

Novel strategies and structures for open access publishing of neuroscientific media

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New media are rapidly changing the scientific work. Methods and tools, communication and collaboration and even publishing in science and science education move to the digital world and allow a more dynamic and intense development. However, traditional publications, in print or digital form, are not capable of representing this influence of new media in an adequate way. New editorial and technical approaches to publishing should help to overcome traditional restrictions and to establish a new publishing culture that includes a stronger influence of those who generate the scientific content: the scientists.

One of today's main issues for modern publishing is open access, which means that publications are freely accessible on the web, anytime, from anywhere by anybody. Currently, more than 2000 open access journals are available at the market, and the free author's copies of restricted journal publications deposited in institutional or disciplinary repositories are getting more and more each day. Even traditional high impact journals are, due to market pressure, increasingly open for this new publishing strategy, since it is supposed to dramatically increase the number of readers and, therewith, the chance to be cited.

However, open access is only the prerequisite for adding value in modern publishing. Advanced innovation comes from integrating new media techniques and opportunities into publishing processes as well as into the published content itself. Many neuroscientific findings today are only adequately represented if traditional text-image layouts are combined with supplementary materials such as data, films and simulations. If all this can be easily shared, reused and recombined a new quality of scientific communication is achieved.

An example for breaking new ground in scientific publishing within the neurosciences is provided by the non-profit open access e-journal *Brains, Minds & Media* (<http://www.brains-minds-media.org>). This international, peer-reviewed journal combines both, new editorial and technical structures, to support a publishing infrastructure for new media, based on scientific self-organisation in close cooperation with university librarians. *Brains, Minds & Media* is specialized to the publication of new media for neuroscientific content and educational material. The main focus lies on articles providing supplementary material, being dynamic or interactive visualizations or tools, tutorials or educational simulations and the like. Any kind of data or media may be published with an article and, thus, is made accessible to a broad audience. In addition, each contribution can be discussed or commented online. The publication process is scheduled to three month from submission to publication. Due to online opportunities, each article can be discussed and refined. Each supplementary material is freely accessible and may be used and distributed by others due to the Digital Peer Publishing Licence (DPPL - see: <http://www.dipp-nrw.de>).

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Novel Strategies and Structures for Open Access Publishing of Neuroscientific Media

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Introduction

New media are rapidly changing the scientific work. Methods and tools, communication and collaboration, and even publishing in science and science education move to the digital world and allow a more dynamic and intense development. However, traditional publications, in print or digital form, are not capable of representing this influence of new media in an adequate way.

New editorial and technical approaches to publishing should help to overcome traditional restrictions and to establish a new publishing culture that includes a stronger influence of those who generate the scientific content: the scientists.

An example for breaking new ground in scientific publishing within the neurosciences is provided by the non-profit *open access e-journal Brains, Minds & Media* (BMM). This international, peer-reviewed journal is specialized to the publication of new media for neuroscientific content and educational material.

BMM combines both, new editorial and technical structures, to support a publishing infrastructure for new media, based on scientific self-organisation in close cooperation with university librarians.

The main focus lies on articles providing supplementary material, being dynamic or interactive visualizations or tools, tutorials or educational simulations and the like.



Fig. 1: Screenshot of Brains, Minds & Media Homepage (<http://www.brains-mind-media.org>)

Open Access Publishing

One of today's main issues for modern publishing is open access, which means that publications are freely accessible on the web, anytime, from anywhere by anybody. Currently, more than 2600 open access journals are available at the market (i.e. see the Directory of Open Access Journals, DOAJ[1]), and the free author's copies of restricted journal publications

deposited in institutional or disciplinary repositories are getting more and more each day. Even traditional high impact journals are, due to market pressure, increasingly open for this new publishing strategy, since it is supposed to dramatically increase the number of readers and, therewith, the chance to be cited.

Neuroscientific Media in Research and Education

However, open access is only the prerequisite for adding value in modern publishing. Advanced innovation comes from integrating new media techniques and opportunities into publishing processes as well as into the published content itself. Many neuroscientific findings today are only adequately represented if traditional text-image layouts are combined with supplementary materials such as data, films, tools or simulations. If all this can be easily shared, reused and recombined, a new

quality of scientific communication is achieved.

Currently, these media, such as simulations or tutorials, are rarely published in an accessible and reliable manner: as by-products of scientific research they are usually not subject of scientific publications.

Hence, it is in the scope of BMM to publish these kinds of media, being it scientific or educational media, provided that the supplementary material is innovative and has additional value.

Editorial Approach and Workflow

The editorial organisation of Brains, Minds & Media is threefold: It is constituted of scientists (international editorial board and editorial staff), librarians (at Bielefeld University), and a technical provider and support (DiPP-NRW, Cologne) [2] (fig. 2).



Fig. 2: Editorial Partnership of Brains, Minds & Media

To manage the workflow of the BMM publishing process, an editorial tandem of scientist and librarians has been constituted, located at Bielefeld University (fig. 3).

The peer review process is organised by scientists whereas librarians take on technical article processing and provide the bibliographical knowledge.

An editorial coordinator at Bielefeld University serves as a communicator between authors, scientists, librarians and, last but not least, the readership.

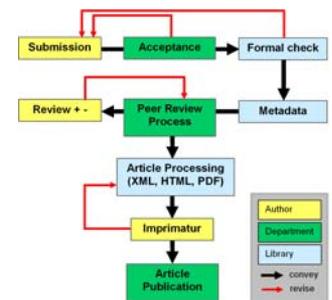


Fig. 3: General overview of the editorial workflow of Brains, Minds & Media.

The publication process is scheduled to three months from submission to publication.

Technical Approach and Infrastructure

The technical infrastructure based on a customized version of the open source CMS *Plone* [3] is provided by the DiPP

initiative [2], hosting more than 10 OA journals from different disciplines.

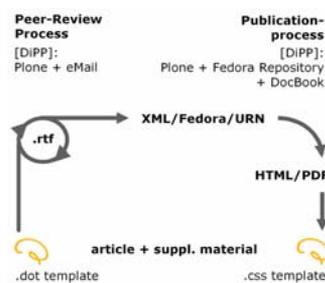


Fig. 4: Technical article processing within the publishing environment of Brains, Minds & Media.

Accepted articles are uploaded in an RTF format by using the BMM templates, which will be automatically converted into XML, HTML, and PDF via DocBook [4] after being uploaded to the publication system (fig. 4).

Published articles are archived in a *Fedora* repository [5] that allows for metadata harvesting via OAI-PMH [6].

Unified resource names (URN [7] – the open alternative to DOIs) will be generated for each article, the associated supplementary materials are referenced from the main article.

Supplementary Materials

Each supplementary material is freely accessible and may be used and distributed by others due to the Digital Peer Publishing Licence (DPPL - see: <http://www.dipp-nrw.de>).

Any kind of media, data, and source may be published adding value to an article and, thus, is made accessible to a broad audience. Each article and material can be discussed online.

References

- [1] <http://www.doaj.org>
- [2] <http://www.dipp-nrw.de>
- [3] Open source content management system Plone: <http://www.plone.org>
- [4] <http://www.docbook.org>
- [5] Fedora Open Repository: <http://www.fedora.info>
- [6] Open Archive Initiative: <http://www.openarchives.org>
- [7] <http://www.w3.org/Addressing/>