of that article and citation data represent ‘author behavior’. At the same time, usage data are also an acknowledgement of the value

of an article or journal, but in a much broader and less formal sense, representing ‘reader behavior’.”

In certain scientific fields (physics, for example), there is a large amount of overlap between the author community and the reader community of a journal. In other fields, the majority of readers do not publish articles and the reader community is much larger than the author community. “Lots of people outside academic circles read medical journals, for example, because they work in the field or they have an interest in a certain disease or new form of treatment,” Steuten explains. “Physics journals, on the other hand, are very specialized and do not appeal to such a wide audience. They attract a higher percentage of citations per reader than medical journals, due to the academic nature of their readership.”

### Vast improvement

“The World Wide Web has changed the way journals are read. Since the Internet is now the main way to access journals and articles, this provides us with a much more accurate overview of how they are being used. Usage can differ from journal to journal – some have a large number of personal subscribers, for example – but most subscribers are libraries and a lot of the time, articles are accessed through Web searches. Consequently, we now have a wealth of information on the amount and frequency

that articles are read, which universities use which journals most, and the number of readers of journals and articles.”

### Statistical benefits

As Steuten explains, there are many advantages to be gained from the ability to gather accurate and current usage information. “As far as our customers (university libraries and R&D departments) are concerned, they can use the information to make informed decisions, such as whether to renew their subscription to a particular journal. Other factors are involved, of course, such as the faculty's opinion of the journal and its impact factor, but they can now make decisions with the additional knowledge of how often the journal is referenced.”

“Internally, publishers can see which universities use which journals the most, which articles are downloaded more often and which have the highest number of readers. This information can be used to assess whether special theme issues are more or less popular than standard issues, for example, thus influencing the editorial policy of the journal.”

“It's also important for society journals to know how often they are used. In general, they aim for as broad an audience as possible and we can offer them information not only on the number of readers, but also on their

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geographical spread. In recent years, for example, China has become a large and growing user of our journals and articles. Around 12% of our worldwide download usage now stems from China, compared to 24% in the United States and 26% in the whole of Europe."

"Finally, accurate usage statistics are also useful for our own sales organization. We can show customers exactly how journals and articles are being used as an incentive to renew contracts."

#### Hot topics

Nothing stands still for long where the Internet is concerned, and the gathering of usage statistics is no exception. "Researchers at the Los Alamos National Laboratory, in the United States, have

set up a group called the MESUR Project," Steuten explains. "They are carrying out research into whether impact factors can also be based on usage information, rather than citation data alone. They are using Elsevier log file information from ScienceDirect and Scopus to create formulas to measure the comparative impact of journals and articles within the same field. These alternative impact measurements would be very useful to librarians, who currently rely on citation impact data, mainly."

Another organization, called Counter, is also researching the possibility of creating impact measurements on the basis of usage data. "Counter is a co-operation between publishers and librarians that has introduced standards for the usage information provided by publishers," Steuten continues. "In the past, different publishers used varying criteria when compiling usage statistics, making it difficult to compare journals and articles from different sources. Counter has developed a standard, with which Elsevier and the majority of publishers now comply."

[ "Usage rates have been growing at a remarkable rate since 2000, when we first started tracking usage statistics through our databases." ]

#### Work in progress

"Since all of our journals and articles have been available via the Web, through resources such as ScienceDirect and Scopus, the use of journals, in general, has increased considerably," Steuten concludes. "This is due to various factors. In the past, for example, readers needed to visit a library to find a printed copy of a journal, whereas now they can access virtually any journal or article from their desktop. In addition, the increasing efficiency of Web search technology,

the fact that our journals are covered by widely accessible abstract databases, like Pubmed, and the fact that they are now also indexed by Google has made it quicker and easier to locate specific articles on the Web."

"The whole process has become much more efficient and accessible. As a consequence, usage rates have been growing at a remarkable rate since 2000, when we first started tracking usage statistics through our databases. In the early years, usage doubled year on year, while in 2007, for example, download usage via our websites still increased by 24% in a single year and I wouldn't be surprised if 2008 also produced double-digit growth."

To cite this article, please use: Gary Rudland, "Measuring usage", Elsevier Editors' Update, Issue 21, February 2008

#### Useful links (click below)

[Usage reports website](#)

[What Counts and What Doesn't: An Insider's Guide to Usage Reports](#)

[MESUR Project](#)

[Counter](#)

## SUPPORTING REVIEWERS



Franka Hendriks &amp; Philippe Terheggen

## EES provides the missing link

Editors will be excited to hear that the New Year brings with it a major and most-requested improvement to EES—reference linking—the seamless click through access to abstracts of cited articles. And that's not all! Within a couple of months, EES will be further expanded to integrate both Scopus and ScienceDirect, enabling editors and reviewers to click through to the full text of cited articles. Elsevier explains the new functionality and the benefits for editors, reviewers and authors.

Philippe Terheggen, Director Journal Development & Support, S&T Journal Publishing: "Elsevier is extremely committed to supporting editors and the peer-review process. One request we've heard repeatedly during meetings, focus groups and conferences with editors, and also from the one million or so reviewers we support, is for the automatic click through from manuscripts to referenced texts. We've seen that the difficulty in accessing references is a 'pain point' for both editors and reviewers in the peer-review process so we've invested time and considerable expense enabling this function within EES, the editorial workbench."

### Two-clicks

In just two clicks you are taken from the manuscript to the referenced article. Like any significantly advanced

technology, it seems to work by magic. Franka Hendriks, the Project Manager driving this development over the past two years, walks us through the workflow. "The way it works is that authors submit manuscripts to us and we use automated software to extract the reference information and find the correct records," she explains. "What the

**"In just two clicks you are taken from the manuscript to the referenced article."**

editor or reviewer will see are hyperlinks to CrossRef (and Scopus as of March) in a result table in EES."

For Elsevier articles, the editor/reviewer is passed on to ScienceDirect. If the person is a ScienceDirect guest user, or does not have a ScienceDirect subscription, the

Digital Object Identifier (DOI) system brings the EES user to the abstract. With a journal subscription in ScienceDirect, the abstract, full text and even the article's references can be viewed.

Hendriks goes on to explain, "When the editor sends the manuscript for peer review, the reviewer is instantly able to

use the hyperlinks to directly access the cited article—thanks to 30-day access to Scopus (integrated in EES) that can be quickly activated by the reviewer. A reward for the reviewers,"

Hendriks points out.

"While editors, linking directly from EES, are soon to have unlimited access to Scopus and ScienceDirect."

### Quick and easy

The simplicity is one of the many things that enthused the editors and reviewers who took part in the pilot project. But

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there are also quite a number of other benefits that excited them. “Unlike other publishers, we don’t require the author or editor to use a special tool or program to insert hyperlinks,” explains Hendriks. “And editors don’t need to enter different usernames and passwords—once they’re logged in as an editor in EES there’s a seamless link through to the other platforms. Furthermore, not only will editors and reviewers be able to see the links in EES, links will also be available in the PDF version of the manuscript. So if you’ve saved the manuscript to your desktop, you’ll still have the links available to you,” she says.

While all this is very satisfying, it’s the enhancement to the peer-review process that has everyone really smiling. Terheggen says, “Editors and reviewers will have quick access to the abstracts of the manuscript’s references. They will be able to check the scientific merit and identify missing or incorrect references. We’re hoping that seamless access to references will reduce the time a reviewer needs to spend on the review. We understand that we’re asking reviewers to contribute valuable time as well as their expertise and are striving to make the review process more enjoyable and more efficient.”

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#### More reference links

To let editors and reviewers take advantage of this enhancement as soon

as possible, reference linking will be rolled out with CrossRef links in January. CrossRef links will then be replaced with Scopus in March. “The Scopus abstract database offers much more content than CrossRef, enabling us to provide more reference links” Hendriks says, “In addition, reviewers can also benefit from tools to retrieve citation counts (that help the reviewer evaluate the reference), up-to-date email addresses for authors and, as of March, seamless integration with ScienceDirect to view the full-text.”

After replacing CrossRef links with Scopus links in March, the plan is to provide links to full texts in ScienceDirect, also by March. Once this is done, Terheggen, Hendriks and their team will continue to look for more ways to deepen the integration of the editorial process. Already they have plans for EES to be able to send an alert to the reviewer when the article they reviewed is published, give access to the published text and then report the citation data to the reviewer. Now if only they’d figure out a way for EES to make the coffee too!

## What do editors think of the links?



Tony Vernon

The pilot version of the new reference linking function in EES has been on

trial by selected journals for the past few months. So what’s the verdict?

We decided to ask Dr. Tony Vernon, Co-Editor-In-Chief of *Personality and Individual Differences*, who was involved in the trial, if the new reference linking in EES works as well in practice as it does in theory. His journal is a very well established journal that produces 16 issues per year and receives about 850 submissions per year.

“The new reference linking in EES saves time and makes the peer review more efficient. It has made it a great deal easier and quicker to check citations and has had a really positive impact on our workload and workflow,” he says. “The improvement

is due to the ease with which editors, associate editors and reviewers can cross-check references that contributors include in their manuscripts.”

When asked if there are any “kinks” that need ironing out, or further improvements that could be made to the reference linking function, Vernon replies, “I haven’t encountered any. I know there are plans to expand the integration of EES and Scopus within the next few months to include ScienceDirect and thereby allow editors and reviewers to click through to the full-text of cited articles. This is a very welcome additional feature that will make cross-referencing and finding related papers straightforward and relatively effortless.”

## SUPPORTING EDITORS

# Question Time

In this section of Editors' Update, we ask a group of editors for their views on a relevant topic. The theme of this issue is journal performance, which can be assessed in various ways. This includes, but is not limited to, the following:

- Impact factor – a measure of the frequency with which the average article in a journal has been cited in a particular year;
- Paper flow – the total number of (non-solicited) submissions to your journal per year;
- Rejection rate – the percentage of all submitted articles that are rejected;
- Usage statistics – total number of electronic downloads, number of institutional accounts and geographic distribution of usage;
- Publication times – the amount of time that lapses between acceptance of a paper and publication;
- Author feedback – feedback from authors on their experience of publishing in a particular journal that is logged in Elsevier's Author Feedback Program;
- Reviewer feedback – feedback from reviewers on their experience of reviewing for a particular journal that is logged in Elsevier's Reviewer Feedback Program.

Our questions to editors this issue are:

- 1) What are the principles that determine your journal's content policy?
- 2) To what extent does journal performance have an influence on your content policy?



Giuliano F. Panza

**Giuliano F. Panza, Professor of Seismology, University of Trieste, Italy**  
**Honorary Professor Chinese Earthquake Administration, Beijing**  
**Editor of *Earth-Science Reviews***

1) I am an editor of a journal dealing with review papers aimed at bridging the gap between

textbooks and research articles. The content of the papers is controlled by the following factors:

I personally solicit papers on topics I consider relevant. These may cover controversial subjects or fill gaps in the literature. In selecting authors, the use of the h-index is of paramount importance. An author with a high h-index should guarantee an optimal impact factor for the journal.

I welcome non-solicited submissions as long as they are clearly motivated and could have not only a large impact on scientific progress, but also in the education of young scientists.

The rejection rate of papers submitted to my journal is mainly controlled by the quality of the papers. However, I try not to accept more than one paper on a given topic in the same year and to keep to a minimum the number of papers motivated by fashion. I encourage a wide geographical coverage in the publication, thus I tend to encourage the submission of papers involving scientists from developing countries.

2) The quality of papers is paramount. I look for balance between classical problems and controversial topics. Speed also plays a large role. Reviewers' timely feedback is key for attracting authors. The amount of time that lapses between submission and publication is, in fact, a very important factor influencing the performance of a paper, and by extension, the journal.

I particularly value the possibility offered by my journal to publish many figures and tables of original data. In regular scientific papers, these are often sacrificed on the altar of conciseness, and this may hamper the reproducibility of results, as required by Galilean Physics.

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Ian Henderson

**Ian Henderson**  
Professor of  
Vertebrate  
Endocrinology,  
University of  
Sheffield, United  
Kingdom  
Editor-in-Chief of  
*General and  
Comparative  
Endocrinology*

1) My journal's content policy is based on three main principles. First and

foremost is good, sound endocrinology in its broadest sense. Following that is originality and novelty. For example, we recently received papers on elephant endocrinology and the endocrinology of sea mammals. These papers were not totally original but they were novel and presented good science. Other areas that I consider original are the molecular and cellular bases of hormonal actions. Research here is exploring how the same hormones act differently in different species.

We also publish special issues, such as an issue that came out recently reporting on a meeting held in Manchester, UK last August. I work closely with my Co-Editor-in-Chief Bob Dore to decide what topics to cover in these special issues.

2) 'Journal performance' is very hard to define. I receive regular reports from Elsevier covering things such as my journal's impact factor and the results of the Author Feedback Program. This informs me, for example, that my journal's impact factor is increasing and reached 2.5 in 2006. It's useful – and gratifying – for me to know that the journal is on an upward path, and I also realize IF can be important for researchers in attracting funding. However, there are journals in my field that we are never going to be able to compete with in terms of IF – and wouldn't want to.

Instead of worrying too much about my journal's performance, I'd rather concentrate on the quality and novelty of the papers' content. While a controversial or novel paper might attract a high number of citations in the short term, thereby appearing to improve the IF, if one has any doubts about the soundness of the science, the paper should be rejected as it could, and in reality almost certainly will, affect the journal's credibility in the long term.



Stefano Ruffo

**Stefano Ruffo**  
Associate Professor  
of Condensed  
Matter Physics,  
University of  
Florence, Italy  
Editor of  
*Communications in  
Nonlinear Science  
and Numerical  
Simulations*

1) My journal publishes articles in the broad field of nonlinear science, with an emphasis

on both fundamental and applied aspects. This field of research grew quickly at the end of the 1970's. The developments were originally restricted to mathematics, physics and chemistry. It is now a mature field, which has a strong impact on several other disciplines, such as engineering, biology and sociology.

Most of the papers that we receive are unsolicited, but we also publish topical issues for which we seek contributions from recognized experts. Content policy should be determined by the high standard of the work and the timeliness of the contribution. We receive various papers from Asian countries (China, Iran, India etc.), and many of them are numerical exercises of doubtful interest. However, the quality of these papers is improving all the time and we should adopt a content policy that stimulates researchers to direct their efforts towards relevant and interesting open problems of nonlinear science.

Other factors that could influence journal content policy include: maintaining close relations with referees and creating a referee database with regularly updated (at least each year) personal information such as areas of expertise, interests, absence from the home institution, and so on; and holding an editorial board meeting at least every two years in order to discuss journal policy in detail.

- 2) Let's examine separately the different issues.
- i) Impact factor: An important 'objective' factor. There are ways to increase journal performance, such as publishing high-level topical issues.
  - ii) Paper flow: Definitely high for our journal and for many journals. However, we should try to bias the flow towards more interesting research topics, which is something editors can influence.
  - iii) Rejection rate: Currently 50-60 percent for my journal, rising to 70 percent. The rejection rate should not become too high or one runs the risk of rejecting papers that could attract many citations.
  - iv) Publication times: Having an official publication date can influence an author's career. Very long publication times can result in massive backlogs unless one increases the rejection rate; but if the latter is too high, it can negatively affect the impact factor.
  - v-vi) Reviewer and author feedback: Both are important because they can retro-control editor behavior.

## STRATEGY AND POLICIES

# Forum results: visibility is the key to success

The Editors' Forum in the last Editors' Update focused on how to achieve visibility for your journal. Some 88 editors participated, giving their views on the following question:

Visibility is key for the success of any scientific journal. How should this visibility be achieved?

- A) It's most important to promote the journal in order to build the community around that journal.
- B) It's most important to promote the scientific results published in the journal as ultimately we need the support of universities, funding bodies and the general public.
- C) The focus should be on attracting the best authors. The quality content they publish promotes itself and visibility will follow.

While the majority (64%) of editors supported option C, attracting the best authors, this option was not without its controversy and challenges when put into practice. Many editors raised the issue of how to identify the best authors as problematic; one pointed out that the "best authors" often don't stay

the best and are only highly read and cited for a short period, while others were concerned about excluding good science from young scientists who have not yet made a name for themselves, arguing that "celebrity" authors are not necessarily a reliable indicator of good work. Finally, even if the good authors have been correctly identified, it remains a question of how to attract their papers in practice. One editor felt this could be achieved through increasing access to the content (to an open access model), others felt options A and B needed to play a role in this.

Option B, promoting the scientific results in the journal, was considered the most important aspect by 12% of editors. "Promotion of results is [of] vital importance for visibility of science and... for the journal...without advertisement there is no sale" one respondent noted, "we should be seeking to emphasise the value of the science that we publish as that is the real definition of quality. The more authors and other audiences

appreciate the high status and quality of the research..., the more they are likely to identify with the journal and seek to place their best papers there." This option also has its challenges, one editor remarks, "it is the most difficult approach as it requires both effort to identify and promote the best science, and receptive outlets which will further disseminate the scientific messages."

Option A, promotion of the journal to build the journal community, received 7% of votes. Editors who supported this aspect felt the journal name was of key importance to visibility and that if journals are not promoted even the best scientific work can get "lost". Some respondents felt that this aspect was of decreasing importance as journals move away from print towards electronic formats. Concerns raised by this option were the difficulty for multi-disciplinary journals to achieve this type of community and that such a focus might lead to the journal becoming a self-promoting club.

## STRATEGY AND POLICIES

# Editors' Forum

Measuring journal performance is important for the editor and publisher, not only to review the journal's position but also to allow them to take decisions for its future development. When discussing the performance of my journal I prefer to emphasize:

Please select A, B or C and explain your rationale.

- A) Usage statistics – this reflects readership and trends which tell me whether we are on the right track. Usage figures are also current;
- B) Citations to articles in the journal – to me it is important to know how the journal and the articles are being used in the science community. This tells me that we publish the right articles and also helps me establish scientific market trends;
- C) Author feedback – It is important that the authors are satisfied with the journal. Highly satisfied authors are loyal and also recommend to others to publish in my journal.

**To add your comment to the Forum click here.**



**ELSEVIER**

Radarweg 29  
1043NX Amsterdam  
The Netherlands  
+31 (0)20 485 3911  
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