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An Online Journal as a Virtual Learning Environment: The Case of the *Teachers College Record*

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Introduction

The *Teachers College Record* is an academic journal that has been published by Teachers College at Columbia University since 1900. For most of its first ninety-five years the journal appeared in print on at least a quarterly basis. During that time it has featured the work of most of the leading names in the field of education and educational research, including early papers by Edward L. Thorndike (e.g., 1901), John Dewey (e.g., 1914), William Heard Kilpatrick (e.g., 1918) and more recently articles by David Berliner (e.g., 1997), Michael Apple (e.g., 1993), and Maxine Greene (e.g., 1994), among many others.

Over the years the journal has taken seriously its mission as a vehicle for education. In its earliest volumes the journal published original syllabi drawn from courses in such areas as the principles of education (Butler, 1900), the history of education (Monroe, 1900) and school administration (Sutton, 1900) offered as part of the curriculum of Teachers College. The journal has also coordinated its publishing program with various workshops and colloquia in conjunction with degree and non-degree programs at the College. It has published sets of papers and special issues derived from conferences and special educational events. Throughout its existence the journal has sought to maximize its educational impact.

In this article we report on recent efforts to extend the educational impact of the journal through online publishing activities. We begin by reviewing our early attempts at establishing an online presence for the journal. We then consider the impact of developments in academic publishing, the changing online experiences of readers, and our educational goals on the design of our current online journal site. We discuss the current publishing site in detail and examine data on user patterns over the past several years. Finally, we outline the major features of a next generation publishing site designed to enhance and expand the educational program of the journal.

Early Efforts at Publishing Online

The 1990s marked the beginning of efforts to produce fully online academic journals. As the decade progressed there was a remarkable growth in the number of journals publishing online. In the early nineties most online efforts made use of electronic networks to distribute papers to defined lists of readers. Following the advent of accessible browsers and the explosive growth of internet use, this gave way to publishing papers on the web. The Association of Research Libraries began tracking online journals in 1991 with the publication of the *Directory of Electronic Journals, Newsletters and Academic Discussion Lists*. The 1991 edition included 110 electronic journals and newsletters. The number of entries grew to 240 in 1993, 675 in 1995, and 3400 in 1997 (Mogge, 1999).

In the field of educational research perhaps the best example of an early electronic journal is the *Educational Policy Analysis Archives (EPAA)*, an online journal started in 1993 as a listserv and later moved to gopher and then to the web. The *Educational Policy Analysis Archives* had 800 subscribers within three weeks of its founding, and by

1994 it was being accessed by over 600 readers each weekday (Glass, 1994), a number that continued to grow throughout the 1990s (Glass, 1999). Although *EPAA* was publishing online early in the 1990s and attracting readers, established print journals in education were not yet moving online.

In the mid nineties with the emergence of opportunities for online publishing made possible by the internet and the world wide web, we decided to take advantage of new online publishing and communications tools to pursue the original educational mission of the *Teachers College Record* in new ways. We viewed the online environment as offering new means to reach those scholars, researchers, and graduate students who had been the traditional audience for the journal. We also anticipated that publishing online might allow the journal to expand somewhat beyond its audience of scholars to reach educators and even the general public.

Although the history of the journal as a deliberately educational vehicle provided both some orientation and a rationale for our efforts to move online at a time when educational offerings were moving in the same direction (Lewis, Snow, Farris, & Levin, 1999), along with that same history came a sense of tradition that made it difficult to depart from what had become a rather standard pattern for an academic journal. As we considered our initial move online we confronted resistance from our editorial board of established scholars in the field and from our readers, who as of 1995 did not have much experience with online journals. Indeed, if we had polled our board and our readers in 1995 about whether we should move the journal online, we would have received either blank stares or outright warnings of the dangers of devaluing the entire journal enterprise. Perhaps most importantly, we had concerns that our authors would be reluctant to submit manuscripts to an online journal, both because they considered online publication less legitimate and because they feared that promotion and tenure committees at their institutions would think likewise in evaluating their work (Kling & Covi, 1995; Sweeney 2000).

We began publishing online in the most limited way. Our first online site for the journal consisted of the name and contact information for the journal along with some basic information on how to order a subscription by calling the journal office. At the time this seemed like quite an accomplishment, but, of course, we quickly grew discontented with our single page and decided to try to do more.

Our second online site had multiple pages and included tables of contents from recent print issues together with abstracts of at least some of the articles. It also included detailed directions for authors interested in submitting materials to the journal. The design of the entire site reflected the design and organization of the paper journal. We did implement one feature at this point that reached out to authors by allowing them to consult a page listing all papers under review by an identification number along with the status of the number of external reviews completed. This allowed authors to interact with the journal through the online site and reduced the number of phone calls or email messages coming into the editorial office.

For a time we built on this basic site by adding new tables of contents and abstracts whenever a new issue of the print journal was released. Perhaps more significantly, we added a new feature that listed basic information on the major journals in education as a resource to authors who wished to find the right outlet for their work. This marked a departure for the journal because we became a conduit for authors to reach other journals and for the first time we offered something other than our exclusive content.

At this same time we made a decision to begin putting the full text of the lead article from each print issue online at the time the print issue was released. This generated greater interest in our online site, and the immediate response of readers was to ask for more full text content online. We investigated offering both more current content online and the possibilities for bringing articles from past issues online as well. In retrospect, both moves seem like straightforward decisions to give readers what they want and need, but in 1996 things were not so clear. Members of our editorial board and others at the College questioned the wisdom of offering full text articles online without charging while we were trying to increase revenue from our print product.

In the spring of 1997 all of our efforts to add content to our online site resulted in another redesign that became our third online site in as many years. This version looked and felt more like the print journal than anything we had done online in the past. Readers were able to page through tables of contents of each issue and read the full-text of lead articles, editor's columns, and all book reviews. Although the model for organizing the online site was the print journal, about this same time we began to redesign the print journal based on what we were learning from our experience with the online journal. The best example of this impact of publishing online was the redesign of the table of contents for our print journal to include short descriptions for each article in the issue. These same short descriptions were first added to our online content pages to give readers an easier way to learn about our content before clicking on the link to move to the abstract or the entire article.

In the summer of 1997 we embarked upon a major project of producing a cumulative index for the journal since its inception in 1900. We had always had an appreciation of the history of the journal and its unique role in publishing the major voices in the field in the twentieth century. However, prior to the advent of the web and the opportunities for online publishing we had never had a real opportunity to capitalize on the extraordinary collection of materials published over the years. Once we began publishing online we quickly realized both that the online environment can require vast quantities of content in order to generate sufficiently broad and valuable resources for readers and that we had such content in the historical archives of the journal. This all came together in the cumulative index project in 1997. Once the index was completed, we quickly configured it so that readers could search it online from our website. Of course, putting the index online only served to highlight just how far we had to go to get even a fraction of the journal's past content online in full text. The growth of our online content also placed a new set of problems before us. Up to this time we had been relying on the organization of the print journal to orient our online publishing efforts. By 1997 our online site looked as much like our print journal as we could make it. But, it was clear that our plans to

publish more new content online as well as to make more content available from the archives would require a totally different approach to organizing our efforts on the online site.

In the summer and fall of 1998 and the winter and spring of 1999 we worked on creating an entirely new approach to publishing online. This time our site reflected not the organization of the print journal, but the orientation of the growing number of online sites in all areas. We designed the site to meet the needs of readers to move through large number of articles and in so doing, we jettisoned the use of issues of the print journal as an organizing device. Instead, we created a home page that displayed content drawn from different sources, including, new online only articles, book reviews, articles from the current print issue, and related articles from prior print issues. We also added a set of new online only features including, calls for papers, an opportunity for readers to join our email list to receive email updates, an online advice column for graduate students, a feature that highlighted an educational research site of the week, a feature noting new journals added to our journals database, and announcements of recently accepted papers that would be forthcoming in the print journal. This new online site, our fourth major design, was deliberately livelier, more engaging, and more oriented to the online environment. Most importantly from an editorial office standpoint, we promised to publish online weekly, a dramatic change from our quarterly print schedule and our infrequent updating of our earlier online sites. We launched this site after many months of work in the fall of 1999. It generated great interest among our readers and generally positive responses. Almost immediately, we began to see new ways to improve this latest version of our online site.

Our early efforts at online publishing were experimental in all senses. We clung tightly to our print journal for its format through most of the early website designs. We also clung tightly to the print journal both for the legitimacy it offered our authors and for the revenue stream it provided to support our editorial activities. Even through most of 2000 we never made a commitment to continuing our online publishing activities. By the time we did make such a commitment with the launch of our fifth online site in November of 2000 we acted because we understood not only that online publishing met the needs of our readers (Vrasidas, 2000), but also because it had become clear that our online presence was largely responsible for raising the profile of our entire publishing effort and for increasing the number of high quality manuscripts submitted for our print journal. The online site had become an integral and essential part of our publishing program. By the fall of 2000 we had ceased to be a journal with a website; from then on we were a publisher with both online and print products.

Influences on the Development of TCR Online - 2000

As it became clear that the *Teachers College Record* would become a permanent online publishing operation, we focused even more intently on ways to make our online efforts truly educational. Our goal was to create an online site where readers would have an opportunity to learn something at each visit. By this time our planning for the next generation of the online publishing site was influenced not only by our growing

appreciation of the educational opportunities available to an online journal, but also by changes in academic publishing, and changes in the experiences our readers and the general population were having online.

Emerging Forms in Academic Publishing

Our commitment to permanent online publishing was made in the context of major forces affecting academic publishing in general at the turn of the century. These forces included the growing costs and growing number of academic journals, the declining individual subscription base for many journals in education, the growing resistance of institutional subscribers such as academic libraries in the face of stable or shrinking budgets, the development of online journals in a range of fields, and the realization that scholars were taking advantage of other means of communicating the results of their work to colleagues. Each of these shaped our understanding of the challenge of developing a successful online journal.

The growing cost of academic journals is a widely recognized problem confronting higher education (e.g., Association of Research Libraries, 1998; Born & Van Orsdel, 2001). This problem is felt acutely by libraries forced to deal with a 207% increase in the price of journals between 1986 and 1999. The problem of the rising costs of existing core journals is exacerbated by the growth of new journals in virtually all areas of scholarship as each specialized group seeks a means to communicate its work to those both in the specialized area and those outside the area. Between 1986 and 1999 the number of journals increased by 55% (Smith, 2001). Library budgets are failing to keep pace with both the increase in journal costs and the growth in the number of available journals.

In the face of growing costs and the growing number of journals, some librarians and campus leaders have called for various new approaches to cost-control (Association of Research Libraries, 1998). Suggestions include pressuring commercial publishers to contain costs (Kiernan, 1999), weighing in on decisions regarding the issue of mergers among the already small group of academic publishers (McNabe, 1998), the creation of new alternative journals based in universities and libraries that have lower subscription rates (Kiernan, 1999), and the use of online publishing technologies to reduce at least the cost of producing a print product (Association of Research Libraries, 1998).

Although online publishing has been viewed as means to contain or reduce the costs of academic journals, a number of analysts have argued that publishing online or in print does not affect the cost of producing a journal. These analysts point out that a large part of the cost of any journal lies in the editorial work to prepare manuscripts for publication, and these costs are typically not affected in a substantial way by the shift to publishing online. However, these analysts have typically not devoted sufficient attention to the costs that institutions such as libraries must bear in making print journals available to patrons, costs not associated with online journals (Odlyzko, 1997). These include staff costs for processing print products into a catalog and checking to make sure that all physical print issues are delivered as well as costs for binding annual volumes and

placing and replacing them (after use) on library shelves. In addition, online subscriptions do not require library shelf space, shelf space that is becoming more expensive and less readily available as library collections grow. Thus publishing academic journals online offers a number of efficiencies for libraries that are hard to resist. Many libraries are now moving as quickly as possible to subscribe to online journals as a way to reduce processing and storage costs even if publishers are maintaining basic subscription fees.

The movement of academic journals online, driven by library needs, has resulted in a fairly direct translation of the standard journal format to the online environment. The vast majority of print journals moving online are offering their regular content in the regular format, often through pdf files that present the exact images of the articles that might appear in the print version of a journal. These files are collected in large repositories by companies that publish large numbers of journals. The databases of journal content are offered to subscribers for fees that track the regular subscription fees, sometimes a bit more for combined print and online versions, sometimes a bit less for the online version only. The organization of these databases allows readers to access an entire collection of journals for articles on a subject, but at the individual journal level, the articles are organized through traditional volumes and issues with tables of contents that mimic the print versions. Despite the online availability of journals that published exclusively in print in the past, there has been a notable lack of innovation in the use of online tools as these journals simply seek to replace print issues with online issues to meet the needs of libraries.

While print journals have moved online in a rather traditional format, new online only journals have been a bit more innovative at times in exploiting the advantages of the online publishing environment (Vrasidas, 2000). These journals often invite authors to make use of new online technologies to make more extensive use of graphics and simulations. They also often depart from the rigid publishing schedule, formerly dictated by shipping needs, to release or publish articles individually when they are ready. Despite efforts to utilize online opportunities, most online only academic journals still mimic the form and functions of a traditional academic journal. Our own experience leads us to suspect that one reason they maintain journal conventions is because radically divergent approaches raise questions of legitimacy that create problems for academic authors seeking favorable tenure and promotion reviews.

Changing Online Experiences

While we were influenced by developments in academic journal publishing as we designed the fifth generation of the TCR online site, we were also influenced by the changing online experiences that our readers were encountering as general users of the internet. By 2000 when readers of TCR went online they encountered sites that promised broad and deep collections of materials, whether those materials were consumer goods, news stories, or more specialized properties for niche audiences. They also were increasingly likely to find opportunities to interact with other readers or with the purveyors of the online fare. This interaction included opportunities to voice opinions

about products as in the readers' reviews of books on Amazon.com or the critiques of electronic products on CNET.com. In fact, entire sites such as Epinions.com were devoted to the opinions of users.

In addition to broad content, choice, and opportunities to voice opinions, our readers were also increasingly likely to encounter content personalized for them individually. Sometimes the personalized views were created automatically as in the pages of related materials offered by Amazon.com. At other times the personalized views were deliberately selected by users as in the case of hometown weather reports offered by MSNBC.com. Online sites also began coupling content with a range of services as in the case of the greeting card site Hallmark.com that offered to maintain a list of important dates and remind users when they needed to send cards.

The evolving online sector was evidencing what Hage and Powers (1992, p. 60) had noted as the characteristics of post-industrial society, namely, a focus on "customization, quality, and innovation" in the services delivered to increasingly well educated and discerning consumers. This focus on the consumer of online products introduced a new challenge to our publishing program if we wanted to find a broader audience for educational scholarship. We had always catered to authors and sold primarily to other scholars, but the web made it possible to reach an entirely new kind of audience. That audience, however, was becoming accustomed to entirely new levels of service every time they went online.

Educational Perspectives to Guide Online Publishing

Our interest in reaching beyond our traditional audience of scholars was driven only in part by the possibilities afforded us by online publishing. Perhaps more important was our historic goal of educating the broader public about the promise and possibilities of education. In considering our educational mission we sought to embody a certain set of educational principles long associated both with the journal and with Teachers College, contributed by scholars from Dewey (1938) to Cremin (1976)

First, we viewed ourselves, along with our authors, as teachers with something to teach or convey to the broad audience of students of education. Thus, we sought to maintain a strong voice for authors and for the editorial team. Moreover, we sought to ensure that the teaching functions of the journal would drive its technical development and not the reverse. This meant that we would evaluate each new technical opportunity from a teaching framework. If a newly possible practice contributed to effective teaching and learning, we would consider adopting it. If a new technical possibility contributed little to the creation of a better teaching environment, we would shun the investment of scarce resources. So, for example, we would be more inclined to invest in better editorial development of content than in flashy display technologies that communicated less well than simple text presentations.

This emphasis on quality teaching and investing in authors was a particularly important issue at a time when the role of the author was being diminished in some online venues

and when the role of the teacher was being decomposed and parceled out as numerous online educational operations sought to divide the labor of teaching and assign it to actors in diverse roles, including content developer, instructional designer, platform presenter, etc. (Noble, 1998; Burbules and Callister, 2000). As part of our effort to reinforce the primacy of the teacher or the author of material on the journal site, we redoubled our efforts to make the journal experience congenial to authors and their interests and to provide opportunities for authors to engage with readers. We remained on the watch for opportunities to highlight the role of authors.

Interacting with readers or learners was the second major aspect of our approach to education through the online journal. Editing a print journal for which the print production and shipping processes meant that months would elapse between the time an article was edited and the time it arrived at the offices of readers left little or no immediate opportunity for serious interaction with readers. Despite an occasional letter to the editor or more formal response to an article, the level of interaction with readers was minimal. Moving the journal online opened up the possibility for more immediate and more regular contact between authors and readers and between the editorial team and everyone else involved with the journal.

Increasing opportunities for interaction was consistent with long held perspectives on the importance of interaction and engagement to create the conditions necessary for effective teaching and learning, perspectives that had been reflected in early articles in the journal itself (Dewey, 1914). Moreover, the importance of interaction and engagement for learning has found increasing support in contemporary work on cognition (Bransford, Brown, & Cocking, 1999; Pea, 1994; Resnick & Klopfer, 1989). Accordingly, we sought to engage in lively interaction with the readers of the journal and hoped that the readers would become co-creators of the online publishing effort.

Third, in pursuit of the first two principles, we were prepared to share control of the online journal not only with our authors but also with our readers. Ideally, our readers would join with us to construct the online journal in a more immediate and interactive way than had ever been possible with the print journal. We hoped to create an online community (Rheingold, 2000; Hafner, 2001) of those interested in education and educational scholarship. We anticipated that such a community of practice (Wenger, 1998) focused on evolving scholarship in education would lead to powerful learning experiences for all concerned, including the journal staff.

The Design of TCR Online

To pursue our educational goals for our online publishing effort we designed an entirely new online site. This site drew on recent developments in online academic journal publishing, on emerging conventions in online sites in general, and perhaps most importantly, on our educational goals. Because it was our educational agenda that had the most influence, we discuss the design of the publishing site in terms of central aspects of the educational enterprise. Bernstein (1975) identifies three such aspects – curriculum, pedagogy, and assessment. We begin by considering curriculum and pedagogy in the

design of the site and then move to a discussion of how the operations of the editorial office allowed us to assess reader responses.

An Expanded Curriculum

As a long established academic journal we had a clear conception of the content or the curriculum of our educational enterprise. For nearly 100 years we had published the very best scholarship in all areas of the field of education, and we would continue to do so as we moved online. But publishing online allowed us to do something that we could never do in print; it allowed us to make available simultaneously all of the content that had ever been published in the journal. Over the century that the journal had been published, over 10,000 articles had appeared in its pages, and any of this could now be available to the editorial team and to our readers.

Having the entire corpus of TCR materials online opened up several exciting new educational possibilities and posed a few problems as well. First, the accessibility of the material from earlier issues allowed any piece of content to be shown in a related content area of a page on which a new article appeared. This convention had arisen in general online sites, but it seemed particularly suited to our purpose of showing readers how new articles built upon or departed from earlier work. We anticipated that this would allow readers not only to learn from individual articles, but from the relationships the editorial team discovered between new material and older papers. For the first time in the history of the journal, we were able to demonstrate the intellectual heritage of a paper or set of ideas by reminding readers of earlier work and then taking them directly to the full text of that work. This allowed us to emphasize the connected nature of knowledge.

Second, the availability of potentially every paper ever published in the journal allowed us to think very differently about grouping papers across issues and even volumes to create thematic special issues of papers published years or even decades apart. In creating special issues in the print journal we often struggled to get just the right set of papers in a limited amount of time to produce an issue. By drawing on both our archival materials and the latest papers online, we were able to exercise much greater editorial discretion in assembling sets of papers. This allowed us to reveal different aspects of paper by embedding them in different knowledge contexts.

Along with the new possibilities came at least two new challenges associated with the large collection of published articles. First, since digital files were not available for most of the papers published in the print journal, such files would have to be created each time we decided to use an older article online. We approached this challenge by securing funds to digitize articles from the most recent twenty years since these articles were the most in demand. For articles published even earlier, we developed an on-the-fly system for digitizing an article whenever we had an editorial need to use it. This allowed the editorial team to use the entire online catalog to find related materials and then request digital copies to be placed on line.

A second challenge of working with the large number of articles from the history of the journal was to develop a way to make this content archive accessible to readers. By linking from current articles to older materials we could direct readers to selected pieces from the past and by assembling online special issues we could attempt to teach the intellectual heritage of an idea. However, in keeping with our educational goal of sharing control over the content and its presentation, we needed strategies to allow readers to access the content in response to their individual needs.

By the time we designed our site, there had been plenty of examples of sites using search engines to allow readers to seek content by topic or theme, and so we quickly decided that our new journal site would have both a quick search and a more complex advanced search function readily accessible on the home page. This strategy addressed at least part of our goal of giving readers control over content.

With special online issues and links from new papers to older ones, we had succeeded in giving the editorial team control over the presentation of materials on the new site. With the quick and advanced search functions we had succeeded in giving readers control over materials as well. But we felt that we needed something in between these two options that would allow for sharing of control.

We arrived at a design solution that we eventually labeled as a set of edited “content collections” on the journal home page. These collections brought together different types of materials all related to a certain topic or theme. The set of content collections grew to over seventy during the first two years of the online site; examples include collections in alternative assessment, adult literacy, educational psychology, urban education, and technology in the classroom. Each collection includes TCR articles and book reviews, related journals that publish on the topic, related research centers, articles available on the web on the same topic, new books on the topic and a discussion board to hold the comments of readers on the theme of the collection and the materials that appear in the collections. To organize the set of collections we devised a small set of 18 major headings that cover most aspects of scholarship in education.

Creating the set of content collections required us to survey the field and make some editorial decisions about which topics were major ones and could serve as organizing areas for the collections. It also required us to designate the collections themselves. This forced us to make many editorial decisions regarding what was important for readers to focus on in examining the archives of TCR. These are not final decisions, and it is clear in discussions with our editorial board that different scholars might devise different sets of collections.

By featuring the content collections on the journal home page we provided readers with another point of entry into the large archive of material from the journal as well as related materials from other sources identified by the editorial team. Readers were able to begin with a collection close to an area of interest and then delve into the various resources as they saw fit. In effect, each content collection page becomes a new home page of the journal organized around a new theme.

A New Pedagogy

As we found ourselves in the midst of designing the new online home for the journal, we also found ourselves developing a new pedagogy suited to the online world. This pedagogy began with the look and feel of the site and extended to the arrangement of content on pages and the scheduling of the home page. The online site gave us the opportunity to orchestrate the entire environment to achieve our educational goals.

We began inevitably with the look and feel elements of the online site, those design features that would characterize the journal in the online environment and immediately let web surfers know that they had found us. Having only recently redesigned the print journal, we were reasonably well versed in the issues of design, but the online world presented some new challenges. We had to balance the need to position ourselves among the new and somewhat experimental online publications and general sites while retaining some connection to our heritage as an academic journal. We had witnessed other publications with long histories struggle with the same tension. For example, the *New York Times* had begun publishing online by providing readers with an exact replica of its traditional front page in a downloadable graphic file, but soon moved to a quite different but more web appropriate design that was consonant with the feel of the print product while making good use of the online venue.

The design we arrived at organized the home page in three columns with new features at the top of the center column, new book reviews at the top of the left column, and utilities for interacting with the journal on the top right. Further down the center column readers could find our list of content collections, and a community bulletin board occupied the lower portion of the left column.

The design was deliberately fashioned to avoid looking like our traditional print journal table of contents since we would not be using volumes and issues to organize material online. The design was also deliberately text-heavy compared to other online sites since we wanted to maintain the primacy of text to reinforce the authoritative and somewhat traditional approach to academic work represented by the journal. As one of our students noted, we looked “more like the *Wall Street Journal* than *People Magazine*.” The home page had only one graphic in the masthead to identify the journal site clearly and consistently.

The design was deliberately simple with none of the bells and whistles that were appearing on other online sites at the time. This strategy was designed both to keep technical wizardry from overwhelming the content and to make our site accessible to the broadest possible audience, particularly those with slow connections and without multi-media computers. The design of the look and feel of the online site was a deliberate attempt to convey our first lesson that the journal was a place to come for ready access to the best content in education and educational research.

The focus on the content or the substance of the journal was conveyed also through the way each content page on the site was designed. Each article appeared in the large center column of a three column page. This signaled again the central role of articles. The title of the article appeared at the top of the center column, followed immediately by the name of the author and his or her institutional affiliation. Beneath the author and affiliation line were two links, one to a short biography of the author and the other that popped up a window with a form to send an email message to the author. We hoped to encourage dialogue among readers and authors by making the email process an integral part of the page on which the article appeared.

In the left column immediately adjacent to the main body of the article were various kinds of related materials: related articles from TCR, related content collections, and related books. These related materials provided the intellectual context for considering the focal article and each entry for related materials was a link to take readers directly to the related pieces.

On the right column on each article page were a set of tools for working with the content. These included a utility to send a link to the article to a colleague. This kind of utility had started to appear on other online sites, and we believed that sharing our articles among colleagues was a key part of enhancing scholarly communication. We also believed that it would help expand the base of readers for the journal. Also included in the right column was a utility to allow readers to create a printer ready version of the article. This version created a page with only the article without the TCR masthead and the related content and tools columns. We hoped that readers would use this utility to create printed copies of TCR articles for use in class or for their own files. Finally, the right column also offered readers a link to a discussion board for the article. The discussion board held comments from any and all readers who wished to react to the piece in question. Since encouraging interaction among readers was one of our educational goals, we hoped that offering readers online space to comment would generate online discussion.

We believed that the online journal would allow for much greater interaction among the editorial team, the authors, and the readers of the journal. A key aspect of our approach to encouraging such interaction was a fundamental rethinking of the timing and parceling of our content. For our print journal we had been limited to publishing 6 to 8 articles in issues sent by mail four times each year. When we approached online publishing we had an opportunity to re-think both the way we packaged our content and the frequency with which we made it available to readers.

The tremendous flexibility afforded in the online venue was both liberating and confusing. We had no guidelines to help us think about how often to publish new content or how to organize it. Certainly, it made little sense to replicate our print schedule and issue structure. We approached the question with our educational goals in mind. We wanted to engage readers with each article we published. We began to think in terms of lessons and finally decided that each article was in some sense a single lesson. With this in mind we decided to publish one new feature article at a time and later decided to

include several book reviews as well. This seemed like enough to attract readers but not so much that they would find themselves unable to make their way through the material in a reasonable amount of time.

We also had to decide on a publishing schedule. We had published our print journal four times each year, but online publishing allowed us to publish as often as we wished. We could publish quarterly, monthly, weekly, or even daily if we chose. To arrive at a schedule we tried to imagine a typical reader and asked ourselves how much time a reader interested in education and educational scholarship might devote to any single publication. Our best guess, and it was literally a guess since we had no hard data to guide us, was that a faithful reader could not be expected to peruse our journal more than once or twice a week at the most. We also believed that publishing less than once a week online would allow the journal to fade from the readers' minds or easily drop from their set of habits.

With these considerations we decided to publish new content online once each week. This allowed us to feature a single article and a few book reviews. By featuring a single article, each of the articles we published became the "lead article" for a week. This allowed us to focus reader attention on the lessons to be gained from that article. We released a new edition with a new feature article every Monday.

We also decided to create a second weekly edition that would highlight sets of articles from our archives. This edition, which we designated as the "weekend" edition, was released every Friday. This second edition gave us another opportunity to focus reader attention on the rich collection of previously published material.

With our strategy of publishing new content every week in place, we decided to add one more element to allow us to reach out to our readers in an active way. We launched a weekly email newsletter designed to remind readers of the journal and to introduce them to the new articles appearing that week. This newsletter gave us another opportunity to teach readers by focusing their attention on certain aspects of the new papers being released. The newsletter became an additional set of "mini-lessons" designed to compete for reader attention in a very short amount of time. Although we always thought of the newsletter as an important element of our online publishing effort, we did not fully appreciate just how important it was until we learned from the comments of at least some readers that they valued the newsletter alone and seldom or never visited the journal site to get more detail on the topics covered in the newsletter.

In addition to the regular weekly publishing schedule and all of the related content, content collections, and resources, the online journal has given us unanticipated opportunities to engage readers in special educational events. Three such events illustrate just some of the possibilities for enhancing the educational impact of the journal.

When we launched the redesigned journal site in the fall of 2000 we were also offering a course in educational policy at Teachers College in both campus-based and distance learning modes. The lectures for this course were delivered by a diverse group of faculty

at the College, and the course served as a general introduction to the field of policy. The lectures were transcribed and digitized to make them available to the students in the distance learning section of the course and as a reference tool for students in the campus-based section. We also offered the set of lectures as new content on the online site for the *Teachers College Record*. We treated the lectures as articles with multi-media components and encouraged readers to respond to the lectures using the integrated discussion boards on TCR in the same way we encouraged students registered for the distance learning section of the course to discuss the material on the online course site. This experiment in online learning as part of the online journal proved popular for readers and suggests the possibilities for additional educational experiments with a hybrid journal-course format.

A second educational experiment was launched for the holiday season between the fall 2000 and spring 2001 semesters and has been repeated annually. Each holiday season we have devoted several weeks to featuring materials related to a major figure in the field of education and educational research. One year we focused on John Dewey and published papers by and about John Dewey from the TCR archives. In subsequent years we have done the same thing focusing on Edward Thorndike and Maxine Greene. Each of these experiments has generated reader interest and attention during a normally quite time for academic publications.

A third experiment illustrates the power of seizing the teachable moment through rapid online publishing. In the immediate aftermath of the attacks on the World Trade Center and the Pentagon, we understood the great need of educators to make sense of the tragedy and help their students deal with it as well. We quickly posted a call for papers on the responses of educators and the educational system to this national emergency. As part of this call we included a call for educators to submit examples of the artwork and writing of students in response to the attacks. While we waited for our readers and authors to respond to the call, we also put online a series of articles from our archives dealing with the responses of educators to World War II in the aftermath of the attack on Pearl Harbor, the last major surprise attack on the United States. These articles dealt with the full range of issues that were strikingly parallel to those arising after 9/11. One of the lessons we took from this experiment is that the value of our archival materials can rise rapidly as new events occur for which they carry special relevance. There was probably no other time in the last few decades when the papers on educators' responses to World War II would have gained such careful attention, and we happened to have the materials and the means to republish them online.

The design and operation of our online publishing platform has allowed us to advance our educational goals. We have done much more to allow the editorial team to reach out to readers. We have seized new opportunities to use all of the assets of the journal to enrich the conversation about educational scholarship and practice. We have found new means to share control of the journal with its readers and to engage them in the publishing effort.

Integrating Submissions and the Automated Editorial Office

We have already discussed doing many things online that we were not able to do with our print journal. Indeed, since we began regular online publishing at *Teachers College Record* we have done much more than ever before. We have published more content more frequently and provided more related resources in more diverse formats. We have done this by working harder to some extent, but we have also used our online publishing platform to achieve productivity gains in the operation of the editorial office.

When we launched the online publishing platform in the fall of 2000 we also moved our entire editorial operation online. We began requiring authors to submit all papers online, and we started handling all correspondence with reviewers online as well. From the time a paper is submitted, throughout the review process, and up to and including publication, all processing is handled on the computer desktop. This system also provides a complete record that allows us to track each manuscript at every stage in the process. The result has been a large gain in our capacity to receive, review, prepare, and publish papers with a smaller staff than we had before we began publishing online.

The integration of all journal operations through our online publishing platform has also allowed us to address problems that plague many academic journals. First, we have used our online publishing program to solicit manuscripts more widely than ever before. We provide complete and easy online directions for any author interested in submitting a manuscript to the journal. We also use the online site to issue special calls for papers. The fully online process reduces submission costs for authors who no longer need to make multiple copies and pay for postage to submit manuscripts. This has led to a dramatic increase in the number of papers submitted annually. In particular, we have received many more papers from authors outside of the United States than we did before we began publishing online.

A good illustration of the effectiveness of using the online platform to solicit content for the journal comes from our efforts to expand the number of book reviews we publish. To develop a list of potential book reviewers, we put out a call for book reviewers on the online site and asked those who might be interested to complete a brief survey describing their interests and their expertise. We also gave them the option of providing a link to their online vita so we could understand their background more fully. Over 1200 individuals volunteered to become book reviewers in response to this call, and we have been able to invite many of these scholars to become book reviewers. This has allowed us to involve individuals who might not have been involved in the past.

A second problem addressed by the online publishing system is the need to find and invite experts to serve as reviewers for the manuscripts submitted. Because our entire readership is registered in our member database, we are able to identify a large pool of qualified reviewers. We can query the database on any topic and find scholars with appropriate credentials to invite to become reviewers. The invitations are sent from the online platform, and reviewers can accept or decline our invitation and then, if they have accepted, download the paper at their convenience. After they have read a paper they can submit the review again using the online system. By using an automated system for

finding and inviting reviewers, we have been able to expand dramatically the pool of individuals involved in the review process.

The system tracks all manuscripts and all reviews and presents them to editors upon request. Editors can use the system to communicate decisions to authors, and authors can follow-up by submitting revised versions for publication. The system incorporates the copy editing process, and the copy editors retrieve manuscripts and submit copyedited versions online. Finally, copy edited manuscripts can be moved to the online publishing site quickly and with little staff effort. Versions of papers scheduled for the print journal can also be sent to the printer.

The dramatic efficiency gains we achieved from using the online system together with the far greater reach of the journal has allowed us to do something we did not contemplate prior to moving online. With more manuscripts being submitted and more capacity to process them, we have expanded our schedule of print issues from four per year to twelve per year. At the outset one of our concerns was that we might have to choose between publishing in print and publishing online. Thus far in our experience, moving online has allowed us to do both at a higher level.

Patterns of User Experience

We have discussed our approach to the curriculum and the pedagogy of online publishing. In this section we consider the third of Bernstein's (1975) elements of education, assessment. We do this by examining the behavior of users or members of the *Teachers College Record* online site over the 30-month period from its launch in November of 2000 through April of 2003. We address three questions that we have interested us since the outset of our online activities: how we might build an audience, how we can learn more about our readers, and how we can gain a greater understanding of what our readers want in an academic journal?

Building An Audience

One of our goals in moving the journal online was to expand and diversify the readership. We wanted to reach more scholars than we had been able to do with our print journal, and we hoped that providing our content online would make it more accessible to educators and the general public. Of course, we also understood that there was no guarantee that we could achieve either of these goals.

With our print journal received by several thousand libraries and other institutional subscribers and with fewer than a thousand individual subscribers, we believed that the opportunity to increase readership was substantial.

When we launched the new online publishing site for TCR in the fall of 2000 we began requiring users of the site to register by providing a name and an email address. This allowed us to track not only overall use of the site in terms of page views, but also the number of unique individuals accessing the content of the online journal. In October of

2000 we began with about 8,000 individual members largely gathered from users of our earlier online sites, subscribers to the print journal, and individuals who had submitted papers. By the spring of 2001 the membership totaled about 17,000. By the spring of 2002 the number of members of the online site reached 34,000, and by the spring of 2003 the number of members exceeded 65,000.

In addition to keeping track of the total number of individuals who had registered as users of the online journal site, we also monitored unique visitors to the site. Figure 1 shows the number of unique visitors for each month from June 2002 through May 2003.

Insert Figure 1 About Here

The site received nearly 6000 unique visitors in June 2002, and this number rose to well over 9000 unique visitors in May 2003. The increase in monthly unique visitors rose throughout the year with notable declines during the summer month of August and the holiday dominated month of December.

With the reading audience growing rapidly, we were interesting in knowing whether the audience was becoming more diversified and whether we were reaching readers outside our traditional audience of scholars in institutions of higher education. To gain some understanding of the distribution of readers, we drew a random sample of 1000 members and examined their email addresses and institutional affiliations for those who provided such information. Because individuals often provide a personal email address instead of a business email address and because many members decline to provide affiliation information, this analysis is less than ideal. Nevertheless, it does provide some indication of the diversity of the reader audience for TCR. About 27% of readers can be identified as associated with institutions of higher education. These are the readers traditionally reached by the journal. About 21% of the readers can be identified as being employed by k-12 school districts, and 10% identify themselves as students in higher education institutions. Smaller proportions of members were employees of research and development organizations or foundations (7%), independent professionals in education, and other sectors such as publishing or nursing (6.4%) and employees of a government agency (3.1%). For nearly one-fourth of the sample we were unable to classify members according to sector.

Our monitoring of web site traffic also allowed us to understand the impact of the weekly newsletter that we typically send to those members who request it once each week on either Tuesday or Wednesday. As Figure 2 indicates, on those days when the newsletter announcing new content is sent to readers, the traffic is about three times as great as on the day prior to the newsletter. The traffic typically peaks on the day the newsletter is released, but it remains higher than normal for a second day.

Insert Figure 2 About Here

An unanticipated byproduct of the dramatically larger audience for the journal has been an equally dramatic increase in the quantity and quality of manuscripts submitted for review. In the year prior to the introduction of the new online system we received about 200 manuscripts. During 2001, the first full year of operations under the new system, we received over 300 manuscripts. This number increased to nearly 450 manuscripts in 2002, and nearly 300 manuscripts have been received during the first six months of 2003.

Our analysis of the level of use of the online site indicates that readership is growing over time, that the readership is extending beyond those scholars at institutions of higher education who have formed the traditional audience for the journal, and that the weekly newsletter serves to increase use of the materials available at the online site. Thus moving the journal online is serving to build a larger and more diverse audience.

Understanding Online Behavior

In addition to following the growth in the readership of the journal, we used the online publishing site to gain a greater understanding of reader interests by tracking reader behavior online. During the twelve-month period from June 1, 2002 through May 31, 2003, there were 36,229 unique readers of the online journal, and these readers generated 1,955,452 page views on the journal site. (We have used page views as the unit for measuring use of the site since a view of an entire page is more meaningful than the often cited hit statistic what counts every graphic element on a page as an additional hit.)

Table 1 indicates the resources on the journal site that were used by readers during this one-year period. Users viewed individual articles 409,067 times during the

Insert Table 1 About Here

12-month period. These include any of the over one-thousand full-text articles from the past twenty years that are available online as well as older articles for which only a title or an abstract might be available. Readers viewed the journal's home page 224,826 times during this same time.

The next two most frequent uses relate to the two major ways of finding materials on the journal site, collections and searching. Readers accessed a content collection 148,256 times, and they used the general search utility 87,348 times. If we consider the content collections as the result of searches conducted by the editorial team, then the editorial voice represented in the collections appears to offer some value to readers, and they appeal to those collections in searching to meet their own needs more frequently than they use the general search.

The next two most frequently used resources, downloadable portable document files and the print article utility, allow readers to make print copies of journal articles. The portable document files are available for many articles and offer the same format as the print journal; the print article utility provides a full-page printer ready version of articles in html.

The next most frequently used resource on the site, collection posts, refers to readers accessing the comments of other readers posted on the discussion boards in the content collections. Readers accessed the 475 comments of other readers in the content collections 39,016 times. Looking further down the table, we see that readers accessed the 285 comments of other readers attached to individual articles 8,547 times.

The online catalog of journals in education was used 26,047 times, and the search utility attached to the journals catalog was used 19,496 times. Other resources not directly connected to the content of the *Teachers College Record* were also accessed by online readers. Links to external articles from the content collections were followed 24,745 times, links from content collections or book reviews to book information on Amazon.com were followed 16,371 times, and links to research and development centers from the content collections were followed 5,319 times. Together, these other resources constitute a substantial portion of user activity on the journal site.

The utility that allows readers to send a link to an article to a friend or colleague was used 10,417 times during the year. This utility engages readers in promoting the content of the journal. The annual index that provides a view of journal content by volume was accessed 7,906 times, and the page that allows users to manage the options on the online account, such as whether they wish to receive the weekly newsletter and whether they wish to serve as a peer reviewer, was used 5,132 times.

Following reader behavior online also allowed us to gain some understanding of the topics within the field of education and educational research that were of most interest to readers of the journal. We did this by tallying the reader visits to the various content collections displayed on the home page. Table 2 shows the number of reader accesses of the content collections organized by the 16 broad categories we created to organize articles and other resources. As Table 2 indicates, collections in two broad categories,

Insert Table 2 About Here

policy (19,924 visits) and curriculum (15,635 visits) received more than fifteen thousand visits. Collections in five categories, social context (13,724 visits), student diversity (13,449 visits), assessment and evaluation (12,079 visits), technology (10,956 visits), and research methods (10,177 visits), received between ten and fifteen thousand visits. Collections in administration (9,896 visits), teacher education (8,905 visits), learning (7,956 visits), teaching (7,674 visits), early childhood (6,424 visits), and adult education (5,892 visits) received between five and ten thousand visits. Finally, collections in higher

education (4,444 visits), international education (3,629 visits), and counseling (2,226 visits) received fewer than five thousand visits during 2001 and 2002.

Lessons Learned

Several things are clear as a result of our analysis of patterns of use of the online journal site. First, the online site for the journal is a powerful tool for increasing readership and generating both more and higher quality submissions. The growth in readers appears to involve both drawing more readers from our traditional base among faculty members and students from institutions of higher education and engaging new readers from k-12 school districts, and from foundations, government agencies, and other sectors such as publishing. Second, our weekly newsletter appears to work very effectively to bring registered users of the site back to the site to view new content.

Third, once readers are using the online site, as might be expected, they are most interested in the content provided in the form of articles. Fourth, again as might be expected, the home page is the most popular single page on the site. Fifth, the content collections of articles and resources organized by topic or theme are the next most frequently used resource and appear to be substantially more likely to be used by readers than the general search function.

The pattern of use of topics related to the discussion boards lead us to several additional conclusions. Sixth, the rate of user comments differs by venue of discussion board with discussion boards attached to content collections generating more user comments than those attached to individual articles. This could be the result of our practice of featuring reader comments from the content collections prominently on the home page or it could be the result of readers being more inclined to comment on the more general topics represented by the content collections than the specific issues raised by individual articles. Seventh, there is substantial reader interest in the comments of other readers with each comment on individual articles being read an average of 30 times by other readers and each comment within a content collection being read an average of 82 times by other readers. Again in explaining the seemingly greater popularity of the comments attached to the content collections, it is not possible at this point to disentangle the impact of the venue of the discussion board from our efforts to promote such discussions on the home page.

Eighth, readers at the online site did make use of other resources provided, including those not directly produced by the editorial team such as links to other online resources, although the use of such resources was less frequent than the use of *Teachers College Record* resources.

Ninth, reader interests as reflected in visits to the content collections are broad-based but concentrate on some collections such as policy and curriculum substantially more than others such as international education and counseling. The editorial implications of this pattern are at least two-fold. On the one hand, substantial reader interest might suggest that greater investments should be made in editorial content in high use areas. On the

other hand, if our goal is to create a broad-based journal in the field of education we might decide to invest greater effort in areas that receive less reader attention in the hope of increasing the utility of the journal to readers in these areas. The data available from the online site at this point do not allow us to understand the impact of enhanced content in an area on reader use.

New Horizons and Next Steps

Our experience thus far in creating an online venue for the *Teachers College Record* leads us to be very optimistic regarding the future of the online journal as an educational environment. We have used online tools to empower a small editorial team to build a large and still growing audience with diverse interests in high quality content and a willingness to participate in the continuing creation of the online site as an educational resource. The broad use of the online resources and the growing number of submissions attest to the self-reinforcing and self-sustaining nature of the enterprise. We anticipate significant further development of the online site in terms of its content or curriculum, its publishing or pedagogical approach, and in terms of its business and technology infrastructure.

Our success in operating the online journal has allowed us to address two enduring issues. First, despite initial reservations on the part of a substantial portion of our editorial board, the success of the online journal in reaching a larger and more diverse audience of educators, policy makers, and scholars has led the board to become more supportive of additional online efforts. Meetings of the editorial board are now dominated by discussion of our online initiatives, and board members regularly offer a range of suggestions for new online activities. Second, the popularity of the online journal has allowed us to improve the overall financial position of the *Teachers College Record*. For many years the *Record* operated with a subsidy from Teachers College. The online journal led to increases in both readership and the number of submissions received each year and allowed us to increase the number of print issues from four per year to twelve per year while enhancing the selectivity and the quality of the journal. The increase in subscription rates associated with more frequent publication has allowed the journal to cover all of the operating costs for the editorial office. Thus, although the online journal is available to readers without charge, the greater prominence of the journal overall has strengthened its financial position and made its future more secure.

Building on the expanded print journal, there is a very substantial opportunity to expand the content provided through the online journal site. With the growth in high quality submissions, the journal will be able to provide more material of a higher quality. Moreover, the weekly publishing schedule allows us to do more to highlight every paper published. As the content grows we will consider segmenting and targeting the weekly email newsletter to subgroups among the readers so that those interested in a particular topic will receive information most relevant to their interests. Based on our analysis of reader online behavior, we will be redoubling efforts to publish in areas where we offer relatively little and where our online audience has the potential to grow. This will necessarily involve some experimentation as we move forward. For example, we will be

issuing calls for papers in areas such as counseling where we currently offer relatively little to determine if more content in an area will draw more readers to that area.

We also anticipate investing effort to create more powerful tools for readers to move through the sizable collections of content on the journal site. In addition to our current organization of content collections and search functions, we anticipate allowing readers to move through the different segments of articles once those articles are online in full text html as opposed to the portable document files that now provide page images that cannot be searched. For example, we plan to allow readers to search for all articles referencing particular items.

In terms of our pedagogical approach at the online journal site, we are sufficiently encouraged by the results of our early efforts to stimulate reader engagement and participation to expand those efforts. In addition to our current discussion boards attached to each individual article and to the content collections, we plan to introduce a site-wide discussion board to attempt to create a critical mass of reader/discussants across all areas covered in the journal. The discussions attached to individual articles are scattered across the more than ten thousand individual pieces, and the discussion boards attached to the content collections are spread throughout the over seventy collections. We want to experiment with a discussion or commentary area of the online site that will bring together provocative peer reviewed commentaries with reader comments. We hope to use this area of the journal to share even more control with users.

As part of our instructional mission we also plan to introduce a new section devoted to authors that would contain a range of resources to assist them in preparing articles for publication through *Teachers College Record* or through other journal outlets. This new section will bring together current resources such as the journals catalogue with short instructional pieces on how to prepare journal articles. We are also engaged in the early stages of exploring the development of an automated system of providing feedback to authors before their paper enters the review stream. Such a tool could link diagnostic feedback on a paper to available online resources for authors. We view this new set of resources as both a service to authors and as a way to enhance the quality of papers submitted even further.

Encouraged by our experience in mixing *Teachers College Record* resources with those from other sources, we plan to seek new opportunities to collaborate with others engaged in teaching either through classes or workshops or through conferences on important topics in the field. These joint ventures will inevitably blur the lines between teaching and publishing in ways that have the potential to enrich the educational program of the journal. Other online journals are also obvious candidates for collaborative ventures that would draw on resources from multiple journal sources. Publishers handling multiple journals may also be in a good position to present resources from groups of journals. For example, Taylor and Francis has organized collections of journals that it publishes in web arenas that offer access to articles for all journals in a content area such as education (<http://www.tandf.co.uk/journals/arenas.asp>).

One of the unanticipated byproducts of our work to create the online journal has been a continuing interest in the creation of online environments and the development of tools to reduce the costs and enhance the functionality of such environments. When we created the 2000 version of the *Teachers College Record* online publishing platform, we built a hand-crafted system to publish a single journal. This platform has served us well, but we no sooner completed the technical development of the platform than we discovered many reasons to change and enhance it. Rather than continue to invest in improving a single dedicated platform, we embarked upon a course to create a general publishing and education platform creation tool. This tool allows us to create any number of journals or other educational environments quickly and inexpensively. (For more information on this platform, see www.frameworkers.com, named, incidentally, to honor those cottage weavers whose work was transformed by the industrial revolution and moved into factories where they labored attached to frames of one sort or another.)

The flexible, re-configurable publishing platform that will form the basis for the next generation of the *Teachers College Record* online site will allow us to engage in more experimentation as we position and reposition content and utilities to engage readers and then assess their response. It will also allow us to create new online journals or parts of journals at low cost. This will make it possible to do things such as creating instant journals to chronicle the work of particular projects or events. It will also allow us to experiment with journals devoted to new topics to determine if there is a sufficient audience to justify further development. In the case of the *Teachers College Record* it will allow us to mount new projects with ease. For example, we might create new content collections tailored for individual courses, or we might allow each registered member of the online site to create collections for any course they might be teaching. This is but one of a host of strategies that might be pursued to make the resources of the journal more relevant to the needs of its readers.

We began this chapter by highlighting the educational mission and history of the journal. We end it after having demonstrated our record of early activities and after speculating on the next stages in the educational development of our online publishing venue. However, our presentation would be incomplete if we did not also note the importance of our own learning experience along the way. What began in the mid-nineties as a traditional academic journal has been transformed by the effort devoted to creating and sustaining an online publishing operation. We have learned more than we ever imagined we might when we began, and it is clear that there is much more to learn about the educational role of our journal and the educational needs of our readers in the years ahead.

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Figure 1 – Unique Visitors to the Teachers College Record online site – June 2002 through May 2003

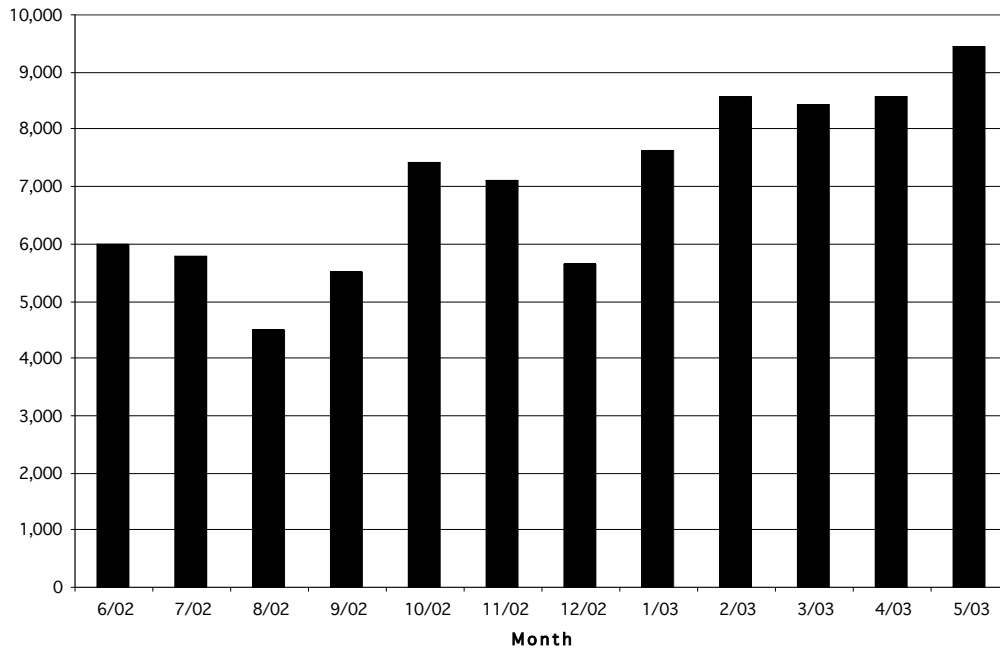


Figure 2 – Unique Visitors to the Teachers College Record Online Site by Day – Sunday, May 4, 2003 through Saturday, May 31, 2003

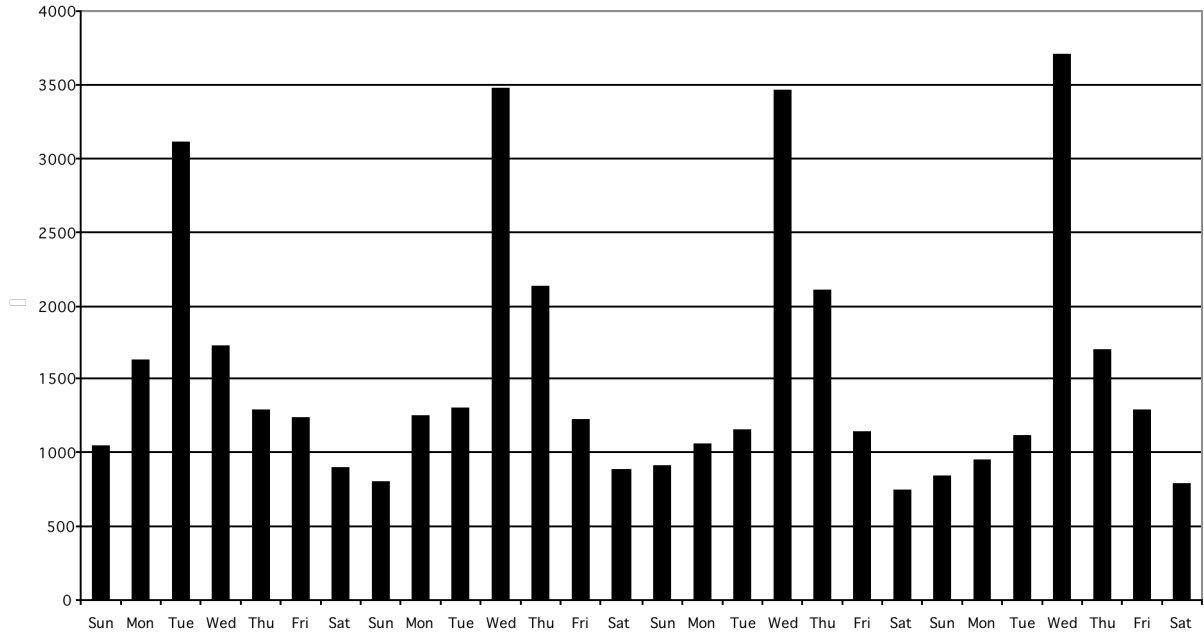


Table 1 – Activities of Readers of the Teachers College Record Online Site – June 1, 2002 through May 31, 2003

Articles Viewed	409,067
Home Page	224,826
Collections	148,256
General Searches	87,348
PDF Files Downloaded	61,199
Articles Printed	50,814
Collection Posts Read	39,016
Journals Catalog	26,067
Links to External Articles	24,745
Journals Search	19,496
Links to Amazon.com	16,371
Articles E-mailed to a Friend	10,417
Content Posts Read	8,547
Views of the TCR Index	7,906
R and D Centers Viewed	5,319
My Account	5,132
Collection Posts Made	475
Content Posts Made	285

Table 2 – Reader Accesses of the Teachers College Record Content Collections – 2001 through 2002

Policy	19924
Curriculum	15635
Social Context	13724
Student Diversity	13449
Assessment & Evaluation	12079
Technology	10956
Research Methods	10177
Administration	9896
Teacher Education	8905
Learning	7956
Teaching	7674
Early Childhood	6424
Adult Education	5892
Higher Education	4444
International Education	3629
Counseling	2662