

ARTICLE

Higher Education and the Society for Neuroscience: a website proposal that helped catalyze a change in policy.

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In the spring of 2007, the Society for Neuroscience (SfN) did not include support for higher education as a priority in its strategic plan. By the spring of 2009, its priorities had changed. One catalyst for that change was a proposal for a website that would list, review, and rate resources for teaching neuroscience at the graduate and undergraduate level. The proposal was sent to and accepted by SfN

Council in August 2008; by spring 2009, SfN had taken initial steps to implement it. Two documents are presented here that mark the change in policy: the website proposal, and SfN Council's response.

Key words: website, web portal, higher education, Society for Neuroscience, NSDL, resources for teaching.

Two years ago in simultaneous editorials in *Journal of Undergraduate Neuroscience Education* (JUNE), Ann Stuart and I lamented the Society for Neuroscience's lack of support for the teaching that its members do (Stuart 2007; Olivo 2007). At that time, the Society (SfN) had launched exemplary programs to educate the public and K-12 teachers about neuroscience, but its support of higher education was limited to posters and a professional development workshop at the Annual Meeting. The SfN website had no links for higher education, and the Society regarded support of teaching as principally the work of two smaller organizations: Faculty for Undergraduate Neuroscience (FUN), and the Association of Neuroscience Departments and Programs (ANDP). With some justification, the Society pointed to other needs that had higher priority: research funding and attacks by animal rights activists were two prominent issues on everyone's mind. At the same time, officers of the Society were aware that a majority of respondents to a membership survey had agreed or strongly agreed with the statement "SfN should focus more of its attention on undergraduate and graduate teaching of neuroscience." It was a pivotal moment, when an expansion of SfN's support for higher education was possible. Fortunately, that expansion has now begun.

The two documents presented here demonstrate the shift in SfN's policy. The first is a proposal submitted to SfN Council in August 2008, the product of a workshop at Macalester College organized by Mary Harrington (Smith College and former FUN President) and myself, which Chris Korey describes elsewhere in this issue (Korey, 2009). At the workshop, I presented a detailed plan for a web portal where members of SfN could list and review resources they used in their teaching. Robert Calin-Jageman (Dominican University) presented technical aspects of how such a portal could be implemented using modular software; Melinda Lowy (American Physiological Society) recounted APS's experience in creating the BiosciEdNet website and commented on our nascent proposal; and Eun-Joo Chang (SfN) described SfN's recent launch of a K-12 neuroscience site. With Ms. Chang's

encouragement, I drafted a proposal to SfN Council summarizing the plan that emerged from the workshop, urging SfN to sponsor a web portal that would list, review, and rank resources for teaching neuroscience.

The second document is a brief email to me from SfN's Executive Director, Marty Saggese, announcing that Council had responded enthusiastically to our proposal and would fund preliminary development. Subsequently, in April 2009 SfN submitted a detailed grant application to the National Science Foundation to establish a new "pathway" for Neuroscience under NSF's NSDL program (originally the "National Science Digital Library," now "National STEM Education Distributed Learning"). Eun-Joo Chang and I are co-PIs for that proposal, which was written with extensive contributions from SfN staff. The Society for Neuroscience is now working actively to support its members' teaching.

1. A PROPOSAL TO THE SOCIETY FOR NEUROSCIENCE FOR A WEBSITE TO SUPPORT HIGHER EDUCATION

THE PROPOSAL:

We propose a website that would list, review and rate resources for teaching neuroscience at the undergraduate, graduate and professional levels. The site would not host resources (it would not be a library of materials), but instead would serve as a portal to the vast array of neuroscience resources that already are online or available from publishers. Anyone could read the listings and reviews, but only authenticated members of the Society for Neuroscience would be entitled to post listings or reviews. A large committee of curators would approve listings for appropriateness and scientific credibility before they were posted. They would also review appeals of posted reviews if there were complaints of offensive language or off-topic material. A staff member would serve as the administrator of the site, "keeping the wheels turning" but not finding or vetting materials, a task that would be undertaken by the broad community of neuroscientists based on materials

they themselves use in their own courses. The portal could be searched by multiple criteria, such as the topic of the course (neurophysiology, neuroanatomy, pharmacology, etc), the level of the course (introductory, advanced undergraduate, basic medical sciences, etc.), the institution that used the materials, the type of resource (book, website, syllabus, video, software, etc), keywords in a “tag-cloud,” and so on. Searches would return lists of items, sortable by various criteria including average rating. Each item on the list would link to the full description of that item plus a list of reviews, again sortable by various criteria including the rated usefulness of the review.

The proposed site is modeled partly on sites like Amazon.com, which, in addition to listing resources, post ratings and reviews by readers. Amazon’s reviews are rated for utility, and can be sorted to place the most useful reviews first. Our proposal also draws on the example of portal sites such as BiosciEdNet (BEN, which lists and describes items for biology teaching, but does not have Neuroscience as a specific subset of its listings, and does not present reviews or ratings), and MERLOT (which has some neuroscience items but spotty reviews and minimal searching). Finally, the websites of some of our sister scientific societies such as the American Physiological Society and the American Society for Cell Biology model how to provide extensive online support for higher education. By comparison, higher education on SfN’s website is an early stage of a work in progress.

IMPLEMENTATION AND MANAGEMENT:

At a meeting in July 2008, a group of representatives from colleges with grants for neuroscience from the Mellon Foundation attended a workshop to examine, refine and develop this proposal. They were aided by Melinda Lowy (Higher Education Programs Coordinator, the American Physiological Society) and Eun-Joo Chang (Senior Director, Education & Member Development, Society for Neuroscience), who also made presentations and participated in the discussion. The full proposal was then presented at a large plenary session of the FUN/PKAL triennial meeting on the neuroscience curriculum. The faculty there were extremely enthusiastic about the proposal, seeing it as a positive potential step in SfN’s increasing support for higher education.

Several important points emerged from the workshop:

- the website could be implemented efficiently using existing open-source modular web content-management software such as Drupal;
- the site should be compatible with existing portals, such as BEN, so that listings could be harvested automatically and listed on the BEN site, with links back to the SfN listing, description and reviews;
- the site should be attached to the SfN home page if possible, to decrease the proliferation of independent sites and the need for multiple logins;
- the site needs to be seen as credible by vetting materials before they are posted, but it does not need to have such a bottleneck for posting reviews if posting is limited to authenticated members of SfN;
- the site could be minimally administered through part of

a staff member’s time plus a large group of curators for the various subtopics on the site;

- although the resources listed might overlap a K-12 site, there are questions about whether faculty in higher education would use a site that also served K-12, implying that the two sites should appear separate;
- automatic emails or subscriptions to RSS feeds could alert curators about new reviews posted on their topic, without requiring an administrator’s time;
- automatic tallying and display of clicks for each listing would provide a second form of ratings, on the assumption that many more people will use the site than will contribute reviews and ratings;
- the site needs to be substantially populated before it goes public, so that first-time visitors will find it worth revisiting; members of FUN expressed interest in helping with this first round of listings and reviews.

INTERACTION WITH “NERVE:”

The Society has incurred significant expenses to prototype “NERVE,” a listing of resources for K-12 teachers. Almost all of the costs were for consultants for IT design and development, and for SfN staff time. Although it would be logical to explore whether NERVE could simply be expanded to include resources for higher education, NERVE was developed as an outreach effort in which experts provide information to non-experts. It lacks the key features that are at the core of our proposal: support for communal exchange of information among expert neuroscientists for use in their academic work as teachers. We believe that the content developed for NERVE could be incorporated into a broader site, but that it would be more efficient to use open-source modules and some custom programming to develop a new site to serve both K-12 and higher education.

A subsidiary issue is whether neuroscientists who are members of SfN would routinely want to consult a site (NERVE) if it were perceived as intended for K-12 teachers. This suggests that even with a broad common database to serve both audiences, it would be wise to have separate access portals for K-12 and higher education. A dual-portal approach would permit retaining NERVE’s current role as a K-12 site by filtering the resources that appear when browsing or searching. The other, “full” portal would access the entire database of resources, descriptions, and authorized reviews. The full portal could be read by the entire world (including K-12 teachers), and searched at every educational level (similar to BiosciEdNet), but only SfN members would be authorized to submit new listings and post reviews.

WHY NOT HAVE FUN OR ANDP DO THIS?

Neither FUN nor ANDP has the resources, size, or structure to undertake a project like this. ANDP does not have individual members, and thus cannot provide an authentication mechanism for posting reviews. It also has a minimal staff and small budget. FUN does have individual members, but it is a small organization with no staff and almost no budget. It focuses on undergraduate education, while this site would also serve graduate and

professional education in neuroscience. Neither organization could support a project of this scope.

WHY NOT USE AN EXISTING PORTAL LIKE BEN, MERLOT, OR NSDL?

No existing portal has a mechanism for authenticating reviewers, which we believe is a crucial component of this plan. MERLOT has physiology and neurology as topics, but not neuroscience, and its searching is only fair. BEN has a good search system for items, but it is weak in neuroscience and it does not include reviews. A huge list of unreviewed, undifferentiated resources would be better than nothing, but it is not as useful as our proposal would be. Automatic harvesting of resources for transfer to BEN would be a good feature, but relying on BEN (or MERLOT) as the sole list of resources lacks the crucial review and search functionality that our design would provide.

If SfN develops and hosts a portal site, it could become a new "pathway" in the National Science Digital Library (NSDL), a project sponsored by the National Science Foundation. NSDL currently has pathways for biological sciences (BEN), chemistry, computational science, engineering, materials science, mathematics, and physics and astronomy, most of which are hosted by scientific societies. A pathway for Neuroscience would fit into this group and would increase the project's visibility. NSDL is not an alternative to having SfN develop and host its own portal to resources, but offering to construct a site that is compatible with NSDL categories and metadata would make it possible to contribute a neuroscience site as a new pathway. If substantial outside funding were deemed essential, NSF's anticipated request in spring 2009 for proposals to expand NSDL would be a potential source of funds.

[Proposal] Submitted by:

Richard Olivo, Professor of Biological Sciences and Neuroscience, Smith College; Associate Director, Derek Bok Center for Teaching and Learning, Harvard University; and organizer of workshops on teaching neuroscience for the SfN Annual Meeting.

Robert Calin-Jageman, Assistant Professor of Psychology, Dominican University, and developer of community resource and database sites for NeuronBank, Molluscan Neuroscience Gateway, and the Neural Systems and Behavior course at MBL.

Christopher Korey, Assistant Professor of Biology, College of Charleston; BiosciEdNet Scholar, 2008; and President-Elect, Faculty for Undergraduate Neuroscience.

With the support of: Bruce Johnson, President, Faculty for Undergraduate Neuroscience

(The proposal is also being circulated to the Association of Neuroscience Departments and Programs for their discussion and potential support [which it did receive].)

2. SFN COUNCIL'S DECISION

Date: Wed, 24 Sep 2008 13:13:10 -0400
From: Marty Saggese <marty@sfn.org>
To: Richard F. Olivo <rolivo@fas.harvard.edu>

Cc: Eun-Joo Chang <eun-joo@sfn.org>
Subject: Proposal for an SfN Portal for Higher Education

Dear Richard --

I am writing to let you know of the recent SfN Council discussions related to the proposal for a higher education teaching resource portal. Council affirmed the importance of better meeting the needs of our members engaged in teaching neuroscience and was enthusiastic about your ideas for the portal. The portal idea fit nicely into Council's broader discussion about redefining and expanding SfN's professional development strategy to encompass career development needs at various transition points. A resource like the portal could provide valuable support for teaching needs in higher education. Council members were particularly supportive of the ranking/reviewing of resources component you outlined for the Web site.

As a first step, Council approved funding for an initial phase that involves creating a working group (including you, Robert Calin-Jageman, FUN and ANDP reps, and representation from SfN's IT and Neuroinformatics committees) that would be asked to develop a detailed project budget, along with a plan and timeline for seeking external funding to develop and implement the project. The group would go back to Council in November with a proposal for next steps. Eun-Joo will follow up with you regarding additional details.

Thanks for all your efforts in putting together a well thought-out proposal and for your continued commitment to this project. We are enthusiastic about working with you and your colleagues on getting the necessary funding to move forward. I look forward to seeing you at the annual meeting in DC!

Best regards,

Marty

Marty Saggese
Executive Director, SfN

REFERENCES

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