SCIENCE EDITOR

A Publication of the Council of Science Editors

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APRIL – JUNE 2013 • VOLUME 36 • NUMBER 2

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Science Editor (ISSN 1535-5365) is published quarterly by the Council of Science Editors Inc, 10200 W 44th Street, Suite 304, Wheat Ridge, CO 80033, and serves as a forum for the exchange of ideas among professionals concerned with publishing in the sciences. We encourage contributions of articles on peer-review research, editorial processes, ethics, and other items of special interest to our readers. For more details about submission, see our Information for Contributors page at *www.councilscienceeditors.org/i4a/pages/index.cfm?pageID=3369*.

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Cover image: A "tent" of western tent caterpillars, larvae of the moth *Malacosoma californicum pluviale*, in Marymoor Park, Redmond, Washington. Tent caterpillars are a serious nuisance, defoliating a wide variety of trees, shrubs, and roses during spring (see http://gardening.wsu.edu/library/inse003/inse003.htm for more information). Photo by Patricia K Baskin.

Science Editor Online

"Going Mobile" for Content Distribution

Among the words related to *mobile* in the thesaurus that I consulted are *flexible, transferable, transportable, moving, unbalanced, unstable, unsteady*, and *manageable*. Each expresses a nuance unlike the others, but all can be said to apply to the world of mobile technology, depending on the perspective of the publisher.

Most of us are now armed with smartphones, tablets, and laptop computers, so we can carry on communication both at work and personally wherever we find ourselves. With the increasing number of devices and mobile formats available, it is a challenge for publishers to select the best strategies for their audiences and decide whether Web versions or apps are the wiser investment. I hope that you will find this issue focusing on the use of mobile devices in publishing to be helpful. Our lead-off article by Mark Johnson discusses the advantages and disadvantages of mobile-optimized sites, responsive Web design, mobile platforms, and apps. The article by Byron Laws describes HTML5, ePub3, and CSS3 formats and provides recommendations for maintaining leadership in mobile-publishing technology. Victoria Wong and I focus on the advantages of tablet apps and the features that they can provide for scholarly audiences, and Anna Jester collates experiences from several publishers in her article "Apps in the Realm of Scholarly Publication".

Although all our articles are carefully edited, our research articles are also peer reviewed by at least two reviewers. We're happy to be publishing the peer-reviewed research featured in a 2012 CSE annual-meeting poster by Catherine Kolf and Ann Griswold about factors that contribute to mass-media coverage of published articles. That article is followed by Dan Scott's story of setting up the open-access *Social Sciences Directory* and the *Humanities Directory* and the challenges that he has encountered. In the spirit of publishing technology, we profile CSE member Liz Blake, who manages development of editing software and regularly presents a session on "Word Tips" at CSE annual meetings.

Patricia K Baskin
Editor-in-Chief, *Science Editor*

In this issue, you'll see some of our regular features—Book Reviews, Ethical Editor, and Marginalia—and some photographs to remind you of the splendid networking that we enjoyed at the annual meeting in Montreal. In addition to those pictures, we've included a page of photos featuring the members of the *Science Editor* Board over the last year. I'd like to take this opportunity to thank all of them for their contributions and great ideas!

Mobile Considerations: A Preliminary Checklist for "Going Mobile"

Mark Johnson

Introduction

The use of mobile devices has been growing for years and continues to evolve with the increasing choice of devices (such as smartphones and tablets), operating systems (such as iOS and Android), and improvements in wireless technology (such as 3G and 4G telephony).[1] Like the general public, readers of scientific and scholarly publications are increasingly using their mobile devices to consume Internet content. To engage their audiences fully, editors and publishers of scholarly and scientific content need to have mobile strategies. With each passing day, a higher percentage of Internet consumption occurs on mobile devices, so providing a mobile solution now will help you to serve your growing device-using audience better. Fortunately, there are many options for providing readers with a superior mobile reading experience. Some of the options include mobile-optimized Web sites, sites that use a responsive-design framework, and apps that run on iOS, Android, and other operating systems. This article provides a preliminary checklist of issues to consider when you are creating a mobile strategy for your publication and readers.

Online Mobile Optimization Versus Responsive Design

Every publisher should start by making sure that its primary Web properties (such as a journal Web site) can be displayed in an inviting, readable way by mobile devices. Publishers have generally had two approaches to providing a clean mobile version: a mobile-optimized site, a separate site or subdomain that has content specifically formatted for optimal display on a mobile device, such as a smartphone or small tablet; or responsive design,[2] in which a Web site identifies the type of device and browser used by the reader and then displays content in an optimal format for that specific combination. Each approach has benefits.

For publishers starting from scratch on a new Web-site design project, it is highly recommended to start with a responsive-design framework. With a responsive design, content is omitted or reformatted to create a good reader experience on the basis of a number of different screen sizes and screen orientations, from small-screen smartphones to tablets to laptops to new high-definition, large-screen desktop monitors and television sets. For an example of a responsive-design Web site, visit the *Boston Globe* at *www.bostonglobe.com* and try to adjust the size of your browser window. You'll notice that the display changes as the screen size is changed. Responsive-design projects can take a long time and be expensive but ultimately be more cost effective than developing a software app for Apple's iOS or for Google's Android platform. Publishers that use a responsive-design site may not feel the need to develop apps, because their Web properties already provide a "device-agnostic" mobile reading experience.

Full Web-site design projects can be expensive and time consuming, and a mobile-optimized version might be less expensive and faster to move to market. Most mobile users "look up and keep up"—quick search to answer brief questions and stay up on the latest published content—instead of doing "heavy reading" (reading articles from start to finish). A mobile-optimized site is typically designed for a smartphone screen, such as an Apple iPhone or a Samsung Galaxy Nexus (Android). For a good example of a science journal's mobile-optimized site, visit *PNAS* at *http://m.pnas.org* and again try to resize the browser window to see how the contents are streamlined for a small-screen display.

Mobile-optimized sites have three major benefits compared with responsive design. First, it is typically much less expensive to launch a mobile Web site than to undertake a full site redesign. Second, it is usually much faster to launch a mobile-optimized site. If a publisher is not planning to undertake a full site redesign in the near future and does not currently have a responsive design, launching an inexpensive mobile site quickly is an excellent stop-gap solution. Finally, mobile optimization is superior to responsive design for display on smartphones. With responsive design, the full site information is sent to the mobile device, and such technologies as JavaScript and cascading style sheets determine which part of the information to display and how to display it. In contrast, with a mobile-optimized site, only data intended for mobile-device display are sent to the mobile device; as a result, page-load times can be much shorter, and the result is a better experience for smartphone users.

A publisher's hosting service determines whether to display the full version or the mobile-optimized version of a site. HighWire Press, a leading ePublishing platform at Stanford University partnering with independent scholarly publishers and societies, offers both options. For HighWire-hosted sites with a mobile-optimized version, the user is redirected to a mobile-optimized version if a device is recognized as an iOS iPhone or an Android telephone, whereas the full version is served if the device is recognized as an iOS iPad; users always have the option to view the full site from their mobile devices, that is, to bypass the redirect. Other hosting services may have different

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approaches to serving mobile-optimized content; check with your hosting provider to determine what mobile-optimized or responsive-design options are available for your publication.

To App or Not To App

The next step is to determine whether an app is desirable for your market. Mobile-device users spend far more time in using apps than in using Web browsers to access the Internet,[3] so many publishers believe that the best way to engage with their mobile readers is via apps. An app might be important for a publisher looking to enhance engagement with readers, differentiate itself in the marketplace, or close a gap with the competition ("keeping up with the Joneses"). A society-based journal may see an app as an important way to engage with mobile–device-using society members. Because of the added costs of app programming, there are far more apps in production for medical and science research publications than for the social sciences or humanities.

Apple iOS Versus Google Android

Although Apple owns the larger market share for mobile devices in the United States, Android has greater market share internationally and is growing more rapidly worldwide. A society serving a US-centric market may be content with an iOS app for the time being, whereas a society looking for broad international appeal might be better served by having apps for both iOS and Android platforms. Of course, added cost and overhead are required for maintaining an app for different platforms. For publishers serving markets of interest to advertisers, the costs for apps can be offset by advertising, sponsorship arrangements, and in-app sales. (Note that Apple policy demands a percentage of all in-app sales.)

What's the Brand?

A publisher of multiple journals or a publisher of books needs to determine the primary brand for its app. Is it a specific journal? Is it a society, in which case the app might have to contain all its published properties? The American Association for Cancer Research has a single multijournal iOS app (*https://itunes.apple.com/us/app/aacr-publications/id445761675*). Combining multiple publications into a single app usually results in a product that is far more cost effective than launching a separate app for each publication. Regardless, some journals are "name brands" and deserve their own branded apps.

App Functionality

The final question in this preliminary list of considerations is, what is the primary use for your app? As mentioned before, enhanced reader engagement is one of the benefits of an app. A good app can fulfill the "look up and keep up" use that is often served by mobile-optimized sites but can also offer a strong benefit for the "heavy-reading" use. In fact, there are different approaches for serving readers who favor apps.

One type of app tends to mirror the print version of a publication closely and allows cover-to-cover browsing and reading (and viewing of advertising in the same context as the print version, which is important for offsetting the costs of the app). A good example of such a page-turning kind of app can be found with *Neurology* at the Apple App Store: *https://itunes.apple.com/us/app/neurology/id436881544*.

Another type of app that supports the "heavy-reading" use case behaves slightly more like a Web site when used with an Internet connection, allowing robust searching and following of reference links while supporting targeted advertising, high-resolution figures and tables, and full-issue download for offline reading. A good example of this kind of app can be found with the *Journal of Clinical Oncology* at *https://itunes.apple.com/us/app/journal-of-clinical-oncology/id465016976*.

Conclusions

Considering the rapid growth in the mobile-device marketplace, a publisher needs to have a mobile strategy or risk alienating a large and growing portion of its audience. Fortunately, there are many options for publishers that want to pursue a mobile strategy, including the launch of mobile-optimized sites, redesign of full Web sites using responsive design to accommodate mobile devices, and development of apps for article-based reading and issue-based reading. The world is "going mobile", and publishers need to budget accordingly to keep ahead of their readers.

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Seriously, Another Format? You Must Be Kidding.

A Brief Discussion of "Life, the Universe, and Everything,"[1] with Some Potentially Useful Information on HTML5, ePub3, and CSS3.

Byron Laws

"Mr. Watson, come here, I want to see you."

That statement, made by Alexander Graham Bell to his research assistant, was the culmination of the first successful experiment in the development of the technology that would ultimately become the telephone, a device that has truly transformed our world.

Of course, the telephone wasn't even a telephone to begin with. It began its development cycle as the telegraph, a simple wire-based electrical system used for communication of complex messages. Bell's success with the invention of the telephone came as a direct result of attempts to improve the telegraph. At the time, the telegraph was an established piece of equipment that had been used successfully for more than 30 years. Surely, many thought that it was pointless to make it anything different from what it was. And yet being able to "talk with electricity" has made the world a much smaller place, enabling global communication and spurring the development of many other products and technologies.

Obsolescence, adjustment, and renewal are necessary parts of the development cycle in nearly every part of the world around us. For things to improve, change must be made. That applies to technologies, products, processes, and even people.

So it is for publishing. In the recent past, most content was in print, on shelves, and accessed by way of a card catalog, and finding it was facilitated by a knowledgeable research librarian. Then came bibliographic databases that dramatically shortened the time required to find targeted information. From there, with the help of machine-readable text markup, huge full-text online databases were developed that could deliver content to a researcher directly. And although print persists, online content stores have become the real knowledge repositories of the world—ever-growing and fed by a continuing flood of new content being created by authors worldwide.

Flash forward to the present, and we find publishers grappling with new markup routines, myriad output devices, and innovative file formats that render content in new and infinitely useful ways. For those of us in publishing, this constant state of innovation presents both crisis and opportunity. Organizations that adopted SGML early on found an eventual need to update workflows to accommodate XML and its more advanced markup capabilities. From there, content models have become ever more complex, incorporating 3-D images, reflowable text and graphics, mathematics markup, embedded audio and video files, mashable data feeds, and more.

Recent developments in publishing technologies are HTML5, ePub3, and CSS3. However, as in the relationship between the telephone and the telegraph, these tools are driven by obsolescence and represent the adjustment and renewal of existing content models. Let's have a look at each of them briefly.

1. HTML5: a markup language and core technology for structuring and presenting content online. The core aims of the fifth revision of the HTML standard have been to improve the language while keeping it easily readable by humans and consistently understood by computers. HTML can accommodate the use of application programming interfaces (APIs) for dynamic data interchange and is ideal for cross-platform mobile applications. Many features of HTML5 have been built to run on low-powered devices, such as smartphones and tablets. HTML5 adds new markup features that are designed to include and handle multimedia and graphical content on the Web without the need to resort to proprietary plug-ins. The expanded markup model is also useful for enriching the semantic content of documents.
2. ePub3: a free and open e-book standard created by the International Digital Publishing Forum (IDPF). Files have the extension .epub. ePub is designed for reflowing of content; that is, an ePub reader device can optimize text for a particular display size. ePub3 is based on the XML serialization of HTML5 (known as XHTML5) and is intended as a convergence format for adoption by publishers and e-reading device manufacturers. ePub3 supersedes previous ePub versions and the Open eBook (OeB) standard. It includes the following enhancements in a long list of improvements over earlier ePub iterations:

    - Supports both reflowable and fixed layout content.
    - Supports equations formatted as MathML.
    - Allows advanced linking within ePub files.
    - Adds annotation capabilities.
    - Adopts a new display navigation standard.
    - Incorporates content triggers for launching embedded audio and video files.

3. CSS3: Cascading style sheets (CSSs) were developed as a means of creating consistent style information for online content. As adoption of HTML increased in the 1990s, variations in Web browsers made consistency of site appearance difficult; programmers found that they had little control over how Web content was displayed to end users. Unlike previous style languages, such as DSSSL and

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FOSI, CSSs allow document style to be influenced by multiple style sheets. One style sheet can inherit or "cascade" properties from another, and this permits a mixture of stylistic preferences that can be controlled by both programmers and users. CSS3 supersedes previous iterations while preserving backward compatibility and is divided into specific definitions called modules. As of June 2012, more than 50 CSS modules were published by the CSS Working Group. Only four have been formally adopted:

- Media Queries: a CSS3 module that allows content rendering to adapt to such conditions as screen resolution (for example, smartphone versus high-definition screen).
- Namespaces: a CSS3 module that defines the syntax for using namespaces in CSSs. Namespaces are unique names, identified by URI references, that are used in XML documents as element types and attribute names. Namespaces allow XML documents to use elements and attributes that have the same name but different sources.
- Selectors Level 3: describes the element selectors used in CSSs and some other technologies. Selectors are used to choose elements in an HTML or XML document to attach particular desired style properties to them. Elements can be selected on the basis of their names, attributes, context, and other aspects.
- Color: specifies the color-related aspects of CSSs, including transparency and the various notations for the <color> value type.

Publishers are beginning to use HTML5 as an extension of XML-based processes with good success. HTML5 builds on the promise that SGML and XML originally made: create once, repurpose many times. Basically, content flows into the production process and is then tagged in a granular fashion to allow various platforms and devices to read and display it properly. When fully realized, an HTML5 production model should be able to accommodate delivery to the printing press, online platforms, and multiple delivery devices.

ePub3 makes a similar assertion. Deliver your content in fully functional ePub3 format (which can be derived downstream of a properly functioning XML–XHTML process), and it will be useful on all eReading devices that comply with the standard.

CSSs allow publishers to control the display of online content in a variety of browser environments closely and allow end users to customize their content-use experience.

All these technologies will continue to mature and offer additional benefits to both publishers and users of content. Keeping up with critical and useful changes to these and other standards will continue to present both a crisis and an opportunity for publishers, so it is important that publishers remain informed on developments and have the right staff (or suppliers) in place to help them to take advantage of crucial changes. Generally, organizations that make good use of developing standards will outperform their competition, and ones that maintain the status quo will fail.

Here are some specific recommendations for staying ahead of the publishing technology curve:

1. Plan for obsolescence. Instead of being afraid of changes in technology and process, plan for and embrace them. Assume that what you're doing now may be obsolete soon. Watch for how things can be done better. Question when change is not occurring regularly; this usually indicates that you are falling behind as your process becomes stale in relation to your competition's.
2. Know your content. Highly technical content has a different technology need from medical content. There is no need to incorporate technologies that do not serve the purpose of improving content efficiency, content creation cost, ease of content delivery, or the ease of repurposing for multiple output devices or platforms. Make only the changes that offer direct benefits for content creation or usability.
3. Retain strong technology staff and suppliers. This is crucial. To achieve expert results, you need experts involved in your process. If your journal is not big enough to hire a large, highly qualified technology staff, seek out the best and most informed suppliers in your space and allow them to challenge your technology comfort zone constantly.
4. Budget both money and time for experimentation. Set aside a portion of your organization's substance and staff time for incubating new ideas and projects. Try HTML5, ePub3, and CSS3 in a limited way with either your own staff or your suppliers.
5. Start small. Don't go "all in" on new technologies right away. Instead, set up a limited parallel workflow for a popular product that incorporates the use of new technologies, and then measure the results. Have all constituents review the outcome and tell you what works and what doesn't.
6. Respond to favorable comments quickly. As you experiment, be prepared to make quick decisions when things go well. That is often the difference between success and failure in the use of new technology. By implementing quickly, you get ahead of the competition and become known as a bellwether in your field of content expertise. Think of the most progressive publishing organizations you know. Their ability to respond quickly to successful shifts in the use of technology is probably at the top of the list of reasons why you look on them favorably.
7. Rinse and repeat. Listen to your staff, suppliers, and customers. Once you have good information on how changes are affecting your business, adjust processes as necessary and be ready to abandon failed initiatives.

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Scholarly Reading on Tablet Apps

Victoria S S Wong and Patricia K Baskin

As paper-based media have transitioned to electronic formats, the consumption of scholarly writing has also transformed. Prior methods of interacting with a text or a journal issue, including bookmarking and cross-referencing, have been streamlined. Such concepts as page numbers and predetermined font size are gradually losing their significance.

With the advent of electronic tablets and other handheld devices, thousands of science articles are just as portable now as a single journal issue. Tablet applications, "apps" for short, can be used to organize a journal's content to allow efficient searching, reading, and saving of articles. Generally, an app provides a superior user interface for performing those tasks on a tablet or other handheld device compared with the journal's Web site. Some apps are integrated with the journal's Web site.

There are multiple operating platforms for tablets, including iOS for the iPad, Android, and Windows. However, most scientific-journal apps appear to be created for iOS. Many journals—including the *New England Journal of Medicine*,[1] the *Nature* journals,[2] *The Lancet*,[3] and the Cell Press journals[4]—have apps exclusively for the iPad. Some journals, such as the *JAMA*[5] and *Science*[6] journals, have multiplatform apps, but these are less common.

Accessing journal content through apps allows for the searching and displaying of articles in an organized manner. Typically, an individual subscription is required to access content. Most apps display a list of available recent articles and issues, some pictorially by cover, others by volume and issue number. There may be indicators of which content you have access to or which you have accessed previously. Apps representing a network of journals allow access to multiple journals.

A search function available in most developed apps and usually denoted by a magnifying-glass symbol typically allows a keyword search across all issues of a journal. Unfortunately, "advanced search" options are often limited, at times allowing a search within a single issue or filtering by article type or date. The Cell Press app has additional search functions, such as filtering by specific date ranges or searching by author name.

Once you have accessed the content of interest, many apps provide a method to mark it for easy access in the future. Bookmarks are a common feature. Once an article has been bookmarked, it shows up in a list of bookmarked articles. Depending on your level of access to the journal, an article or an issue may be downloaded for offline reading. Some apps have additional options for sharing an article by e-mail, Facebook, or Twitter.

Reading an article on a tablet offers many features that are not possible with a paper journal or even on a laptop. The unique characteristics of a tablet are the utility of its high-resolution touch screen and the fact that it is a handheld device. Font size can be changed to suit personal preference. Pinch-to-zoom abilities allow instant enlargement of an image of interest or even the article itself in an app that has built-in access to an article's Portable Document Format (pdf) file.

With a touch screen, useful features can be incorporated into disappearing toolbars or side tabs that remain hidden within an article until the screen is tapped. These usually include navigational buttons and the common article features mentioned above (such as bookmarking, changing of font size, and article sharing), but some apps have additional uses. The *Nature* app has a side tab that provides an abundance of metrics data on the article being read, including citations, page views, and number of social-media shares. Another side tab provides access to all the figures related to the article.

Cross-referencing is used effectively because of the ability to make anything "clickable". In most apps, clicking on an article citation in the text provides the complete reference. References in the text to tables, figures, supplemental data, and appendixes are linked directly to the data. Clicking on the corresponding author's name may present additional information about that person or a link to make it easy to e-mail him or her. The *New England Journal of Medicine* app freely incorporates PowerPoint slide sets, audio summaries and interviews, and video content into its articles.

Although those journal apps are now past the stage of their infancy and starting to come into their own, there is room for improvement. Future apps may provide more customizable search engines, additional functionality for organizing bookmarked articles, and greater integration of multimedia content. Features of nonacademic texts, such as the ability to highlight and comment on specific text in an article, can be incorporated into the article, as can built-in dictionaries. Related content may be recommended on the basis of reading and search patterns. With tablets expected to outsell desktop and laptop computers combined by 2017,[7] journal apps may become the primary way to access journal content.

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Apps in the Realm of Scholarly Publication

Anna Jester

Perhaps you are multitasking as you read this. Many of us work in fast-paced environments where multiple things need to be happening at the same time. For close to 2 decades—ever since I bought a PlayStation that could play both video games and music CDs—I have expected multiple capabilities of my technological devices. It seems that the number of new technological devices increases exponentially each year, and rarely do they serve a single purpose. Would you buy a single-use tool if you could acquire the digital equivalent of a Swiss Army knife?

Smartphones, and now tablets, have made the term *app*, short for application, common. Opening an app is generally easier than choosing the correct option from a shiny red and silver multi-use tool. So what are scholarly publications doing with apps, and, perhaps more importantly, have publications found them to be worth providing?

You may have been in a meeting in which someone excitedly suggested that your publication create an app. The most important reason to create an app is to provide something that consumers want. Creating an app with no purpose or one that is "buggy" might mean that people download it and never use it. Even worse, it could reflect poorly on the publication brand that you have worked so hard to build.

One of the first things to consider when creating an app is on which platform(s) it will be available. According to data from comScore MobiLens[1], released 3 January 2013 for the 3 months ending November 2012, of all smartphone platforms in use, Google's Android was used by a majority, 53.7%, of smartphone subscribers. Apple's iOS came in second with 35.0%, followed by RIM (BlackBerry) with 7.3%, Microsoft with 3.0%, and Symbian with 0.5%. If you are contemplating creating an app for a tablet, you may wish to assess first how your current Web site performs in browsers for common tablets (and whether what is already available to users via the browsers on tablets negates the need for an additional app). Platforms for tablets include multiple versions of Android, iOS, Windows, and Kindle. Before you decide to create a single app or multiple apps to accommodate specific smartphone and tablet platforms, you need to know which platforms the majority of your customers are using. If there is no clear majority or you aren't willing to alienate users of any platform, you may find that optimization of your Web site for mobile devices is preferable to creating platform-specific apps.

I invited three experts to share their knowledge and experience regarding scholarly apps with *Science Editor*. I hope you enjoy this food for thought.

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HTML5 for Scholarly Publishing

Paul Gee

Journals exist to vet ideas and disseminate them to their constituents (subscribers, members, researchers, and other users) as quickly as possible.

Technologies may assist in the mission of speedy dissemination of scholarly information, but technologies are not the mission. Technology is never the product.

When the JAMA Network began looking at the mobile landscape, we tried to keep those thoughts in mind as we attempted to make heads or tails of the app world. *JAMA* has been publishing continuously since 1883; there was little momentum behind jumping directly into an app, so we waited and observed. After a bit of time, other publishers released apps, noted a round of immediate downloads, touted them, and then went silent. We noticed a couple of trends. First, there appears to be no end to the number of devices being pushed into the market. (Apple products currently attract nearly all the physicians, but can that trend continue?) Second, achieving app downloads does not mean that the app will be used. Blogs like one published recently by the *Wall Street Journal* (Walker, 2012[2]) report on the fickle nature of mobile-app use.

The JAMA Network team deliberated on those trends and considered our mission and strategy. The network was formed to answer the complaint heard from many of our members and subscribers, readers, and authors: "I don't need journals. I don't need issues. I just need content that supports my specialty and my profession." We began to think about how mobile products or apps could drive personalized experiences with everything we publish, rather than single journal experiences. We asked ourselves, "Why work so hard to bring together so much content into one experience but build for the users of only one or two devices?"

The JAMA Network began to look outside the walls of traditional app development. We investigated the option of building an HTML5 mobile reading experience for our journals that would work on any device. The decision to go to HTML5 seemed to be an easy, black-and-white call, but there were and are many factors to consider before developing an HTML5 application.

First, the HTML5 standard is still under development (*http://www.w3.org/html/wg/drafts/html/master/single-page.html*). The coding standard itself tends to change rapidly, both supporting more functionality and refining flaws in the code.

Second, there are no "out-of-the-box" solutions for HTML5 journal delivery systems. Traditional app development has matured to the point where a publisher can contact a mobile vendor (Mobile IQ, Adobe DPS, and others) to launch a fast, sleek app version of its journal quickly. When we investigated HTML5 options, we were shown wireframes of the HTML5

journal experience—not live examples and definitely not a standard licensing agreement. You cannot buy an HTML5 journal app. You have to build one.

Third, performance of HTML5 apps depends heavily on users' browsers to run the application and on users' devices to store app content and data. Both dependencies create mild to moderate differences among end users that vary with their devices and browser configurations.

Publishers considering HTML5 should weigh and consider those three basic risks against such factors as mission, budget, and timeline.

The JAMA Network did decide to go with HTML5. In March 2013, we released The JAMA Network Reader (*www.JNReader.com*). The Reader works across all mobile platforms, both Android and Apple, for both tablet and phone models. Additionally, the Reader can be accessed from both laptop and desktop machines running Google Chrome and Safari browsers. Since the initial launch in March, additional browser support has been added for Firefox and Dolphin, and very soon Internet Explorer 10 will be added to the list. What this means is that the Reader can leverage one code base to deliver an app experience beyond just one device (iPad or iPhone), and on each device there are more and more browser choices for our users.

Development challenges all revolved around the difficulty of building an enjoyable, cohesive reading product that works well on any device. The marketing challenges continue to revolve around the difficulty inherent in explaining to users why they can't find the reader in the app store; providing a simple URL to an app actually proved to be quite confusing to our users.

We are excited about the future. We will soon release a feature that allows us to generate URLs directly to individual articles within the app, a move that will take us away from "app marketing" and back to the basics of marketing our content. Additionally, we have already begun to test the Reader on the new touch-screen laptops cropping up in the computer aisle. We are pleased to see that there is no barrier to using it on any of these devices. The Reader launches on the huge touch-screen canvases and delivers a true "app experience" whether the user is "mobile" or not.

In the end, we are not sure that we made the right decision in "skipping" the app store. It would nice to be able to say, "Get it in the app store!" But we are happy that we already see a future in which we can provide a responsive screen-to-screen offline or online experience with our content for any of our users worldwide, regardless of the new devices that will continue to appear year after year.

Advantages of Web Apps

Joanna Gillette

When most publishers start to think about the possibility of providing an app for their publications, the focus is on native apps, that is, built specifically for Android, Apple, or other devices and sold through their stores. There is, however, an alternative to native apps that my experience has shown is very well suited to publications. That alternative is the Web app. You may also have heard the term *mobile-optimized Web site*, but the fact is that as HTML5 technology improves, there is an ever-smaller functional difference between what one can create with a native app and what one can create with a Web app. Furthermore, a Web app can have a number of advantages for publications.

The technological distinction between native and Web apps is relatively simple. A native app runs on a device's operating system, and a Web app runs on a device's browser. In the latter case, rather than downloading an application, users access a Web app by searching on the Web or inputting the URL directly. The Web site recognizes the user's device and displays the appropriate view (desktop, tablet, or smartphone) accordingly.

From the publisher's perspective, a mobile-optimized Web site can be much easier to manage than a native application. Device operating systems are updated often, and it is difficult to keep up with new developments. Not to mention the fact that you'll have to develop native apps for multiple platforms if you don't want to alienate readers. Web apps, in contrast, are designed to work on multiple devices, and browser technology seems to be moving at a much more reasonable development rate. As an additional publisher convenience, rather than needing to load content into both a Web site and a third-party application and perform quality control in both environments, a Web-optimized site allows for a single repository for your content. Similarly, use statistics are all tied to a single Web site, and this eliminates the need to reconcile use statistics for both your journal hosting site and a native app.

From the end user's viewpoint, a Web app can provide the convenience of a native app without requiring precious device storage. Users who access your journal often find it simple to bookmark the site on their device desktop for easy access. But let's face it, many of the people who read your articles aren't browsing your journal's Web site or app to find content. A recent study of reader behavior indicated that the most popular starting points for researchers looking for articles on a given topic are specialist bibliographic databases and academic Web sites.[3] You may have had the experience of conducting a Google search and clicking on an interesting link only to be directed to a page that invites you to download a journal app . . . and you may also have shared my experience of going straight to the next article on the list of search results rather than going through the exercise of downloading the native app. By contrast, a Web app can provide a seamless transition from browsing to reading, directing the user straight to the article in a mobile-accessible format without making a pit stop at the app store. Another benefit for users is that because a Web app is really just a different skin for the full Web site, any user preferences or favorites that are stored in a user profile will be available in both the mobile version and the desktop version. Many Web apps also allow users to download content to their devices for offline reading.

For scholarly publications, a major benefit of the Web app is the ability of individual users to pair their devices to an institutional

subscription. Depending on the library security, device pairing may be automatic (if the device is using the library's wireless and is therefore within the library's IP range). In other cases, users simply download a pairing code to input into their devices. A device is paired for a defined access period, after which a new pairing code must be used. While a device is paired with an institution, any access from that device is included in the library's COUNTER reports.

Allen Press offers two distinct online platforms: *Pinnacle* is a journal-hosting platform geared to peer-reviewed scholarly publications, and *BrightCopy* is a digital magazine platform that is intended for more design-intensive, advertising-heavy publications. Both platforms can be optimized for mobile devices with the use of an HTML5 Web app. The technology offers a low-cost alternative to native apps that leverages the existing content platform. Cost is a substantial factor when one is considering applications for journal or magazine content. Although users are willing to pay for an application that delivers some unique functionality or content, our experience has been that subscribers expect to be able to view journal or magazine content on multiple devices for no additional cost. As the other contributors to this article have pointed out, there are a lot of great uses for native apps, but for journal and magazine content, my preference is for Web apps.

User-Centered Design for Mobile

SiNae Pitts

As a former researcher and published author in the sciences, and now as head of a mobile-app development company, I've experienced firsthand the rapid evolution of technologies, devices, and apps for scientific scholars. However, the end users evolve much less quickly, and when we design for them, we build lasting value that can withstand even the most sweeping of technological trends.

User-centered design optimizes how people can, want, or need to use your product rather than forcing them to change their behavior to accommodate your product or the technology you've chosen. The physical and logistical limitations of printed matter (bound issues and volumes) should not be perpetuated online and on mobile devices if they don't match how readers interact with the content. It's important to break content free of arbitrary containers and to make it granular and interlinked if it is to be useful to consumers rather than easier for producers. Reach for better user experience and better design first, better technology second, and maintenance of traditional modes of reading content only as absolutely necessary.

Scientific scholars are inundated by content, and more sources emerge daily. They need apps that go beyond presenting content, even premium content, and that help them to make good use of the content. Good design begins with people's needs and leverages technologies to help them to accomplish their goals. For scholars, those goals are generally content discovery, content consumption, and content production. If you consider how your app or potential app can make content most usable for your users, worries about return on investment will be fewer than if your projects are driven by organizational mandates.

It may seem to be an uphill battle to keep up with different device platforms, screen sizes, operating systems, format standards, and technology acronyms. However, it is never a waste of effort to learn more about your target audience, the contexts in which they interact with your content, and their goals. There are many reasons for going mobile, many ways to go about developing a mobile offering, and many groups that can build a mobile platform. Publishers need to make sure that their reasons are good reasons—the decision to go mobile should be supported by user data, and the publishers and developers should begin with a good understanding of their target audience.

Good design is driven and refined by user-centered evaluation, which helps builders to iterate and improve. There is no more honest evaluation than observation of what constituents are actually doing with your apps. Mobile apps allow an unprecedented level of usage analytics. Whereas the use of the Web is measured in hits and page views, the use metrics for apps are based on app-specific actions and engagements, such as creating favorites, sharing, and annotating. Mobile devices constitute the most personal technology that a person touches each day; they present a better opportunity for, and even need for, content personalization and user profiling than the Web.

At the end of the day, trusted content sources will be set apart not by superficial trappings, arbitrary styling, or being first to market but by how well they help their particular audiences to get their work done. There will always be room for organizations that know and serve their consumers. We start with the principle of building empathy for the user and understanding the content and context; these inform our designs, which ultimately inform our technology. With all the new devices and astounding adaptation rates, it's easy to focus on the gadgets and the technology. However, our audience is the actor who should be on center stage and not left waiting in the wings. Otherwise, people will find different venues for discovering, consuming, and producing content—for entertainment, community, and, in the case of scholars, their livelihoods.

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continued (from page 42)

After all, the telephone, that wonderfully simple wire-based electrical communication device, has now been in a constant state of development since it was patented by Alexander Graham Bell in 1876. It has seen thousands of iterations. Huge companies that made good use of the technology grew from nothing.

From that first sentence spoken from the researcher to his assistant, the simple telephone has been transfigured into a highly functional communication and information device that can be used in myriad useful (and entertaining) ways. The concept of progression as it comes to technological change applies equally to the current state of the publishing industry, and the crisis and opportunity that it presents would not be possible without obsolescence, adjustment, and renewal.

It's time to get started, once again.

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Asking for Trouble: Submit questions or problems to "Solution Corner"!

One of the returning features of *Science Editor* will be "Solution Corner", a column that explores problems and challenges that our members deal with in their jobs, be they technical, managerial, or other issues in the STM publishing realm. This column needs your input! If you submit a question that is general enough to be relevant to many of our members to solutioncorner@ametsoc.org, we will run it by two or three professionals in the field; your question and their responses will be printed in *Science Editor*. We look forward to your submissions!

Article

Regulation and Reality: Experiences of a "Gold" Open-Access Publisher in Social Sciences and in Arts and Humanities

Dan Scott

When the British government made the decision to implement all recommendations of Dame Janet Finch's Working Group on Expanding Access to Published Research Findings in July 2012, I jumped for joy. I worked for 6 years in traditional subscription publishing and was increasingly disillusioned with the overuse of taxpayers' money and other flaws in the publishing system—loss of copyright to authors, long time to publication, the subjectivity of much peer review, and funding systems. I wanted to do something about what I perceived as wrong in traditional publishing. I believe that "gold" open-access (OA) publishing is the solution—a model that will bring market forces of price comparison and genuine choice to bear, that preserves the quality thresholds associated with scholarly publishing while embracing innovation, and that offers a private-sector solution rather than burdening taxpayers. A strong precedent of successful publications has been set in the science, technology, and medicine (STM) sphere, such as in PLoS ONE and BioMed Central. Scholars, students, and librarians in social sciences and the humanities have the same needs for up-to-date, high-quality research that is freely available.

In January 2012, I put my beliefs into action and set up an OA Web site, *Social Sciences Directory* (and later a sister site, *Humanities Directory*). Those directories

- Are online only and thus dispense with the print legacy of limited pagination and unnecessarily high rejection rates.
- Respond to changing user behavior by providing a multidisciplinary and multicontent platform whose entry point is a keyword search on a search engine.
- Make content freely available and allow authors to retain copyright ownership under a Creative Commons CC-BY license.
- Concentrate peer reviewing on technical soundness: Has sufficient academic rigor been applied to produce results and conclusions that are robust? If so, an article is deemed suitable for publication. This method of review removes subjectivity from the process and relies on objective opinions.

Having set my course against the status quo, I am now encountering firsthand many obstacles, particularly in the UK with the Research Excellence Framework (REF) and the conflation of research output with where it is published. The REF's goal is expensive and self-perpetuating: predefining lists of journals creates bottlenecks as authors try to have their work included, it ignores other viable (or better) publishing outlets, it gives traditional publishers carte blanche in pricing because the system gives them a monopoly, and it creates barriers for such entrants as our Directories that are trying to offer valuable, progressive solutions.

Despite a high level of support, six main recurring objections are being encountered:

1. *No budget*. Learning lessons from other publishers that have offered OA but then set article-processing charges (APCs) in the hundreds of pounds and institutional memberships in the range of £10,000 (about $15,000) or more, *Social Sciences Directory* has APCs of £100 ($150) and institutional membership charges of £2,000 ($3,000). The present commercial publishing model is unsustainable for library budgets.
2. *Lack of ownership for* OA *funds*. OA publishing, particularly outside STM in such fields as social sciences and the arts and humanities, is still not well established. It is unclear who will pay the APCs or membership charges. Neither libraries nor faculty departments are taking leadership in putting effective systems and examples of best practices into place.
3. *Lack of faculty interest*. Although I have offered alternatives that have been shown to be fair and viable and that address the relevant issues and received many expressions of support, I have also seen examples of an attitude that dismisses any notion of change. Perhaps most academics operate in a system that insulates them from the business aspects of publishing and need more education in this regard.
4. *Wait-and-see attitude*. Most universities have said that they are interested in principle but will not be early adopters. That prevarication suits the traditional publishers, which will begin to offer their own variants, but stifles current alternatives.
5. *Institutional repositories (IRs)*. Some universities have established IRs and encourage their faculty to deposit papers there. I support IRs but question whether they are an effective solution. Many subscription publishers allow authors to publish papers in their IRs, and this suggests that the work will not be effectively disseminated and therefore does not pose a threat to their subscription sales.
6. *Untested service and unknown editorial board*. Existing subscription publishers will look to leverage existing journals by creating OA journals with editorial boards that are familiar. However, the main purpose for many is to support or increase existing

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Factors Contributing to Media Coverage of Articles Published in a Large Interdisciplinary Journal

Catherine M Kolf and Ann Griswold

Abstract

Background: Scientific journals depend on mainstream media to disseminate research findings to the general public. We analyzed factors that contribute to media coverage of articles published in a large interdisciplinary journal, *Proceedings of the National Academy of Sciences of the United States of America* (*PNAS*).

Methods: We assembled a database of 425 research articles published online in *PNAS* during 7 March–15 April 2011. Using the media-monitoring service Cision, we determined the number of news stories ("hits") written about each article before 30 April 2011. We analyzed the database to explore our hypothesis that the amount of media coverage is influenced by inclusion of a summary of the article on the weekly *PNAS* tipsheet as either a 200-word press tip or an "Also of Interest" sentence, the order of the tips or AOIs on the tipsheets, the issuance of a non-*PNAS* institutional press release posted on the online news service *EurekAlert!*, and accompaniment by a cover image, cover tag, "In This Issue" summary, or commentary in the print issue.

Results: The 425 *PNAS* articles were cited in 2,483 media articles (2,063 online and 420 in print) during the study period. Articles highlighted in a *PNAS* summary or institutional press release received an average of 19.6 ± 1.5 and 14.2 ± 0.3 hits, respectively; articles with neither a tip nor a press release received 0.3 ± 0.2 hits. Articles highlighted on a tipsheet and in a press release received significantly more hits (47.9 ± 2.7) than either alone. The most hits were generated by articles whose tips were listed first or second on a tipsheet. Variables related to the print issue (such as cover images) had no effects on media coverage.

Conclusions: Our findings suggest that coverage depends heavily on the coordination of media outreach activities by journals and institutional press offices.

Background

Dissemination of scientific research findings to the general public is an important task, but it is not the primary task of scientific journals, whose audience is usually limited to scientists themselves. To facilitate the sharing of scientific progress with lay audiences, many scientific journals have created media offices whose job it is to interact with journalists and communication officers in the hope that the journals' content will be disseminated to the public.

The *Proceedings of the National Academy of Sciences of the United States of America* (*PNAS*) is one such journal. The media office consists of multiple science writers led by a media manager who edits their work. Each week, *PNAS* publishes 60–80 scientific articles in the biological, physical, and social sciences. On Wednesdays, the media office e-mails a tipsheet, which contains summaries of embargoed manuscripts, to registered science journalists who have agreed to honor the journal's embargo policy. The summaries are also available to registered reporters through the online news service *EurekAlert!* (*www.eurekalert.org*) a week before the articles' online publication in *PNAS*.

PNAS tipsheets include two types of summaries. The first, known as a tip, is about 200 words long; the second, an "Also of Interest", or AOI, is a single sentence. Most tipsheets contain two to four tips and zero to five AOIs.

Each week, the *PNAS* science writers, media manager, and managing editor review a list of recently accepted manuscripts to identify the ones that should be highlighted on a tipsheet. Each participant reviews the list and identifies manuscripts that are likely to appeal to a lay audience. Although the tips and AOIs are selected case by case, a general rule of thumb is that manuscripts chosen for tips are generally deemed more newsworthy or require detailed explanations, whereas articles chosen for AOIs either will appeal to a smaller audience or can be summarized in a single sentence and need little technical explanation.

During that process, the participants also identify manuscripts to highlight in a section of the print journal known as "This Week in *PNAS*" (TWIP). These 200-word summaries are intended for a general scientific audience. They are published only after the articles appear in print, which is often several weeks after appearing online. Occasionally, a manuscript is designated to receive both a tip and a TWIP (this is referred to as a 2T) if it is considered of interest to the public and to the broad scientific community. After the science writers make their selections, the media manager narrows the list, and the managing editor

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approves the final selections. The science writers then prepare the summaries, seek approval from the corresponding authors of the articles, and assemble a tipsheet.

After distributing a tipsheet every week for several years, the media team sought to assess the variables underlying the extent of media attention that *PNAS* articles receive. Using a media-tracking service (Cision), we initiated a short-term project to determine the number of "media hits" (defined as unique news articles) that could be linked to each *PNAS* article published over the course of 6 weeks.

Methods

Two databases were initially created for use in this study. One contained a list of all *PNAS* articles that were published online from 7 March to 15 April 2011. We excluded from analysis all article types that did not reflect original research (biographical profiles, commentaries, invited reviews, corrections, letters to the editor, editorials, responses, perspectives, and retrospectives). For each *PNAS* article that we used, we collected the following information: article title, subject classification, online publication date, print issue date, presence or absence of a commentary, and presence or absence of a tip, AOI, or TWIP. In addition, we noted whether the article had been highlighted with a cover image or mentioned in a cover tag, the article's classification as a specialty paper (such as a feature article, colloquium, or special feature), the presence or absence of an institutional press release (by the author's institution or funding agency) on *EurekAlert!*, and whether a wire service (such as Associated Press, United Press International, or Xinhua) had publicized the story. We also defined seven levels of press interest for each article, according to the level of interest demonstrated by members of the media team during the selection process. In order of increasing interest, the levels were as follows: not marked for press interest, flagged by one or more science writers for potential press interest but was ultimately not selected, chosen for press interest but the summary was ultimately not included on a tipsheet, selected for an AOI, selected for a tip, selected for a TWIP, or selected for a 2T. Because TWIPs are targeted to a scientific audience and appear on the journal's Web site only after a paper appears in the print journal, we assumed that the presence of a TWIP would not affect its mainstream-media (MM) appeal. During our statistical analysis, we included the data on 2Ts with the data on tips and also analyzed 2Ts and TWIPs on their own.

A second database was created by using data provided by Cision. It contained a list of all MM articles that cited the specific text "*Proceedings of the National Academy of Sciences*" or "*PNAS*" and were published from 7 March to 30 April 2011. The end date was chosen to allow 2 weeks of media coverage of *PNAS* articles published on 15 April. We collected the following information on each MM article: title, outlet, language, publication date, publicity value, media type (print, Web, broadcast, or other), and circulation (for articles that appeared in print outlets) or number of unique visitors per month (for articles that appeared in online outlets). That information was provided to Cision by Compete.com. Publicity value is a number calculated by Cision to estimate the value of a given article in a particular media outlet. It is based on several factors, including the readership of the particular outlet and the length of the article.

We excluded from analysis all hits in the Cision database that had been written in a language other than English, duplicate hits, and hits that did not cite a *PNAS* article, usually because of the recycling of a URL. We also excluded *PNAS*, blogs, forums, microblogs, photo- and video-sharing sites, and social-networking sites.

After both databases were thoroughly reviewed and purged, the Cision database was synthesized into a spreadsheet in which each row corresponded to the coverage received by a single *PNAS* article: the total number of MM hits for the article, the sum of circulation values, the sum of publicity values, the sum of unique visitors per month, the date of first reference in MM, and the date of last reference in MM. Those data were merged with the *PNAS* database to link the MM data with the actions taken by the media office for each article.

Data displayed as means show error bars as ±SEM. Statistical analysis was performed by using Student's *t* tests.

Results

From 7 March to 15 April 2011, *PNAS* published 425 research articles online. From 7 March to 30 April 2011, Cision reported 4509 English-language MM articles that referred to "*PNAS*" or the "*Proceedings of the National Academy of Sciences*." Each MM article was skimmed to identify the *PNAS* article(s) to which it referred. Of the 4509 total Cision hits, 36 were excluded from further analysis because, when examined, the Web article no longer contained a *PNAS* reference. (The URL provided by Cision may have led originally to an article with a *PNAS* reference but URLs are sometimes re-used for new articles.) Another 12 MM articles were excluded because it was unclear to which *PNAS* article they referred. Cision hits that did not refer to a *PNAS* article that was published during the study period were also excluded from further analysis, leaving 2483 Cision hits.

Of the MM articles remaining, 420 were in the "Print" category (such as daily and community newspapers and magazines), 38 were in the "Other" media category (such as news services, industry research firms, freelancers, and associations), and the remainder were published online. Broadcast media (television and radio) were included in our analysis but resulted in zero hits.

Thirty-six *PNAS* articles were highlighted by the media office on six weekly tipsheets during the study period. Each tipsheet contained three to five tips and one to three AOIs for a total of four to eight article summaries per tipsheet.

We categorized each article according to the type of dissemination efforts that had been made on its behalf: 18 were highlighted solely on a *PNAS* tipsheet, 58 were highlighted solely by the authors' institution, 10 were highlighted by the authors' institution and on a *PNAS* tipsheet, four

were mentioned on a *PNAS* tipsheet and were picked up by a wire service, and four received attention from *PNAS*, the authors' institution, and a wire service. Most of the articles (338, 79.5%) were not mentioned on a *PNAS* tipsheet or in an institutional press release. As expected, those articles rarely garnered MM attention. The exceptions were 20 articles that garnered one or two MM hits, 10 that garnered three to eight MM hits, and two that received 20–30 MM hits. The remaining 306 articles (90.5% of the 338) received no MM hits.

Of the articles that were promoted on a *PNAS* tipsheet, three received no media coverage, nine received one to five MM hits, eight received six to 20 MM hits, 10 received 21–80 MM hits, and six received more than 100 MM hits (Table 1).

An outlier

The most highly covered article received 472 MM hits, 3.5 times as much as the next-most widely covered article, which received 136 MM hits. The most highly cited article explored social rejection ("soc rej") and revealed that the brain processes emotional pain and physical pain in a similar manner.

Table 1. Amount of media attention received by *PNAS* articles summarized on tipsheets

MM Hits	PNAS Articles
0	3
1-5	9
6-10	4
11-20	4
21-30	5
41-50	3
71-80	2
101-140	5
400+	1

Left, ranges of unique mainstream media (MM) articles garnered per *PNAS* article. Right, number of *PNAS* articles, summarized on tipsheets, that received the corresponding level of MM attention.

Normally, an article with such broad appeal might receive a tip; however, this article received an AOI because the subject matter was easily summarized in a single sentence. For that reason, it is not fair to assume that the level of media attention garnered by the article is representative of all articles that received AOIs rather than tips.

The author's research institution also sent out a press release about the social-rejection article, and the press release was posted on *EurekAlert!* in addition to the *PNAS* summary. Furthermore, two wire services picked up and disseminated the story. Clearly, multiple factors contributed to the widespread media coverage of the article.

Because of the striking amount of media attention garnered by the social-rejection AOI and because the attention was not representative of most other articles (Figure 1), we considered this AOI an outlier that could skew overall trends. We therefore used two approaches in representing the data: using median values and using mean values with and without the inclusion of the social-rejection article.

Amount of media coverage relative to PNAS *press classification*

To explore the efforts of the *PNAS* media office with regard to MM attention garnered by each article, we plotted the average number of MM hits for each article on the basis of its press classification (Figure 1). As expected, the 319 articles that received no attention from the *PNAS* media office received little MM attention (mean, 1.7 MM hits/article). The 39 articles that were flagged as interesting by at least one member of the media team but not chosen for a tip or AOI ("flagged only") received more than twice as many hits as articles that received no attention from the media office. The 13 articles that were chosen and summarized but not included on a tipsheet ("chosen only") received nearly three times as many hits as articles that had been flagged for press interest but not ultimately summarized. We found that articles that were summarized but not included on a tipsheet received about the same amount of media coverage ($P = 0.9$) as articles that received an AOI (when the social-rejection article was not included). Therefore, it might be suggested that AOIs do not elicit substantial media coverage. However, we propose that the result reflects the small sample size and the fact that authors' institutions disseminated press releases for three of the 13 "chosen-only" articles and thereby elicited substantial MM coverage of those articles. When the median numbers of hits for the various classifications were compared, only articles with an AOI or a tip had median values higher than zero; this means that most articles that were not promoted on a tipsheet received no MM attention (i.e., most of their values were zero).

Articles that received a tip (19) or 2T (6) garnered the most MM attention of all articles studied (excluding the social-rejection article). Because articles in both categories received equivalent amounts of attention from the *PNAS* media team ($P = 0.9$), we conclude that TWIPs did not make a substantial contribution to the amount of MM coverage received by an article. This lack of influence is most likely due to the delay of the TWIPs relative to the online publication of the articles that they summarize and may also be partly due to the growing use of the Internet—instead of print media—as a news source. Similarly, we found no increase in MM coverage of articles that were highlighted in other ways in the printed journal, either by the presence of a commentary, a cover image, or a cover tag or by being classified as a specialty paper (data not shown).

The effect of tipsheet order on media coverage

Assuming that not every tipsheet is read to completion by all journalists, we tested the hypothesis that articles mentioned at the top of each tipsheet would garner more MM coverage than those in the middle or at the bottom of a tipsheet. The data (social-rejection paper data excluded) show that to be true: Tips in the first and second position on a tipsheet consistently

continued

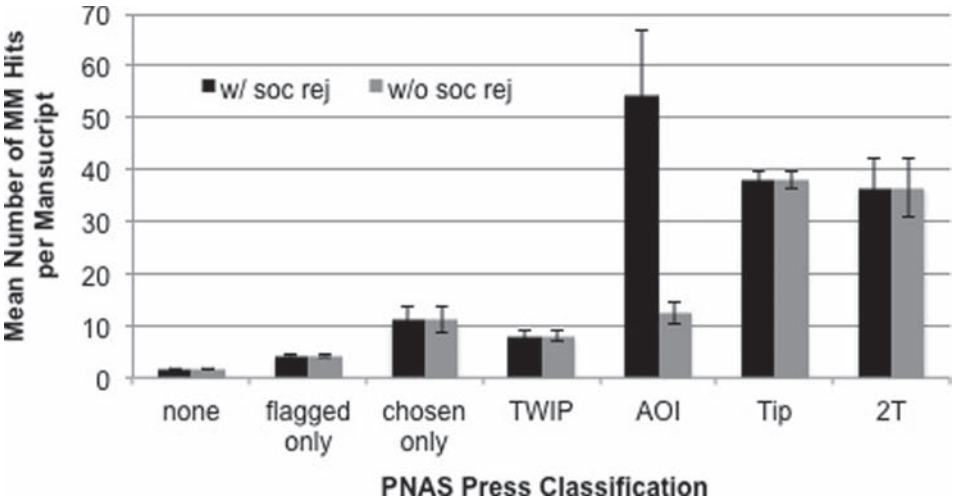

Fig. 1. Amount of mainstream media (MM) attention received by *PNAS* articles relative to the importance given them by the press office.
None = *PNAS* articles that received no attention from the *PNAS* press office. Flagged only = articles flagged as deserving a tipsheet summary by at least one member of the press office. Chosen only = articles flagged and summarized but ultimately never publicized on a tipsheet. TWIP ("This Week In *PNAS*" = articles that had scientific summaries written about them for the front of the print journal. AOI ("Also Of Interest") = articles summarized on a tipsheet in a single sentence. Tip = articles summarized on a tipsheet in a paragraph. 2T = articles summarized in a *Tip* and a TWIP. Soc rej = the outlier article on social rejection that received 3.5 times as many hits as the next-most widely covered article. Black bars = means include data from social-rejection article; gray bars = means do not include data from social-rejection article. Means ± SEM.

received several times more MM hits than summaries (tips or AOIs) in the middle or at the end of a tipsheet (Figure 2). (The social-rejection paper was summarized as the first of three AOIs preceded by five tips on its tipsheet and was therefore included in the "middle" group. Figure 2 shows medians to represent the trend more accurately.)

That result is complicated, however, by the fact that tips are always listed before AOIs on *PNAS* tipsheets. Furthermore, tips are often reserved for stories deemed most complex or of highest public interest by the *PNAS* media team. Although there are no data to support that conjecture, it might also be true that the person compiling the tipsheet arranges the content so that the tip that is the most interesting, in the person's opinion, appears at the top.

Effect of all dissemination efforts on amount of media coverage

During the study period, the 18 articles highlighted only in a *PNAS* summary and the 58 highlighted only in a press release from the authors' institutions received comparable averages of 10.7 ± 0.4 and 14.2 ± 0.4 MM hits per article, respectively (P = 0.5); the 338 articles that had neither a tip nor a press release received 0.1 ± 0.02 hit per article. The 10 articles highlighted both on a tipsheet and in an institutional press release received about three times as many hits (39.0 ± 0.5) as those publicized by either alone. Coverage by a wire service increased the number of MM hits for four articles included on a *PNAS* tipsheet to 59.8 ± 0.8. It is notable that no article was posted on *EurekAlert!* by an author's institution and picked up by a wire service without having been summarized by *PNAS*. The four articles that received attention from all three parties received an average of 181.8 ± 1.2 MM hits in the study period (Figure 3).

Conclusions

Many factors affect the amount of media coverage that a journal article receives. Several of the factors are outside the control of the pertinent media offices (such as the trending news stories of the week and the subject matter itself). We do not assume that press-office efforts are the only factor that determines the amount of MM coverage, and our small, short-term study can only approximate the effect of *PNAS* efforts on the press coverage garnered by its articles. A longer-term project could reveal more important trends but is not feasible because of the need to hand correlate Cision entries with published *PNAS* articles. Those limitations notwithstanding, the relationships revealed in our study are those one might expect to observe as a result of the efforts of a media office that is skillfully choosing the best articles to highlight.

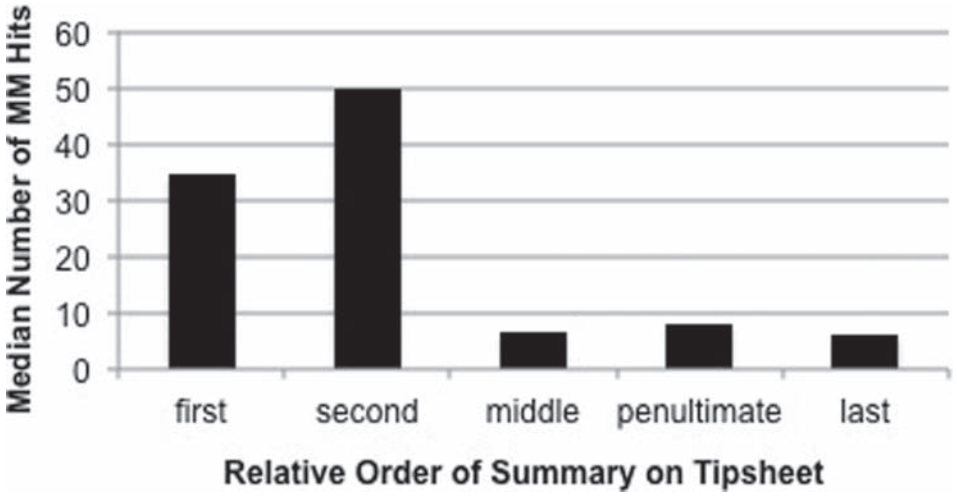

Fig. 2. Effect of relative order of an article summary on a tipsheet.
Median number of mainstream media (MM) hits is given as related to placement of a summary on a tipsheet. Tips and AOIs were categorized on basis of their relative position on tipsheet in which they appeared.

continued

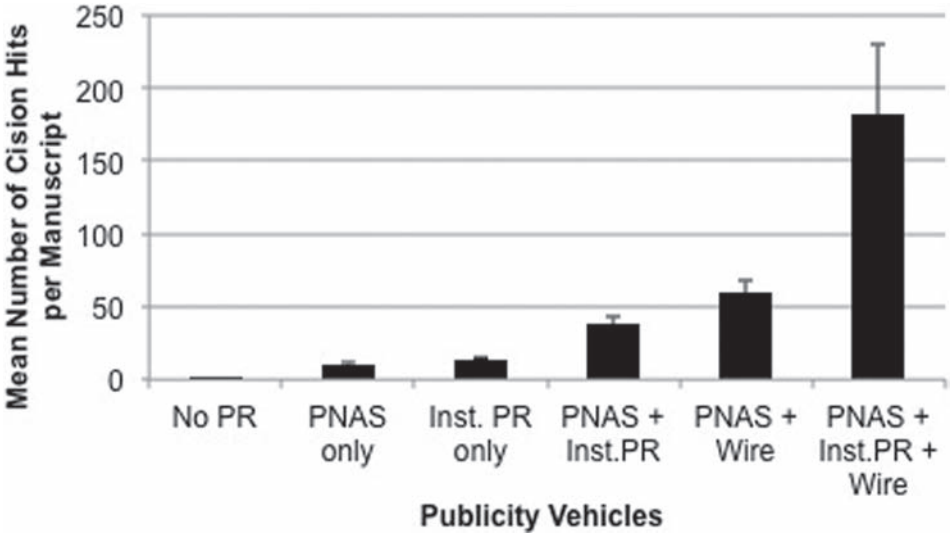

Fig. 3. Dissemination methods influence extent of media coverage.
Mean number of media hits obtained by *PNAS* articles on basis of type of dissemination efforts. No PR = articles that received no publicity efforts from anyone. PNAS PR only = articles that were included only on a *PNAS* tipsheet. Inst. PR only = articles that received only a press release from author's institution. PNAS + Inst. PR = articles disseminated by *PNAS* and author's institution. PNAS + Wire = articles disseminated by *PNAS* and picked up by a wire service. PNAS + Inst. PR + Wire = articles disseminated by all three means. Means ± SEM.

Without a doubt, *PNAS* summaries are effective tools for reaching the general public through the MM. Tips, especially those listed first or second on a tipsheet, generally garner substantial press coverage and more than AOIs do. It is also clear that a press release from an author's institution is valuable in that it more than doubles the amount of coverage received. The factor that predicts an article's success in the MM most strongly by far is whether it gets picked up by a wire service.

We conclude that collaboration between media offices and journalists is effective in disseminating scientific research to the general public and should be encouraged.

continued (from page 48)

revenues, which will occur through setting high article-processing charges and "double dipping" in hybrid journals.

In June 2012, the findings of a survey of librarians' attitudes and awareness of OA models were published by InTech[1]. The report generally echoed my experience in this statement: "The greatest concern librarians have with OA centers on the article-processing charges being set too high. There is generally less concern with the quality of peer review." Librarians pay the bills and want a change to a more cost-effective model; academics want to be published in the best journals and in general don't worry about the cost. A disconnect exists between the motives of librarians and researchers; if librarians are going to become—as the report summary said—"more closely integrated with their research communities as a partner, educator and innovator", they need to be more assertive in bringing change about. I have these questions for librarians:

- What are you doing to build awareness of OA among your research communities?
- Are you creating informational materials?
- Are you creating frameworks and processes for the central management of OA funds?
- Do you understand how OA funds are managed in your institution?
- Have you established what are fair and acceptable APCs and institutional membership charges?
- Are you highlighting what the Open Access Scholarly Publishers Association (OASPA) is doing to maintain quality in OA publishing?

Someone or some group in the library and academic communities needs to take the initiative and formulate policies. That leadership could be taken by such advocates as OASPA, the Scholarly Publishing and Academic Resources Coalition, or the Open Knowledge Foundation Network or by such library consortia or groups as the International Federation of Library Associations and Institutions or the UK Joint Information Systems Committee.

My experiences in scholarly publishing over several years led me to the conclusion that change was desperately needed but difficult to implement in an environment that is traditional and slow to adapt. Change has now been made inevitable; it started in the UK with the Finch report and is likely to take place in many other countries. Perhaps Elizabeth Kübler-Ross's "change curve" needs to be used to recognize the pain of the transition that is under way. I hope that we will move rapidly from a position of shock, denial, and anger to one of acceptance and integration.

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The 2013 American Association for the Advancement of Science Annual Meeting: Some Visual and Verbal Highlights for Science Editors

Mary Beth Schaefer, Christina Wilcox, Jessica Scarfuto, Kathryn Saucier, and Barbara Gastel

Titled "The Beauty and Benefits of Science", the 2013 American Association for the Advancement of Science (AAAS) annual meeting, held 14–18 February in Boston, contained much of visual and other interest. Attendees viewed a wide array of images in sessions and in the corridors and even listened to music in addition to hearing about advances and issues in many fields of science. The following are some highlights of potential appeal to science editors.

Ken Heideman, of the American Meteorological Society (AMS), staffs the AMS exhibit with his son, Justin, and daughter, Kayla, during Family Science Days at the AAAS meeting. Heideman was CSE president at the time.

The Beauty and Utility of Scientific Images

Mary Beth Schaefer

They say that a picture is worth 1000 words—but what if a picture were to invoke a much greater response? Photographs, illustrations, and models can inspire innovative scientific research. They can even ignite or fuel global movements, according to presenters at the symposium "The Beauty and Utility of Scientific Images".

Moderator Kartik Sheth, of the National Radio Astronomy Observatory, gave the example of astronaut William Anders's photo "Earthrise", thought to have prompted the modern environmental movement. Sheth also mentioned *Life* magazine's 1965 photo essay "Drama of Life Before Birth", by Lennart Nilsson. Both anti-abortion and pro-choice organizations have used images from this photo spread.

Stefi Baum, of the Rochester Institute of Technology, described the history and implications of astronomical images. Drawings and photographs of space enabled by telescopes and satellites have caused humans to repeatedly redefine "our place in the universe". Baum's favorite image, "Pale Blue Dot", is a photograph of Earth taken from 4 billion miles away.

Harvard Medical School's Tom Kirchhausen studies a self-assembling cellular protein, called clathrin, which forms basket-like vesicles to help to transport molecules between cells. Kirchhausen used high-resolution molecular snapshots, microscopic movies, and simulations to demonstrate this basket-making process.

David Yousem, of Johns Hopkins Medicine, encouraged attendees to consider the brain as a work of art. He showed images of art pieces representing the brain. Yousem also conveyed the art and beauty of brain scans.

The University of Arizona's Alfred McEwen took the discussion back to outer space. He focused on the imaging of planetary surfaces, which has evolved greatly

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over the last 50 years. He took the audience through a tour of our solar system, from the Disney crater on Mercury to the polar caps of Triton, Neptune's largest moon. McEwen also shared images of comets and near-Earth asteroids to underscore the beauty of extra-terrestrial planetary surfaces.

Claudia Ford's research was inspired by an image quite different than those showcased by the other presenters. Ford, of Antioch University New England, described how the image of a model could serve as a metaphor for complex systems. The model of the ecological resilience adaptive cycle, shaped like the numeral 8 turned on its side, has inspired research in multiple disciplines.

An image can make us understand, wonder, and question. The presenters of this symposium illustrated how we can draw inspiration from an abstract model, the starriest corners of space, or deep inside ourselves.

Artful Science

Christina Wilcox

Two worlds—art and science—have collided to produce advances in both. Speakers at the session "Artful Science" presented examples of this productive convergence and discussed implications.

Maura Flannery, of St John's University, discussed how art and science have long converged in herbaria, which she defined as collections of pressed plants. Botanists, she noted, use herbaria to categorize and identify plant species. Flannery explained how Mark Catesby, an English naturalist, recorded plant species by producing illustrations and herbaria. Works of art, such as Catesby's illustrations, are essential for preserving the discoveries of science, Flannery said.

Robert J Krawczyk, of the Illinois Institute of Technology, described how he uses mathematical equations to create unorthodox artwork in the form of graphs. In his art, sweeping red lines intertwine, loop, swirl, and fill the screen—tricking our eyes into perceiving a three-dimensional image.

Jo Ellis-Monaghan, of Saint Michael's College, said that she uses mathematical modeling to reconstruct seashells in the hope of learning why seashells have evolved to form their beautiful shapes. She stated that mathematical models are a creative language: equations in the models can be used to recreate a physical reality.

George W Hart, an independent sculptor, uses a repeating geometric pattern called a hyperbolic tessellation to construct a variety of artworks. From an artificially enhanced sand dollar to massive comets suspended in a museum, Hart has wedded art and science.

The line between art and science is becoming blurred, said moderator John R Jungck, of Beloit College. He argued that in the education system, the artistic side must receive attention in addition to the scientific. Accordingly, in his classroom, art students and biology students work together in teams. Research in science is changing, so we need a new kind of education, Jungck concluded.

Writing About Science for the Public

Jessica Scarfuto

How do you explain psychology and neuroscience to a class of 700 undergraduate students? Sound like a challenge? Daniel Levitin, of McGill University, faced this challenge when he began teaching.

Levitin quickly recognized that the things that he had learned in years of research were not as obvious to his students as he had assumed. He had to find another way to connect with them. Levitin turned to music as an extended analogy to brain science . . . and it worked. His analogy was so successful that Levitin was later asked to extend it into a book, which he titled *This Is Your Brain on Music*.

Levitin's talk and others in the session "Writing About Science for the Public" focused on one central theme: Science belongs in the public interest. Speakers agreed that whether they like it or not, it is scientists' responsibility to communicate with the public. However, although the speakers agreed on the need to communicate science to the public, their reasons for and methods of doing so differed. Levitin said that it is taxpayers' right to know how their money is being spent. Lisa Randall, of Harvard University, said that people should have the opportunity to learn and understand what they want to. Michael Gazzaniga, of the University of California, Santa Barbara, addressed the importance of finding common ground when talking about topics, such as cloning and stem-cell research, that pose bioethical issues.

The last speaker was television comedy writer Eric Kaplan (contributing writer for *Futurama*, *The Simpsons*, and *Zombie College* and a co-executive producer of *The Big Bang Theory*). Kaplan discussed the use of logic and paradox in making science understandable and approachable for all. Introducing Kaplan, Levitin noted that by integrating real-life elements—such as petty jealousies, insecurities, and romantic relationships—with concepts about the multi-universe theory and particle physics, "*The Big Bang Theory* brings science to more people each week than all of the rest of us combined."

The session concluded with a discussion facilitated by Livingston Taylor, of the Berklee College of Music, who engaged animatedly with the audience about the importance of being a successful performer. The standing-room-only lecture hall hung on to his every word about loving and connecting with your audience—and applauded enthusiastically when he ended the session with a song played on his guitar.

Wild Weather, Climate Change, and Media: Communicating Science, Uncertainty, and Impact

Kathryn Saucier

Hurricane Sandy may have dissipated in late October 2012, but she took center stage in this session, which focused on communicating extreme weather events in an era of climate change. Speakers included

Chris Field, director of the Department of Global Ecology of the Carnegie Institution for Science; Andrew Freedman, senior science writer for Climate Central; and Seth Borenstein, science writer with the Associated Press.

Moderator Cristine Russell, of Harvard University, began the session by saying that the speakers would focus on the extreme weather phenomenon of Hurricane Sandy. Suspecting that the audience was varied, Russell asked members to identify themselves as communicators, scientists, members of the public, or government representatives. All groups were present in force.

Field said that because of their increased vulnerability, developing nations are more severely affected by extreme climatic events than other countries are. "In vulnerable communities", he stated, "even nonextreme events can have extreme impacts." Need exists, he said, to communicate the interconnectedness of adaptation, disaster risk management, and sustainable development.

Freedman noted that Sandy "brought climate impact and risk into the conversation as never before". Now, he observed, the public seems to be attributing more to climate change than scientists are. "The public is making conclusions," he said. His message to journalists was simple: Don't cry wolf with every extreme event, and ask informed questions.

Borenstein identified differences between mass media and science and then provided tips for connecting the two. To communicate to the public, Borenstein recommended using analogies. He also said that journalists should explain what they know and let the public make up their minds.

More Than Pretty Pictures: How the Process of Making Science Images and Graphics Clarifies Understanding

Barbara Gastel

"Edit!" exclaimed Felice Frankel as the word appeared in large type on the screen. "In fact, I shall repeat it," she said, citing as her main take-home point the need to edit visual depictions.

Self-described "science photographic journalist" Frankel, of the Massachusetts Institute of Technology, delivered her lecture remotely, by Skype, because a bout of sciatica had immobilized her. Nevertheless, "More Than Pretty Pictures: How the Process of Making Science Images and Graphics Clarifies Understanding" seemed to engage the audience well. Frankel—whose images have appeared on covers of many periodicals, including *Science Editor*—organized her lecture around three main themes: "Make me look," "Make me understand," and "Collaborate." She noted the need to remember that representations are representations, not the objects themselves. She also emphasized the point that developing and refining representations can yield insight.

Regarding "Make me look," Frankel discussed the ability of images to engage viewers and lead them to ask questions. She showed how choices, such as lighting and background, can influence effectiveness. She also discussed deciding which enhancements are permissible.

With regard to "Make me understand," Frankel said to simplify as much as possible. To illustrate, she showed a colored image that communicated more effectively when put in black and white. Frankel also projected before-and-after versions of other images revised to convey the intended points more clearly. In addition, she noted the power of visual metaphors, such as using a jar containing mainly black jellybeans to show that the universe consists almost entirely of dark energy and dark matter.

Finally, with regard to "Collaborate," Frankel encouraged having scientists work with others to create representations. She mentioned a program in which graphics students and science students worked together.

In closing, moderator Sharon Dunwoody, of the University of Wisconsin, observed that viewing Frankel by video alongside her slides had proved quite effective—perhaps some inadvertent visual editing.

Other sessions with content of science-editorial interest included those on scientists' understanding of the public, on Rachel Carson's legacy, and on producing and marketing printed and electronic field guides. Audio recordings of many sessions can be ordered at *www.dcprovidersonline.com/aaas/?event_id=AAAS101*. The next AAAS annual meeting, titled "Meeting Global Challenges: Discovery and Innovation", will take place 13–17 February 2014 in Chicago.

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Visual Strategies: A Practical Guide to Graphics for Scientists & Engineers.

Felice C Frankel and Angela H DePace. Design by Sagemeister Inc. New Haven and London: Yale University Press; 2012. 153 pages. ISBN: 978-030017644-5.

Barbara Gastel

Visual Strategies is a stunning and thought-provoking book. The work of a visual-communication scholar, a basic medical scientist, and a graphic designer, it contains much to engage science editors and others wanting to facilitate effective communication of research. The book does not, however, provide the basic guidance that one might expect from the subtitle *A Practical Guide to Graphics for Scientists & Engineers*.

The book has four main sections: an introductory chapter that provides a framework for the remaining material, a set of chapters that analyze graphics according to their purposes, a chapter that presents case studies, and a chapter on interactive graphics. Throughout, striking examples of scientific graphics illustrate the text.

In the introductory chapter, the authors state that before developing a graphic, one should ask three questions:

- Is the graphic explanatory (intended to convey a point or communicate patterns or concepts) or exploratory (intended to engage the viewer in discovery)?
- How will the graphic be used (for example, in a journal article, a poster presentation, or a grant proposal)?
- What is the first thing that the viewer should see?

Examples later in the book help show how the answers to such questions can guide one in designing or revising a scientific graphic.

The authors then introduce five concepts or tools from graphic design that one can use to "enhance the clarity . . . of science graphics". These are *compose* ("organize the elements and establish their relationships"), *abstract* ("define and represent the essential qualities and/or meaning of the material"), *color* (use colors to attract attention, label, show relationships, or indicate a scale of measure), *layer* (add layers to show relationships), and *refine* ("edit and simplify"). Next come examples, mainly from journal articles, showing how each concept or tool can help graphics to communicate.

The next three chapters focus on three common functions of scientific graphics: to show form and structure, to depict processes, and to compare and contrast. These chapters present mainly "before" and "after" versions of graphics that were revised. For each pair, the authors address questions about the audience, intended use, and goal of the graphic; provide suggestions for refining it; and identify which of the five tools were used to improve it.

In the chapter that follows, "Case Studies", researchers chronicle the evolution of graphics that they developed. Some of the case studies show how developing and refining graphics can increase researchers' understanding of their own subject matter—much as writing and revising the text of a paper can. An interesting challenge discussed in one case study regarded conveying information to an audience whose members were in fields that had different conventions of visual presentation. In this chapter and elsewhere, some of the discussion is relatively dense and technical.

The final chapter regards interactive graphics—which, the authors indicate, scientific journals and other media are using increasingly. The authors emphasize that the principles of preparing static graphics also apply to interactive ones. Links to the interactive graphics discussed in the chapter appear in the Web site of the book (*www.visual-strategies.org*).

Visual Strategies has some distinctive features. The cover—of finely ribbed plastic and constructed so that the image appears to change colors when viewed at different angles—heralds a book that will be visually engaging. Thumb tabs of different colors indicate the sections of the book. A conversation between the authors and the book designer precedes the main text. Near the end, the book includes what it terms a "visual index": it displays miniature versions of the graphics shown in each chapter, cites their sources, and indicates the pages on which they appear.

The graphics, most of which are colored, come largely from high-profile scientific and medical journals. Some, however, are from books, presentations, or Web sites. Among the types of graphics shown are diagrams of various kinds and visuals based on outputs of imaging technologies. The graphics tend to be complex and impressive.

This book is not one in which to seek, for instance, basic examples of well-designed line graphs, bar graphs, and flow charts. And, despite its subtitle, the book would not guide new researchers in designing, producing, and submitting simple graphics of types common in journals; such readers are better served by the graphics chapters in some scientific-writing textbooks. But for readers who

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What Editors Want: An Author's Guide to Scientific Journal Publishing.

Philippa J. Benson and Susan C. Silver. Chicago: University of Chicago Press; 2013. 178 pages. ISBN-13: 978-0-266-04313-5.

Robert Brown

The latest addition to the series of *Chicago Guides to Writing, Editing, and Publishing* from the University of Chicago Press is called *What Editors Want: An Author's Guide to Scientific Journal Publishing*. Although there is much of merit in the book, I must begin this review with a grouse.

The only unfortunate thing about the book is its title. You might expect to find *What Editors Want* in the self-help section or romance section if only "men" or "vampires" were substituted for "editors". But whatever dubious associations the phrasing may trigger, the real problem is the implicit promise of it. Promising to expose what all editors are looking for is just plain misleading and false advertising.

In fact, the authors come right out and contradict their title on the second page: "we must stress here that Editors, and their opinions on how things should be done, are as varied as the journals they work on, a reality that became very clear to us as we heard from editorial colleagues while writing this book." In other words, there is nothing that all editors want because editors are all looking for different things. The fault of the title is that it purports to know what the category of editors wants, but the truth is that few blanket statements can be attributed to the members of this category. An honest title for the book would be *How to Find Out What an Editor Wants*. Although not as succinct or as catchy, this alternative title would be far more accurate. The virtue and value of the book are that it explains why it behooves authors to learn all they can about a journal before submitting to it; the book then goes on to explain what information authors may want to seek out and where that information may be found.

Something in the sentence quoted above may look like a typo: the capitalization of "Editors". This is not a typo; it is the idiosyncratic choice made in the book. Why, one may ask, is "Editor" capitalized when "author" and "publisher" are not? I could neither find nor divine a reason for it. I was left wondering whether the misleading title and gratuitous majuscule may have been choices that an editor imposed on otherwise level-headed and plain-dealing authors. Who knows? But if that were the case, then it partly fulfills the promise of the title with an ironic twist: what editors want is not always what readers want.

If other readers can get past or forgive the unfortunate title, as I cannot, what does the book have to offer them? Well, for one, a decent subtitle. The book is a bona fide author's guide. As I said above, the book has little to say about what editors want, because few such generalizations can be made, but what the book tries earnestly to do is equip readers with a set of questions and a list of resources that will enable them to research an answer to the question of wants for themselves about any particular publication that interests them. The folly is for authors to think that they need not concern themselves with that question. And the antidote to that folly is often simply to read the directions.

An example of one bit of advice in the book that I liked is what the authors have to say about responding to peer reviews in a revised resubmission. The authors urge researchers to compose their resubmission cover letter as a point-by-point address of reviewer comments wherein each comment is followed by a response written in contrasting type. Such a presentation makes the cover letter easy for reviewers and editors to read and assess, of course, but the authors further urge researchers to let the point-by-point format be a tool useful to them in the act of revision. When the time comes to begin revising, the authors recommend ordering reviewer comments either according to priority or according to sequence, that is, the sequence of the researcher's paper. Then, as researchers make their revisions, they write a response to each comment as they address it in revision. Building the point-by-point document in this fashion makes the reviewer comments function like a rubric, prompt, and checklist all in one. And when the revision is complete, the researcher will have already composed the cover letter as a consequence of revising.

But, if researchers find themselves in disagreement with any of the reviewers' comments, the authors suggest, as one possible solution, building the disagreement into the paper as a rhetorical strategy. The researcher can write the alternative interpretation into the paper as one point of view and then follow it with a refutation. The result is a rebuttal that acknowledges a reviewer's interpretation while honing the researcher's own interpretation against it.

The authors also do a good job of informing readers about the realities of contemporary scientific journal publishing. They provide overviews of the mechanism and ethics of peer review, copyright and permission, digitization of workflows and content, commercialization and economics of STM publication, calculation of journal impact factors, and the open-access movement.

Is it this information about the realities of STM publishing that may make this book, which is really an author's guide, a

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SWITCH: How To Change Things When Change Is Hard.

Chip Heath & Dan Heath. New York: Broadway Books: 2010. 305 Pages. ISBN 978-385-52875-7.

Wura Jacobs

Inside each of us, at least some of the time, the part of us that *feels* (the emotional side) seems to be at war with the part of us that *thinks* (the rational side). The two sides are in constant competition for control. If you've ever wondered why New Year's resolutions get broken almost as fast as they're made or had that extra cookie when you really shouldn't or favored watching a movie or show instead of getting a pressing report done, you understand the constant conflict between our emotional and rational sides.

WURA JACOBS *is a doctoral student, Department of Health & Kinesiology, Texas A&M University, College Station, Texas.*

SWITCH: How To Change Things When Change Is Hard, by Dan and Chip Heath, emerged from the Heath brothers' questioning why lasting change is so hard to make. Full of amusing illustrative anecdotes and real-life narratives of people who have been able to master the three main behaviors that lead to change—directing the rational mind (the rider), motivating the emotional mind (the elephant), and creating a supporting environment for change to occur (the path)—this book offers ideas on ways to make the process of change easier to elicit—not easy, only easi*er*.

This book is definitely an enjoyable and inspirational read for anyone even only remotely curious about change. Between the numerous hilarious stories and interesting research studies on change management, such as Roy Baumeister's chocolate-chip cookie study and the 1%-or-less milk campaign, prepare to be entertained and amused, all while learning how to effect lasting change on any scale or level.

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have a more advanced or more conceptual interest in graphic communication in science, the book can be a visual and intellectual treat. Science editors might enjoy noting the parallels between revising text to communicate more effectively and revising a graphic to do so. On a more practical level, learning from the book can help editors to guide authors in improving graphics.

Clearly the product of much long work by the authors, designer, and other contributors, this book merits more than a single reading. I look forward to viewing some of the images more carefully and reflecting more deeply on parts of the text. And I hope to use concepts from the book in my editing, peer reviewing, writing, and teaching.

continued (from page 60)

worthwhile read for editors as well? I came to the book as an editor by trade, and I found that the discussion of STM publishing realities seeded my mind with some ways of explaining the workings of publishing to the authors with whom I communicate in my full-time and freelance work.

Finally, the book might help publishers to revamp their author submission sites or instructions. Because the book puts readers in the mindset of an author coming innocently to scientific journal publishing, it may suggest to a publisher why authors are making regular submission mistakes that otherwise could be curbed with a retooled author interface or refined set of instructions.

Streamlining the Handling of Allegations of Ethical Misbehavior

Kelly Hadsell

Allegations of ethical misbehavior on the part of scientific authors are nothing new.[1] In some instances, the allegations are brought to a journal office's attention by a reviewer or editor during the peer-review process. In others, they are made after an article's publication. Allegations can be categorized in many ways but generally are considered under the following headings:[2]

- Mistreatment of research subjects.
- Falsification or fabrication of data.
- Piracy or plagiarism.

With the advent of plagiarism and image-scanning software and in an environment of growing awareness, the number of ethical issues being reported to journal offices seems to be on the rise, and journals are spending increasing amounts of time and money to review them. However, journal offices and publishers can take several actions to lower the tangible costs (such as costs of staff time, forensic tools, expert opinions, and legal advice) in an attempt to promote ethical behavior among authors and reduce the number of allegations that require followup.

Establish clear policies and make them readily accessible to authors. A journal's instructions for authors are an excellent means for communicating acceptable journal standards and policies to authors and giving them mechanisms for contacting the journal office with allegations of suspected misconduct. It can be as simple as including a few paragraphs about journal policies or letting authors know that the journal follows the ethics policies of a committee, such as the International Committee of Medical Journal Editors (*http://www.icmje.org*) or the Committee on Publication Ethics (COPE, *http://publicationethics.org*), or the material can be as detailed as a formal conduct policy, such as that published in the *Journal of Clinical Oncology* author instructions (*http://jco.ascopubs.org/site/ifc/author-conduct-policy-2012.pdf*), that advises authors not only about journal policies but about the mechanism for investigation of allegations and about sanctions for authors who violate journal policies. In addition to publishing editorial policies in its instructions for authors (*http://www.the-aps.org/mm/Publications/Ethical-Policies*), the American Physiological Society makes an ethics poster available online to its authors (http://www.the-aps.org/mm/Publications/Ethical-Policies/Ethics-Posters). The poster provides a list of ethical issues that authors may encounter when preparing a manuscript and recommendations for avoiding them.

If your journal screens manuscripts by using plagiarism-detection or image-scanning software, a statement about this can be included in your instructions for authors. It will encourage authors to go back and review their work carefully before submission to make sure that all citations are in order and that the journal's policy on image preparation has been adhered to.

Another way to ensure that authors are aware of journal policies is to have them attest to these policies at the time of submission (either original or revised submission). There are several ways to do that, such as requiring an attestation statement in the cover letter that accompanies the manuscript (in which case the submitting author would be attesting on behalf of all authors), including questions about specific policies on submission forms, or having each author complete an electronic disclosure form stating that he or she is aware of journal policies and acknowledges that the manuscript was prepared and submitted in accordance with these policies.

Educate editors and reviewers and engage them in the process. It is important to communicate journal policies to editors and reviewers and to ask them to look for potential violations during peer review and report them to the journal office. They can be advised of the policies at Editorial Board meetings, during conference calls, in e-mail messages that ask reviewers to evaluate manuscripts, or in training materials provided to new editors or Editorial Board members. The Council of Science Editors (CSE) and COPE both provide some guidelines for editors and reviewers to consider.[2,3]

Specific questions regarding journal-policy compliance can also be included on reviewer forms and editor decision forms. For example, if a journal has a policy regarding image preparation (such as no splicing and uploading of original gels as supplemental data), the forms can ask whether in the editor's or reviewer's opinion the policy has been followed.

Establish consistent policies about handling of allegations. Although a journal may not be responsible for undertaking a formal investigation into allegations,[4] it is important for it to decide how allegations will be treated so that they can be handled consistently. For example, will all allegations be acknowledged by the journal office, even if they are sent anonymously? Will the editor-in-chief or a specific journal staff member (such as a managing editor or publisher) be the point of contact for allegations? What sanctions will be imposed on authors who have not complied with journal policies or have been found guilty of misconduct by their institution or funding body? The Endocrine Society and the American Society for Clinical Oncology journals provide links to their sanction policies in their instructions for authors (*http://www.endo-society.org/journals/teamauthors/upload/Ethical-Guidelines-for-Publication-of-Research-in-The-Endocrine-Society-Journals.PDF* and *http://jco.ascopubs.org/site/ifc/author-conduct-policy-2012.pdf*).

If the journal office determines that an allegation may have merit and that it may be necessary to contact an author, what language will

(continued on page 64)

KELLY HADSELL *is assistant director, editorial systems and managing editor, American Association for Cancer Research, Philadelphia, Pennsylvania.*

Correct Terminology in Science: The Role of Editors

Eva Baranyiová

In science, we are searching for truth. We use the scientific method in identifying a problem, formulating a testable hypothesis, designing experiments and obtaining observations, interpreting the results, and formulating conclusions. In all this, we use scientific terms. Scientific terms permit clear, concise, and unequivocal expression of our best understanding of truth provided that they are used properly.

Some rather general terms are not always used properly in scientific papers. One example is *trimester*, describing a period of 3 months, just as a semester is a period of 6 months (for definitions, see any standard dictionary). However, when one enters *trimester* as a key word in specific combinations in the Web of Science (for example, *trimester* and *sow*, *trimester* and *porcine*, *trimester* and *ewe*), one finds a wealth of articles in which the authors mean something completely different, namely, the word *third*, as in the first or second or third portion of animal pregnancy.

EVA BARANYIOVÁ *is scientific editor,* Agricultura Tropica et Subtropica, *and is former editor-in-chief of* Acta Veterinaria Brno. *She is at the Institute of Tropics and Subtropics, Czech University of Life Sciences Prague, Czech Republic.*

The problem began years ago. In the early 1970s, farm animals (mostly swine and sheep) became model animals in human perinatology. In many peer-reviewed articles, the authors automatically took the word *trimester* from human pregnancy, which indeed lasts three trimesters (9 months, as also in bovines) and began to use it when writing about their animal models. They commonly produced such titles as "Male fetal pig lower urinary tract function in mid second and early third trimester of gestation"[1], "Effect of porcine reproductive and respiratory syndrome virus infection on the ovary and progesterone levels in third trimester pregnant sows"[2], and "Changes in selected brain neurotransmitters and their metabolites in the lamb after thyroidectomy during the last two trimesters of gestation or the early neonatal-period"[3]. Such articles can be found in many prestigious journals, for example, *Biology of the Neonate; Growth, Development, and Aging; Pediatric Research; Physiology & Behavior;* and more recently *Alcohol; Anesthesiology; Hormones and Behavior; Journal of Applied Physiology;* and *Urology*.

All veterinarians and animal scientists know that sows are pregnant for about 112 days (just a bit over 1 trimester) and ewes about 165 days. One would expect researchers who study these species to know such basic facts. However, even in animal-science journals—for example, *Journal of Animal Production and Theriogenology*—such titles occur occasionally. Although I pointed to this problem in a short article[4], the word keeps coming up: in November 2012, the Web of Science numbers increased to 111 records for trimester and ewe and 103 records for trimester and ovine. I am still fascinated by the fact that this misuse goes unnoticed by authors, reviewers, and editors. All of us—editors and reviewers—must be the gatekeepers not only of good science, but of exact and appropriate science communication. Correct terminology is one of the tools we must insist on. The distance to the bookshelf to check a term is not so far.

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Member Profile: Liz Blake

Stacy Christiansen

Technology often provides essential tools for manuscript editors. Software programs and various devices can help us to work more efficiently and to work far from the office setting. Elizabeth Blake, of Inera, is a perfect example of how an editor can achieve work–life harmony with technology.

Liz began her career with a college major in psychology and a focus on neurobiology and experimental psychology. Her first foray into biomedical communication was as a copyeditor and then as the managing editor for Cell Press with the journal *Neuron*. She participated in the publisher's beta testing of eXtyles, an editorial and XML software product developed by Inera, which works within Microsoft Word to automate some document cleanup, structuring, and copyediting tasks.

Liz didn't move directly to Inera, however. Her next step found her as a manuscript editor for the *New England Journal of Medicine*. After a stint there, Liz decided that she

wanted a life change—one that would take her from the city of Boston to the beauty and peacefulness of a town in southern Maine.

After freelance editing for a bit, Liz reached out to Bruce Rosenblum, the CEO of Inera and developer of eXtyles, with whom she had worked during her time at Cell Press. She has now been working with eXtyles at Inera for more than 10 years. Her current title is director of business development; this position includes sales and marketing, product management, and serving as a customer advocate during discussions of new and enhanced eXtyles features. Who better to help to manage the development of editing software than a manuscript editor?

Liz works from her quiet Maine home most of the time, commuting to Inera's main office in Boston about one day a week. One of the great perks of her job is the travel she undertakes for customer site visits. She has traveled all over North America and Europe, her favorite route being a regular detour between Europe and Maine through Iceland. She enjoys the opportunity that her job gives her to work with people all over the world. In addition, Liz often presents a session on "Word Tips for Editors" at the CSE annual meeting.

Liz has found that the Web in particular is a valuable resource for people who have focused interests, such as her unique interest in perfumes. Online she has found a community of like-minded perfume enthusiasts ("so I don't have to bore my family and friends with my obsession"). Her less-technical interests also include bird watching and art history.

"I am interested in technology as a means to an end and always think about the user experience," she notes. Liz enjoys helping people to learn to work more efficiently and is always on the lookout for ways to keep up with electronic-publishing trends.

STACY CHRISTIANSEN *is director of manuscript editing at JAMA, Chicago, Illinois.*

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be used in communicating with the author? In communicating with authors, consistency of correspondence is necessary and will save time and effort on the part of the journal office. The correspondence should point authors to journal policies provided in the instructions for authors or to attestation statements that were provided by the authors on submission or during peer review. Letter samples are available on the CSE Web site (*http://www.councilscienceeditors.org/i4a/pages/index.cfm?pageid=3335*). Using template correspondence helps to streamline the process by avoiding the need to "reinvent the wheel" each time it becomes necessary to contact an author.

Summary

Processing of allegations of ethical misbehavior requires a good deal of work on the part of a journal office. However, handling such allegations appropriately is necessary to protect the integrity of the scientific literature. By establishing policies for dealing with allegations and making sure that all parties involved in the peer-review process (authors, reviewers, and editors) are aware of the policies, a journal can promote ethical behavior, reduce the number of allegations made against its authors, and streamline the process when followup is necessary.

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3. A short guide to ethical editing for new editors, 2011 Update. United Kingdom: Committee on Publication Ethics. *http://publicationethics.org/resources/guidelines*.
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Scientists Use Social Media to Go Beyond Socializing

Barbara Meyers Ford

The world of social media extends well past Facebook, Twitter, and the dozens (and there *are* dozens—198 at last count[1]) of other options for sharing a little or a lot with family, friends, professional colleagues, and so on. Beyond those are online communities that support researchers in a number of scientific disciplines. Cold Spring Harbor Laboratory provides an excellent, comprehensive guide to the categories of social media[2] that are of value to the research community.

As of April 2013, there were just over 2 dozen Web sites that provided places for sharing and tracking research, from Academia.edu, started in 2008 with a "growing community of 2,499,686 academics",[3] to Yammer, a private social network used by more than 200,000 sci-tech–oriented companies around the world.[4]

If you are interested in reaching your members and community at large through social media, research these online communities that are focused on various academic fields. Scientific publishing is concerned with communicating with researchers who must identify the discipline-specific interests of their colleagues.

- Academia.edu
- Benchfly
- bevalley
- BioCrowd
- BiomedExperts
- BioSpace
- Epernicus
- LabLife
- LaboraTree
- LabRoots
- LabsLink
- LabSpaces
- medCrowd
- MedXCentral
- Mendeley
- MyNetResearch
- MySDscience
- Nature Network
- New Media Medicine
- Orwik
- PHYZOOM
- Research Crossroads
- ResearcherID
- ResearchGATE
- Science 2.0
- Scientist Solutions
- ScienceStage
- SciLink
- Sci-Mate
- Sciweavers
- Sciyo.com
- Sequilab
- Sermo
- The Science Advisory Board
- Tiromed
- VIVO
- Web of Medicine
- Within3

One of the online communities has made the news recently as having been acquired by Reed Elsevier in April 2013. Mendeley, a free reference manager and academic social network, was developed so that researchers could

- "Collaborate . . . with colleagues and securely share papers, notes and annotation.
- Backup, Sync and Mobile . . . access . . . papers on the web, iPhone or iPad.
- Network and Discover . . . papers, people and public groups."[5]

In addition to all those online communities, a number of tools focus on various activities that are integral to research and publication activities.

Shared any good data lately?

Before social media, data were transferred via all sorts of less optimal methods: paper (lots of paper), computer disks (floppy and otherwise), and electronic files via ftp or USB drives, to name a few. Now Web sites, such as DataCite (*http://datacite.org*), formed at the end of 2009, fulfill their aims to "establish easier access to research data on the Internet; increase acceptance of research data as legitimate, citable contributions to the scholarly record; [and] support data archiving that will permit results to be verified and re-purposed for future study."[6] Other major sites for data sharing are BioMart, BioSharing.org, and figshare.com.

Are you a leader or a follower?

Brian Conlin, a copywriter at Vocus, shared "5 ways to attract social media followers".[7] For those interested in creating a

[1] Wikipedia article listing active social networking Web sites, excluding online dating. Available at: *http://en.wikipedia.org/wiki/List_of_social_networking_websites*. Accessed 7 April 2013.

[2] Social Media for Scientists/Scholars—LibGuides at Cold Spring Harbor Laboratory. Available at: *http://cshl.libguides.com/print_content.php?pid=247653&sid=2045373&mode=g*. Accessed 7 April 2013.

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[5] Mendeley Web site: *http://www.mendeley.com/features/*. Accessed 16 May 2013.

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New Edition of CSE Style Manual: Update

Lindsey Buscher

You may have heard rumors that a new edition of the CSE style manual, *Scientific Style and Format*, will be published soon. As the CSE member spearheading this project, I will bring you up to date in the form of a question-and-answer session.

Q: Who is chairing the committee to create the next edition of the style manual?
A: Lindsey Buscher, ELS, was appointed by the CSE Board in 2011 to be the project manager for the eighth edition of *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers* (SSF8). She is a managing editor at Allen Press in Lawrence, Kansas.

Q: Who is on the committee to update the style manual?
A: There have been as many as 20 committee members (all CSE members) at one time, but several have resigned and others have joined as volunteer availability has fluctuated. There is also a team of four Advisory Group members, 16 peer reviewers, and 10 proofreaders.

Q: How do things work? What is the process?
A: The committee spent several months in brainstorming updates that should be made to the seventh edition of the manual. The first 2 years of the project have consisted of coming up with ideas, discussing them in monthly conference calls, deciding on changes to be made across the board and in specific chapters, deciding on what should not be changed, outlining and writing new drafts, and receiving feedback from Advisory Group members and peer reviewers. In 2013, the typesetting and print production began and the online platform is being developed.

Q: What is the projected publication date?
A: Publication is expected in spring 2014.

Q: Will the new manual be available in print *and* online?
A: For the first time ever, yes!

Q: Will the online manual be updated regularly? Will the online manual contain elements not contained in the print edition?
A: Yes. There may also be some elements that are available only online, such as supplemental tables and sample documents.

Q: What is being dropped from the current edition?
A: Major deletions and changes include language updates throughout to be more in line with today's constantly changing technologies and terminologies (for example, instead of saying "this can be found on the World Wide Web", we say "available online"), typesetting-specific and publishing-specific details are being moved out of the various chapters and placed in a new chapter or a supplement (to be decided), and general focus is shifting from paper-based to electronic workflows (mostly in chapters related to manuscript preparation, proof correction, and so on).

Q: What is being added?
A: There will be new recommendations for formatting references to such items as podcasts, blogs, online videos, and archive databases. Language in the chapter on astronomical objects has been updated to accommodate recent changes in terminology, such as the inclusion of dwarf planets (Pluto was declassified as a planet and is now considered a dwarf planet). All references are being updated. Discussion of PDF annotation is being added to the chapter on proof corrections.

Q: What are the most radical changes in policy that the new edition will recommend?
A: After agonizing research, polling, and discussion, two somewhat-controversial changes in recommendations are *email* (lowercase, no hyphen), and *website* (lowercase, one word).

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group of followers for their organizations, Conlin's advice is straightforward:

1. "Be specific. Using the right keywords is essential. . . . Don't rely on a single keyword to do all the work.
2. Check the metrics. Knowing which social-media sites your [members] use is half the battle.
3. Search social media. . . . a 24×7 parlor that savvy [professionals] can sweep for intelligence about their [organizations] and products.
4. Adjust to friends. . . . Develop and adjust your cache of keywords by regularly monitoring social media and identifying industry and search trends.
5. Produce content for your ideal customer. . . . Produce social content that closely matches the interests and needs of your target audience members."

The 2013 Annual Meeting: Focus on Communicating Science

Patricia K Baskin

CSE members, guests, and speakers converged on the historic city of Montreal, Quebec 3–6 May at the Fairmont Queen Elizabeth hotel for the 2013 CSE Annual Meeting. The theme of the meeting was "Communicate Science Effectively: The World Depends On It." Thanks to our dedicated program committee led by co-chairs Tony Alves and Michael Friedman and the short course organizers coordinated by Nancy Devaux, participants were able to choose among more than 30 concurrent sessions and four full-day short courses to learn and exchange ideas about how editors can more effectively communicate the results of science research. Special presentations included the keynote presentation by Dr. Jeffrey Drazen, Editor-in-Chief of the *New England Journal of Medicine* and the plenary presentation by Andrew Revkin, blogger for *The New York Times*. Outgoing CSE President Kenneth Heideman, a meteorologist by training, was apparently instrumental in arranging spectacular summer weather for the group tours and evening outings.

Plan to participate in the 2014 Annual Meeting to be held 2–5 May in San Antonio, Texas. Put it on your calendar now!

Keynote speaker Dr. Jeffrey Drazen with CSE President Kenneth F Heideman

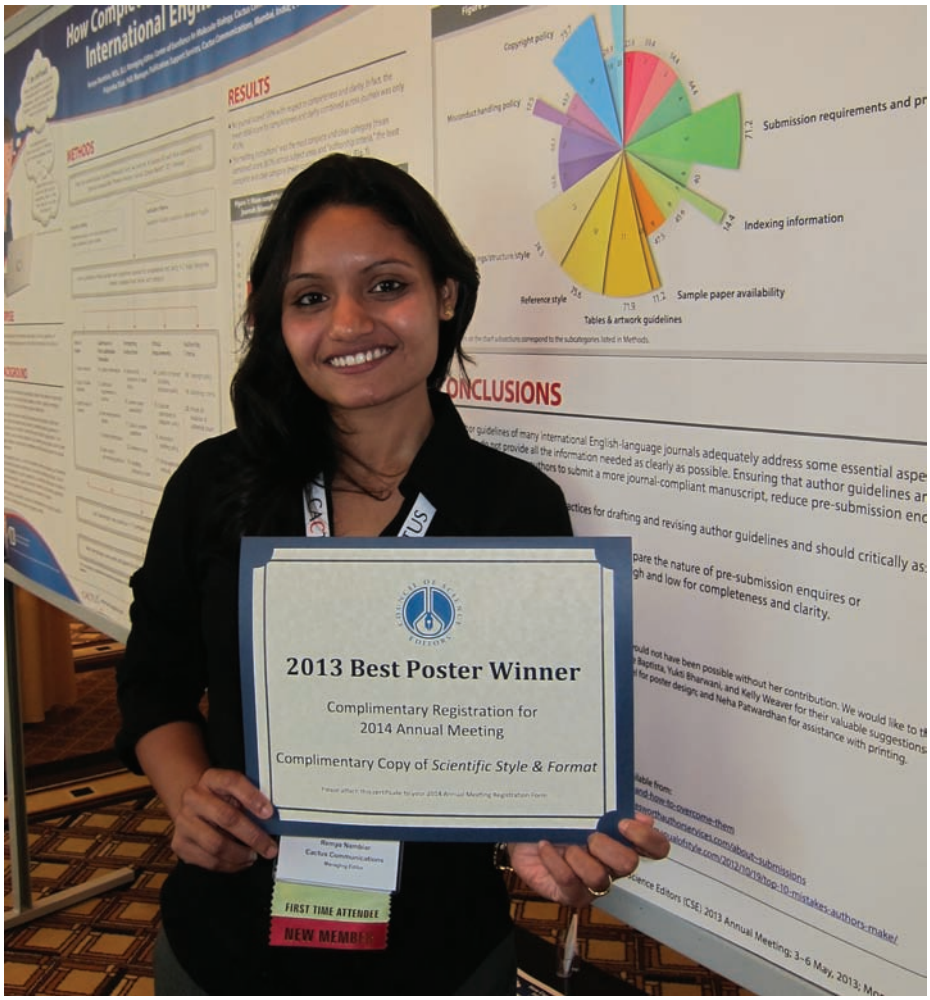
Workshopping in the Short Course on Publication Management: Lee Ann Kleffman, Morgan Sorenson, and Amanda Tourville

CSE Elections and Awards

Charlotte Haug received the CSE Award for Meritorious Achievement.

Patricia K Baskin

Results of the elections for the 2013–2014 CSE Board of Directors were announced at the Annual Meeting. Angela Cochran, of the American Society of Civil Engineers, was elected vice president; Michael Fitzgerald, of the American Osteopathic Association, was elected secretary; and Sarah Tegan, of the American Chemical Society, was elected a director. Michael Friedman, of the American Meteorological Society, was appointed by the Board to fill the director's position formerly held by Angela Cochran. The new Board members join continuing members President Heather Goodell, President-Elect Tim Cross, Treasurer Michael Clarke, Treasurer-Elect May Piotrowski, Past President Kenneth Heideman, and Director Jennifer Fleet. Patricia K Baskin, Editor-in-Chief of *Science Editor*; Amanda Ferguson, Web Editor; and David Stumph, President of the Resource Center for Associations and executive director of CSE, are *ex officio* members of the Board. Andrew Van Wasshnova is the current Resource Center liaison to the CSE Board.



Poster winner Remya Namblar, with her poster on author guidelines of international journals.

The Council's highest award, the Award for Meritorious Achievement, was presented to Charlotte Haug, from *The Journal of the Norwegian Medical Association*, for her work with COPE. Winners of the CSE Distinguished Service Awards were Dana M Compton, National Academy of Sciences; Norman Grossblatt, The National Academies; Leslie E Neistadt, *Journal of Athletic Training*; Caroline M Simpson, Natural Resources Canada, Canadian Forest Service; and Diane Sullenberger, National Academy of Sciences. Angela Cochran, American Society of Civil Engineers, received the CSE Certificate of Appreciation.

The poster exhibit showcased several outstanding posters detailing research projects in areas of publication. The 2013 poster winner was Remya Namblar, Managing Editor, Cactus Communications. Remya's poster was titled "How Complete and Clear Are Author Guidelines of International English-Language Journals?" She won complimentary registration to the 2014 Annual Meeting in San Antonio.

Photographs from the annual meeting

Photographs from the annual meeting

2012–2013 Science Editor *Editorial Board*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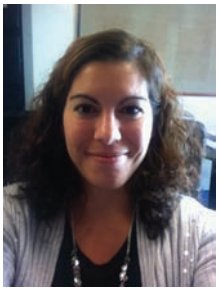
Lindsey Buscher


Stacey Christiansen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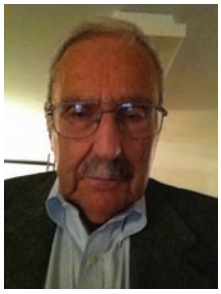
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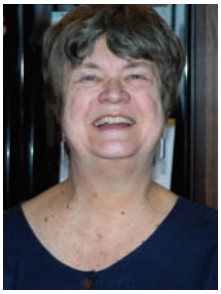
Kenneth Heideman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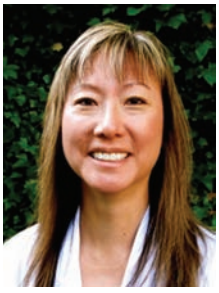
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Winfield Swanson


Anne Weber-Main


Victoria Wong


Michelle Yeoman


Roxanne Young

Calendar

2013

8–10 September	**Seventh International Congress on Peer Review and Biomedical Publication**. Chicago IL. *www.peerreviewcongress.org*.
23–24 September	**International Society of Managing and Technical Editors and European Association of Science Editors joint meeting**. Blankenberge Belgium. *www.ismte.org*.
28 September–2 October	**Regulatory Affairs Professionals Society annual conference**. Boston MA. *www.raps.org*.
13–16 October	**American College of Clinical Pharmacy annual meeting**. Albuquerque NM. *www.accp.com*.
24–26 October	**Mediterranean Editors and Translators meeting**. Tarragona Spain. *www.metmeetings.org*.
29–30 October	**American Association of Dental Editors annual conference**. New Orleans LA. *www.dentaleditors.org*.
1–6 November	**Association of American Medical Colleges annual meeting**. Philadelphia PA. *www.aamc.org*.
6 November	**BELS (Board of Editors in the Life Sciences) examination**. Columbus OH. Registration deadline is 16 October. *www.bels.org*.
6–9 November	**American Translators Association annual conference & exhibition**. San Antonio TX. *www.atanet.org*.
7–9 November	**American Medical Writers Association annual meeting**. Columbus OH. *www.amwa.org*.

2014

13–17 February	**American Association for the Advancement of Science annual meeting**. Chicago IL. *www.aaas.org*.
26–29 April	**Association of Clinical Research Professionals annual conference**. San Antonio TX. *www.acrpnet.org*.
30 April–3 May	**American Society for Indexing annual conference**. Charleston SC. *www.asindexing.org*.
2–5 May	**Council of Science Editors annual meeting**. San Antonio Marriott Rivercenter, San Antonio TX. Contact: CSE: 10200 W 44th Ave, Suite 304, Wheat Ridge CO 80033; (720)881-6046; *www.CouncilScienceEditors.org*.
3 May	**BELS (Board of Editors in the Life Sciences) examination**. San Antonio TX. Registration deadline is 12 April. *www.bels.org*.
6–8 June	**Editors' Association of Canada annual meeting**. Toronto ON. *www.editors.ca*.

Information for Contributors

- *Science Editor* welcomes contributions on research on peer review, editorial processes, and ethics and other items of interest to the journal's readers.
- Please submit manuscripts as e-mail attachments and include the author's contact information.
- Submit material in the style recommended by *Scientific Style and Format*, with references in the order of citation.
- Submitted materials are subject to editing by the appropriate editors and copyeditor.

Send submissions and editorial inquiries to Patricia K Baskin, Editor-in-Chief, at *pkbaskin@gmail.com*.

In the Next Issue

- 2013 Annual meeting reports
- Legacy of *JAMA* medical-editing fellowships
- Opinions on "predatory publishers"

Now publishing is as convenient as your smartphone.

You love your smartphone because it makes your life easier. Everything you need is in one convenient place—at your fingertips. Wouldn't it be great if finding publishing solutions could be so convenient? When you partner with Allen Press, it can be. Allen Press focuses on providing complete author-to-reader solutions for publishers. From manuscript submission to print and online delivery and everything in between, Allen Press provides the most comprehensive offering of integrated services for scholarly journal and association magazine production. Contact us today to learn how we can design the perfect combination of services for your needs.

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