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The *New York Times* as a Resource for Mode 2

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Abstract

The *New York Times* (*NYT*) receives more citations from academic journals than the *American Sociological Review, Research Policy,* or the *Harvard Law Review*. This article explores the reasons why scholars cite the *NYT* so much. Reasons include studying the newspaper itself or New York City, establishing public interest in a topic by referencing press coverage, introducing specificity, and treating the *NYT* very much like an academic journal. The phenomenon seems to reflect a mode 2 type of scholarship produced in the context of application, organizationally diverse, socially accountable, and aiming to be socially useful as well as high quality as assessed by peers.

Keywords

academic disciplines and traditions, engagement, intervention, representation, accounting practices, other

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Introduction

> A near cipher two centuries ago, social knowledge has subsequently become a ubiquitous feature of the societal landscape, buffeting those in our own time with … literally hundreds of thousands of books, articles, and lectures that are produced annually both by academic social scientists and by journalists, jurists, pundits, personal advisers, and innumerable other creators and distributors of varieties of human knowledge that fall beyond the bounds of the natural sciences.
>
> Camic, Gross, and Lamont 2011, 3.

Recognizing that social knowledge has become ubiquitous in our "knowledge society" but also that science studies has relatively little insight to offer about social knowledge,[1] Camic, Gross, and Lamont (2011) argue for the importance of understanding knowledge creation beyond science and medicine. Along with the pervasive reach of social knowledge, in the passage above, Camic et al. acknowledge different genres of social knowledge, in particular journalism and scholarship. The book explores the nature of social knowledge making that is practiced in settings beyond academia and in interaction between genres, and which is in relatively porous social locations, as opposed to a more traditional picture of a social thinker's academic discipline overlaid with a few macrosocial factors (Camic, Gross, and Lamont 2011, 27). In the picture that emerges, knowledge cannot be derived from a list of factors nor is scholarship delicate and always in danger of being overwhelmed when brought into contact with other institutions. Rather, nothing is self-contained, and many of the studies in the book explore how knowledge emerges in settings where academic approaches intertwine with other genres contributing to what Schudson (2010) calls the emerging ecology of public knowledge. Here we further explore this theme, examining how scholarship interacts with another genre of social knowledge making—newspaper journalism. Since we found that scholarship interacts less with newspapers in general than with the *New York Times* (*NYT*) in particular (see Figure 1 below), we dissect the relationship between scholarship and the *NYT*. We approach this relationship through texts by gathering all references to the *NYT* from academic literature and inspecting citation contexts to explore how scholars are using the *NYT* in constructing their arguments. In this article, we explore the intermingling of two porous genres of social knowledge making: scholarship and newspaper journalism, in particular the *NYT*.

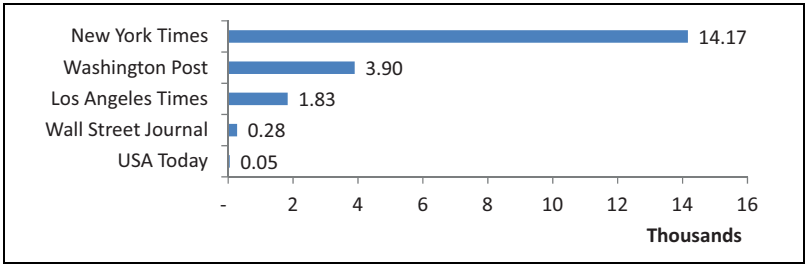

Figure 1. Citations to leading US newspapers in 2010.

Trends in and Extent of *NYT* Citing

Six thousand academic articles cited material from the *NYT* in 2010. This is approximately 1 percent of US articles published in 2010 and indexed in the Web of Science. Because the number of articles with US authors that reference the *NYT* has more than tripled over the past thirty years, while the number of articles indexed in the Web of Science doubled, the share of articles that reference the *NYT* has grown. Figure 2 compares the growth in a number of US articles that reference the *NYT* with growth in all US articles. The share of US articles referencing the *NYT* grew from 0.77 percent to 1.25 percent between 1980 and 2010.

Notable in Figure 2 is the accelerated growth in *NYT* referencing starting in 2006. There are some grounds to believe that the acceleration might have been due to increased availability. In 1996, the *NYT* launched its website; this appeared to make no difference to the usage of *NYT* among scholars. Google News was launched in 2002, three years prior to the sharp uptick in *NYT* referencing in published articles. In 2005, Dialog obtained the archive back to 1980 and Factiva back to 1996 (before this they were limited to ninety days of material for US subscribers). Finally, in 2008, *NYT* content back to 1851 became available on the website. The greater availability of *NYT* material through Google News, Dialog, and Factiva is most plausibly credited with launching the faster growth in *NYT* referencing. Easier access led to greater use of the *NYT* by academics. The field of law provides a counterexample that strengthens this case. From 1983, Nexis had an exclusive agreement with the *NYT* to host the archive of *NYT* content back to 1980[2] giving legal scholars access; their *NYT* referencing does not accelerate after 2006.

References to the *NYT* are found in articles across science, technology, social sciences, and humanities.[3] Figure 3 maps the articles published in

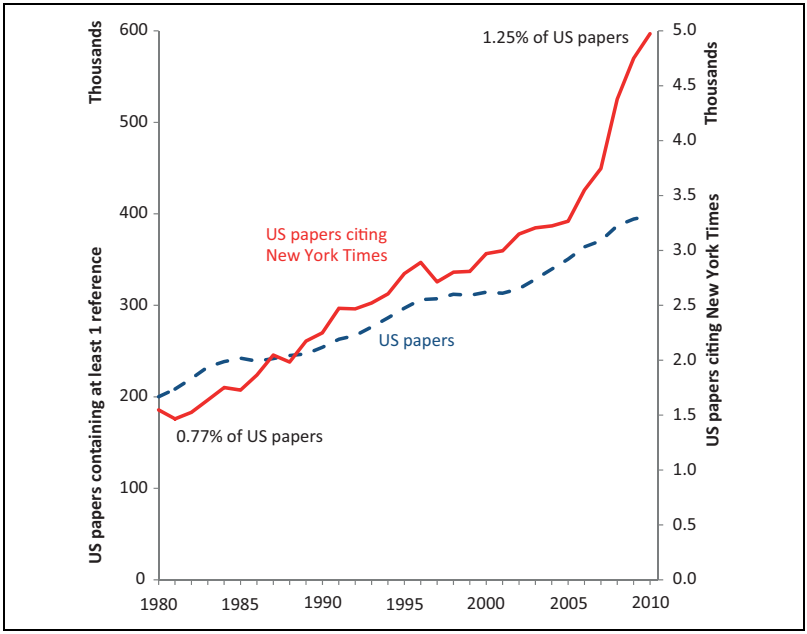

Figure 2. Growth in US articles and US articles referencing the *New York Times*.

2010 that reference the *NYT* taking the science overlay map developed by Rafols, Porter, and Leydesdorff (2010) as the base framework upon which *NYT*-citing articles are highlighted. We see that *NYT*-citing articles are sprinkled across the map,[4] although the social sciences are most active in referencing the *NYT* and so are plotted using the largest circles. Table 1 compares the distribution of articles referencing the *NYT* across fields in 2010 with the 2009 distribution of US articles and highlights the heavy concentration of *NYT*-citing articles in social sciences and law. In three fields, more than 10 percent of articles referenced an *NYT* article in 2010: law (36 percent of articles citing the *NYT*), international relations (18 percent), and political science (11 percent).[5]

This pattern of referencing highlights genre differences between the *NYT* and scholarly journals. One reason for the extensive citation is that the *NYT* publishes about 75,000 articles a year, orders of magnitude more than a scholarly journal. The *NYT* covers "all the news that's fit to print"; scholarly journals specialize in narrow topics. The *NYT*'s comprehensive topic coverage underpins the widespread citation pattern.

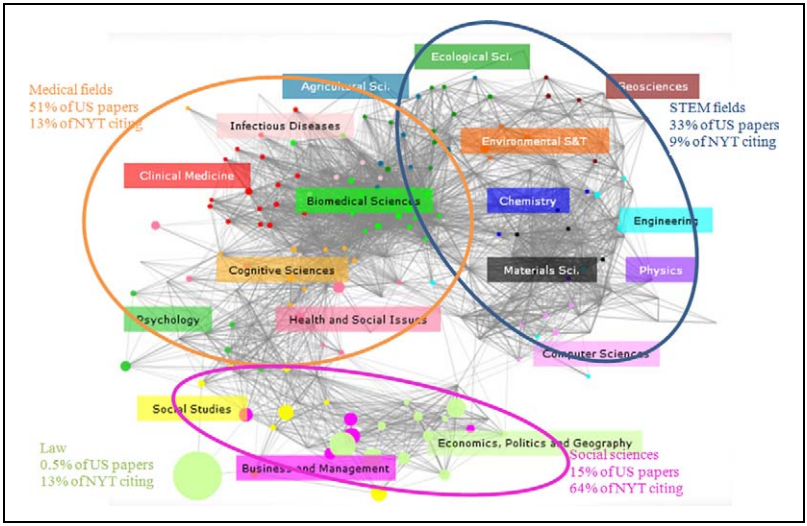

Figure 3. Subject map of articles citing the *New York Times*.

Table 1. Distributions of *NYT* Referencing and All US Articles.

Field	Percentage of Articles	Percentage of *NYT* Referencing Articles
Social sciences	15	64
Law	13	51
Medical sciences	51	13
Science and engineering	33	9
All fields	100	100

Note. NYT = New York Times.

The extensive academic referencing of the *NYT* only partly reflects general referencing of the press in scholarly articles. The *NYT* is referenced in academic articles more than three times as often as its nearest rival, the *Washington Post*, and more than seven times as much as the *Los Angeles Times*—Figure 1.

The prestige and influence of the *NYT* might explain the preference for *NYT* over other newspapers in scholarly referencing. This prestige is evident across a number of measures: circulation, Pulitzer prizes, use by opinion

Table 2. Newspaper Influence Metrics.

Influence Metric	New York Times (*NYT*)	Nearest Competitor	Competitor	Ratio *NYT*/ Nearest Competitor
Scholarly references in 2010	14,165	*Washington Post*	3,898	3.6
Words in Wikipedia entry	8,958	*Wall Street Journal*	5,377	1.7
Sunday Circulation	1,352,358	*Los Angeles Times*	901,119	1.5
Opinion leader website visits	32.6	*Washington Post*	21.4	1.4
Pulitzer Prizes	26	*Washington Post*	19	1.4
Opinion leader readership	58.4	*Wall Street Journal*	49.3	1.1
Weekday Circulation	876,638	*Wall Street Journal*	2,061,142	0.4

Table 3. List of Sources for Table 2.

Metric	Source
Wikipedia	Retrieved webpage of Wikipedia about each newspaper, and counted total number of words, retrieved date: April 01, 2011
Sunday and weekday circulation	Average of a six month span from April to September 2010, *source*: http://www.boston.com/business/articles/2010/10/25/circulation_numbers_for_the_25_largest_newspapers/
Pulitzer Prizes	Counted number of Pulitzer Prize for Journalism in each year from 2001 to 2010, prizes for Letters, Drama, and Music are not counted, source: http://www.pulitzer.org
Opinion leader media usage	Erdos and Morgan (2011)

leaders, and words in the Wikipedia entry. For each measure, Table 2 names the nearest competitor (or leader) and lists the value of the metric for both the *NYT* and the competitor. In Table 2, we see that the *NYT* dominates news coverage for US elites, shown by its leading position in the Erdos and Morgan (2011) annual survey of opinion leaders assessing the reach of media brands. The *NYT* reaches 58 percent of opinion leaders[6] and the second leading newspaper, the *Wall Street Journal*, reaches 49 percent. The *NYT* website is visited monthly by 33 percent of opinion leaders, almost equal to the second place website, Cable News Network (CNN) at 28 percent. The *NYT* leads on each prestige metric in Table 2 except weekday circulation.

The curious aspect of influence is that the *NYT* is so much more dominant in scholarly references than it is in the other metrics. The *NYT*/competitor ratio in dimensions such as circulation, opinion leader use, and Pulitzer

prizes ranges from 0.4 to 1.5. The *NYT* entry in Wikipedia is 1.7 times as long as that of the *Wall Street Journal*. Yet, academic articles reference the *NYT* 3.6 times as much as they reference the nearest competitor, the *Washington Post*. The *NYT*'s advantage in prestige may be magnified in academic referencing because, unlike the other metrics, preferential attachment operates in referencing. Academics prefer to reference more prestigious authors and works (Camic 1992; Evans 2005; Hargens 2004). Because referencing positions one's text in relation to predecessors, authors hope that well-respected predecessors provide better positioning for the current work. The preference for prestigious predecessors is a form of preferential attachment responsible for the Matthew effect. Among academics, the scholarly literature is more respected than any other genre, including newspapers. Therefore, we would not expect newspapers to be referenced extensively in the scholarly literature because we would predict that authors might worry that references to newspapers would reflect badly on their texts. So if a newspaper is referenced at all, we would expect academics to preferentially reference the most prestigious newspaper magnifying underlying differences in esteem.

Why Does the Academic Literature Reference the *NYT*?

In order to better understand the phenomenon of scholarly referencing of *NYT* articles, citation contexts in a sample of *NYT* referencing articles published in 2010 were examined. A total of 109 science and engineering articles and 210 social science articles citing the *NYT* were examined. These articles comprised all available hard science articles and a randomly selected 6 percent of accessible social science articles. For each article, the context surrounding the *NYT* reference or references was collected. The referencing contexts were compared and grouped in a process of midrange theory building from case studies (Eisenhardt and Graebner 2007). Iteration refined and stabilized the category scheme that forms the basis for the discussion. The categories represent idealizations of actual referencing behavior. A single reference may partake of more than one purpose. Therefore, it was not possible to produce a precise frequency count of reference types. As Eisenhardt and Graebner point out, for a phenomenon-driven research question lacking plausible theory, such as this one, this type of theory building exercise is more suited to answering the "why" question than the "how often" or "how many" questions (Eisenhardt and Graebner 2007, 26–27).

The NYT *or New York City Are Studied*

The *NYT* is a notable institution in the United States and as such forms the subject of academic research, as in this article. Web of Science indexes approximately ten articles a year with "*New York Times*" in their titles. Academic articles are written about the newspaper most often in the field of mass communications but almost as frequently in government law, arts, and humanities, and information science. Also, the *NYT* corpus is used as a data source, for example in:

> The Race and Class Privilege of Motherhood: The *New York Times* Presentations of Pregnant Drug-Using Women. (Springer, K. W. 2010 *Sociological Forum*)

In this article, *NYT* articles are used to represent press coverage of pregnant drug-using women and the race of the women discussed in the articles is analyzed. The *NYT* provides raw data in fields as diverse as psychology, economics, computing, and sociology.

Related to studying the *NYT* is the study of New York City. The city and its region play such a large role in the nation's cultural and economic life that the city is often the subject of research referencing the *NYT* as source material. About fifty *NYT*-citing articles in 2010 contained "New York" but not "*New York Times*" in their titles. Examples are found in urban studies, history, cultural studies, and biological and environmental sciences.

Studies of the *NYT* and New York City are not unexpected. Therefore, we learn little of interest from these examples, except perhaps how broadly the studies are spread across fields. On the other hand, these examples account for only a small amount of *NYT* referencing, so the question of why scholars reference the *NYT* so heavily remains open.

A Topic's Importance Is Established Using Evidence of Press Coverage

The next reason for *NYT* referencing highlights differences between journalism and scholarship as genres. The press does not simply report; by reporting they also amplify. Schudson has argued that the press confer upon their subject matter public legitimacy, certifying importance (Schudson, 2003, 29). This contrasts with scholarship which serves to certify knowledge as reliable and, in relation to social knowledge, construct causal interpretations.

Therefore, if an academic wants to demonstrate public concern for a topic to establish its importance, no amount of referencing to scholarly studies will make that point. However, press coverage does count as evidence of public concern. For example:

> California schools became notorious for their overcrowding, poor physical conditions, and heavy reliance on temporary, modular classrooms (see, e.g., [NYT ref]). (Cellini, Ferreira, and Rothstein 2010)

> Some of America's bestselling newspapers and magazines, including the *NYT, Time, Life, Newsweek,* and *Cosmopolitan* tirelessly reported on Provoo's public trials and his fate developed into a legal odyssey that influenced future interpretations of American treason law [refs]. (Kushner 2010)

NYT science coverage delights mathematicians and physicists when it touches on their enthusiasms:

> A few months ago, a New York Times article [NYT ref] reported that the LHC dipoles unexpectedly behaved below specifications during first tests in 2008. This shows the interest that this pretty technical topic has risen not only in the scientific community, but well beyond, up to the headlines of newspapers. (Lorin et al. 2010)

NYT science coverage makes possible a kind of self-citation when a group cites an *NYT* article that featured its work. Two examples of this were found in 2010: an article entitled "Dynamics on the Way to Forming Glass: Bubbles in Space-Time" referenced *NYT* coverage of the group's research in a piece entitled "Anything But Clear," and an article entitled "Encapsulation of Capacitive Micromachined Ultrasonic Transducers Using Viscoelastic Polymer" referenced *NYT* coverage of the group's research in a piece entitled "An ultrasound that navigates every nook and cranny."

Referencing the *NYT*, along with other press, to establish the public importance of a topic is a strategy used by both scientists and social scientists, though scientific authors seem to use it twice as often. Overall, about 10 percent of references are accounted for by this motivation. This type of referencing might be classified as genre typical. There is a consensus that newspaper coverage signifies public interest and when public interest enters an academic argument, newspapers are an appropriate reference. The *NYT* is a newspaper with comprehensive news coverage and so may well be included in a list of newspapers.

Specificity Is Introduced

Academic writing is characterized by the use of generalities and abstractions. Nominalization creates "higher and higher order abstractions which provide conceptual objects that populate the intellectual landscape of scientific specialities. The nominal abstractions are increasingly removed from concrete experience ... " (Bazerman 1998, 19, summarizing Halliday). Social sciences construe experience in abstract, hypothetical, idealized, and generic terms upon which technical taxonomy is built (Wignell 1998; MacDonald 1994). This serves as the scaffolding on which knowledge of processes, relationships, and causes is constructed. In contrast, journalism is storytelling about the who, what, where, when, and why of events (Manoff and Schudson 1986). Newspapers report events and the people involved at a particular time and place. Both genres can leverage the other. When journalists have recourse to causal explanation, they can bring in academics as experts.[7] When social science moves from abstractions to specifics, one approach is to reference the *NYT*. Often an *NYT* reference marks the appearance of something concrete among the abstractions.

Specificity characterizes the words spoken by a person. In addition to specificity, spoken words introduce color into the text. If spoken by a person shaping the course of events, quotes can also advance an argument. Journalists often quote specific people, and *NYT* journalists have access to famous people. Academics, though they quote each other's written text, rarely reproduce words spoken by another. When they do, one method is to pull a quote from the *NYT*. For example:

> In an attempt to encourage development of creative solutions to prevent the approaching crisis, the former Saudi Arabian oil minister warned that "The Stone Age didn't end for lack of stone, and the oil age will end long before the world runs out of oil" [NYT ref]. (Abramson, Shoseyov, and Shani 2010)

> French President Nicolas Sarkozy publicly mused, at the onset of the crisis, that "a certain idea of globalization is dying with the end of a financial capitalism," yielding a seemingly unambiguous ideological conclusion: "Self-regulation, to fix all problems, is over. Laissez-faire is over" (quoted in [NYT ref]). (Peck, Theodore, and Brenner 2010)

Another type of specificity is reference to events: the bridge collapse in Minnesota, ricin attacks in the subway, and Lehman Brothers bankruptcy. We know about these events through the news, and the news has made them common knowledge. Because one of the functions of news is to create

common knowledge (Schudson, 1978), and once something is common knowledge it no longer needs to be explicitly referenced (Latour and Woolgar 1979, 76; Garfield 1975), referencing of news is suppressed. Between unknown and common knowledge lies a zone of reported events whose obscurity prompts explicit source referencing when they are brought into an academic text. For example:

> As of June 9, BP has used over 1 million gallons of Corexit oil dispersants to solubilize oil and help prevent the development of a surface oil slick [NYT ref]. (Place et al. 2010)

> Claims of "infringing activity" could be used pretextually to block access to political critics—as in Russia, where the police asserted copyright enforcement when they raided an environmental group and confiscated computers containing allegedly pirated Microsoft software. [NYT ref] (Microsoft has subsequently granted a blanket license to such groups.) (Seltzer 2011)

The currency of these examples is representative. One aspect of the generality and abstraction with which academic knowledge is written is a kind of timeless quality (see Knorr-Cetina 2011). Academic social knowledge is slow knowledge; lengthy periods of research are followed by weeks and months of writing, there is often a lengthy gap between submission and publication, and there are often many years that pass between publication and recognition by the scholarly community. This leisurely pace contrasts with the daily deadlines journalists face in their time sensitive genre. When academics reference very recent events, events so recent that they have not been absorbed into the scholarly literature, the *NYT* can be used.

Therefore, the age profiles of references to the *NYT* and to the scholarly literature differ. Authors' *NYT* references are both newer and older than their references to journal articles. In articles that cite the *NYT*, the *NYT* accounts for 10 percent of all references to material published most recently, that is, current year, and 10 percent of references published in the 1800s. But *NYT* referencing accounts for only about 2 percent of references published between 1980 and 2003. Figure 4 plots the distribution of references over cited years for *NYT* references, and all references in all articles. The figure shows that relatively more references to the *NYT* are very recent (2006–2009) as compared to references to journal articles. In accord with the timeless quality of scholarly writing, the use of journal articles as references declines more gradually with the age of articles than does the use of

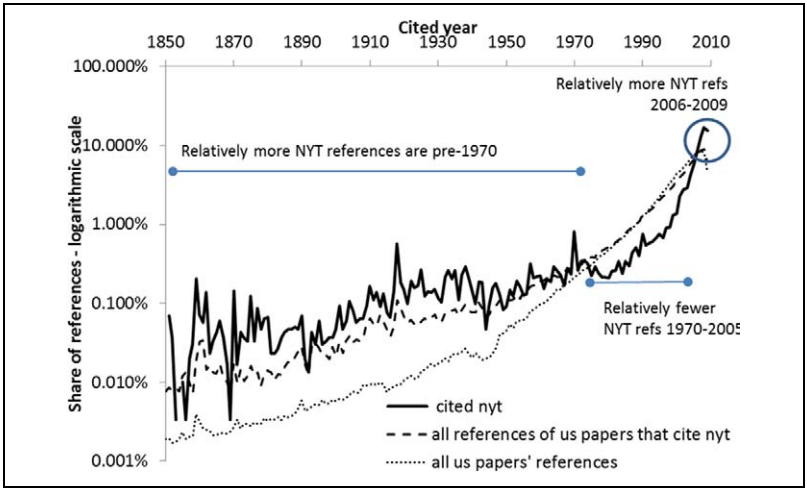

Figure 4. Distribution of references across cited years—*NYT* versus all references.

NYT articles. Thus, among material published from 1970 to 2005, relatively more journal articles are cited than *NYT* articles. However, pre-1970, the situation reverses again so that relatively more *NYT* references are older than 1970 as compared to journal article references. The modal year of cited works is 2007 overall, but 2008 for *NYT* references and for all references in *NYT*-citing articles (2009–2010 citing articles).

Though aspiring to a timeless quality, ironically the scientific and social scientific literature does not have much use for work older than forty or fifty years. However, as a record of events, the *NYT* can be used as a primary source of historical information, and with the archive online that source is more accessible than history books. Thus, the *NYT* is used as a source of information on events in the late 1800s and early 1900s by nonhistorians. Art, literature, and history are the fields with a predilection for using pre-1950s sources, and among their old sources, the *NYT* is prominent. However, such referencing is found across fields.

In referencing events and quotations, the *NYT* is used as a primary source. This usage is broader than instances in which discrete events or quotes are discussed. For example:

> Fuel consumption cost is estimated to account for more than 60% of the vessels' operating costs and therefore, ocean carriers have taken almost unprecedented immediate measures to slow ships to economic speeds of

> 20knts from 25knts, a practice called "slow steaming". Moreover, the ocean carriers are stressing the increased importance of schedule integrity and the ensuing benefits to the environment [NYT & trade press refs], along with their devotion to slow steaming operating policies [trade press ref]. (Golias et al. 2010)

Here the *NYT* is being used as a primary source, but the discussion is not quite about a specific event. The high rate of *NYT* referencing in international affairs likely reflects the value of the *NYT* as a primary source due to the depth of foreign affairs coverage, as well as the many decades of coverage in their archives. So, for example, the phrase "cold war" occurs relatively frequently in the titles of *NYT*-referencing articles (thirteen times in 2010), and articles in the journal *Diplomatic History* often contain *NYT* references. Similar usage is found in articles discussing the financial crisis. These various types of specificity account for 40–60 percent of *NYT* referencing.

Reference Is Indistinguishable from an Academic Reference

A paragraph-level shift from the abstract to the concrete often marks an *NYT* reference, whether a quote is introduced, the implications of an event discussed, or some broader happening is interpreted; the *NYT* is used as a primary source. At times, however, the *NYT* is referenced and the language remains abstract and general; one would not guess an *NYT* article was being referenced from looking at the citation context.

> For example, an array of optimally aligned microrods with semicircular cross-sections may be mounted on a frame. Upon exposure to sunlight the frame would be propelled forwards, like a solar sail [NYT ref], and translated sideways, as a result of lift. (Swartzlander et al. 2010)

> This stigma manifests itself through narratives of indeterminacy, confusion, and deceit, wherein bisexual persons are cast as being unable to choose their identity or, worse, lying about their "true" identity. [NYT ref] (Bostwick et al. 2010)

When specificity is lacking, the *NYT* will often be coreferenced with scholarly journals.

> This technology is now actively pursued for electric vehicle applications (HEV and EV). However, major challenges in implementing the LIB

> technology for vehicle applications are the safety and environmental concerns arising from the currently used expensive LiCoO2 cathode [NYT and 2 journal article refs]. (Saravanan et al. 2010)

> Several previous works have shed some understanding on the prevalence of Braess's Paradox. On the empirical side, there has been a small amount of anecdotal evidence in the transportation science literature suggesting that Braess's Paradox has occurred in certain road networks [NYT[8] and 2 journal article refs]. (Valiant and Roughgarden 2010)

The quintessential example of *NYT* journalist-written material being referenced exactly like an academic study concerns the work of Michael Barbaro and Tom Zeller, Jr., in breaking the anonymization of an AOL data file in 2006 (Barbaro and Zeller 2006). The impossibility of anonymization in large data sets is a topic of increasing concern in the computer science and law literatures. The Barbaro and Zeller article is a foundational contribution to that literature and is often cited giving authorial credit, as is common when citing academic work but not when citing *NYT* articles. The citation pattern to the article is not that of a journalistic piece—citation in the year or two after publication followed by swift oblivion—but that of a highly cited academic piece cited ten to fifteen times a year every year since publication.[9]

An author referencing the *NYT* to establish public interest in a topic, or to move from the abstract to the concrete, is taking advantage of genre differences between scholarship and journalism and therefore implicitly acknowledging that scholarship and journalism differ. In cases where no shift in specificity is made and the *NYT* is cocited with journal articles, the author does not acknowledge any genre differences between the *NYT* and scholarship. Such references account for 20–30 percent of *NYT* referencing, somewhat higher in science and engineering fields than in social sciences.

Citing Academic Writing in the NYT

Professors publish in the *NYT* and journal articles reference these pieces. Paul Krugman is not only a professor at Princeton and the London School of Economics but also a columnist for the *NYT*, a position he held at the time he won the Nobel Prize in economics. Others write single pieces in the *NYT* Magazine. The magazine accounts for about 3 percent of cited items and 9 percent of citations.[10] For example, University of Chicago economist Milton Friedman is the most cited *NYT* author, cited over 860 times in total. In 1970, Friedman published in the *NYT* Magazine an article entitled: "The Social Responsibility of Business is to Increase its Profits." This article was

little noticed until the past decade when corporate social responsibility became a hot area of management research. In recent years, the Friedman piece is often cited in corporate social responsibility articles when they frame the field in the following fashion:

> Friedman argued that corporations do the most good for society by focusing solely on shareholders and making profits (Friedman 1970). Others however argue that corporations have broader societal responsibilities (many other authors referenced).

The Web of Science indicates that in 2010, 20 percent of articles with "corporate social responsibility" in their titles referenced the Friedman 1970 article in the *NYT* Magazine. The article was republished in a book in 2007, but only one article referenced the book version in 2010.

Another highly cited piece in the *NYT Magazine* written by a professor was an article reporting the results of the Stanford prison experiment by Philip Zimbardo, Stanford social psychologist. In this experiment, a group of students were divided into prisoners and guards for two weeks; the experiment was halted after six days due to the extreme cruelty that emerged. Zimbardo published the results of the experiment in 1973 as "Interpersonal dynamics in a simulated prison" in *International Journal of Criminology & Penology*. In the same year, he published "The mind is a formidable jailer: A Pirandellian prison" in the *NYT Magazine*. The *NYT* Magazine version has been cited 132 times. Though the *NYT* piece is cited only 20 percent as much as the academic journal version, the two citation records show the same time trends.

One reason professors write for the *NYT* and reference the *NYT* may be that the *NYT* takes an academic approach to news. During the 1970s, managing and then executive editor Abe Rosenthal shifted emphasis "from conventional fast-breaking news stories to more thoughtful and descriptive articles on social and demographic trends, ideas, literary controversies and, lately, white-collar crime" (Anonymous 1977). This approach is conducive to scholars using the *NYT* as a primary source. The article is not just academic-like in its approach; it relies heavily on academics as sources. *NYT* stories frequently quote professors, and many stories discuss the results of academic research—24 percent of *NYT* articles within the past twelve months included one or more of the terms: university, professor, or study.[11] In cultivating an academic approach, the *NYT* did not become an academic journal; rather it differentiated itself among newspapers. In doing so, it became the most useful newspaper for academics, who when using it as a source of data, or in justifying a study of the *NYT*, do so not by mentioning the *NYT*'s intellectual character, but rather by

positioning the *NYT* as the quintessential newspaper, the newspaper that sets the agenda for other news media. This aligns with findings of journalism scholarship that the *NYT* often does set the news agenda in the United States (Golan 2006; Shoemaker and Reese 1996).

Discussion

The *NYT* is referenced surprisingly often in the scholarly literature. Of the US articles published in 2010, 1.25 percent referenced the *NYT* accounting for 15,000 references. *NYT* referencing has grown faster than the number of articles since 1980, with growth accelerating after 2006. Articles in all fields reference *NYT* articles, though law exhibits the highest rate of referencing, followed by social sciences, medical sciences, then science and engineering fields. The *NYT* is referenced far more often than other newspapers, perhaps because it has cultivated a serious, intellectual approach to news for over 100 years.

Narrowing the focus to science, engineering, social sciences, and humanities to examine the context in which references occur suggests the *NYT* is a flexible resource when used in constructing academic arguments. Five broad reasons scholars reference *NYT* articles were identified. First, scholars studying the *NYT* or New York City naturally use the *NYT* as a source. There are about sixty of these articles a year. Second, scholars cite press coverage to establish public interest in their topic. In these contexts, the *NYT* is usually cocited with other press. Such articles account for about 20 percent of science and 10 percent of social science and humanities *NYT* references. Third, scholars can use the *NYT* as a source of a quote or information on an event, recent or historical. Here writers are leveraging the differences between the scholarly and newspaper genres using the newspaper to import specificity and concreteness into a more abstract discussion. This usage accounts for about 40 percent of *NYT* referencing. Fourth, about 20 percent of the time in science and 10 percent in social sciences, *NYT* referencing is identical to referencing of journal articles. Finally, articles in the *NYT* Magazine written by Milton Friedman and Philip Zimbardo are often cited. There are even a few self-citations.

The first challenge in interpreting *NYT* referencing is its invisibility. The bibliometric literature would be an obvious home for an examination of referencing. However, bibliometricians largely work with material indexed in the Web of Science. Most of the *NYT* is "non-indexed" and nonindexed material has been explored primarily to find important academic material not indexed such as books, conferences, or journals (Butler and Visser 2006; Nederhof, van Leeuwen, and van Raan 2010). Those examining the

relationship between science and media also miss the phenomenon. The study of public understanding of science takes media coverage of science as its subject. Thus, they look at the reverse phenomenon: newspaper articles about science, not science's use of newspaper articles. Those examining the effect of media on scholarship explore changes in scientific practice brought about by an increasing orientation to obtaining media coverage of research (see e.g., Rödder, Franzen, and Weingart 2012), not how scholarship increasingly makes use of newspaper articles. *NYT* referencing is invisible both to communities examining referencing and to those looking at the relationship between media and science.

The science studies literature exhibits a long-standing concern with demarcation documented in, for example, Merton's norms and boundary work (Gieryn 1983; Lamont and Molnar 2002). Since the press, even the *NYT*, is not academic literature, science studies thinking about boundaries might be relevant. Gieryn reported sarcasm and amusement accompanying scientists' accounts of trying to replicate Pons and Fleischmann's cold fusion results using the only available sources of information, CNN and newspapers including the *NYT* (Gieryn 1999, 222). Clearly, this was science as it should not be done. In contrast, the authors referencing the *NYT* seem to be unaware of breaching any supposedly sacred boundary. They are found treating the *NYT* on a par with scholarship as a creator of social knowledge. Such casual indifference is not easily reconciled with a framework based on heightened awareness of difference.

The boundaries between scholarship and other knowledge enterprises are maintained to enhance the "embodiment of knowledge as a source of worldly power" (Fuller 1991, 301) and the integrity of the knowledge produced (Weingart 2001). That engagement with the *NYT* threatens neither the power nor the integrity of scholarship is suggested by the high citation rates of both the Friedman and Zimbardo *NYT* pieces as well as their journal articles; by Paul Krugman winning the Nobel Prize in economics while writing a column for the *NYT*; and by a study establishing that *NYT* coverage enhanced the citation rate of covered journal articles. Phillips et al. (1991) took advantage of a strike at the *NYT* during which a limited "edition of record" was published, but not sold. Articles in the *New England Journal of Medicine* (*NEJM*) selected by the *NYT* for coverage were studied. Citation rates of *NEJM* articles covered in editions that were distributed were compared with citation rates of *NEJM* article covered in editions not distributed due to the strike. *NEJM* articles publicized by the *NYT* were more highly cited in each of the ten years after publication than the control articles. The largest difference was in the first year after publication during which the articles publicized by the *NYT* received 72.8 percent more citations.

The image of a homogenous entity called *science* with a fragile sense of power and integrity defending rigid boundaries serves us less well in framing scholarly engagement with the *NYT* than do conceptions of a heterogeneous, changing enterprise. Krugman's column and Friedman and Zimbardo's articles in the *NYT* Magazine serve as reminders that social scientists and humanists work in more than one genre, not just journal articles but also books and what might be termed *enlightenment literature* (Hicks 2004). Enlightenment literature represents knowledge reaching out beyond the scholarly community (Nederhof and Zwann 1991, 335). Burnhill and Tubby-Hille found that in the United Kingdom "projects in education [were] reaching practitioners through such periodicals as the *Times Education Supplement*, with researchers in sociology, social administration, and socio-legal studies publishing in such periodicals as *New Society* and *Nursing Times*" (Burnhill and Tubby-Hille 1994, 142). Membership journals, through which scholars speak to a broad scholarly audience outside their specialty, can be viewed as a type of enlightenment publishing. American membership journals are indexed in the Web of Science and often exhibit high rates of *NYT* referencing, examples include: *Phi Delta Kappan*; *PMLA*—the journal of the Modern Language Association of America; *Academic Medicine*—the official, peer-reviewed journal of the Association of American Medical Colleges, and *Daedalus*—the journal of the American Academy of Arts and Sciences. Enlightenment publishing is widespread (and becoming more so with the advent of blogs) but traditionally has been removed from consideration in evaluation and studies of science and scholarship. Recent work bringing into focus traditional forms of enlightenment literature (Osrecki 2012), as well as interest in the role of blogs and tweets in science, reminds us that any realistic understanding of scholarship must recognize its heterogeneity.

The idea of scholarship as a heterogeneous evolving entity is reminiscent of mode 2 (Gibbons et al. 1994) or postnormal science (Turnpenny, Jones, and Lorenzoni 2010). Homogeneous science with a rigid boundary evokes mode 1 associations, while increasing engagement with the *NYT* aligns with elements of mode 2. Mode 2 scholarship is produced in the context of application, is transdisciplinary, organizationally diverse, socially accountable, and aims to be socially useful as well as being considered high quality as assessed by peers. Mode 1 research in contrast is disciplinary, university based, autonomous, and assessed only by peers. Increased referencing of the *NYT* signals increased recognition by scholars that sound knowledge is produced in diverse institutions beyond universities, which aligns with the organizational diversity said to characterize mode 2 research. *NYT* references are more recent than their accompanying journal article references because information on current events not yet analyzed

in academic articles is gleaned from the *NYT*. This is consistent with scholarship drawing closer to current concerns, which would likely characterize work produced in the context of application that values social accountability.

This is also consistent with a scholarship of society comprising porous interacting genres creating a complex ecology of public knowledge. Traditionally science was autonomous, not porous. Knowledge was built upon previous knowledge in the same area. This self-sufficiency was evidenced by high rates of internal referencing, that is, relatively low rates of referencing to material not indexed in the Web of Science. More porous scholarship exhibits high rates of referencing to material outside the core journals indexed in the Web of Science. *NYT* referencing seems to represent this more open approach, even in nonsocial science and humanities articles—that is, science, engineering, and medicine. Science, engineering, and medicine articles referencing the *NYT* reference all types of material outside the core scientific journals at a higher rate than other articles. In this characteristic, *NYT*-referencing science, engineering, and medicine articles resemble social science and humanities articles, all of which heavily reference material outside the core journals. Articles in science, engineering, and medicine journals that reference the *NYT* are renegades that are more open to influence from outside the canon. Social science scholarship is in general more porous and seems to find past journal articles insufficient foundation upon which to advance knowledge without supplement from a broader, more heterogeneous set of less vetted sources.

The contrast between porous and autonomous knowledge enterprises extends to the journal level. Journals with high rates of *NYT* referencing often have fairly low impact factors. Comparing such journals with high impact factor journals in their field suggests a contrast between journals that describe themselves as concerned with currency, policy, a position around issues or topics, and an audience that includes practitioners or decision makers, against those that emphasize quality, peer review, and position themselves in terms of scientific fields. Examples of journals with high rates of *NYT* referencing include:

- *Energy Policy*—journal addressing issues of energy supply, demand, and utilization that confront decision makers, managers, consultants, politicians, planners, and researchers.
- *Independent Review*—interdisciplinary economics journal devoted to the study of political economy and the critical analysis of government policy.
- *Health Affairs*—health policy issues of current concern.
- *Perspectives in Biology and Medicine*—interdisciplinary scholarly journal that places important biological or medical subjects in broader scientific, social, or humanistic contexts.

- *Globalizations*—explores new, multidisciplinary meanings of globalization in the widest possible space for discussion of alternatives to a narrow economic understanding.

Such transdisciplinary, policy-relevant journals engaged with an audience including more than scholars would seem to exemplify a porous mode 2 scholarship. Peer-reviewed, highly cited journals positioned in relation to fields of scholarship would seem to exemplify an autonomous mode 1.

The scope of the mode 2 interpretation must be carefully delineated. The contrasting types of journals are found in some fields—economics and public health, for example—but not others. Business and management journals all seem to have low rates of *NYT* referencing, presumably because the subject matter engages less with broader societal issues than economics or public health. In political science and international affairs, all journals have high rates of *NYT* referencing[12] presumably reflecting the close relationship between the press, public, and politics that forms the subject matter of much of scholarship on mass media. Similarly, journals in media and communication studies often reference the *NYT*. Understanding the extremely high rate of *NYT* referencing in law journals would require an understanding of law scholarship itself, an understanding that awaits development (though see Latour 2010).

Mode 2 also involves a disputed claim to change over time. Although the rate of *NYT* referencing is growing swiftly, motivating this study in fact, the enlightenment literature is not new nor are the journals that heavily reference the *NYT*. There is evidence that journals may go through phases emphasizing *NYT* referencing more heavily at some points and scholarly journals more heavily at others (Taubert, 2012). So in the absence of more historical data, it would be risky to claim that *NYT* referencing has never been as high as it is now. The historical development of porous scholarship would be of interest, especially in the sciences and engineering. Was there a time when no articles in scientific journals referenced outside the core journal set? Have scientific journals become more open to more porous articles over time? Was this development responsive to world events or to concerns of the scientific community?

The research reported here suggests additional productive lines of inquiry. To fully understand the role of the *NYT* in scholarship, we need to study the referencing context two or three decades ago to identify changes over time. We need to incorporate medical sciences and law into the referencing analysis. We need to study more generally the move between specificity and abstraction in academic articles and assess the role of *NYT* referencing in relation to other ways to make that move. We need to explore whether the topics of *NYT* referencing articles differ systematically from topics of articles that

do not reference the *NYT*. More generally, we need to recognize the existence of porous scholarship and develop as powerful an understanding of its workings as we have for autonomous scholarship. Of particular interest is not which type of scholarship has greater academic influence—porous or autonomous—the higher impact factors of autonomous journals suggest the answer to that question. Rather, tracing the connections between scholarship and cultural and political developments would answer the question of whether porous or autonomous scholarship has more influence on culture and politics. Presumably, those who engage with society as suggested by *NYT* referencing would also like their work to influence society. If high academic impact translates into respect beyond the academic community, academic respect might be the most powerful resource in influencing societal debate, more powerful than engaging with societal issues in the construction of the scholarship. Then porous scholarship might be a dead end, its low academic impact guaranteeing limited societal influence. On the other hand, influencing society may require close alignment between issues and scholarship achieved only in a more porous scholarship. But if that alignment in turn compromises the integrity of the knowledge as suggested by Rödder, Franzen, and Weingart (2012), then there is a fundamental weakness at the heart of the knowledge society.

Conclusion

In this study, we investigate the relationship between the scholarly literature and the *NYT* as expressed through references in journal articles. We find that *NYT* referencing is extensive and that growth in *NYT* referencing has accelerated in recent years, probably due to easier access to *NYT* articles over the Internet. Referencing is widespread, though most intensive in law, international relations, and political science. Nevertheless, academics have not become journalists and journalists have not become academics. Examining the contexts of *NYT* references, we find authors most often leveraging the differences between the scholarly and newspaper genres to advance their arguments. Sometimes the *NYT* is referenced because the *NYT* is the subject of the research. Sometimes New York City is the subject, which leads to extensive use of the *NYT* as a source. More often, authors seek to establish the importance of their topic using press coverage as evidence of public concern. The *NYT* is also used as a primary source, for example, in discussing a recent event or inserting words spoken by an influential person. Perhaps half of *NYT* referencing uses the *NYT* as a primary source. Authors who use the *NYT* for evidence of public concern and to support their turn to specificity are leveraging differences between scholarship and

journalism as genres of social knowledge making. In contrast cociting with journal articles or citing academics writing in the *NYT* are patterns that seem to violate long-standing concerns with demarcation among scholars. These patterns can be understood within a framework that recognizes that social scientists and humanists work in more than one genre, one of which is enlightenment literature. That the *NYT* reigns supreme in the enlightenment literature testifies to the success of 100 years of strategic development that explicitly targeted academia at key points. The *NYT* and academia, though distinct, have become symbiotic enterprises within the ecology of public knowledge.

Authors' Note

The data used in this article are from a bibliometrics database developed and maintained by the Competence Center for Bibliometrics for the German Science System (KB) and derived from the 1980 to 2011 Science Citation Index Expanded (SCIE), Social Sciences Citation Index (SSCI), Arts and Humanities Citation Index (AHCI), Conference Proceedings Citation Index–Science (CPCI-S), and Conference Proceedings Citation Index–Social Science & Humanities (CPCI-SSH) prepared by Thomson Reuters (Scientific) Inc. (TR®), Philadelphia, Pennsylvania, USA: ©Copyright Thomson Reuters (Scientific) 2012.

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Notes

1. With the exception of the relationship between economists and markets which has been studied.
2. Source Fulltext Sources Online—FSO—database.
3. The same breadth would be seen in a map of the world; about one-quarter of articles citing the *New York Times* (*NYT*) do not list a US author.
4. The number in science and engineering fields is somewhat exaggerated because for journals with multiple field designations, the first field is used. Some law,

humanities, or social science journals thus appear in science fields, for example, *Journal of the History of Biology*, which appears in biology. Information science and operations research appear in computing, where others would classify them as social science (library science) and management. Such misclassifications account for about 20 percent of the science and engineering articles on the map.

5. US articles published in 2010 and indexed in the Web of Science.
6. Opinion leaders, for the purpose of this study, are defined as those individuals whose influence on business, social, political, environmental, and educational issues far exceeds their numbers in the population. They exercise far-reaching and powerful influences on the opinions of their fellow Americans by framing and defining the issues that will largely determine the future course of the nation.
7. This contrasts with discussion of motivation, which journalists will ascribe on their own authority (Carey 1986, 177).
8. Title of *NYT* article: What if they closed 42nd Street and nobody noticed?
9. Web of Science citation analysis conducted January 16, 2012.
10. This is an undercount as not all references contain the string "mag" which was used to produce these estimates.
11. A search of the *NYT* was undertaken on ProQuest Newstand New Platform on July 27, 2011. Searching for "the" returned 75,596 results assumed to be the total article count. Within these results, a search of the full text for "university or professor or study" returned 18,294 entries, or 24.2 percent.
12. Except *International Organization*, the leading international relations journal, this journal's guidelines for contributors bans mention of newspaper or magazine articles in the reference list. Relevant information, which does not include article title or author, is to be placed in footnotes. This means that the references to newspapers and magazines are not indexed in the Web of Science. This journal is enforcing the clear demarcation between scholarly and newspaper references that science studies literature might lead us to expect. However, this journal is the exception.

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