ARTICLE
The Journal of Undergraduate Neuroscience Education: History, Challenges, and Future Developments

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The '*JUNE* and You' sessions presented at the July 2008 Undergraduate Neuroscience Education workshop, sponsored jointly by Faculty for Undergraduate Neuroscience (FUN) and Project Kaleidoscope (PKAL), featured background information about the history and mission of the *Journal of Undergraduate Neuroscience Education* (*JUNE*), followed by an informative discussion about the challenges facing *JUNE*, including new ideas for future developments. This article will highlight some of the information and ideas generated and shared at this conference. Critical discussion points included the need to keep members of FUN actively engaged in submitting and reviewing articles for *JUNE*.   Ways in which authors, reviewers, and interested faculty members could best help in promoting the mission and vision of *JUNE* were discussed. Concerns about recent hackings into the *JUNE* website were also raised, and possible solutions and measures that can be taken to minimize this in the future were discussed. In addition, ideas for expanding the role of *JUNE* to provide a forum to evaluate new and emerging website information that is pertinent to undergraduate neuroscience education was discussed. Ideas for future developments of *JUNE* included revolving postings of articles as they are accepted, providing links to several related websites, and allowing updates for articles that have been previously published in *JUNE*. Finally, ideas for maintaining and expanding *JUNE*'s stature as *the* resource for undergraduate neuroscience education included ensuring that *JUNE* is listed on important search vehicles, such as PubMed.

 Key words: electronic journals; multimedia formats; search engines; inter-website links; website security; innovative technologies.

The joint conference on neuroscience education, held in July of 2008 at Macalester College (www.pkal.org/activities/UndergraduateNeuroscienceEducation.cfm) and jointly sponsored by the Faculty for Undergraduate Neuroscience (FUN) and Project Kaleidoscope (PKAL) provided a fruitful format to review the progress of FUN's flagship journal and to explore new ways in which the *Journal of Undergraduate Neuroscience Education* (*JUNE*) can expand its influence and better serve its readers. This article summarizes some of the major points of discussion at this conference in an effort to provide those who attended a synopsis of the "*JUNE* and You" workshop, and also to provide those who were unable to attend the workshop an overview of what transpired. As was presented at the workshop, a brief background, including the history and mission of *JUNE* will be given, followed by the major discussion points on the challenges and future directions of *JUNE* that were made at the workshop.

HISTORY AND MISSION OF *JUNE*

JUNE was established in 2002, as the flagship journal of FUN, which at that time was a young, but flourishing organization of faculty members who were committed to undergraduate neuroscience education. The development of FUN was the brainchild of Julio Ramirez, Sally Frutiger, Stephen George, and Dennison Smith, who provided a niche that was unfilled because the Society for Neuroscience (SfN) and the Association for Neuroscience Departments and Programs (ANDP) were focused primarily on graduate and professional programs (Ramirez and Normansell, 2003). FUN provided its faculty members with a community of like-minded neuroscientists in which to share new ideas to address the unique problems encountered by faculty who were teaching undergraduates. FUN provided undergraduate faculty members with a new vista of opportunities to explore curricular issues, grant-writing assistance, textbook evaluations, innovative teaching ideas, and laboratory exercises through workshops offered in conjunction with PKAL and through FUN's listserve (Hardwick et al., 2006). These venues proved highly successful and helpful to FUN members, and the growing success of FUN prompted its founding President, Julio Ramirez, to push for a flagship journal in 2002. Barbara Lom and Ramirez volunteered to launch the journal. Lom and Ramirez became Editor-in-Chief and Senior Editor, respectively, and subsequently assembled an Editorial Board. The first edition of JUNE appeared in the fall of 2002 (Lom, 2002). The first edition offered innovative teaching and laboratory ideas, primarily contributed by the original group of Editorial Board members (see Table 1 for complete list of Editorial Board members). In addition, book and media reviews were introduced and have subsequently become a popular feature in the journal. Under Lom's leadership, the journal flourished and has become a repository of innovative approaches to undergraduate neuroscience education, which was precisely the mission of *JUNE*. As expressed in its inaugural editorial, "*JUNE's* mission is to communicate

innovations in all aspects of undergraduate neuroscience education via peer-reviewed scholarly articles in an easily accessible format for an audience of undergraduate educators" (Lom, 2002). *JUNE*'s mission has remained steadfast over the past seven years since its inception. However, new ideas and a few new challenges have emerged in our efforts to expand *JUNE*'s outreach to a wider and increasingly more technologically sophisticated audience (Dunbar, 2008).

Barbara Lom Davidson College	Editor-in-Chief Senior Editor Board Member	2002-2007 2002-Present 2002-Present
Julio Ramirez Davidson College	Senior Editor Board Member	2002-2007 2002-Present
Gary Dunbar Central Michigan University	Associate Editor Editor-in-Chief Board Member	2005-2007 2007-Present 2002-Present
William Grisham University of California, Los Angeles	Associate Editor Board Member	2007-Present 2005-Present
James Kalat North Carolina State	Board Member	2002-Present
Bruce Johnson Cornell University	Board Member	2002-Present
Carol Ann Paul Wellesley College	Board Member	2002-Present
Eric Wiertelak Macalester College	Board Member	2002-Present
Bob Wyttenbach Cornell University	Board Member	2002-Present
Michael Zigmond University of Pittsburgh	Board Member	2005-Present
Russell Fernald Stanford University	Board Member	2002-2004
Denny Smith Oberlin College	Board Member	2002-2004

Table 1. *JUNE* Editorial Board (2002-Present).

CHALLENGES

At the Macalester conference, our discussion focused on four main challenges: (1) website security; (2) establishing and securing copyright permissions; (3) increasing the number of submissions to *JUNE*; and (4) increasing *JUNE*'s listings on major search engines (e.g. PubMed). As many *JUNE* readers know, last year the journal's website was compromised by hackers, who left malicious viruses that required a rebuilt website and acquisition of a more secure server. Although there were several suggestions to move the *JUNE* site to ones offered by universities, the *JUNE* Board opted to maintain the otherwise excellent service it has received through its current provider. Although it is nearly impossible to make any site "hacker proof," *JUNE* has been able to make its

new site more secure. *JUNE*'s webmaster, Ron Stamey, (Timeline Group, Inc., Asheville, NC), who created the original website, was able to rebuild the website and 'disinfect' back issues. Similarly, *JUNE* is indebted to its editorial assistant, Fern Duncan, who was able to expedite the process of posting uncompromised, older issues to the new website. The silver lining to this unfortunate situation was that *JUNE* was not only able to make its website more secure, but also upgraded it so that it can offer new features and a more attractive home page. In addition, the *JUNE* editorial board has learned some valuable lessons in terms of having sufficient backup. As was discussed at the conference, acquiring back-up websites is needed so that if a security breach happens again, the down time can be minimized and a relatively seamless transition can be attained.

The second challenge, establishing and securing copyright permissions, has been handled by *JUNE*'s Associate Editor, William Grisham. Grisham worked on several drafts of *JUNE*'s copyright agreement, receiving a great deal of *pro bono* advice from attorneys with expertise in this area. Grisham is in the process of contacting authors from all seven volumes of *JUNE* to obtain a *posthoc* copyright consent and to encourage future submissions. The feedback from those at the Macalester conference was helpful in reinforcing the direction *JUNE* is taking in its choice to use an open-access copyright approach and in keeping the wording of explanations of the copyright very straightforward.

The third challenge, increasing the number of submissions to *JUNE*, was briefly discussed at the Macalester conference. The consensus indicated that *JUNE* readers should encourage colleagues (particularly junior faculty members with innovative ideas) to submit a manuscript describing their approaches to *JUNE*. It was stressed that even new approaches to teaching or running a laboratory that are not successful may be beneficial to other educators. In terms of encouraging junior faculty members to submit to *JUNE*, a few of the discussants pointed out that it can be difficult for new faculty members to "test" their ideas in their classrooms and laboratories for fear of negative feedback on student opinion surveys or teaching evaluations. Although this concern was perceived as a potential complication, many participants indicated that some institutions appeared to be more accepting of junior faculty attempting new ideas and innovative pedagogy than others. It was suggested that soliciting the support of a tenured faculty member, within the home department or at the same college, or even at another college (such as a fellow FUN member) might be helpful. Perhaps these senior faculty members could help convince department chairs and retention, promotion, and tenure committees to reinforce the notion that this sort of "risk-taking" entrepreneurship is precisely what is needed to improve pedagogy at the institution and for the entire discipline, especially if the innovative approach was published in *JUNE*. Nearly all participants at the Macalester conference indicated that encouraging faculty members who present posters for the "Teaching of Neuroscience" sessions at the Society for Neuroscience

meeting to submit their work to *JUNE* has been a successful approach for increasing submissions over the years and that this strategy should be continued and expanded to other venues.

The fourth challenge, increasing *JUNE*'s listings on major search engines, such as PubMed, is closely aligned with the challenge of increasing submissions to *JUNE*. Almost all of the major search engines require a history of regularly published issues, containing several high-quality articles. Although clear definitions of "regularly published," "several," and "high-quality" are seldom specified within applications for inclusion for indexing on search engines, there are a few unwritten expectations that can be ascertained by those who have applied. The National Library of Medicine (NLM) only accepts about 20-25% of the applications for indexing, and approximately 5,300 of the estimated 14,000 biomedical journals are now listed in PubMed (www.nlm.nih.gov/pubs/factsheets/j_sel_faq.html). Given these figures, it appears that it may not be a simple task to get *JUNE* indexed in PubMed. Moreover, the fact that the waiting period to reapply can be extended after subsequent rejections suggests that journal editors should be judicious in their timing of the application. Making sure that the journal has attained a strong publishing record will not only avoid giving a bad 'first impression' to the PubMed reviewers, but could mitigate the chances of an extended waiting period before being allowed to apply again.

Is *JUNE* ready to apply for indexing in PubMed and is there a good model that *JUNE* can follow in its attempts to gain indexing? Given *JUNE*'s solid publication record since 2002, the increased recognition of the journal, and the growing number of articles submitted and published, *JUNE* is very close to being able to make a successful bid for inclusion into PubMed. As indicated above, increasing the number of submissions to *JUNE* is the key to positioning the journal favorably for index consideration by PubMed. Having a large number of submissions makes it easier to select high quality manuscripts and ensures that *JUNE* has a sufficient quantity of articles to develop a strong and consistent publication record over the years. Perhaps a good model for *JUNE* to follow is *CBE—Life Sciences Education*. This journal publishes four issues a year and is indexed in PubMed. Obviously, if *JUNE* increases the number of issues each year, chances of a successful application for getting indexed in PubMed improves. Other factors that may improve *JUNE*'s chances for PubMed indexing brought up at the Macalester meeting, including aligning with an established publisher, increasing the number of members on the editorial staff who have NIH grants, and increasing *JUNE*'s visibility via citations in other journals, as well as becoming indexed by other search engines. In addition to the Macalester meeting, these issues were discussed at the last *JUNE* Editorial Board meeting. In both of these venues, a strong consensus was that *JUNE* should avoid compromising its standards of high quality for the sake of having more issues. Further, *JUNE* should be cautious about aligning with an established publishing company if this would in any way compromise its ability to maintain autonomy as FUN's professional journal. The general consensus was that

expanding *JUNE*'s visibility by becoming indexed in more search engines will increase submissions to *JUNE*, which will eventually put *JUNE* in a favorable position for becoming indexed in major search engines, such as PubMed.

Currently, *JUNE* articles are cited through several search engines, including National Science Digital Library (NSDL nsdl.org), AAAS's BiosciEdNet (BEN; biosci.aaas.org), Directory of Open Access Journals (DOAJ; www.doaj.org), Genamics Journal Seek (journalseek.net/cgi-bin/journalseek/journalsearch.cgi?field =issn&query=1544-2896), and a number of university-linked sources, such as Hanover College's Electronic Journals and Periodicals (psych.hanover.edu/Krantz/journal.html). Recently, *JUNE* was invited to submit an application to be indexed in PsycINFO (the search engine of the American Psychological Association; www.apa.org/psycinfo). Our application has been approved, and the feedback *JUNE* received from the APA indicates that *JUNE* is poised to seek approval from other major search engines, including PubMed.

NEW DIRECTIONS

At the Macalester conference, the discussion of new directions for *JUNE* was focused primarily on three interesting ideas: (1) posting forthcoming articles prior to the launching of a new edition; (2) creating ways to update back issues; and (3) providing a source of links and peer-reviewing of teaching tools found on related websites.

The first of these new directions can be accomplished quite easily. In fact, this more rapid publication feature has been included during the rebuilding of the website. *JUNE* now can post articles as soon as they are accepted and have been proofed by the editorial assistant.

The second idea, creating ways to update back issues, can also be accomplished without too much difficulty. One of the great advantages of an electronic journal is that changes, such as updating articles from previous issues, can be accomplished with relative ease and minimal cost. However, potential problems in implementing this idea still need to be addressed by the Editorial Board. For example, how should the updating of previously published articles be done, or, as some Board members have questioned, should they be updated at all? How will the reader know what was changed? Should updates be done as a separate revision or should an addendum to the original article be added? These questions need to be addressed, as well as concerns such as making sure that all the co-authors on the previously published article agree with the updated changes and, if necessary, issuing new copyright agreements for the updated article.

Finally, the idea of utilizing *JUNE* as a conduit for linking with other websites that contain helpful teaching tools, including laboratory simulations, created a considerable amount of enthusiasm at the Macalester conference. Chris Korey (FUN president) suggested that *JUNE* might assist in evaluating various teaching tools found on different websites. These evaluations could be done in a somewhat informal way, such as providing an evaluative review, much like *JUNE* does for textbooks. Conversely, some

participants thought it might be beneficial if a more formal, peer-reviewed process be adopted to help faculty focus on the best and most appropriate teaching tools that are available. Ways to adopt these ideas for future issues of *JUNE* are now being considered.

SUMMARY AND CONCLUSIONS

In summary, the "*JUNE* and You" workshop at the Macalester conference provided a wealth of new suggestions and ideas that will benefit the journal. A major key for the continuing success of *JUNE* remains the commitment and dedication of FUN members who contribute their time and talent to submitting articles, reviewing manuscripts, and serving as advocates for *JUNE*. The *JUNE* Editorial Board is very grateful for the support of its readership and for the invaluable contributions of the FUN membership. FUN has provided continual financial support for *JUNE* since its inception and most of the contributors and Editorial Board members are active members in FUN. Readers of *JUNE* are invited to contact any member of the Editorial Board with questions, suggestions, or concerns. It is the judicious incorporation of ideas and feedback provided by the readers that will continue to make *JUNE* a better resource for neuroscience educators. Utilizing the feedback received at the Macalester College workshop is an excellent example of how *JUNE* can continue to evolve as *the* source for undergraduate neuroscience education.

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