Chapter 2

Fitting the Journal into the Scholarly Community: A Classification-Driven Approach

> ***Theoretically, the more you know about the community you want to join and about the socialization process itself, the easier your initiation into the community will be. Thus, you can simply let the socialization process take its course, or you can actively work to "socialize yourself" into the community by seeking out the community's distinctive patterns of communication and interaction. . . .***
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> ***Ann Penrose and Steven Katz,***
> **Writing in the Sciences: Exploring Conventions of Scientific Discourse**

A primary goal of the *NSR* was to provide electronic publication experience for undergraduates, so that they may be better prepared to experience the communication tactics they encounter as they pursue their postgraduation careers. To ensure that the *NSR* well represented those challenges, I chose to examine the general issues addressed in current publications on electronic literature, to determine the "state of the field." Also, for the *NSR* to be a platform for experimentation in electronic publication, knowledge of the current state of that exploration, as represented by the published literature, would help it fit into the electronic publication questions and conventions that it hoped to explore. Identifying and classifying these issues as they relate to our audience — writers and readers, teachers and administrators — so that the *NSR* could address them well, I felt was critical to the journal's success.

To these ends, in the spring of 1997 I undertook an extensive literature search and review in the areas of computer-mediated communication, electronic publication, scholarly communication, and scholarly electronic publication. This research identified four primary areas of concern in electronic scholarly publication: costs (including labor), quality assurance (including peer review, indexing, and citation), archiving, and

copyright and fair use. Decisions regarding how *NSR* would handle each of these issues took into account our overall objectives (as described in Chapter 1) as well as information derived from the literature search. I found that the *NSR* was well positioned to address all of the major issue identified, and appeared to be an excellent platform for achieving the overall goal of providing rich publication experience and experimentation for all members of our intended audience.

A. Costs

Electronic publishing is an opportunity for authors to be publishers, decreasing costs (avoiding the page and reprint costs often charged by publishers) and getting their work out faster than with traditional print journals (Tenopir, 1995). However, Freeman (1996) cautions that many "savings" in electronic publishing are merely redistributions:

- easier electronic production and distribution requires continuous technical infrastructure and labor to support it,
- speed of distribution is offset by unchanged or increased time constraints in the preparatory technical and editing stages, and
- decreased cost of distribution is offset by increased technical costs of the distribution infrastructure and training of readers to use it.

Many or all of these tasks will be needed for electronic publishing, and all cost money (Freeman, 1996), or volunteer time (see section on labor, below), which is often paid for by the university, which provides course reductions in exchange for the scholarly labor.

Other difficulties involved specifically in electronic publication costs include developing software for access and display, providing links among research, and maintaining quality over time (including linking to errata, updates, and commentary; Tenopir, 1995). All these tasks require time and/or money, though they may be offset by reduced costs of electronic formats (e.g., no postage or printing costs).

But why would scholars wish to take on the apparently added burden of cost involved in electronic publication? The answer, ironically, is one of cost: publishers, who traditionally handle most of these tasks for authors and libraries, have raised their subscription prices for scholarly journals to the extent that libraries cannot afford to carry

all the titles their readers want. But with the advent of electronic publishing, and especially electronic self-publishing, libraries and authors alike look to a future in which publishers will have to lower their fees to compete (Odlyzko, 1996). However, Fuchs (1996) fears that we are now accustomed to spiraling publication costs and warns that we should avoid such expectations in the electronic arena. Hurtado (1996) also warns that scholars should avoid default control of the Net by commercial interests, believing that the resulting system would be as untenable as the paper commercial system we have now.

Amidst all these issues of conflict, effort, and reward, how can the *NSR* best be a platform for both student preparation to enter this fray, and scholar experimentation to address it? Costs (aside from labor costs, discussed below) for the *NSR* can be minimized by using resources already present on the NC State campus, or about to be installed by virtue of the university's mission to maintain access to other electronic publications.

The *NSR* uses a preexisting server supplied by the College of Humanities and Social Sciences (CHASS) and distributes on the preexisting electronic network supplied by the university. As Fuchs (1996) points out, costs of networking infrastructure do not depend directly on amount of use, and so disseminating an electronic journal should not increase cost to the university. Costs of maintaining archives and upgrading for more users are use dependent, however, but a reader's Net time tends to be finite, and reader interest in the *NSR* will likely redirect rather than increase Internet use by students and faculty.

Costs to maintain the server may be offset by increasing visibility of excellent undergraduate research, thus helping CHASS administrators to justify costs of education in general (see labor, below). If *NSR* could accomplish its objectives of rewarding undergraduate research efforts, providing publishing experience and so increasing student learning, enhance awareness of university efforts, and increase research resources, then the benefits that NC State provides to society would be more visible to the legislators (and contributors) who finance its efforts.

If these assumptions hold true — use of existing university resources to increase visibility and thus increase social value to increase funding — then the only cost (again, aside from labor) of creating and maintaining the journal would involve purchasing

software and software upgrades. CCSTM had already paid for publishing software, and computer labs around the campus are upgrading and adding similar software that can be accessed for students and journal staff to use.

B. Labor

Though labor is a real cost in most accounting systems, labor has its own special place in the education community, along with other community-supported efforts such as the arts, law enforcement, and charities. All these have in common an "intangible," immeasurable "product" only indirectly related to financial cost; hence all are supported by legislatures as contributing to the overall social good. Another commonality they have is a strong dependence on volunteer effort. Scholarly publication is no exception.

Though in the past scholarly publishing had traditionally been handled by scholars themselves (Guedon, 1996; Rowland, 1996), scholars today involve publishers heavily in most of their publications. This is partly because publishers can offer the prestige authors desire to further their careers and interests (Peek, 1996), via heavy marketing, prior name recognition (think of Cambridge UP, Prentice Hall, Wiley), and well-established quality control procedures. But scholars also rely on publishers because scholarly production staff supplying the labor to produce the publications (those who do everything except the peer review/substantive editing functions; see below) traditionally have low status — today only work that can contribute directly to a scholar's tenure, authorial and substantive editorial work alone, remains in the hands of scholars (Rowland, 1996). Scholarly volunteer efforts in other areas of journal production tend to happen primarily at startup; once a journal grows past a certain size, the effort required to sustain it becomes a burden to the scholars, who must return their focus to tenure-related concerns (Rowland, 1996; Amiran, 1997). Large, successful journals need full-time employees and management, and this must be paid for somehow, as must the technical expertise required to perform such functions (Rowland, 1996). Scholars now look to publishers to provide this.

The list of functions contributed by a publisher is staggering, and all are considered necessary to support the activities of readers and authors — the scholarly

community. Copyediting, design, and artwork address scholarly consistency, ergonomics, and the often limited technical facilities of authors and readers (Rowland, 1996). Fisher (1996) provides a more general list:

- editorial services (e.g., paying for an editorial assistant to shepherd papers through the production process),
- production services (design, copyediting, proofreading, delivery of derivatives such as CDs and videotapes),
- maintaining order fulfillment (e.g., back issues and special supplements),
- marketing services (to obtaining visibility of and readership for a journal),
- translating subsidiary rights (allowed by copyright ownership) into additional distribution (e.g., reprints, translations, on-line databases, and course packs), and
- financial oversight (balances resource investment with rewards to publisher, university, or society).

All of these tasks involve labor not only to perform but also to plan how to perform them, and to document them so that their effectiveness can be evaluated and fine-tuned as necessary.

To address the serious labor issue, which would rely almost solely on volunteer effort, *NSR*'s production process was designed to minimize required labor while maintaining quality. CCSTM had paid for my research assistantship for developing the journal. Also, during my tenure as a graduate student I used the journal as my thesis project; thus I used my own "volunteer" labor to actually produce the journal, labor that I would otherwise have put toward another project, thus not increasing my own "cost." This addresses the *NSR* objective of rewarding (my own) research efforts. The journal design was contributed by Margaret Hudacko of the College of Electrical and Computer Engineering, which considers this a worthy cause (and we hoped would benefit from increased visibility), and the graphics were designed for a minimum of download time, thus minimizing an intangible cost of Internet congestion (Fuchs, 1996) while still maintaining reader/author appeal. This addressed the objective of enhancing awareness of university (in this case, departmental) quality.

The articles themselves were posted in PDF format using Adobe Acrobat. Time trials showed that for an article of 60K (a high average for a paper), HTML converters required approximately 2 hours (probably less with practice) whereas Acrobat Distiller required about 1 minute. Most of the additional time for HTML resulted from articles not being reproduced in their original form (e.g., tables, headings, page breaks) and so requiring reformatting. This use of software to decrease labor addresses *NSR*'s objective to be a forum for exploration. And whoever has the task of production manager for the journal, and assists in its efforts (as did Margaret Hudacko), would certainly have received excellent experience in publishing!

C. "Peer" Review, Indexing, and Citation

Authors have two basic goals: recognition for career advancement and contribution to a field's body of knowledge (Tenopir, 1995). Authors traditionally have the greatest interest in sharing their ideas with the scholarly community — with their names attached (Harnad, 1996). Peer review (Tenopir, 1995) and journal prestige (Ekman & Quandt, 1995; Harnad, 1996; Peek, 1996) are central to legitimizing their contributions.

But though electronic publishing presents an apparently easier way for authors to "get published," scholars have been slower than commercial and private groups and individuals to adopt use of the Internet for publishing. Harnad (1996) believes that this slowness derives from the Net's anarchistic origins, and that scholars' trepidation will be overcome as they begin implementing peer review and establish a prestige hierarchy among publications and/or their sources. Serious questions regarding tenure value of electronic publication must be addressed alongside more traditional author concerns such as how to address the value of a particular contribution to a field, the tenure value of a publication in general, field-specific standards of reference and citation, and copyright (Fisher, 1996).

Readers, on the other hand, have two different goals: keeping current with their field of study, and gathering background and specific items on a topic (Tenopir, 1995). Many readers believe electronic publications satisfy their goals better by electronic

searches, personalized notated copies of articles, direct access to those articles that directly interest them, and cross-referencing their own information.

However, some texts do not show up on keyword searches (Lynch, 1994; Manoff, 1996; Peek, 1996), so awareness of nondigital (Lynch, 1996) and nonindexed items (Manoff, 1996; Peek, 1996) decreases. Heavy reliance on electronic indexes and publication alone has the potential to threaten cultural (disciplinary) coherence as fewer scholars, in their search for highly individualized reading, will share similar reading experiences. Heavy reliance on electronic indexing can also place great power in the hands of secondary sources (Lynch, 1996).

How could the *NSR* address concerns of both readers and authors? That is, how could the *NSR* maintain quality/prestige for the journal and also ensure reader access? Peer review and indexing, respectively, addressed these concerns.

The production process involves a form of review: students themselves would have their paper nominated by at least two faculty members as representing excellent undergraduate research. This process satisfies the need for quality assurance without placing a great burden on faculty and production staff that is associated with the blind peer review system (e.g., disseminating review copy, maintaining reviewer contact, ensuring authors have sufficiently addressed reviewers' concerns). The *NSR* also avoided the immediate necessity of a devoted readership required by open peer review systems proposed in the literature (e.g., Wheeler, 1997), which involves posting papers in special sections and asking for reader feedback, to which authors must respond. The nomination process also shortens the review process for authors, thus not placing an undue burden on students who may be graduating and moving on to jobs or graduate school. This unique quality review process contributes to *NSR*'s objective to be a forum for exploration.

Student authors were required to print a form on which they collected nominator signatures and provided key words, a description of the assignment or project, and an optional abstract, as well as authors' names, majors, minors, and year. As students went through the quality review process, and examine their papers to identify key words, brief descriptions, and so on, they were gaining experience in the publishing process that would be of great service in their future efforts to publish other materials, and in their

experiences as readers who rely on such information to search indexes and evaluate the usefulness of an article for their purposes.

The contact information was posted on an "abstract" page in HTML, which allowed readers using search engines available to at NC State's D.H. Hill Library, such as Harvest, to access relevant indexing information regardless of the ability of these programs to search files in PDF format, thus addressing readers' needs for easy access to information.[1] This addressed *NSR*'s objective of being a forum for exploration: developing sound indexing procedures for on-line publications is central to providing reader access. Also, ease of indexing addressed the objective of increasing research resources, by providing readers with access to resources that directly address their research needs.

Posting articles in PDF format also provided quality assurance: an HTML document, due to reformatting, would not be the paper the nominators had seen, but PDF is virtually identical. This seems a simple solution to two general problems associated with electronic publishing: maintaining "design" control across platforms (Fisher, 1996), and citing direct quotations (Fisher, 1996; Lynch 1996). By using PDF the *NSR* both assured a posted copy identical to the approved text, and kept fixed page numbers so that researchers could use traditional citation styles in referring to the articles. This, too, addressed the objective of exploring electronic publication needs.

Another concern, addressed more directly under copyright and fair use (below), is the potential for plagiarism. Using the PDF format decreased the potential for plagiarism because PDF is much more difficult to copy and alter than is HTML. How we as publishers, students as authors, and all interested parties as readers address plagiarism issues is central to exploring electronic publication and its role in the university education system.

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[1] After discussing indexing procedures with library staff, I learned that their Harvest search functions did not support PDF. For this reason, we designed the article presentation for the *NSR* with an abstract page in HTML, complete with searchable metatags, followed by the article itself in PDF format. That way Harvest could search metatags and abstract, while the paper remained "pristine" and with citable page breaks. Acrobat Exchange now allows you to add key words and page description, so this step can be eliminated. However, readers are still having problems with accessing PDF format (difficulties downloading or installing the Reader plug-in, mainly), so an HTML front page is still helpful to introduce an article they may not be able to access directly.

D. Archiving

To publish, authors (for self-publishing) or experimental publishers (those like *NSR* who wish to function as an author training ground) must handle what publishers *and* authors traditionally handle. The pros include less pressure to restrict paper size (Guedon, 1996; Tenopir, 1995) and opportunities for nontraditional authors and topics (Tenopir, 1995); the cons include potentially a lifetime commitment on the part of the author for dissemination, copyright enforcement, and archiving (Wheeler, 1997).

But scholarly authors and experimental publishers are not alone in accomplishing these tasks. Prominent in offering assistance are our libraries. Librarians consider scholarly journals as the scholarly record (Harrison & Stephen, 1995), which research university libraries have a traditional mission to archive for posterity (Kahin, 1996). By so doing, libraries support scholarly communities by providing research support (serials, indexing, reference), and by being the major purchasers of scholarly publications (Ekman & Quandt, 1995; TRLN, 1993).

But there is the irony that libraries suffer most of the cost burden of scholarly publication while providing their services for free. Publishers recoup costs via journal subscriptions that are most often paid by research libraries, yet these same research libraries support, for free, the readers/researchers that generate papers in the first place, for free, for the publishers to disseminate (TRLN, 1993). Under this burden, research libraries today suffer increased costs and decreased purchases (Okerson, 1996).

The increase in electronic publication is adding further burdens to libraries in their goal to archive the scholarly record. Central to this frustration is the fact that publishers are increasing use of licensing fees for access to their electronic publications. But if a database proves to be unprofitable, who will archive it? Libraries can't keep copies unless the license agreement allows it (Lynch, 1996). And even if publishers maintain an archive by virtue of its profitability, and libraries can afford to continue paying licensing fees, these licenses limit distribution (e.g., prohibits Interlibrary Loan) far more than copyright and fair use ever did (Hayes, 1996; Hersey, 1997).

Given the costs and conflict involved in scholarly communication among all parties, suggestions for solutions taking advantage of electronic communication abound.

Most prominent among the suggestions in the scholarly literature is that universities and scholars publish their own work, cutting out the publisher middleman (e.g., Harnad, 1996; Odlyzko, 1996; TRLN, 1993). Electronic publication presents possibilities for easing their difficulties, but also presents new and perhaps equally difficult challenges.

The TRLN Task Force (1993), addressing primarily scholarly journal cost, suggests that research libraries become primary "nodes" and archives for scholarly publication and that the software infrastructure to support this should come not from publishers but from communal decisions of the libraries and scholarly organizations. Such suggestions assume that it will be cheaper for libraries and universities to support authors as their own publishers than it will be to subscribe to journals (Odlyzko, 1996)

How could the *NSR* contribute to this ongoing and sometimes bitter battle? by being a platform for experimentation and research in the electronic publishing field (thus addressing our objective of exploration). The *NSR* was contacted by D.H. Hill Library in the spring of 1997 to discuss our plans for publication. The library's concern was whether the system they had installed to archive electronic publications would be suitable to the publishing type and schedule we were using. As a result of this meeting, *NSR* policies were established to make the library's task, not easy, but easier.

Because the *NSR* is a university publication, the university library has an obligation to archive it. They do so by "mirroring" the site, that is, downloading a copy to their own server at regular intervals, updating their copy of the site. This satisfies their concerns of archiving the scholarly record — the journal is a piece of the record of the scholarly achievements of the university, and so may help demonstrate the university's contribution to education should the need arise. This archiving responsibility effectively shifts the archiving cost from CCSTM, which eventually would have to buy computer space should the journal be successful, to the library, who must supply the computer space.

While I saw no way to eliminate this cost, I could minimize it by not allowing students to alter their paper once submitted, thus decreasing computer time to mirror — the mirror will only copy new issues, not the entire set of issues. Also, should D.H. Hill Library (a member of the TRLN Task Force) wish to actively engage in scholarly

publishing to decrease its subscription costs, the experimental nature of the *NSR* may offer a platform on which to experiment with archiving or indexing procedures, thus contributing further to the goals of the library at no real or apparent cost to the higher profile scholarly record.

E. Copyright and Fair Use

Publishers use copyright to protect their financial investment. Copyright favors the profit-oriented nature of commercial publishing by limiting dissemination to those who are granted user rights. But it is contrary to the fundamental social, sharing nature of scholarly research, and to the "gift culture" of the Internet (*Educom Review* Staff, 1995), whose own beginnings were of a social, nonprofit nature (Fuchs, 1996; Kahin, 1996). The idea that any individual or small group of individuals can "own" an idea created by benefit of the social whole seems contrary to all parties (authors, readers, research libraries, universities, government agencies, public) except the publisher.

A major issue in scholarly publication is the fact that publishers don't pay journal authors, editors, and referees; despite this they still must recoup costs of production (Peek, 1996). They do this usually by selling subscriptions (and advertisements in some cases), and in order for publishers to have the right to copy and disseminate for a fee, authors must assign copyright privileges to the publisher (who then enforces these copyright privileges). Thus, publishers indirectly recoup the cost of the journal from the authors — and often directly as well, frequently requiring authors to pay page and reprint charges (Hayes, 1996). Authors are willing to do this because the prestige of the journal contributes their ideas to their fields and gains them career advancement (Ekman & Quandt, 1995; Harnad, 1996; Okerson, 1996; Peek, 1996). Publishers recoup costs via journal subscriptions that are most often paid by research libraries, ironically: these same research libraries support, for free, the readers/researchers that generate papers in the first place, for free, for the publishers to disseminate (TRLN, 1993). Given such double dipping on the part of publishers, scholars are naturally interested in lowering their costs, and many have turned to electronic publishing as a way to do so.

This conflict has become direct on the Net, an area that until recently has been populated mostly with volunteer publishing (see, e.g., Ekman & Quandt, 1995; *Educom Review* Staff, 1995; Harrison & Stephen, 1995; Stoller, 1992; Wilson, 1991). In 1991 an Elsevier vice president said that large publishers did not yet see potential markets on the Net (Wilson, 1991), perhaps because major obstacles had not yet been overcome. For example, to recoup costs of electronic publishing, publishers are now turning to licensing agreements similar to those used for computer software (Martin, 1997). But because licensing agreements override copyright and fair use, publishers are able to put stricter limitations on sharing of publications than ever before (Hersey, 1997). This increases the conflict between public access to knowledge and recouping publisher cost/investment, and may challenge copyright and fair use — the only "rules" shared by both print and electronic publishing — even further (Martin, 1997).

Many publishers handle these details for authors, and many authors hand over their copyright to publishers in exchange for the service. However, the *NSR* allowed students to keep copyright of their work. As the *NSR* did not need to recoup costs by selling licenses or redistribution rights, there was no reason not to allow authors to retain copyright, with one exception, in the area of marketing. For *NSR* to achieve and maintain visibility, any requests to reprint or reuse of articles should be strongly encouraged. But only copyright holders, in our case authors, have the right to allow that. Hence, the journal posted author contact information (email address) on the abstract page for others who may wish to ask for copyright permission. In this way we were not only experimenting with issues in on-line publication, but also increasing student experience with publishing as they address decisions whether or not to allow reprints.

NSR would also scan the articles for copyright and fair use violation. This latter is in effect the only direct editorial contribution made by *NSR* staff. While *NSR* would not be able to recognize plagiarism issues (unattributed direct quotes, unattributed indirect content use, etc.), *NSR* could advise on correct attribution in many cases where students simply weren't aware attribution is called for (e.g., using direct quotes without giving full source citation, use of photos and other graphics, etc.). Thus we again contributed to their experience in publication.

The *NSR* relied on university facilities to perform both these tasks (copyright issues and reprint contacts): D.H. Hill Library was at that time in the process of establishing a scholarly publication center and already had personnel who could advise on copyright issues, and they freely expressed their willingness to assist. The university alumni database will assist anyone seeking copyright permission from authors who no longer had university email addresses (i.e., graduates). Also, to minimize the mirroring tasks of the library, changes of address would not be posted on an article's abstract page; rather, we planned to post a "date available" next to the authors' email address, and provide a link to the university alumni office on the journal homepage for those who seek authors no longer at the university. In this way we increase visibility of both the university library's services and the alumni database.

F. Experimental Nature of NSR

Aside from the many experimental approaches discussed in the above sections, the *NSR* was a platform for experimentation in many other ways. Stoller (1992) comments that electronic journals should not copy too closely their paper cousins, or they'll run the risk of losing some of the new electronic potential. The *NSR* ran this risk by using PDF format to present the papers themselves in a form virtually identical to paper copies. But not only did it maintain an experimental outlook by virtue of the HTML pages that preceded the article itself; the *NSR* also departed from paper serials by publishing articles as they arrived rather than waiting for a set number of articles or pages before disseminating them, but yet it still kept volume designation (based on academic years).

The *NSR* was also generally experimental in nature by offering undergraduates the potential to publish in a multidisciplinary undergraduate-only publication, which to my knowledge had no precedent except for undergraduate research conference described in Chapter 1. Without the benefits of decreased costs via electronic publication, and preexisting electronic infrastructure at the university, producing such a journal would likely be prohibitive. Thus the *NSR* was an opportunity to explore the promise of electronic publications for the future.

Wilson (1991) comments that for an electronic journal to survive it must be better in some way than paper journals. The *NSR* offered the potential to be better than a paper version not only by being less expensive to disseminate but also by providing search access via its HTML abstract pages, and by virtue of its experimental approach to article production. By relying on faculty to act as reviewers, and limiting production staff input to copyright advising and receiving and posting articles, the *NSR* might have demonstrated the extent of cost savings in electronic publishing, and thus contribute to efforts of other, higher profile journals that wish to remain within the hands of the university or other "volunteer" members of the gift culture.

A further experimental goal was the potential of the *NSR* to contribute to the pedagogical efforts of faculty teaching undergraduates. Faculty could conceivably have used articles in the *NSR* to show other students examples of excellent research — clearly outlining expectations and increasing opportunity to teach by example, thus expanding the tools that teachers have to work with.

Last but certainly not least, as with most experiments, the projected outcome of the journal as a self-sustaining contribution to the undergraduate experience was a hypothesis to be tested. How well this experiment turned out depended not only on the contributions we received, but even more so on the willingness of volunteer or paid labor to keep the journal going after my graduate tenure at NC State was completed.

None of these goals was accomplished, not because the journal process was ill conceived, but because this extensive classification of issues in electronic publication overlooked the critical point that participation depended on how well the journal addressed the current needs of its own, particular audience: the students and teachers, foremost, and administrators and potential volunteers who would look to the journal for career, teaching, and university advancement. While the issues identified in the literature search were and still are valid concerns, the time would have been better spent gathering feedback from the audience, as it is their participation that is critical to any document's, and especially any interactive communication environment's success.

CHAPTER 3 BACK TO CONTENTS