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It is not uncommon to find literacy figured as “toxic” in discussions of its power to regulate and discipline social behavior. The author’s aim in this article is to move from metaphor to material as he explores the toxicity inherent in the manufacturing processes that make print available for mass consumption. He argues that over the past century, the demand for print in certain regions of the United States, primarily the North and West, spurred the growth of commercial papermaking—and the spread of devastating mill pollution—in the South, where demand for print has historically lagged. He suggests that one result of this pollution has been the weakening of social institutions that typically promote and value normative forms of literate activity. With the industries that enable the mass circulation of print now going global, this pattern of uneven and unjust literacy development may well be repeated.

Reading Material

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1.

The October 1992 issue of Reader’s Digest features a brief article titled “Up from Illiteracy,” a profile of three adults who found “the courage” to remedy their “silent shame”: the inability to read and write (Chazin, 1992, p. 130). The article begins with the story of a Michigan woman who, we are told, had inherited the illiteracy of her father and was well on her way to passing it along to her three children when, in crisis, she sought help from a community literacy center. We are further told that the woman’s secret affliction . . . affects one in five American adults—an estimated 27 million people of every race, nationality, income level and age group. Its victims can’t follow a map or fill out a job application. They can’t vote or figure the dosage on their prescriptions. They can’t even lull

Author’s Note: Many thanks to the friends and colleagues who responded to fragments and full drafts of this article: Janet Carey Eldred, Patricia Harkin, Bruce Horner, Min-Zhan Lu, Karen Lunsford, Libby Miles, Douglas Reichert Powell, Catherine Prendergast, and John Trimbu. Thanks, too, to Douglas Hesse, Brian Huot, Janice Lauer, and Catherine Prendergast for arranging public forums in which I could discuss this work with others.
their children to sleep with a storybook. They are functionally illiterate, unable to read, write or comprehend simple mathematics well enough to function fully in modern society. (Chazin, 1992, pp. 130-131)

Surely, this litany of deficits is by now familiar—really, too familiar. In the public sphere, it recurs across a spectrum of newspaper stories and editorials, magazine features, television news programs and dramatic series, blockbuster movies and independent films, Broadway plays, and novels for adults and picture books for children. In the early 1990s, academics began offering incisive critiques of such discourse on literacy (e.g., Apple, 1993; Donald, 1992; Gee, 1993; Giroux, 1993; Macedo, 1994; Street, 1984; Stuckey, 1991). To varying degrees, these critics are persuaded that the popular scripting of men and women into illiterate subject positions conceals how often it is that bureaucracies, not people, fail to be functional; I would not disagree. Denny Taylor (1996) describes these scriptings as “toxic literacies,” brutal assaults that can bring “death by paper” (pp. 15, 16). Taylor invokes toxicity as a metaphor, and it is a compelling one. (In Section 4, I turn to Lawrence Buell’s notion of “toxic discourse” to explore why the metaphor is so compelling.) But just as powerful, I would argue, is the idea that literacy, through the mass consumption of print it enables, could possibly have toxic effects, that death by paper may actually happen. Thus, my point of departure for this article is not what we can hold in mind about the Reader’s Digest article with which I opened but rather what of it we can take in hand as a physical object. My contention is that as we struggle to comprehend the cognitive, cultural, and technological implications of various literacies, we should also think critically about the mundane materials—paper, ink, glue—that enable many of them. Such critical thought could lead us to the conclusion, as I propose at the end of this article, that we take steps to inform ourselves much more deeply about the material processes (and their possible consequences) that make the stuff of reading and writing cheap and plentiful in North America today.

The particular issue of Reader’s Digest that carried “Up From Illiteracy,” millions of copies of which circulated domestically, is printed on a coated magazine stock most likely manufactured by the now-defunct Champion International Corporation at one of its 11 domestic pulp and paper operations (Ault, Walton, & Childers, 1998, pp. 34, 69; Champion International Corporation, 1995, p. 10). (Champion was acquired by International Paper in 2000.) If you have ever spent time near a paper mill, and especially if you did so some decades ago, you
know well that commercial papermaking can foul air and water in ways that cannot be ignored. But the truth is that most North Americans have not had much, if any, exposure to paper mills because mills typically operate where supplies of pure water and young timber are plentiful, far from the urban centers and suburban neighborhoods where most people live and work, and read and write. It is this observation that occasions my argument.

Industrial papermaking has always been an essential element in the cultivation, maintenance, and spread of all sorts of literacies in North America. But although essential, papermaking has historically been a very dirty business. Papermaking has done conspicuous harm to the environment, and its most persistent wastes are possibly toxic enough to induce human disease and death. However, the toxicity of papermaking is usually invisible to the consumers of print material: invisible in the real sense that, as I have said, paper mills are generally located at some distance from population centers, and invisible economically because at least until recently, the toll papermaking has taken in land spoiled and lives lost has not been figured into what we pay for newspapers, books, writing tablets, and so on.

That is the first part of the argument, the part grounded in current conditions and supported by others’ authoritative commentaries on the subject. But there is still more to argue if we wish to understand the relationship between literacy and papermaking. Casting the relationship in historical perspective, we apparently need to reconcile two concurrent developments that originated in the early 20th century: a dramatic increase in demand for print material in the North and the relocation of papermaking from the Northeast to the South to meet this demand. Reconciling these developments prompts me to argue that in particular locations throughout the rural South, over the course of many decades, the presence of paper mills may have damaged the local institutions and compromised the cultural practices that elsewhere tend to support desirable and empowering literacies, schooled and otherwise. I am thus led to test the more general claim that literacy tied to the mass consumption of print—the literacy of cities and suburbs—might be implicated, at least partially, in the suppression of literacies near the rural manufacturing communities that make such consumption possible.

Let me be clear that the data I present here do not prove that pollution weakens economies, nor that economies so weakened cause low literacy. The complexity of the phenomena involved and the degree of proof necessary for academic inquiry make it impossible to argue a
strict causal connection between toxics and literacy. Many of the intervening variables—tax revenue allocation to schools, for instance—cannot be isolated; their singular effects cannot be tested. Rather, the data adduced in my argument work much like circumstantial evidence in a court of law, their accumulation suggesting a strong correlation among paper mill pollution, depressed economic conditions, and low literate activity. As with many claims involving human and environmental variables, local accounts articulate with the force of lived certainty the very connections that academics or government institutions often relegate to the status of “hypothesis” or, in some cases, “hysteria” or rural “ignorance.” These local arguments, although they may not meet the empirical standards of proof expected by academics, have persistently displayed (at least since the mid-20th century) a politically viable, practical logic of their own. In some cases, this persistence has resulted in claims persuasive in court and at the settlement table. Such cases are popularly celebrated in Hollywood films such as *A Civil Action* (Zaillian, 1998) and *Erin Brockovich* (Soderbergh, 2000), and are advanced by the toxics-illness correlations revealed on Internet Web sites such as Health-Track (“About Health-Track,” 2001), funded by the Pew Charitable Trusts.

Throughout this article, I take the measure of both national and local narratives that compete to explain the perceived diminishment of normative literacy in the South (and, particularly, southern Appalachia). This competition tends to center on whether supposedly natural causes (geography and genetics) or social forces (economic and environmental exploitation) are responsible. What is most ironic in this pairing, I will show, is that national narratives that naturalize Southern illiteracy have often reached mass metropolitan audiences by circulating through channels of print communication that were sustained by rural Southern paper production. Calling attention to this irony, I argue that a purely cultural critique of literacy’s consequences in history is, finally, insufficient. We need, in addition, to appreciate literacy as a material practice bound up in cycles of production, consumption, and waste whose outcomes are felt unevenly across regions in the United States and increasingly, across regions worldwide. Such an appreciation is, of course, an impetus to further scholarly inquiry, but also, as I explain in my conclusion, a call to social action.

The case study that follows begins my argument by juxtaposing the standard history of U.S. papermaking with the legacy of a large
mill once operated by the Champion International Corporation in the heart of the Appalachian South.

2.

The most comprehensive history of papermaking in the United States appeared in 1971, and by most accounts, its scope and depth have yet to be superseded. In the book’s concluding summary, David Smith (1971) notes that the paucity of historical writing on papermaking is baffling given the industry’s links with literacy. In his account,

after settlement had come [across the mountains and prairies], and with it some degree of urbanization and sophistication, the demand for paper increased tremendously. Literacy rose to a very high level as a premium was placed on democratic participation[,] which implied school attendance. To meet this need cheaper paper was discovered and the two—cheap paper and literacy—moved together to provide the best-informed peoples in the history of the world. (p. 663)

Urban demand for print, D. Smith says, created a “second paper frontier,” one that pushed from the Northeast into the Midwest, then across the West as well as into the South. He remarks on the ease with which the industry solved “labor and capital antagonisms” along this frontier, in part because it always hired “workmen [who] were more skilled than most.” Also notable has been the industry’s solvency even during recessions and depressions, not to mention its development in the 20th century of an admirable “conservationist” attitude toward stewardship of forest lands (pp. 663-664). But D. Smith concedes, “Pollution was a problem for a long time,” although now, meaning 1969, “The promise for the future is good” (p. 664).

This, of course, is history rendered triumphally, and it should come as no surprise that D. Smith’s (1971) research effort, although professedly unbiased, was underwritten by the paper industry’s leading trade journal (pp. vii, ix). Favoring industry or not, D. Smith’s account has been enormously influential and can be found lodged in much subsequent scholarship. Judith McGaw (1987), for example, in her award-winning study of 19th-century Berkshire papermaking, repeats D. Smith’s claim that there is at least a correlation between increases in literacy and the availability of affordable paper. But then
she intensifies the claim, arguing, “The proliferation of cheap paper made possible a rapid rise in literacy” (p. 9, emphasis added). This may have been so 150 years ago in New England, but we should be wary of generalizations based on the Northeastern experience, generalizations that would suggest that plentiful supplies of low-cost paper always and everywhere drive up rates of normative literacy.

And here is why we should be wary. Economic analyses show that outside the Northeast, the papermaking industry grew not to meet regional or local demand, and not in search of talented labor, but primarily to be near plentiful, inexpensive supplies of the timber needed for pulping (Fuchs, 1962, p. 253; Ohanian, 1993, p. 41; Zieger, 1984, p. 142). From the late 19th century on, there developed what one economist describes as a “tendency of pulp mills to follow in the wake of lumber mills” (Guthrie, 1972, p. 4), a tendency that brought the paper industry into the South, and especially the mountain South.3

The Southern turn in paper production came amid increased demand for print material between 1934 and 1974, driven not only by population growth but also by a steady increase in per capita consumption (Kaestle, Damon-Moore, Stedman, Tinsley, & Trollinger, 1991, pp. 154, 280-283).4 The U.S. population nearly doubled between 1920 and 1970, yet during this time, consumption of paper for books and newspapers increased by a factor of seven, as did consumption of stock for writing and related uses (Guthrie, 1972, pp. 55, 57; U.S. Census Bureau, 1993). Over the same half century, production of paper manufactured using the sulfate (or kraft) process saw better than a 100-fold increase (Guthrie, 1972, p. 82). This statistic is critical for two reasons. First, it is indicative of the discovery that the sulfate process could be used to transform the softwood abundant in Southern pine forests into pulp suitable for manufacturing bright printing and writing papers. Second, it marks industry-wide adoption of a manufacturing technology that was (and is) chemical and energy intensive, and that over the decades has generated considerable air- and waterborne waste (M. Smith, 1997, p. 116).5

The steady growth of print consumption has not been evenly distributed across the United States. Between the late 19th century and the early 1970s, eight studies of workers’ expenditures on reading materials provide enough data to make inferences about regional differences in spending (see Appendix A for a summary of the studies’ findings). In all but the 1972-1973 survey, Southern states show expenditures well below the national average and consistently the lowest in the nation. (In the 1972-1973 survey, expenditure for
newspapers is above average, while spending on magazines and books fits the historical pattern.) Finally, data for the 15-year period 1984-1998 show that the average “consumer unit” in the South consistently spent 15% to 20% less on reading material than counterparts in other regions of the country. All indications are that over the past century, families and individuals in the South have consumed demonstrably less printed matter than their neighbors in the North and the West and that this trend is concurrent with (although not caused by) the rise in Southern paper production and the many consequences attendant upon it.

As I indicated in my introduction, the rise of paper manufacturing in the South and the emergence of regionally uneven demand for print material both became apparent at a time when strong narratives testifying to widespread Southern illiteracy entertained middle-class magazine and book readers in the urban North. As scholars of southern Appalachia have established, the “discovery” or “invention” of the region between 1880 and 1920 depended on the circulation of stories that presented so-called mountaineers as illiterate and therefore unequal to the task of exploiting the natural resources surrounding them (see Batteau, 1990; Billings, Pudup, & Waller, 1995; Eller, 1982; Shapiro, 1978). Figures of the colonizing outlander were celebrated in these stories in a manner that ultimately justified the actual arrival of Northern capitalists eager to profit from the region’s vast reserves of wood and coal. For example, such fictional narratives might contain passages such as the following from local-colorist Mary Noailles Murfree’s general description of mountaineers in east Tennessee. In the 1880s, she portrays them as unfailingly honest and humble, but honest and humble owing to their primitive innocence. A narrator in one story exclaims, “What do the ignorant mountaineers care about money and education!” (Craddock, 1884b, p. 197). In another story, Murfree writes of a young man, a “natural orator,” who “had lived seventeen years in ignorance of the alphabet” before, quite by accident, becoming “the first of his name who could write it” (Craddock, 1884a, p. 163). And Murfree persisted. Some 30 years later, she was still writing stories that featured mountaineers so “very ignorant” that among other things, they feared the “benign law” that had been “framed for their protection” (Craddock, 1912, pp. 58-59). The influence of prose like Murfree’s registers today in such bestsellers as Catherine Marshall’s Christy (1968), in which the protagonist, a privileged young woman from Asheville, North Carolina, brings literacy to young and old alike in a remote Tennessee mountain community.
near the fictional town of El Pano. Marshall fashioned her narrative on the memories of her mother, who, between 1910 and 1912, taught at a Presbyterian mission school near the town of Del Rio in Cocke County, Tennessee. With more than 4 million copies in print, plus adaptation into a CBS television series that aired for 2 seasons in the mid-1990s and continues in reruns on the Hallmark Channel on cable, the *Christy* narrative has successfully retailed century-old assumptions about illiteracy in the mountain South to an English-speaking audience worldwide.7

In the midst of Appalachia’s “discovery” at the turn of the century, Champion International, through one of its antecedents, was establishing itself in the small town of Canton, North Carolina. (Near the Tennessee border, Canton is within the realm Murfree wrote about and is some 30 miles south of the mission school depicted in *Christy*.) Within several decades of its 1908 founding, Champion Fibre’s Canton mill evolved into a center for the production of, among other things, publication stock. Indeed, it was the first mill in the South to produce paper suitable for books (Bartlett, 1995, p. 51), and by mid-century, it was generating some 50,000 tons of bleached and coated paper annually for *Life* magazine (Dykeman, 1955, p. 271).

For years, the Canton mill drew about 50 million gallons of water daily from the nearby Pigeon River, and each day, it discharged into that river the tons of waste generated in the pulping and bleaching of chipped Southern spruce and pine (Bartlett, 1995, pp. 18-19). The river below Canton (at least until the early 1990s) was reportedly coffee-colored, foamy, and malodorous, remaining that way to some extent along its 37-mile course into Tennessee, where it joins the French Broad River just above where the French Broad flows into Douglas Lake (which, as it drains into the Tennessee River, provides Knoxville’s drinking water).

Concerns about the environmental effects of Champion’s mill operation have been expressed since 1909, a year after the mill opened (Bartlett, 1995, pp. 60-64). East Tennesseans living along the Pigeon River, far from fearing the law as Murfree’s story suggests, were active participants in first a state and then a federal lawsuit against Champion over alleged property damage. But that threat seems to have diminished considerably in 1912, when Charles W. Dabney, a distinguished academic well-known to Tennesseans, intervened in the dispute. His involvement is an instructive example of how “sponsors of literacy,” to use Deborah Brandt’s (2001, pp. 17-21) phrase,
inevitably have commitments that complicate their efforts to support literate institutions.

Dabney served as president of the University of Tennessee (UT) in Knoxville from 1887 to 1904, during which time he worked tirelessly to promote primary and secondary education in the South as a foundation for a democratic system of higher education he believed the region lacked. In public addresses, Dabney (1902) frequently lamented high rates of illiteracy in the Southern states, and in a 1901 presentation to the Southern Educational Association, he noted particularly,

Among the whites of the South we have as large a proportion of illiterate men over 21 years of age as we had fifty years ago. In a half century we have made no progress in lifting the dark cloud of ignorance from our own race. . . . Notice that these are not negroes, but grown white men, the descendants of the original southern stock. (pp. 87-88)

Naturally, Dabney had interests apart from sponsoring the literacy of White men in the South. Trained as a chemist, he did a fair amount of what he called “private work” before becoming UT’s president. This private work, according to Dabney’s (1947) memoir, typically entailed showing people how to convert natural resources, such as cottonseed oil, into marketable products, such as salad oil (pp. 169-174). He boasts of having made fortunes for many a man, although he makes clear that he performed this work as service and not for personal gain. How Dabney’s public and private activities may have worked at cross-purposes became evident one day on the front page of the Newport Plain Talk, the weekly newspaper in Cocke County, Tennessee, through which the Pigeon River flows.

Topping the news on January 4, 1912, is a story headlined “Shame of Cocke County,” in which the county’s meager support for its schools is exposed. It is explained that in 1911, the county realized tax revenue of only 5¢ on every $100 of assessed property, whereas the norm for Tennessee counties was 25¢. A professor from the normal school in Johnson City (what is now East Tennessee State University) testified in county court that there are “hundreds of bright boys and girls roaming about these mountains who should have the benefits of higher education,” but do not, because with only 3 months of schooling a year, they are wholly unprepared for university admission.

Further down the page, there appears another headline of interest. It reads, “More Time to Fibre Co. / State Grants Extension While
Purification Process Is Tested.” In this story, we learn that Charles Dabney, along with the Champion mill’s superintendent, met with Tennessee’s governor to inform him that Dabney had “perfected a process that would render” the polluted waters of the Pigeon and French Broad rivers “harmless” (“More Time to Fibre Co.,” 1912, p. 1). Richard Bartlett (1995, pp. 62-75), a historian of the region, contends that after Dabney’s electrochemical process went on line, the river remained quite polluted. He notes that although subsequent legislative attempts to control Champion’s dumping failed, study after study (beginning in 1941) documented the river’s dire condition. Until the late 1970s, when the U.S. Environmental Protection Agency began sanctioning Champion, the company was able to answer its critics by pointing to improvements in pollution control technology, a pattern initiated, perhaps innocently enough, by Dabney more than a half century before.

Newport Plain Talk readers would likely have understood Dabney’s act as an extension of the public service he for years rendered as UT’s president. Current perspective suggests other motivations. For decades after its founding, Champion was controlled by one family, a family that grew as Champion did. The Canton plant superintendent with whom Dabney worked in 1912 was Reuben Buck Robertson, son-in-law of the company’s president, Peter Gibson Thomson (Marks, 2000, Vol. 1, p. 1236, Vol. 5, p. 612). Thomson had founded Champion in 1893 in Hamilton, Ohio, on the banks of the Great Miami River; he and his extended family lived some miles away in a town called College Hill, overlooking downtown Cincinnati (Champion International Corporation, 1994, p. 8; Thomson, 1961, pp. 19-20). There, after 1904, Peter Thomson and his son, Alexander, were ardent supporters of a nearby municipal college’s remarkable transformation into a vibrant urban university, the University of Cincinnati (UC), under the presidency of none other than Charles W. Dabney. Moreover, 3 years after Dabney assumed the UC presidency, his daughter, Mary Moore Dabney, joined the Thomson family as Alexander’s wife (National Cyclopædia, 1984, Vol. 45, p. 511). The Thomsons’ early affinity for Dabney (1904-1905) is understandable, for the latter, in his inaugural address at UC, told an approving audience that the mission of higher education is ultimately to produce “more efficient men” such that they might increase “the productivity, the wealth, and the power of the nation” (p. 33). Wide acceptance of these imperatives—efficiency, productivity, wealth, and power—helped Champion avoid serious legal trouble until well after mid-century.
Only in the 1960s did state and federal regulatory agencies begin to move against Champion with any success (Bartlett, 1995, p. 69). Yet, a decade before this, Wilma Dykeman (1955) echoed long-held local sentiments about the pollution. In her elegant folkloric exploration of the French Broad watershed, she asks, “Who Killed the French Broad?” and it is clear that she holds Champion among the most culpable (pp. 271, 280-281, 284). And what has the killing cost? she asks. Fifty million dollars, she answers—50 million lost in income from the absence of hunting and fishing activities over the years plus untold millions lost in state and municipal tax receipts that might have come from industry that could not locate along rivers so uncleans as the Pigeon and the French Broad, and millions more diverted from municipal treasuries to fund the piping in of drinking water that might otherwise have been drawn at little expense from the rivers (pp. 287-290). Although Dykeman (1955) makes the connection little more explicit than the Newport Plain Talk did decades before, it seems reasonable to draw from her work the implication that Champion’s pollution of the east Tennessee environment had measurable consequences for literacy in the area. Following Dykeman’s logic, public money lost when businesses locate elsewhere, and public money spent coping with environmental degradation, is, plausibly, public money not invested in building more and better local institutions supportive of various literacies.

3.

The foregoing history sets up the two related claims I want to explore in this section: Environmental damage to the Pigeon River watershed led to the diminishment of school-sponsored literacy in Tennessee communities downstream from Champion’s Canton mill, and this damage mounted over time as the mill increased productivity to meet demand for publication paper coming disproportionately from regions outside the South. What is needed to strengthen and better relate these claims, to move them from the realm of the possible to that of the circumstantially probable, is a more compelling chain of evidence linking Champion’s problematic environmental stewardship to the undermining of particular literate institutions.

First, let me move quickly through some statistics that profile the two counties in question: Haywood in North Carolina and its downstream neighbor Cocke in Tennessee. Bartlett (1995, p. 13) describes
the counties as geographically of a piece prior to the arrival of Champion. That would seem to be the case demographically as well. According to the 1890 federal census, Haywood held a slight advantage over Cocke in manufacturing establishments and employees.\textsuperscript{10} Cocke, on the other hand, reported slightly more farms and farm acreage. In both counties, however, most wealth was agricultural. Educational statistics also advance the story of similarity. Census returns for 1900 show that in Haywood, 24.5\% of native-born White males declared themselves to be illiterate; the percentage in Cocke was a negligible two tenths more.\textsuperscript{11} In the schools that year, per-pupil expenditure for Haywood’s enrolled students amounted to $1.48. In Cocke, the figure was a bit higher, $1.63 (see Appendix B). At the turn of the 20th century, then, the demographic similarities between Haywood and Cocke counties far outweighed their differences, with statistics on literacy and educational expenditure typical for the mountain South. But that would change after 1908, when the Champion Fibre Company established itself in the Haywood County town of Canton, upstream from Cocke County.

By 1910, self-reported illiteracy among Haywood’s White adult males had been nearly halved, to 13.7\%, but the comparable figure in Cocke fell almost three percentage points to 21.8. Between 1910 and 1920, this gap between county illiteracy rates remained essentially unchanged. No doubt the change in Haywood’s illiteracy statistic can be accounted for in part by the influx of new workers and their families, evident in an almost 30\% population increase in the decade before 1910. (Perhaps because child and immigrant labor were minimal, Canton’s rapid industrialization did not result in the initial dip in literacy historians sometimes associate with the arrival of factory work; Kaestle et al., 1991, p. 28.) For the same period, Cocke saw a very slight population decline. Of greater importance, per-pupil expenditure in the two counties’ school districts began to diverge after Champion’s arrival, in favor of children in Haywood. From an even footing in 1900, a difference averaging about 50\% emerged by 1910 and persisted through the years just after the Great War. But by the end of the 1920s, a decade that saw phenomenal growth of Champion’s output, the school funding difference had climbed to 137\%, falling only slightly in the succeeding decade. Thus, on the eve of the nation’s entry into WWII, several generations of children in the two counties had passed through schools that were funded at appreciably different levels, with Haywood County schools presumably having resources for literacy learning—more experienced teachers, more and
newer books, longer school terms, and better facilities—that were less available to students in Cocke County. In the general population, about 56% of Haywood residents had better than a sixth-grade education (above average for North Carolina); in Cocke, only 46% could make that claim (well below the Tennessee State average).

Although available data are sketchy, it appears that both the Haywood and Cocke school systems set relatively low property taxes for district funding prior to WWII. This would suggest, then, that the school-funding differential that emerged after Champion’s arrival was tied partially to a difference in taxable wealth held by residents of the two counties. In 1940, Cocke’s wealth derived from both agriculture and manufacturing. Its nine manufacturing establishments turned out goods valued at 2.5 times the worth of the year’s harvest. Meantime, products from Haywood’s 26 manufactorys were valued in excess of 15 times that of the harvest. Moreover, manufacturing wages per capita in Haywood bested those in Cocke by 350%. Cocke even suffered in comparison to its nearest Tennessee neighbor in the Pigeon River watershed. Jefferson County, further downstream from Canton than Cocke County, turned in a harvest that, per capita, was valued 35% higher than Cocke’s. And although much less industrialized than Cocke, Jefferson had consistently matched or surpassed Cocke’s spending on education in the early 20th century and by 1940, could rightly boast that its residents were better educated, at least in years, than its upstream neighbor’s.

Postwar trends in wealth, income, schooling, and school finance all point to the persistent disadvantage of Cocke County, in relation both to Haywood County and to the four Tennessee counties bordering it. Consider, then, a range of social and economic indicators from a decade or so ago, reflective of conditions in Cocke at about the time Champion International began to reduce mill effluents discharged into the Pigeon River.

- Percentage of high school graduates in 1990 was 50.4, about 17 points lower than Haywood and 8 to 13 points lower than adjacent Tennessee counties.12
- Percentage of families with income below poverty level in 1989 was 21.2, more than twice that in Haywood and considerably more than adjacent Tennessee counties (similar results for older persons and children in poverty).
- Per capita local taxes in 1986-1987 were $229, $84 less than Haywood and lowest of all adjacent Tennessee counties.
It should come as no surprise, then, that local estimates of literacy based on the 1992 National Adult Literacy Survey (NALS) point to a major difference between the counties (National Institute for Literacy, 1998; Reder, 1996). In Haywood, half of adults placed in the survey’s lowest two levels, whereas in Cocke, fully two thirds were so placed. According to an initial report on the national survey, participants who performed at the lowest levels were apt to experience considerable difficulty in performing tasks that required them to integrate or synthesize information from complex or lengthy texts or to perform quantitative tasks that involved two or more sequential operations in which the individual had to set up the problem. (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993, p. xv)

At the same time, relatively few persons at these levels perceived their skills to be out of line with the demands of reading and computation in their everyday lives (Kirsch et al., 1993, p. xv).

By comparison, NALS estimates for Butler County, Ohio—Champion’s headquarters until 1967 and center of paper production until its purchase by International Paper—placed 39% of adult residents in Levels 1 and 2, somewhat below the state average (Reder, 1996). Glancing backward, the accumulation of wealth in Butler during Champion’s prewar growth can be read in per-pupil schooling expenditures: four times greater than Cocke in 1940 and often much greater than that in the decades before (Ohio Commissioner of Common Schools, 1891, 1901, 1912; Ohio Director of Education, 1931, 1939; Ohio Superintendent of Public Instruction, 1923).13

In view of the foregoing evidence, what can be said about Champion’s responsibility for the condition of literacy in Cocke County, Tennessee? The evidence, I would argue, makes greatest sense when arranged according to the following narrative logic:

- Champion’s pollution made the Pigeon River in Cocke County unsuitable for industrial use, thereby denying Cocke the wealth it might otherwise have accumulated, both from industry and from the tourism that ultimately gravitated toward cleaner watersheds bordering the Great Smoky Mountains National Park after its opening in 1934.
- Diminished wealth in Cocke led to school funding at a level much below that in neighboring counties.
- Comparatively low school funding in Cocke translated into a host of instructional disadvantages relative to counties nearby: shorter school
terms, briefer teacher tenure, poorer material conditions (books, lighting, ventilation), poorer attendance, lower completion rates, and so on.

- Such schooling resulted in low literacy among adults, literacy here being defined by those from wealthier locales in the state, region, and nation, and primarily in terms of the literate practices valued in those locales.14

Are the relationships implied in this narrative causal or coincidental, real or illusory? Are they in fact meaningful at all? These are decidedly rhetorical questions: rhetorical in the sense that finally, readers must judge the relationships’ validity on the basis of the available evidence and the plausibility of the story in which that evidence is embedded. Consequently, the most persuasive move I can make at this point is to explain how certain social actors in Southern history themselves construed the relationships to be causal and real. Beginning in the 1920s, two groups of actors put representations of literacy in service of “improving” the New South, and specifically rural counties such as Cocke. The first group to make much of the literacy and educational statistics I have reviewed were White Southern educational reformers active from the turn of the century through the 1930s. The second group comprised promoters of Southern industrialization, active from the 1920s on, but with an announced interest in literacy and education only after WWII.

Numerical representations of adult literacy, school completion, and educational expenditures took on a life of their own in publications that documented efforts to bring Southern schooling into the mainstream of the early 20th century. Charles Dabney, in his influential Universal Education in the South (1936), cites approvingly North Carolina’s 1902 “Declaration Against Illiteracy,” which specifically set in causal relation low taxation, low per-pupil spending on education, and high adult illiteracy (pp. 336, 339-340). Indeed, a similar line of reasoning is evident in many of the state-level “better school” movements that Dabney summarizes. The same holds for the work of various Northern philanthropies that urged reform in Southern schooling. Appearing a few years before Dabney’s book was Sanford Winston’s (1930) Illiteracy in the United States, up to that point the most sophisticated examination of published illiteracy statistics and their relation to other indicators of social and economic well-being. Winston concluded, among other things, “High illiteracy rates are found in those states whose school systems have been below average in the past and which continue to rank comparatively low at present”
Winston used as the basis for his finding the last influential text I will mention, Leonard P. Ayres’s (1920) *An Index Number for State School Systems*. Drawing on U.S. Bureau of Education annual reports, Ayres’s book ranked state systems in 10 areas, half having to do with enrollment, half with expenditures. The study, which sampled inflation-adjusted data from 1871 to 1918, placed the Southern states, as a bloc, consistently at the bottom. For Ayers, as well as Winston, Dabney, and numerous other commentators, illiteracy in the South could only be remedied by improving schools, and schools could only be improved by spending more on teachers and buildings.

But where would the money come from? That, initially, was not the concern of regional boosters who sought in the 1920s to lure Northern industry with promises of ample natural resources, inexpensive labor, and low state and local taxation. According to historian James Cobb (1984, pp. 104-105), a literate workforce was not a priority, and logically could not be: Schooling cost tax dollars that industrial investors were unwilling to pay (see also Cobb, 1993, pp. 160-164). But after WWII, Cobb (1984) writes,

Sophisticated firms employing upper-middle-class executives and skilled technicians could ill afford to locate where children of their employees could not be assured of adequate preparation for college. The need for better schools therefore became a favorite topic at development symposia across the South. (p. 104)

An uneasy alliance between promoters of industry and schools was thus born. As with the arguments of Dabney and his contemporaries, the case for improved schooling in the post-WWII South again drew on regional illiteracy statistics and worked backward to inadequate school finance as a primary cause. Ginzberg and Bray’s (1953) *The Uneducated*—the result of government, university, and corporate collaboration—is relentless on this point when it comes to “Southern Industry and the Uneducated” (pp. 136-164). The case is reiterated with more statistical savvy, although less rhetorical force, in Folger and Nam’s (1967, pp. 124-126) oft-cited *Education of the American Population*.15

Today, industry recruitment has begun migrating to the World Wide Web, where it persists in representing literacy and schooling according to the conventions of the past. For example, the Tennessee Department of Economic and Community Development (2001) charts the number of high school graduates for individual counties
and whether they are college-bound or intend to enter the workforce. In this measure, Cocke County does not fare well when compared to adjacent Tennessee counties: In 1998, it had the lowest percentage of graduates, fewer than half, continuing on to college. Cocke also had the lowest assessed property valuation of its neighbors, coupled with the highest property tax rate, to which it added a school tax that is apparently not assessed in the adjacent counties. What sort of schools does this yield? The Tennessee Department of Education’s Comprehensive Assessment Program purports to tell the story on the Internet (Nashville Tennessean, 1999; Tennessee Department of Education, 1999). In reading and language, Cocke County sixth, seventh, and eighth graders performed below the national average in 1999 and below all but one neighboring county. (Younger students did perform at or above the national average in reading and language, as did students enrolled in the county’s single city district.)

But so what? Why put stock in assessment numbers that tell little about the lived literacies of children in Cocke County today? Why give any credence to perspectives on literacy, past or present, that imagine reading and writing only in terms of what happens in school? For that matter, why assume that the industrialization of Cocke County would have necessarily laid the foundation for “better” schooling of children and “higher” literacy among adults? And why assume that the case of Cocke County, Tennessee, is representative of conditions elsewhere in the American South and in the developing world? In answer to the first two questions, I would say that there has not been a better time for finding rich, nuanced studies of communities in which accounts of various literacies are rendered with respect for the worth and dignity of those described (e.g., Brandt, 2001; Cintron, 1997; Cushman, 1998; Goldblatt, 1995; Mahiri, 1998; Moss, 1994). But let me reiterate that it is just as important to appreciate how narrow definitions of literacy have been formulated and why they continue to be powerfully consequential. That is what I hope we can learn from reading the data as Southern school reformers and industrial recruiters did, and perhaps still do. As to whether the situation in Cocke County tells us about conditions elsewhere, I would offer two observations, one about papermaking in the South and a second about papermaking in other regions of the United States.

In every Southern state except West Virginia, numerous pulp and paper mills produce hundreds of thousands of tons of publication paper and newsprint each year (Pulp & Paper Mills in the U.S. & Canada, 1998). Until recently, many of the rivers into which these plants
discharge wastewater were heavily polluted, just as the Pigeon was. Some still are. And for years, downstream residents have registered complaints, as did the residents of Cocke County. Some still do. The communities so affected may differ from those in Cocke—some are poorer, some are much more racially diverse—but the records of pollution and low literacy are essentially the same. A state-by-state appraisal of literacy rates derived from the NALS (1998, pp. 13-15) shows Southern-tier states (with the exceptions of Kentucky, Virginia, and Oklahoma) to have among the highest rates of adults with the lowest level literacy skills. In 1997, in precisely the same region, paper producers were among the top dischargers of carcinogens and persistent toxic metals into rivers that flow through the South: the Mississippi (Westvaco), the Ohio (Willamette), the Savannah (Union Camp, International, Fort James), the Tennessee (Champion International), and the Ouachita (International, Georgia-Pacific) (Baumann, Caplan, & Puchalsky, 2000, Appendix D). (Admittedly, many Southern waterways were also burdened with carcinogens and metals from sources other than pulp and paper mills; Baumann et al., 2000, Appendix E.) Environmentalists, and to some extent state and federal agencies, have responded to this situation, as reported in local and regional newspapers. Despite cleanup efforts in the 1990s, the past several years have seen ongoing legal action brought by government, environmental groups, and individuals against paper mills in the South (e.g., “After Protest,” 1999; Brown, 2000; Dawson, 2000; Elliott, 1999; Harper, 1999; McCord, 2000; Moreton, 1999; Patterson, 2000).

My second observation is meant to bring national perspective to my characterization of Cocke County and the South more generally. The confluence of environmental and social conditions I have described may not be unique to the Southland, but it is certainly much more prevalent there than elsewhere. Consider the 23 pulp and paper mills—in addition to Champion’s Canton works—that were established around the country by 1910, deemed major producers by 1970, and still operating (some rebuilt) by 1990 (Allan, Kaufman, & Underwood, 1972; Miller Freeman Publications, 1989). These mills are clustered in Wisconsin (seven), Maine (four), and upstate New York (four), as well as scattered across Pennsylvania, Michigan, Minnesota, Oregon, and Maryland. In Wisconsin, five historic mills abut the Wisconsin River, four alone in Wood County, 90 miles north-northwest of the state capital, Madison. As in Cocke County, synthetic estimates of 1992 NALS data (Reder, 1996) for counties along the Wisconsin River show a marked decrease in literacy in the two adjacent
counties, Juneau and Adams, through which the river flows as it passes south out of Wood County. And as in Tennessee, literacy levels rebound as the river curves westward before emptying into the Mississippi (see Appendix C). This pattern is not evident in counties downstream from the 18 other old mills surveyed. It would appear, then, that conditions prevailing near many Southern paper mills are not readily duplicated outside the South, yet are not entirely an artifact of that region.

Again, as before, I must stress that nothing of a causal nature is proven by data on the Wisconsin River. Still, local concern about the river’s fate resonates with that registered in Tennessee two decades ago. In Wisconsin, the 1980s began with company scientists anticipating tighter regulation of effluent discharges into river water (e.g., Kuenzi & Thiel, 1980; Weinbauer, Thiel, Kaczynski, & Martin, 1980) and ended with university and government researchers with local ties quantifying dioxin in mill discharge and its likely uptake by fish (e.g., Kuehl, Butterworth, DeVita, & Sauer, 1987; Kuehl, Cook, Batterman, Lothenbach, & Butterworth, 1987). The river’s problems also received major press coverage, including a powerful investigative report in the *Milwaukee Journal* (Behm, 1989). A feature common to all of these texts, even the scientific studies, is an engaging practical logic that assumes that there must be some connection between the pollution they document and the physical health of nearby animal and human communities. Examining how this logic plays out in texts that construe “community health” more liberally takes me back to the North Carolina-Tennessee border.

4.

About a decade ago, people living in communities near Champion’s Canton mill began to suspect that clusters of certain cancers were linked to the presence of dioxins in mill effluents and emissions (Manzo & Harris, 1997). Champion denied any connection but nevertheless, in 1994, completed a multimillion-dollar renovation of its facility aimed at reducing the discharge of dioxins and other pollutants into the Pigeon River. Expense and sophistication aside, this modernization recalls an earlier one: Charles Dabney’s promised solution some 70 years before that quashed potentially bankrupting litigation. Just as they had been years ago, concerned residents in the early 1990s were left wondering on whose authority it could be
assumed that the river was clean. In the trade press, Champion touted the effectiveness of its new filtration technology ("Champion Evaluates," 1997; "Paper Industry," 1997). But in the mainstream media, the focus was on those who claimed to have suffered from dioxin in mill effluents released before the new technology was brought on line. A segment on ABC’s Primetime Live (Quinones, 1995) featured interviews with the residents of Hartford, Tennessee, who for years drank water and ate fish taken from the Pigeon River in Cocke County. According to reporter John Quinones (1995), deaths from bone, ovarian, nervous system, and cervical cancer between 1980 and 1993 ran well above the national average. At the time, however, the best available environmental science could not establish a causal connection between dioxins and cancers like those observed in Hartford. Still, with all apparent sincerity, a Cocke County environmental activist could claim on camera, “Pollution killed Hartford just as sure as you had went up and bombed it or if Champion had come down and bombed it, if they had burned it down.”

Evaluations of water filtration technology and cancer epidemiology lie beyond the scope of this article and my expertise. However, germane to my argument is the discourse that others bring to bear on these problems when speaking and writing publicly. This “toxic discourse,” to use Lawrence Buell’s (1998) phrase, is well suited to the cause of blaming the river’s destruction on the chemistry of industrial papermaking and, by extension, on the greed of industrial papermakers. It can fix the consequences of this chemistry and greed in terms of lost economic opportunity, but as in the ABC report, it is most graphic, most effective, when it calculates the toll in human suffering and death. Still, for all its effectiveness, toxic discourse typically lacks a vocabulary for elaborating more subtle concerns: the effects of paper mill pollution on the social prospects of literacy, for example. When a Hartford resident tells millions in ABC’s television audience (Quinones, 1995), “Who knowed what dioxin poison was? I never heard of it,” some viewers are bound to question the speaker’s literacy. Yet the report, and the larger discourse of which it is a part, ascribes little if any significance to literacy when calculating damage done by toxic waste. Why should this be? The answer, I believe, has much to do with the fact that the rhetorical constituents of toxic discourse depend on a figuration of literacy as purely cultural, without a substantial link to the material practices of production, consumption, and waste described in this article.
Let me unpack this claim by first briefly describing Buell’s (1998) notion of toxic discourse. He observes that four topoi are dominant in the discourse’s rhetoric: a shocked sense of “pastoral betrayal,” “totalizing images of a world without refuge from toxic penetration,” the “moral passion of a battle between David and Goliath,” and an appreciation of place constituted in a “Virgilian gothic” mode (pp. 649, 648, 651, 654). What all four topoi share, Buell contends, are “precursor forms [that] predate early industrialization” (p. 654). In other words, when speaking and writing about toxic environments, the discursive resources most commonly available to us are those conditioned by centuries-old narratives of nature and culture: narratives that express suspicions of modernization and modernity, however they might be defined in their historical moment.

Modernity, as figured in the middling White imaginary, has long advanced literacy as a (sometimes the) central agency of progress (Graff, 1987). What, then, is the fate of literacy in discourses, such as toxic discourse, that express suspicions of modernity? Is suspicion of literacy embedded in toxic discourse? In U.S. history, suspicion of literacy has certainly marked the words of those facing, even those choosing, assimilation into a cultural mainstream that prizes conspicuous literate ability (e.g., Gates, 1988; Purcell-Gates, 1995). Such suspicion also registers among “elites” fearing the erosion of privilege from newly literate classes “below” (e.g., Davidson, 1986; Lehuu, 2000). But in the main, over the course of several centuries in North America, those with what George Lipsitz (1998) calls a “possessive investment in whiteness” (pp. 1-23) have unquestioningly placed great value on the acquisition and application of literacy as a form of cultural capital. So it is that toxic discourse, if it comprehends literacy at all, typically celebrates it as enabling victims of environmental pollution to talk back to power, to effect positive change. ABC’s *Primetime Live* (Quinones, 1995) coverage focused on Hartford’s cancer victims, but it also gave airtime to Gaye Webb, representative of the Dead Pigeon River Council, a local group that began in the 1980s to put legal pressure on Champion and to draw media attention Cocke County’s plight. This all goes to the heart of Buell’s (1998) contention that an emerging “shared paradigm of cultural self-identification” brightens the prospect that “testimony of ordinary citizens’ anxiety about environmental degradation can have substantial influence on public policy” (p. 665). But that testimony will be incomplete if toxic discourse fails to account for the fact that literacy as we know it today, the mass...
consumption of print material, produces massive amounts of toxic waste. And it will be more than incomplete: It will be maliciously negligent if we fail to acknowledge that this toxicity is least visible where demand for print is greatest and most deeply felt—in damage to literate institutions, as I have argued—where demand for print is least.

Given the current tenor of toxic discourse, the worst outcome I can imagine is played out as a subplot in Sharyn McCrumb’s (1993) The Hangman’s Beautiful Daughter, a popular murder mystery that features a fictional paper mill on the fictional Little Dove River near the nonfictional North Carolina–Tennessee border. Convinced he is dying of cancer caused by the paper mill’s poisoning of the Little Dove, Tavy Annis and a friend drive to the North Carolina mill bearing a Stevensian “jar” from Tennessee “filled with murky brown liquid” from the river (p. 323). Previously, Annis had put all his literate skills to work seeking support from state and federal regulatory agencies, to no avail. With this failure of literacy as a backdrop, Annis confronts the paper mill’s president at gunpoint:

Did you know that you are releasing into the Little Dove River mercury, dioxin, sulphur, and cadmium? Did you know that you are exceeding federal EPA levels for each of them? Did you know that three of those substances are cancer causing? (p. 322)

He then levels this threat: “Pick up the jar and drink, or we’ll blow your goddamn head off” (p. 324). The squirming executive opts to drink, after which Annis and his accomplice flee the scene. We are obviously meant to despise the heartless executive and pity the innocent cancer victim; but the victory is clearly hollow. Nothing occurs to repair the institutions that have failed Tavy Annis, and the injustice of his impending death leads readers away from considering how the illiteracy represented elsewhere in McCrumb’s novel might be related.

As readers and writers trained to relish irony, we may be tempted into satisfaction with the contradiction that something so seemingly natural as literacy might, in practice, have unnatural effects that are profoundly unjust in their distribution. I would argue that nothing justifies this satisfaction, and everything points instead toward discerning what might be done to move beyond the limits of cultural
analysis to action in the material world. But how should we act, especially given the strong but circumstantial nature of the evidence? As a parting gesture, I will offer several suggestions appropriate to the work of teaching and inquiry that join us in common cause.

We could, of course, begin by changing patterns of paper consumption in our own institutions: schools, colleges, universities, nonprofit and government agencies, and the like. However, how best to change is difficult to know. The Paper Task Force (PTF) (1995)—a consortium that included Duke University, the Environmental Defense Fund, and four major corporations—recently offered recommendations ranging from advice on purchasing “environmentally preferable paper” to plans for reducing paper consumption. The PTF has come under fire from environmental groups that believe the report simply supports the “status quo of pulp and paper industry practices” by failing to address the need for developing alternatives to wood fiber pulp (ReThink Paper, 1996). A more circumspect evaluation by economist Maureen Smith (1997, pp. 229-254) finds rigor and merit in the PTF’s study but worries that meaningful monitoring of institutional paper consumption depends on “sophisticated” buyers having access to information that is not yet (and may never be) readily available from manufacturers or in the public domain. M. Smith finds more attractive the development of regionally sustainable paper production and consumption, a prospect that can be made attractive by illuminating the reduced transportation costs to be realized when supply lines from raw material to fabrication to final delivery are shortened. Implicit in the regional view, she remarks, is heightened attention to environmental concerns: Just as supply lines are shortened, so is the physical distance between producers and consumers. Producers thus must account for the likelihood that nearby consumers will act out of self-interest to discourage environmentally damaging production. Critical here, just as in the PTF scheme, is the circulation of timely, accurate information and the ability of consumers to understand it. How readers of this journal might put such information to use is a highly speculative matter, for the model of regional sustainability that M. Smith holds up as ideal is far from our lived reality of production and consumption today.

Be that as it may, the lesson (once again) that knowledge is power holds potential for gaining some small measure of influence over a particular kind of paper consumption in which we may be involved: the adoption of school and university textbooks. What I am proposing hinges on our ability to work with textbook publishers in
gathering information about the labor and materials that constitute their wares. I am not assuming, I should stress, that publishers currently possess this information. In most large houses, as in most other corporations, knowledge about manufacturing is distributed across divisions and among personnel and so is not easily condensed into reportable form. Yet headway on such reporting could be made if consumers were, in concert, to express how such reporting might factor into the purchasing decisions they make on behalf of students. But I am getting ahead of myself. To appreciate the possibilities and urgency here, it is helpful to know more about relevant trends in publishing and allied industries, including papermaking.

The U.S. paper industry is going global (for one account, see Carrere & Lohmann, 1996). Companies either are acquiring substantial foreign assets or are themselves becoming assets under foreign ownership. Champion International, for example, was nearly bought by the Finnish forest products conglomerate UPM/Kymmene before being absorbed by U.S.-owned International Paper (“International Paper in Deal,” 2000). As its name suggests, International Paper has a worldwide presence, with operations in Europe, Latin America, and China. Corporate literature issued by International Paper and its peers points out to investors how entering emerging markets around the world will fuel the growth of shareholder wealth and how company-wide economies of scale will reduce production expenses, also contributing to an increased bottom line. What often goes unspoken is that global operations enable a flexible response to domestic developments that can threaten profits: health, safety, and environmental regulation among them. This flexibility may enhance shareholder value, but it has the potential to diminish what we can know about the consequences of the paper manufacturing process.

Among the parties that help deliver printed matter to U.S. consumers, papermakers are hardly alone in their global reach. Many wholesale purchasers of paper, printers such as Chicago-based R. R. Donnelley and Sons (1998), have plants worldwide. And the major publishers served by the printing firms all have active foreign interests or are themselves subject to foreign ownership. The Association of American Publishers reports that in 1999, the U.S. book trade saw revenues of $24 billion. Of that, $3.42 billion came from textbook sales in the K-12 market and $3.1 billion from sales to higher education (Association of American Publishers, 2000). Educational Marketer (“Pearson Education Maintains,” 2000; “Pearson Education Remains,” 2000), a trade newsletter, calculates annual sales of
instructional materials (including some nonbook items), estimating
that the 1999 K-12 market, worth $4.57 billion, was dominated by
Pearson Education, with a 20.7% share, followed closely by McGraw-
Hill (19.9%), Houghton Mifflin (14.4%), and Harcourt (12.7%). In the
$2.86 billion 1999 college market, Pearson’s share was 27.3%, fol-
lowed by Thomson (17.4%), McGraw-Hill (10.8%), Houghton Mifflin
(9.4%), Harcourt (5.7%), and Georg Von Holtzbrinck (3.8%). With
Pearson, Thomson, and Von Holtzbrinck part of international con-
glomerates based in the United Kingdom, Canada, and Germany,
respectively, about a quarter of the 1999 K-12 domestic textbook mar-
et was controlled by transnational corporations with ultimate own-
ership outside the United States. The percentage for the higher edu-
cation book market was nearly half. In some sense, however, these
figures on foreign ownership are not so special. All major publishers
operating in the United States, whether held here or elsewhere,
publicly or privately, have business alliances around the world and are
tied into a “global commercial media market” (McChesney, 2000, p. 78;
see also Schiffrin, 2000). It is simply that corporations like Pearson plc,
owner of Pearson Education, have had more experience working
with international vendors in the publishing supply chain—composi-
tors, printers, papermakers, binders—than the U.S. firms that are now
just broadening their reach.

Imagine, then, the following scenario: A college textbook, authored
and edited in the United States, is typeset from manuscript by a com-
positor in Beijing, plated and printed with extensive four-color illus-
trations in Hong Kong on paper from Indonesia with ink from Japan,
and shipped back to the United States for distribution. This produc-
tion sequence is fictional, but it is not completely out of the realm of
possibility. Something like this could happen if—crudely put—
savings in labor, material, and energy costs during manufacturing
more than offset transportation costs. That textbooks are not typically
made this way today does not mean that they will not be someday.
The United States is currently a net exporter of textbooks: better than 3
to 1 on a value basis in 1999. But the nation is a net importer of text-
books printed in Hong Kong and the People’s Republic of China: In
1999, the ratio was nearly 2:1 for Hong Kong and 5:3 for the remainder
of the People’s Republic of China (U.S. International Trade Adminis-
tration, Office of Consumer Goods, 2000a, 2000b). Many titles fall into
the import category, including instructional series design for the new-
est readers among us. To cite just one of many possible examples,
Rigby’s popular Rhyme World series (Mitton’s 1999 Mr. Clog and the
Log is a typical title) are printed in Hong Kong for the Illinois-based subsidiary of the Dutch-British collaboration, Reed Elsevier. In a related category, the United States is also a major importer of other texts useful to teachers and parents working to initiate young people to the ways of literacy. The International Reading Association (1999) annually identifies Teachers’ Choices titles that have been extensively field tested in classrooms and libraries across the county. On its 1999 list of titles for primary-level readers, five titles were printed in Hong Kong, two in Singapore, two in the United States, and one in Mexico (see Appendix D1). A similar distribution can be found on a recent Publishers Weekly children’s bestseller list: five printed in China, including Hong Kong; two in Singapore; two in the United States; and one in Mexico (Publishers Weekly, 2000; see Appendix D2).

There is nothing intrinsically wrong with importing textbooks, or any books, from Asia or anywhere else in the world. In fact, it could be argued that importation keeps prices competitive, thus enhancing the diffusion of reading material domestically. But the alignment of paper, printing, and publishing resources abroad does make it difficult to know about the consequences of manufacturing processes, especially papermaking, for workers and for those who must subsist in the environments touched by those processes. As I trust I have made clear, there is difficulty enough in gathering such information about papermaking in the United States. For a nation as large and diverse as, say, China, piecing together currently available Western-language intelligence on papermaking with statistics on literacy, school completion, and public expenditure on education is not likely to yield findings of definitive value. Yet there is sufficient evidence of papermaking’s impact on China’s rural landscape—in Hebei and Fujian provinces, for example—to warrant serious concern (U.N. Development Programme, 1999, p. 77). Publication paper produced in these areas may not be destined for export, but it may well substitute for exported paper made in other provinces that might otherwise serve the needs of Chinese citizens.

Obviously, we need a much sharper picture of how procurement and consumption of print material affects the environment for literacy learning at home and abroad. That is why it makes sense for those who influence or direct textbook purchases to pursue disclosure of relevant information about the material conditions surrounding textbook manufacturing. Many books already carry a notice on the copyright page attesting to the quality of paper bound between the covers. But it is rare to find a statement on the environmental, health, and
safety entailments of that paper. Some university and trade presses are moving in this direction, but it seems not to be a widespread practice yet among textbook publishers. That could change if it were to be made clear through appropriate channels that such disclosure is valued.

Efforts need not stop at the bookstore shelf. Curricula across the disciplines and at many levels attend to regional cultures within our national boundaries and to cultures outside the United States made visible by the new global economy. Students could learn for themselves how their consumption of print at home affects others elsewhere in the nation and the world. They will find for the United States an array of data on workplace safety, toxic releases, school expenditure, and educational attainment that can be synthesized into meaningful portraits of local conditions. They will find the extent to which their teachers, through pension investments, depend on continued growth and profitability of papermakers, printers, and publishers. And, as I have said, they will find, finally, that there is little breadth and depth to similar information on such entities outside the United States. Not only is it difficult to learn about labor and environmental conditions around manufactories beyond U.S. borders, it is also not easy to come by reliable accounts of literacy in these locales. In short, students will learn that without the cooperation of the myriad corporations and governments along global supply chains, or without the good fortune of interventions by effective nongovernmental organizations, their ability to be informed consumers of printed matter is quite limited.

Still, whatever we do now will not change the ironic circumstances, past and present, that I have addressed in this article. And by itself, any action we take will not effect immediate or great change in the paper, printing, and publishing industries. After all, the texts for the 69 million school, college, and university students, useful for 3 to 4 years at a stretch, amount to little alongside, say, the worldwide circulation of Reader’s Digest, which is about 24 million disposable copies monthly (National Center for Educational Statistics, 1999, Table 3; “Reader’s Digest Association,” 2001). As academics, we might be tempted to forego action, citing inconclusive evidence: We know that where there is smoke, there isn’t necessarily fire. But surely, in this instance, there is smoke enough to capture our attention—to warrant vigilance, if not yet the sounding of an alarm. For it remains our responsibility, as persons who profess expert knowledge about the cultural and cognitive dimensions of literacies, to understand as fully
as possible the material implications of literacies and to act decisively to ameliorate those literacies’ potentially toxic legacies.

APPENDIX A

Regional Differences in U.S. Consumption of Reading Material, 1888-1998

<table>
<thead>
<tr>
<th>Year(s)</th>
<th>Region With Greatest Consumption (per consumer unit)</th>
<th>% Above Average for All Regions Studied</th>
<th>Region With Least Consumption (per consumer unit) Studied</th>
<th>% Below Average for All Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1888-1889</td>
<td>North</td>
<td>+20.12</td>
<td>South</td>
<td>−36.78</td>
</tr>
<tr>
<td>1901</td>
<td>West</td>
<td>+58.96</td>
<td>South Central</td>
<td>−26.42</td>
</tr>
<tr>
<td>1918-1919</td>
<td>West</td>
<td>+16.59</td>
<td>South Atlantic</td>
<td>−10.14</td>
</tr>
<tr>
<td>1922-1924</td>
<td>North Central</td>
<td>+19.64</td>
<td>South</td>
<td>−26.79</td>
</tr>
<tr>
<td>1934-1936</td>
<td>North Atlantic</td>
<td>+8.98</td>
<td>South</td>
<td>−23.94</td>
</tr>
<tr>
<td>1950</td>
<td>North</td>
<td>+8.75</td>
<td>South</td>
<td>−5.82</td>
</tr>
<tr>
<td>1960-1961</td>
<td>Northeast</td>
<td>+24.05</td>
<td>South</td>
<td>−24.23</td>
</tr>
<tr>
<td>1972-1973</td>
<td>West</td>
<td>+22.15</td>
<td>Northeast</td>
<td>−7.50</td>
</tr>
<tr>
<td>1984-1998</td>
<td>North</td>
<td>+16.78</td>
<td>South</td>
<td>−17.40</td>
</tr>
</tbody>
</table>

NOTE: Sources used here were employed by Kaestle, Damon-Moore, Stedman, Tinsley, and Trollinger (1991, pp. 149-179) to plot national trends in consumption of reading material versus other consumer activities. Their study did not track regional differences in consumption over time.

DEMOGRAPHICS:

1888-1889 (U.S. Department of Labor, 1891). Expenditures on books and newspapers by 3,260 families whose heads worked in various aspects of the steel industry.

1901 (U.S. Department of Commerce and Labor, 1904). Expenditures on books and newspapers by 2,567 families, the heads of which worked for wages or salaries not exceeding $1,200 per year.


1922-1924 (U.S. Department of Agriculture, 1926). Expenditures on reading matter by 2,886 farmers (owners, cash and share tenants, and hired men or managers).

1934-1936 (U.S. Bureau of Labor Statistics, 1939a, 1939b, 1939c, 1939d, 1940, 1941a, 1941b). Expenditures on reading (newspapers, street; newspapers, home delivery; magazines; books purchases, other than school texts; books borrowed from loan libraries) by 14,469 White and African American families in 42 cities.

1950 (Wharton School of Finance and Commerce, 1956). Expenditures for newspapers, magazines, and books of 12,489 families in large cities, suburbs, and small cities.


APPENDIX B
Summary of Per-Pupil Expenditures for Schooling in Three U.S. Counties (in unadjusted U.S. dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cocke County, Tennessee</th>
<th>Haywood County, North Carolina</th>
<th>Butler County, Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890</td>
<td>1.57</td>
<td>1.66</td>
<td>26.36</td>
</tr>
<tr>
<td>1900</td>
<td>1.63</td>
<td>1.48</td>
<td>26.61</td>
</tr>
<tr>
<td>1910</td>
<td>3.52</td>
<td>5.41</td>
<td>44.12</td>
</tr>
<tr>
<td>1920</td>
<td>10.42</td>
<td>15.06</td>
<td>76.91</td>
</tr>
<tr>
<td>1930</td>
<td>28.33</td>
<td>67.16</td>
<td>115.76</td>
</tr>
<tr>
<td>1940</td>
<td>26.89</td>
<td>59.56</td>
<td>110.35</td>
</tr>
<tr>
<td>1950</td>
<td>119.54</td>
<td>172.41</td>
<td>—</td>
</tr>
<tr>
<td>1960</td>
<td>145.64</td>
<td>235.52</td>
<td>—</td>
</tr>
</tbody>
</table>

NOTE: Per-pupil expenditures in Cocke County, Tennessee, and Haywood County, North Carolina, were calculated at 10-year intervals between 1890 and 1960. Comparative figures for Butler County, Ohio, were calculated at the same interval between 1890 and 1940. To maintain consistency across the decades, reports of enrolled students were used (as opposed to enumerations of school-age children or average daily attendance). Expenditures include both outlays for current operations and capital projects, including debt service. Enrollment and expenditure data were not always available at precisely 10-year intervals; in such cases, data from adjacent years were substituted. Because decade-to-decade comparisons are not made, expenditure figures are not adjusted for inflation. Data were gleaned from annual or biennial reports of state education officers to the state’s chief executive or legislative body. Complete citations to the reports appear in the reference list. Actual report dates follow.

SOURCES:


APPENDIX C

1990 Adult Literacy Estimates for Counties on the Wisconsin River

<table>
<thead>
<tr>
<th>County</th>
<th>Level 1</th>
<th>Level 1 or 2</th>
<th>Company (as of 1990)</th>
<th>Location</th>
<th>Founding Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marathon</td>
<td>12</td>
<td>39</td>
<td>Weyerhaeuser Paper Company</td>
<td>Rothschild</td>
<td>1909</td>
</tr>
<tr>
<td>Portage</td>
<td>11</td>
<td>38</td>
<td>Consolidated Papers, Inc.</td>
<td>Biron</td>
<td>1894/1911</td>
</tr>
<tr>
<td>Wood</td>
<td>13</td>
<td>41</td>
<td>Consolidated Papers, Inc.</td>
<td>Wisconsin Rapids</td>
<td>1900</td>
</tr>
<tr>
<td>Juneau</td>
<td>16</td>
<td>48</td>
<td>Nekoosa Papers, Inc.</td>
<td>Nekoosa</td>
<td>1894-1895</td>
</tr>
<tr>
<td>Adams</td>
<td>22</td>
<td>55</td>
<td>Nekoosa Papers, Inc.</td>
<td>Port Edwards</td>
<td>1894</td>
</tr>
<tr>
<td>Sauk</td>
<td>12</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia</td>
<td>13</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dane</td>
<td>9</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iowa</td>
<td>9</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richland</td>
<td>14</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crawford</td>
<td>14</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grant</td>
<td>11</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: National Adult Literacy Survey (NALS) data are from Reder (1996), 1990 mill ownership is from Miller Freeman Publications (1989), and mill founding dates are from Allan, Kaufman, and Underwood (1972).

NOTE: Both Consolidated mills are now owned by Stora Enso North America; both Nekoosa mills are now owned by the Georgia-Pacific Corporation (Paper Loop Publications, 2000).

APPENDIX D1

Titles on the International Reading Association’s Teachers’ Choices for 1999 List for Primary-Level Readers

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Year</th>
<th>Publisher</th>
<th>Printed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Cowboy Wild Horses</td>
<td>Lester</td>
<td>1998</td>
<td>Penguin Putnam</td>
<td>Italy</td>
</tr>
<tr>
<td>Boom Town</td>
<td>Levitin</td>
<td>1998</td>
<td>Orchard</td>
<td>United States</td>
</tr>
<tr>
<td>Drummer Boy</td>
<td>Turner</td>
<td>1998</td>
<td>HarperCollins</td>
<td>United States</td>
</tr>
<tr>
<td>Emma and the Silk Train</td>
<td>Lawson</td>
<td>1998</td>
<td>Kids Can Press</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>My Freedom Trip</td>
<td>Park &amp; Park</td>
<td>1998</td>
<td>Boyds Mills</td>
<td>Mexico</td>
</tr>
<tr>
<td>Raising Yoder's Barn</td>
<td>Yolen</td>
<td>1998</td>
<td>Little, Brown</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>Soaring with the Wind</td>
<td>Gibbons</td>
<td>1998</td>
<td>Morrow</td>
<td>Singapore</td>
</tr>
</tbody>
</table>
The Summer My Father
Was Ten
Brisson 1998 Boyds Mills China
Thank You, Mr. Falker
Polacco 1998 Penguin Putnam Hong Kong
This Is the Sea That Feeds Us
Baldwin 1998 Dawn Hong Kong

APPENDIX D2
Titles on the Publishers Weekly Children’s Bestseller List (July 2000)

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Year</th>
<th>Publisher</th>
<th>Printed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>How Do Dinosaurs Say Goodnight?</td>
<td>Yolen</td>
<td>2000</td>
<td>Scholastic</td>
<td>Mexico</td>
</tr>
<tr>
<td>Joseph Had a Little Overcoat</td>
<td>Taback</td>
<td>1999</td>
<td>Viking</td>
<td>China</td>
</tr>
<tr>
<td>The Quiltmaker’s Gift</td>
<td>Brumbeau</td>
<td>1999</td>
<td>Pfeifer-Hamilton</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>What’s Heaven?</td>
<td>Shriver</td>
<td>1999</td>
<td>St. Martin’s</td>
<td>United States</td>
</tr>
<tr>
<td>Click Clack Moo</td>
<td>Cronin</td>
<td>2000</td>
<td>Simon &amp; Schuster</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>Henry Hikes to Fitchburg</td>
<td>Johnson</td>
<td>2000</td>
<td>Houghton Mifflin</td>
<td>Singapore</td>
</tr>
<tr>
<td>Emily’s First 100 Days of School</td>
<td>Wells</td>
<td>2000</td>
<td>Hyperion</td>
<td>Singapore</td>
</tr>
<tr>
<td>For the Children</td>
<td>Pope John</td>
<td></td>
<td>Scholastic</td>
<td>China</td>
</tr>
<tr>
<td>What Dads Can’t Do</td>
<td>Paul II</td>
<td>2000</td>
<td>Simon &amp; Schuster</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>Does a Kangaroo Have a Mother, Too?</td>
<td>Carle</td>
<td>2000</td>
<td>HarperCollins</td>
<td>United States</td>
</tr>
</tbody>
</table>

NOTES

1. Reprinted with permission from the Reader’s Digest, copyright © 1992 by The Reader’s Digest Association, Inc.
3. In relocating, the new mills showed a preference for rural places, a preference still seen today. A little more than a decade ago, it was estimated that 90% of pulp and paper mills in the United States were located in cities with populations below 100,000,
with one third of the mills being near towns of 2,500 or less. Also, for 137 communities, the paper mill was the only employer (Zieger, cited in Bartlett, 1995, p. 25).

4. Rising demand for printing paper predated the arrival of sulfate pulping but is difficult to quantify in terms of production. Examining consumption is suggestive, however. For example, the market for magazines began to expand rapidly in the 1890s as advertising spurred growth and consolidation among publishers (Ohmann, 1996, pp. 25-29).

5. Today, pulp and paper manufacturing is “the fifth largest industrial consumer of energy” worldwide (Abramovitz & Mattoon, 1999, p. 26). Indeed, papermaking has long been an energy intensive enterprise. No doubt the industry’s expansion in the early 20th century contributed its share to the quadrupling of energy consumption in the United States between 1880 and 1920, a time when the population only doubled (Nye, 1998, p. 132). Such a steep increase in energy consumption has resulted in sharp increases in air pollution from fossil fuel combustion, which in turn has “increased the inequalities in wealth and power among different parts of the world” (McNeill, 2000, pp. 15-16).

6. In an excellent study of the origins of Appalachian stereotypes, David Hsiung (1997, pp. 175-182) takes up these examples from Murfree, showing them to be consistent with narratives about the region that circulated even before the Civil War.

7. Two episodes of the television series—drawn from the novel—focus particularly on adult illiteracy in the fictional Cutter Gap: “A Closer Walk” (Green, 1994) and “Second Sight” (Ford, 1995). In both, Christy Huddleston (Kellie Martin) struggles to teach Fairlight Spencer (Tess Harper) how to read. Ironically, it is the illiterate Fairlight, not her teacher, who recognizes that a patron of Huddleston’s mission school is using his philanthropy as an opening to acquire forest lands for clear-cutting. Interestingly, the series did not reproduce a chapter from the novel (Marshall, 1968) in which Christy travels to Knoxville to speak to a ladies’ club about her work in the mountains. Her presentation includes a recitation of 1910 census figures on adult illiteracy in east Tennessee (Marshall, 1968, pp. 384-385).

8. Dykeman, a resident of Newport, has been Tennessee’s state historian since 1981.

9. Bartlett (1995) details a report by two economists from Walters State Community College in which they calculate that a clean Pigeon River could have been the source of millions in recreational and tourist dollars each year between 1988 and 1997 (pp. 122-129).

10. U.S. Census data from 1890-1940 represented in this section were derived using the United States Historical Census Browser (University of Virginia Library, 1998). The browser draws on data initially assembled by the Inter-University Consortium for Political and Social Research.

11. Since the early 1900s, both Haywood and Cocke counties have had very small African American populations. Until the 1960s, annual reports indicate that schooling was racially segregated in both counties. Expenditures on schools for Black students typically were less than those for White schools, yet sometimes Black students enjoyed longer school terms than White students. See Anderson (1988, pp. 148-185) for details on common schools for Southern African American children in the early part of the 20th century.

12. County-level data on graduation rates, poverty, and taxation were derived using a browser interface for 1994 federal statistics on U.S. counties and cities (University of Virginia Library, 2000).
13. Monetary capital is not all that has flowed out of east Tennessee into southern Ohio. At least four generations of southern Appalachian natives have resettled in the Miami River Valley, including various cities and towns in Butler County (Obermiller & Maloney, 1994, p. 9). Indeed, Champion founder Peter Thomson once boasted “that he hired ‘only mountain people,’” and his grandson offered that the Kentuckians among them were “‘amazing workers and very ingenious and loyal people’” (Champion International Corporation, 1994, p. 15). Studies of out-migration from southern Appalachia confirm that a significant number of eastern Kentuckians settled in Hamilton, the county seat of Butler. In the 1960s, as migration from Kentucky decreased, east Tennesseans began arriving in appreciable numbers (McCoy & Brown, 1981, p. 48). Those who provide schooling and social services in the area have identified low literacy as a problem among “urban Appalachians” that may carry over from weak educational institutions in southern Appalachia (e.g., DeStefano, 1994)—institutions compromised, as I am arguing, by economic interests that draw capital out of the region. Purcell-Gates’s (1995) ethnographic study of one urban Appalachian family in the lower Midwest documents the problem with great care.

14. This last point resonates with Brandt’s (1999) argument:

Fierce economic competition, including the changes in communication it stimulates, can destabilize the public meanings and social worth of people’s literate skills. It also can ruthlessly reconfigure the social and material foundations on which people must pursue literacy and pass it along to others. (p. 374)

15. For some, the notion that unequal financial support for schools leads to unequal educational outcomes is a given (Berliner & Biddle, 1995, pp. 264-269). For others, the link between funding and achievement, although not apparent in educational research, has nonetheless been established as the legal basis for numerous challenges to educational equality in state school systems across the United States (Barton, Coley, & Goertz, 1991, pp. 24-25). Researchers and policy makers continue to struggle with the problem, noting that a major consideration often missing from public debate and judicial decisions has to do with how money is spent in a school system (e.g., Ladd, Chalk, & Hansen, 1999; Wong, 1999). I would maintain that the funding disparity observed between Haywood and Cocke counties in the early 20th century had a fairly direct effect on educational quality and outcomes, in that major expenditures at that time were concentrated in a very few areas, primarily buildings and teaching staff. Only later in the century did an administrative bureaucracy emerge to capture substantial sums of local school funding.

16. At best, standardized test scores document but one stratum of academic activity in school. The narrowness of this stratum has been explored recently from a number of perspectives (see, for example, Kohn, 2000; McNeil, 2000; Rothstein, 1998; Sacks, 1999).

17. Maine, too, has a long history of struggle with paper companies, well documented a quarter century ago by a Ralph Nader working group (Osborn, 1974) and more recently by Julius Getman (1998) in his study of International Paper’s antiunion campaign in Jay, on the Androscoggin River.

18. To clarify: Taylor’s (1996) “toxic literacy” is an instance of what Buell (1998) calls “toxic discourse.” Whereas Taylor explores how the metaphor can expand critical understanding of literacy, Buell independently investigates the discursive limitations imposed by figuring late industrial capitalism in terms of its toxic effects on people and “nature.”
19. Hawhee (1999, 2000) notes how Hodges’s famous *Harbrace College Handbook* (1946), developed at the University of Tennessee, Knoxville, initially angled to eliminate the “illiteracies” of east Tennessee students attending the university.

20. The markets are substantial: in 1997, 51,987,000 elementary and secondary students and 12,298,000 full- and part-time undergraduates (National Center for Education Statistics, 1999, Tables 3 and 190).

21. In a 1999 document titled *International Paper: From Innovation to Results, A Conversation About the Future*, International Paper tells its “shareowners, communities, customers . . . and employees” (in seven languages, no less) that it is “building stronger businesses on a global basis and creating worldwide competitive advantage. . . . We have raised the bar on expectations and accountability” (p. 1). Throughout the document, *accountability* refers primarily to financial accounting, not environmental responsibility. A single exception—the report suggests that one of its mills has become the first in the United States “to receive ISO 14001 certification,” an achievement that “will enable the mill to help communicate its environmental commitment to customers, stakeholders, employees and communities” (p. 6). But this sort of certification is controversial because it represents a shifting of environmental regulation from nations to transnational corporations. Braithwaite and Drahos (2000, pp. 256-296) explain the strengths and shortcomings of this shift and identify the many actors (governments, international corporations, nongovernmental organizations, etc.) whose complex collective behavior determines, at any given moment in any given industrial sector, whether there is a “race-to-the-bottom” or “race-to-the-top” regarding global environmental protection.

22. Market share figures are approximate. In 2001, Harcourt’s college publishing division will likely be purchased by Reed Elsevier and resold to Thomson (Kirkpatrick, 2000), while Houghton Mifflin announced plans to be purchased by the French conglomerate Vivendi Universal (Schiesel, 2001). This leaves McGraw-Hill, with about a tenth of the national higher education market, as the only U.S.-owned college publisher.

23. Since the mid-1986 demise of the “manufacturing clause” in U.S. copyright law, it has been possible for books produced outside the country to enjoy full U.S. copyright protection if the author or corporate publisher is “domiciled” in the United States (Boyd & Loquist, 1991-1992; Strong, 1999). With content so protected, textbooks for the U.S. market could, theoretically, be produced abroad and imported for domestic sale with no risk to copyright.

The scenario I have offered imagines typesetting done by Offshore Keyboarding (a division of U.S.-based Lason Inc., with operations in Barbados and Beijing); plate-making and printing by Palace Press International, Hong Kong; ink by Sun Chemical Ink (GPI), a division of Japanese-owned SunChemical; and paper from Asia Pulp & Paper, a Singapore-based subsidiary of the Indonesian conglomerate Sinar Mas Group. For an exposé on working conditions at Offshore Keyboarding, see Nathan (2000).

24. Reports from the UNESCO Institute for Statistics (2000a, 2000b) on education and literacy are not detailed enough to permit discussion of how water and air pollution in various locales around China might relate to literacy and literacy learning. Furthermore, Western-language historical studies of local and regional literacy developments are few (e.g., Hayford, 1990; Peterson, 1994).

25. Here are two statements that speak to quality and durability but that do not comment on the environmental or human impacts of bookmaking: “The paper in this book meets the guidelines for permanence and durability of the Committee on Production Guidelines for Book Longevity of the Council on Library Resources” (Scholes, 1998,
“New York University Press books are printed on acid-free paper, and their binding materials are chosen for strength and durability” (Bérubé, 1998, p. iv). In contrast, here is a statement that textbook publishers might be encouraged to emulate:

Cornell University Press strives to utilize environmentally responsible suppliers and materials to the fullest extent possible in the publishing of its books. Such materials include vegetable-based, low-VOC inks and acid-free papers that are also either recycled, totally chlorine-free, or partly composed of nonwood fibers. (Miller, 1998, p. iv)

Thinking further about the men and women who work to make books, we might note the presence or absence of a union label. Miller’s (1998) book does not carry one, but another recent title from Cornell, this one on the infamous paper mill strike in Jay, Maine, does—for the Graphic Communications International Union (Getman, 1998, p. iv).

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This article modifies Donna Haraway’s concept of (counter) myth building as a way to facilitate social action. Counter myth building, as both a resource and a process, recognizes limitations on individual agency but foregrounds the productive capacity to be more than a social and historical construct. Because myths are multiple and enactments are unpredictable, both building and enacting counter myths are at best complicated. GirlZone and RadioGirl provide two sites for investigating these complications. As grassroots projects, GirlZone and RadioGirl are explicitly devoted to building counter myths as part of an activist agenda for social change. These sites illustrate how the complex semiotic and material processes of myth building may provide potential resources for these and other activists.

The Stuff That Myths Are Made of

Myth Building as Social Action

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In a story on National Public Radio’s Morning Edition (2000), announcer Madeleine Brand examined the popular new cartoon, The Powerpuff Girls:

Here’s the beginning of a nursery rhyme we’re all familiar with. (Campy sounding male voice). Sugar, spice, and everything nice. (Creation noises as if in dungeon laboratory.) These were the ingredients chosen to create the perfect little girl. But Professor Utonium accidentally added an extra ingredient to the concoction (caution sounds, pause). Chemical X (Explosion sound).

And that’s where the nursery rhyme ends—when three little girls become super heroes and the stars of The Cartoon Network’s The Powerpuff Girls.

Author’s Note: The author would like to thank Paul Prior, Janet Eldred, and the anonymous reviewers for their encouragement and critique.
This accidental addition of an extra ingredient allows The Powerpuff Girls, as this crime-fighting trio is called, to engage in activities typically gendered as male. Instead of being cast as the ones needing to be saved—an activity frequently gendered as female—Blossom, Bubbles, and Buttercup fight villains to save their town from annihilation, while variously combining cuteness and toughness. For those not on The Cartoon Network, yet who still seek expanded options for pre/adolescent girls, something more systemic than Chemical X is needed. Myth building is often portrayed as one option. As Donna Haraway (2000) argued, (counter) myth building is a critical stance that interrogates competing myths and encourages new ones. In her interview with Haraway, Thyrza Nichols Goodeve highlights how a critical stance can be a “way of producing new meanings [that] offers a critical breakthrough—opening up and producing” (p. 110). This productive activity seeks more than “unmasking relationships”; it “involve[s] building alternative ontologies” (p. 120). By providing a resource for producing new meanings, myth building can be seen as a form of social action (Haraway, 1989, p. 289), a complex material—and a semiotic activity that can be used to make a social change (cf. Haraway, 1989, 2000).

This article examines this promise at GirlZone, a feminist grassroots organization that seeks to expand options for pre/adolescent girls. Designed to provide girls with opportunities to “explore their individually defined abilities” (GirlZone, 1998) without deference to dominant myths, GirlZone workshops range across Web page design, weightlifting, entrepreneurship, and cooking. The two founding organizers developed GirlZone in large part to counter dominant myths about pre/adolescent girls. At the most basic level, these dominant myths represent girls as passive, contained, or valued for their appearance, whereas counter myths represent a greater range of options. However, dominant and counter myths are hardly this neat. These categories are predicated on their opposition, yet this binary is false, for these myths interanimate each other. In addition, these categories are internally varied. For instance, at GirlZone, several counter myths were operating. One was framed in radical discourse, as illustrated in one organizer’s (partially) tongue-in-cheek call for GirlZone to continue “until the patriarchy has fallen!” (Aimee, personal communication, February 15, 1999). This myth of radical activism seeks to overthrow societal structures, but it conflicts with another GirlZone myth. Framed in liberal feminist discourse, this second myth strives for equal access to existing structures and equal opportunities for
girls and boys. The contradictions between these myths problematize 
a coherent counter myth category, for the myths posit fundamentally 
different goals while defining themselves in opposition to dominant 
myths. Even though myths are multiple and overlapping, idealized 
dominant and counter myths seemingly cohere around competing 
processes and resources that in part define pre/adolescent girls. This 
article explores the implications and complications of this seeming 
coherence at an offshoot of GirlZone.

RadioGirl, a weekly radio program sponsored by GirlZone and the 
local community radio station, is the only ongoing weekly GirlZone 
activity and as such provided a sustained opportunity to examine the 
degree to which myth building can be a site of social change. Through 
their on-air radio programs and their off-air descriptions of RadioGirl 
in such venues as local newspapers, RadioGirls (the members of 
RadioGirl) challenged the proscribed enactments of this social 
change. Although the RadioGirl organizer foregrounded counter 
myths, dominant myths about pre/adolescent girls pressed against 
GirlZone’s counter myths. As the organizers came to understand, 
building and enacting counter myths was complicated by the contra-
dictions and interanimations within and among competing myths, as 
evenced in the production and consumption of these myths at and 
about GirlZone and RadioGirl. The following sections detail this pro-
cess and illustrate how myth building can operate as an important if 
fraught practice in local attempts for social change.

SITUATING THE STUDY

Entering the GirlZone

Located in Champaign-Urbana, a university town in central Illi-
nois, GirlZone is a community-based organization where girls aged 6 
to 15 engage in hands-on activities that they otherwise are frequently 
denied. At GirlZone, I examined both how organizers constructed an 
opportunity space for remediating (in a Vygotskian sense) girls’ sub-
ject positions and how girls took up, rejected, and modified these 
goals. I did this by drawing on various data, including 22 months of 
field notes from organizers’ meetings, weekly workshops for girls, 
and public activities (e.g., rock concert fundraisers and a GirlZone-
produced film festival); textual artifacts by GirlZone organizers and 
participants and about GirlZone activities (e.g., community
newspaper articles); interviews with organizers, girls, and weekly workshop facilitators; and organizers’ feedback on my research. Concurrently, I attended weekly RadioGirl workshops. RadioGirl engaged in an ongoing process of broadcasting its agenda and thus its self-definition throughout central Illinois. The myth of a RadioGirl, itself a material and semiotic challenge to limiting dominant myths, was alternatively enacted, negotiated, and undermined. Although I draw on several RadioGirl programs for background material, I focus on the programs written about in the local media and the ones that were prerecorded (July 4th show, 1999; Aug. 29th show, 1999). Because prerecorded programs generally allowed for more than one take and involved an atypical amount of forethought—girls did less off-the-cuff commentary and more written-out preparation—the structure of these shows encouraged RadioGirls to be more reflective about their public presentation and adoption of certain myths. These shows, then, provided an opportunity for girls to recognize and resist myth building as an effective strategy for social change.

Throughout my research, I engaged in multiple and often overlapping social relationships with the girls, their parents, and GirlZone facilitators and organizers. As a participant and a facilitator of weekly GirlZone workshops, I was multiply constructed by the girls as the enforcer (e.g., telling girls to stop putting m&m’s up their noses), the fun provider (e.g., bringing in electric guitars and amplifiers), and a participant (who may or may not get a vote in determining workshop procedures). Ironically, however, I became most accepted by some girls and many parents when negotiating a gender role par excellence of many dominant myths: motherhood. During my 2 years at GirlZone, I had two children. When day care issues forced me to bring my daughter to GirlZone workshops, the girls and their parents (primarily mothers) displayed increased interest in my project. Girls offered advice about being a girl and suggestions about how to be a mom. Mothers seemed to feel that my having a daughter bonded us in having a similar stake in finding healthy options for our daughters. As mothers variously discussed where to buy cute clothes (potentially enacting a dominant myth about girls looking cute) and how to find a good midwife (potentially enacting a counter myth about institutions not being sensitive to women), my pregnancies highlighted how dominant and counter myths pressed against each other. This pressing was shown when mothers who brought daughters to an explicitly feminist site devoted to social change were more likely to engage me as a pregnant women or as a new mother than as an
activist. With GirlZone organizers, I was generally positioned as a resource they could tap. Following calls to give back to the people (and organizations) that support our academic labor (Conquergood, 1985; Cushman, 1996, 1998; Cushman & Monberg, 1998), I also provided service to GirlZone, helping with grant proposals, serving on the steering committee, and acting as volunteer coordinator and curriculum coordinator.

I analyzed the interactions at GirlZone and RadioGirl through the lenses of sociohistoric and postmodern feminist theories. Sociohistoric theory is particularly helpful in examining situated activities as well as the intentions, social identities and relations, and values built into mediational means and their use (Cole, 1996; Leont’ev, 1978; Wertsch, 1998). Drawing on these frames, sociohistoric researchers of pre/adolescents observe, in part, how people can challenge the limitations of dominant myths. For example, Anne Haas Dyson (1997) examined one girl’s attempt to increase “the image store” of her third-grade classroom. By introducing her imagined character “Venus” to the classroom, this third grader expanded the available classroom roles to include a powerful female able to be the sole superhero of a story. Venus had material and semiotic power, as some girls used her to assume a privileged position in frequent classroom activities, such as enactments of their classmates’ stories. In “Script, Counterscript, and Underlife in the Classroom,” Gutierrez, Rymes, and Larson (1995) also examined limiting classroom myths via what they call “scripts” (drawing on Goffman, 1982). These “patterned ways of being and doing in particular contexts” (p. 449) are malleable, and through “counterscripts,” students both resist dominant scripts’ expectations and posit alternative roles and social relations within the classroom. Gutierrez et al. called on teachers to recognize how countercodes can act as productive sites for real engagement; by engaging in an expanded range of classroom scripts, teachers can change the status quo of education.

Although sociohistoric theorists attend to situated activities and the mediational means that shape them, some have paid less attention to how specific bodies—marked by race, class, gender, and other influences—shape what resources are available. Postmodern feminists (e.g., Butler, 1990, 1993; Haraway, 1989; LeCourt, 2000) attend to this absence, as they, too, seek to challenge the status quo. Feminists have argued that dominant myths often shape social interactions in limiting, if not destructive, ways for women (Davies, 1992; Encisco, 1998; Haraway, 1989; Spivak, 1988). The context for these myths are,
according to Haraway (1989), dominant discourses (e.g., patriarchal, racist, Western) that box women into roles defined by and for men. As Haraway pointed out, “within a web of sustaining and limiting discourses” that serve men’s account of the world, women have a difficult time creating new roles (pp. 280-281). Similarly, Judith Butler (1990) explored how a confluence of discourses makes certain roles seem natural and others abject. As part of her project to create more options, a process similar to what Haraway calls myth building, Butler sought to change or resignify what is natural and therefore what is possible. In this way, myths and counter myths participate in the naturalization or the abjection of what it means to be a pre/adolescent girl.

At GirlZone, organizers hope that counter myths could function as mediational means girls could draw upon. Through the material and semiotic activities of building and invoking counter myths, girls may choose to participate in rock bands, martial arts, and skateboarding. Playing in a band or participating in martial arts nonverbally and materially enacts the potential that counter myths hope to foster. I attended to these hopes by observing how participants used available mediational means (e.g., myths and counter myths) in their situated literate activities (e.g., GirlZone mission statement, newspaper reports, radio programs) to (re)shape the possibilities surrounding the contested terms adolescent girl. This analysis of situated activities highlights how myth building can expand the possibilities pre/adolescent girls see for themselves, thus fostering GirlZone’s goal of social change.

The Promise and Perils of Counter Myth Building

GirlZone and RadioGirl organizers believed that building counter myths, as a way to imagine and foster alternative visions of the world, is one form of activism that encourages other material challenges. Sociohistoric and postmodern feminist theorists also examine how complex material and semiotic concepts operate in situated activity, although they seldom use the term myths. Instead, discourse is the privileged term. My use of the term myth parallels postmodernist definitions of discourse as locally enacted, changeable ways of being, sustained through people and things (e.g., artifacts, institutions, social practices) to the degree that some people and things seem normal and others seem abject (Gee, 2000). However, I privilege the term myth building for two reasons. First, the connotations of myth highlight
the unattainability of embodying this idealized mediational means—
who could live as a mythic figure? Recognizing this limitation in no
way diminishes the material consequences of dominant myths. In
fact, GirlZone and RadioGirl are founded as testaments to the deleterious power these myths have on girls. Part of this deleteriousness is
because these myths are unattainable—girls will have trouble being
successful and deferring to men. To counter these myths, then,
GirlZone builds its own myths as if the roles these myths make available were attainable. Exposing the limitations in dominant myths and offering girls alternative myths as powerful mediators of past, present, and future experiences, the organizers seek to provide girls with
new resources that could help them expand the ways they define
themselves. However, girls are not able to take up fully the idealized
positions of counter myths either. If everyone had equal opportunities
and equal access to material resources or if patriarchy were dismantled, the world would look quite different. It would be a world
that the organizers may find idyllic, yet it is out of reach. Myth’s connotations capture this.

Second, I privilege myth building because this term foregrouds
the work necessary to engage in attempts to make social change. In
particular, building new myths highlights the importance of discursive work to facilitate this process of social change. Citing the New
Literacy Group’s efforts to change dominant myths about literacy,
Gee (2000) argued,

It takes work to get a set of problems, deeds, words, settings, and things
recognized as a particular configuration with each of its members (e.g.,
age, gender, bullying tone of voice) recognized in a certain way. People
inside and outside these configurations work to get specific configurations recognized (by themselves and others) as composed of just these
actors, events, activities, practices, and Discourses, and not those—as
recognized in this way and not that. It takes work to sustain such recognitions and to support or resist the work of others to unsettle such recognition and transform it in various ways (think of all the efforts of the NLS [New Literacy Studies] themselves to get “local literacies” recognized as “literacy”). How the elements of these configurations are to
be labeled, viewed, or characterized, how configurations are to be
“carved up” into actors, events, activities, practices, and Discourses, is
always “up for grabs.” Actors, events, activities, practices, and Discourses do not exist in the world except through active work, work that is
very often unstable and contested. (pp. 192-193)
This discursive work, the unstable and contested work of having new myths recognized as viable, is precisely a site where change can occur. Haraway’s (1989, 2000) notion of counter myth building highlights this necessary work. Unlike related terms, such as scripts, stories, or narratives, (counter) myth building invokes a notion of work—of building—that can be done and undone, that can be recognized and resisted. This language foregrounds productive potential while still recognizing that this endeavor is often situated in a “counter” context. Haraway’s goal of seeking productive possibilities resonated with those of the organizers of GirlZone and RadioGirl, who had not read Haraway. At GirlZone, many framed this process as a form of social activism because they, too, recognized how the material and semiotic work of myth building might facilitate social change.

Even with all its promise, myth building is fraught with potential problems. Although participants may build counter myths, others may not recognize these myths. Offering competing definitions of pre/adolescent girls, myths constantly bump up against other myths in ways that support, alter, and/or co-opt them. James Wertsch (1999) explored one reason why the intended meanings of myths become complicated: the interanimation of myths. In his study of new history textbooks appearing after the breakup in the Soviet Union, Wertsch argued that new narratives respond to or are shaped by the pervasive narratives in often unaccounted-for ways. To examine how dominant narratives shape counter narratives requires attention to how they function beyond their initial discursive possibilities; it requires attention to the multiple layers of their production and consumption (cf. Wertsch, 1997). Wertsch (1999) quoted Bakhtin’s Problems of Dostoevsky’s Poetics (1984) on “hidden dialogicality” and pointed out that an unexamined aspect of this complexity may be the hidden dialogicality between the narratives:

Imagine a dialogue of two persons in which the statements of the second speaker are omitted but in such a way that the general sense is not at all violated. The second speaker is present invisibly, his [sic] words are not there, but deep traces left by these words have a determining influence on all the present and visible words of the first speaker. We sense that this is a conversation, although only one person is speaking, and it is a conversation of the most intense kind, for each present, uttered word responds and reacts with its every fiber to the invisible speaker, points to something outside itself, beyond its own limits, to the unspoken words of another person. (p. 270)
The power of this absent conversant shapes the dialogue. The responses we can trace, such as the counter myths participants at GirlZone and RadioGirl may be building, are shaped by the deep traces of the dominant myths GirlZone participants are countering, and vice versa. Similarly, although the listeners of this radio program hear the RadioGirls’ counter myth dialogue, these listeners may frame this dialogue within the unheard dialogue of dominant myths. In other words, even though counter myths are being built, these new configurations may be reinscribed in the dominant frames of the unheard voice of the older dialogue. As Gee (2000) might say, these counter myths are not recognized as viable configurations. To build counter myths, then, participants must constantly balance counter myths with the seemingly absent but very present dominant myths. This process, Haraway (1991) might argue, enacts a feminist epistemology where participants need to hold these seemingly contradictory positions in tension, for both positions are necessary because both are true (p. 149). At GirlZone, organizers came to understand, lament, and yet in odd ways appreciate this epistemology. As the next sections illustrate, the intentions of the organizers’ counter myths were complicated by the ways that the girls themselves recognized and rejected these and other myths both at and beyond GirlZone.

**Building Counter Myths**

In the fall of 1996, a group of community women strategized about ways to counter what they perceived as the pervasive limits American women still feel. Seeking to redress what they felt were past injustices, these women wanted to provide new opportunities for young girls today. Although created before the Spice Girls, as the organizers frequently noted, GirlZone organizers still worried about how the GirlPower movement had been or could be co-opted, often for commercial purposes. As the Spice Girls highlight, equal opportunity to be a rock star (a potential role in counter myths) too often means women are infantalized and sexualized (a potential role in dominant myths). Nonetheless, in 1997, GirlZone organizers decided to move GirlZone from a compelling idea to a functioning organization.

studies—largely arguing for fair and equal treatment of girls and boys—note how primary socializing agents, such as schools, offer girls less attention, have biased curriculum and tests, and make conflicting demands on girls, such as, “be successful, yet act feminine” and “defer to men.” Other cultural messages reinforce that women should be passive whereas men should achieve and that women are valued for being sexy, men for being successful (Nilsen, 1990/1993). These myths contribute to what Mary Pipher (1994) called a “girl poisoning culture” and make it difficult for pre/adolescent girls to negotiate healthy roles for themselves.

In grant proposals, mission statements, and internal documents, the two primary GirlZone organizers, Aimee and Gina, described myths that GirlZone and its programs attempt to counter. Generally, GirlZone “challenges popular images of females as primarily submissive, polite, passive figures whose duty lies in supporting, rather than doing” (GirlZone, 1998, p. 3). Citing the AAUW’s “Schoolgirls: Young Women, Self-Esteem, and the Confidence Gap” (1994a), GirlZone worked to redress “young girls’ plummeting self-esteem and sense of competence between the ages of 9 and 13” by providing girls with opportunities to become active participants so that they would “gain confidence in their intuitions and abilities” (GirlZone, 1998, p. 1). GirlZone also highlighted and challenged myths that could lead girls either to “internalize the belief that their worth stems from their attractiveness” (p. 2) or to gauge their self-worth in the eyes of others, what is called the mirror effect (p. 3). Through weekly hands-on workshops, the organizers worked to build counter myths that could help girls understand that they had the power to choose whether to engage in these (or other) activities. These experiences, the organizers hoped, would bolster the girls’ senses of self so that girls could challenge the limiting roles many dominant myths make available to pre/adolescent girls.

As these women imagined more productive counter myths, their leading character (the GirlZone girl) functioned as what Haraway (2000) might call a figuration: a “join between materiality and semiosis; [it] can stand in as a synecdoche for the way material reality signifies” (p. 85). Representing GirlZone itself, the image of a GirlZone girl depicted a girl powerfully and gracefully flying through the air on a skateboard. In skateboarding magazines, seasonal competitions, and on the streets of Champaign-Urbana, skateboarding seemed a sport dominated by men. This image of a GirlZone girl challenged this myth and posited a counter myth that the
imagined and real GirlZone girls could participate in whatever activities they chose. This image of the GirlZone girl became GirlZone's logo (see Figure 1) and acted as a material and symbolic challenge to the exclusion of women in representations of male-dominated activities.

Figure 1. GirlZone flyer
As the creator put it, the image of the skateboarder was me thinking of a symbol and what would speak to girls now and also sort of an intuitive way of summing up what the program is. It’s sort of a little bit of a rebellious take too.... [It’s] the idea that you can be what you want and it doesn’t have to be supported by the mainstream and I think that’s what we are sort of after too with GirlZone. (Gina, personal communication, September 25, 1999)

Through building counter myths, GirlZone wanted to encourage participants to visualize possibilities for themselves beyond what dominant myths invited. Possibilities could range from liberal feminist notions of equal opportunity in sports and science to more radical feminist notions of challenging systems of meaning-making. As organizers imagined a GirlZone girl, they challenged dominant meanings often made available to pre/adolescent girls. Organizers hoped that GirlZone participants would join in building counter myths not just at GirlZone, but throughout their lives. This activity, the organizers hoped, could alter options girls see available, from the seemingly mundane to the life changing (e.g., fix an appliance, take an elective physics class, end an abusive relationship).

Who Will Answer? The Call for RadioGirls

RadioGirl, a live biweekly radio program by pre/adolescent girls, aired from 10:00 a.m. to 11:00 a.m. every other Sunday on the community radio station WEFT. As the WEFT (the WEFT Revue, 1999) mission statement summarizes, this station is “a non-commercial radio station owned by Prairie Air, Inc., a not-for-profit organization. WEFT is an accessible, responsible and responsive radio alternative, serving the diverse communities of radio listeners in East Central Illinois” (p. 2). WEFT is underwritten by many community organizations, including the AFL-CIO of Champaign County, Alumni Against Racist Mascots, and The Octopus, a local alternative newspaper. Although Jazz and Blues are the most prevalent types of music on WEFT, weekly programming includes other music (e.g., world music, local bands, women in rock, soul, hip hop, rap, and ethnic) and talk shows (e.g., public affairs, labor issues, and poetry). As the sponsoring organizations and diverse programming indicate, WEFT’s progressive political leanings encouraged alternative myths. GirlZone and
RadioGirl’s goals of building counter myths fit with WEFT’s stated mission.

RadioGirl began in September 1998 after a GirlZone radio workshop sparked the girls’ interest. Ayleen, a WEFT airshifter who deejayed her own weekly program, “Jivin’ with Java,” ran the initial radio GirlZone workshop and coordinated RadioGirl from its inception. Volunteering her time and expertise, Ayleen met with a group of 6- to 15-year-old girls every Sunday morning from 10:00 a.m. to 11:00 a.m. On alternate weeks, they met off-air to prepare a show for the following week’s live, on-air broadcast. At the off-air planning meetings, girls brainstormed about what they would address the following week, picked music, and possibly prerecorded items for the next week’s show. Girls frequently focused on a theme, such as researching what measures could be taken to make schools safer, in preparation for a collective on-air live debate (Sarah, personal communication, May 16, 1999; May 23, 1999). Other times, they chose a theme and all participants individually researched what interested them about that theme. For example, on Valentine’s Day, the girls selected an historical alternative Valentine’s Day theme and researched ideas such as the St. Valentine’s Day massacre and Roman and Greek gods of love and war (RadioGirl participants, personal communication, February 7, 1999, see appendix). Still other times, the girls opted to bring in their own topics, as when one girl wrote an opinion piece about America’s ethical stance in Kosovo, and another wrote a research piece about Future Problem Solvers, a middle-school debate-oriented group devoted to helping middle-school students become informed and active in offering solutions to problems they see around them (RadioGirl participants, personal communication, May 23, 1999, see appendix). For all of these radio programs, girls read background material and wrote their segments as they prepared the show.

Challenging the dominant myths that represented girls as polite, contained, or passive, Ayleen wanted RadioGirl to focus on the girls’ sense of agency. This can be seen Ayleen’s on-air plug for RadioGirl and for WEFT:

The RadioGirls grace the airwaves with force every other Sunday from 10 to 11 a.m. Topics covered have included the controversy of the Crayola color Indian red; the movement to eliminate the Chief as a symbol of the U of I; celebrating Black History Month: African American musicians and the saga of Dr. Martin Luther King, Jr.; celebrating
women of various backgrounds for Women’s History Month, including mothers and local women; poetry they [RadioGirls] have written, short stories, and much more. Interviews with the founders of GirlZone, Gina and Aimee; women involved with a local resource book for women geared at incoming freshmen students of the U of I; a teacher from the Howard school who is from England; a woman U of I hockey player who is antichief; Susan Hofer, a local jazz vocalist; a woman from A Woman’s Place who organized weekend workshops on rape awareness around Take Back the Night. And if you are a regular listener of the show, you know many other topics as well. Their interests are diverse and they want to be active. (RadioGirl, July 4, 1999)

RadioGirls used their radio programs to explore a range of interests from beanie babies to social inequities. Yet in her representation, Ayleen privileged how RadioGirls emphasized political topics, attending to racial and gender-based injustices as well as addressing available resources for women and possible female role models. RadioGirls frequently took up this activist counter myth, often exposing injustices based on people’s gender, race, religion, and sexuality. Challenging a Whiteness-as-norm myth, Cyan offered to research and write about the changes in crayon names. As she pointed out, the crayon formerly named flesh only matched a White person’s flesh and the crayon formerly named enginered was a disparaging reference to Native American’s skin color (Cyan, personal communication, March 22, 1999). RadioGirls, such as Miriam, Mudita, and Nghana, challenged the Christian-as-norm myth by researching and writing a special report on the Islamic holy times of Ramadan, Ede, and the Night of Power (RadioGirl, January 31, 1999). Finally, RadioGirl challenged what Judith Butler (1990, 1993) might call a myth of heteronormativity, when an interviewee highlighted the irony of being told that she “could be President of the United States but [she] couldn’t go to prom without a [male] date” (RadioGirl participant, December 6, 1998). Through highlighting and challenging what they saw as injustices, RadioGirls publicly broadcast myths that countered the limiting range of options that would seem, according to dominant myths, to interest girls. Ayleen’s representation of RadioGirls provides a resource, a framework within which girls could embody counter myths. In this way, myth building enacts a form of social action that potentially facilitates change not only in the listeners of RadioGirl but also in the girls themselves.
LOCATING LEADING LADIES:
MYTHS AND THE LOCAL MEDIA

Myths, I have been arguing, require extensive discursive and material work to normalize which options people recognize. This work occurs in everyday places, such as local newspapers. As one of many material instantiations, newspapers provide tangible artifacts that make visible often tacit assumptions about which configurations are recognized and which are resisted. Attending to these texts highlights what options myths make available.

The two largest local newspapers reported on GirlZone with some regularity. As the self-defined alternative newspaper, the *Octopus* was more open to build counter myths than the more traditional local newspaper, the *News-Gazette*. This conservative newspaper diminished GirlZone’s mission to build counter myths and produced dominant myths about girls even when citing GirlZone activities. Whether recognizing or resisting dominant myths, both newspapers positioned themselves in relation to these dominant myths. In doing so, these newspapers highlighted the hidden dialogicality between myths that offer pre/adolescent girls different roles in similar plots.

Contested Contexts: Productions of the GirlZone

The *Octopus* sympathetically described GirlZone’s attempt to build counter myths. For example, the first two paragraphs of “GirlZone: Expanding Girls’ Horizons” (1997, p. 10), written by Elizabeth and Angie, facilitators of the “rock week” music workshop, described GirlZone as a place where pre/adolescent girls could take up roles dominant myths did not encourage.

Dedicated to “increasing girls’ sense of personal power and self-esteem,” GirlZone is a community-based program where local women plan, facilitate, and teach weekend workshops for girls ages 7-16 in a variety of activities which girls might not otherwise have a chance to experience.

The initial idea came from Aimee [last name], who connected the lack of control or power many women feel over aspects of their lives to experiences and skill-building that might not have been available to them as girls. Understanding that “it’s only through exposure that people get comfortable with activities and skills,” she reasoned that if girls were exposed to activities which have traditionally been more acceptable to boys, they might be more apt to pursue a variety of interests,
develop a wider array of skills, and thus gain a greater sense of capability and self-reliance. (Elizabeth & Angie, 1997)

As the article’s authors and GirlZone workshop facilitators, Elizabeth and Angie produced an article that reinforced GirlZone’s counter myths as well as recognized what is required to achieve these myths (e.g., women as role models, varied opportunities for girls). Similarly, this article grammatically and semantically described the participants of this rock workshop as active doers instead of passive watchers. For example, the correspondents almost always placed GirlZone participants in activist frames, whether portraying the organizers (45%), GirlZone or GirlZone workshops (23%), or the girls (13%) as the subjects of independent clauses. Simultaneously, the article (Elizabeth & Angie, 1997) describes the girls as agents by detailing how “girls [were] trying different instruments, asking questions, and sharing ideas,” as well as “improvising” and playing “a more challenging riff” (p. 10). These descriptions value girls for what they can do. In this way, The Octopus recognized and validated GirlZone’s counter myth building.

Consistently, however, an alternative representation of GirlZone was reported in the News-Gazette. Several articles about GirlZone appeared in News-Gazette’s “Spin Off” section, a weekly section devoted to local youth activities. Sometimes, GirlZone activities were depicted in a side box that accompanied longer articles, as in the information on the skateboarding workshop (Merli, 1997). Other times, “Spin Off” focused on past workshops, as in music or RadioGirl workshops (Miriam, 1999). At still other times, GirlZone activities were represented by outgrowths of GirlZone, such as the band Feaze, which was started during a GirlZone workshop by three GirlZone participants (Swords, 1998). These articles, all by different correspondents, notably limited their references to GirlZone as a feminist site engaged in building counter myths. Some might argue that this obscuring reflects the fact that many correspondents for the News-Gazette’s “Spin Off” section were high school students. Although age may certainly be a factor, age alone does not explain why certain myths were invoked, whereas others were eschewed. I argue that dominant myths make available certain roles. The fact that those presented with these alternative roles do not acknowledge them implies that dominant myths either obscure these roles so that girls do not recognize them or that girls recognize the roles and recognize the dangers of (representing) alternative roles (as well as alternative myths).
The News-Gazette’s correspondents’ disregard for GirlZone’s counter myths was readily apparent in Faith Swords’ (1998) article about Feaze, the band GirlZone participants started. The article opened,

“Feaze: verb to disturb or corrupt.” The band’s name is a little misleading if you know what it means. Feaze is made up of Kayla [last name] on guitar and lead vocals, Carrie [last name] on bass, and Tonie [last name] on drums and vocals. Playing poppy-girl punk, Feaze is taking Champaign-Urbana by storm.

Swords opened the article with a derivation of the band’s name seemingly to undermine the message and the power of this name. Nowhere in the article did Swords discuss why the band chose the name Feaze (what were they trying to disrupt or combat?) or why Swords thought this name was misleading. In addition, Swords’ follow-up depiction of Feaze as poppy-girl punk implied a harmless, spunky version of those who wish to disturb or corrupt; these girls could not really disturb or disrupt. These characterizations of Feaze challenged the band’s self-definition (as noted in their name) and ran contrary to GirlZone’s (1998) goal of having girls reject society’s limiting myths to have girls develop their own self-expression (p. 2).

GirlZone’s (1998) goals were similarly suppressed when correspondents did not follow up quotations about counter myths. This omission can be seen in Swords’ (1998) framing of Kayla’s quotation. After describing who influenced the band, Swords wrote,

Feaze are skaters as well as rockers.

“There need to be more girl rock bands. There need to be more girl skaters. There just need to be more girls,” Kayla said, laughing.

With upcoming shows Saturday...
needed to be more visible depictions of women as rockers and skateboarders. There needs to be more representation of counter myths in which girls and women engage in seemingly nontraditional activities.

This representation of Feaze, however, is not wholly inscribed within a dominant myth. In some ways, Swords' (1998) representation of Feaze does enact part of GirlZone’s myth building project; emphasizing the band’s unlikely beginnings, current concert commitments, and temporary celebrity status, Swords represents pre/adolescent women as rock stars. However, Swords’ equal opportunity language is interanimated by dominant myths that position girls as contained, as poppy-girl punk and not as disrupting or corrupting systems that occlude women. By focusing on Feaze as a typical band and not as an example of expanded options available to pre/adolescent girls, Swords dilutes the impact of Feaze’s disrupting agenda. This part of Swords’ article was precisely what GirlZone (1998) organizers were reacting against, for GirlZone was created in part to “address both the lack of power and the absence of representation of women in professional fields, music, and the arts that females face in society” (p. 1). The recognition that women were underrepresented in depictions of certain activities—explicit in GirlZone’s attempts to build counter myths—was masked in the News-Gazette’s article by a contained myth about girls being rock stars. In this way, the traces of the invisible speaker within this News-Gazette article reconfigured GirlZone’s message within dominant myths about pre/adolescent girls.

As these articles illustrate, competing myths configure GirlZone’s message quite differently, yet their impact cannot be predetermined. Did the News-Gazette deflect fears about GirlZone, thus drawing more people into activities they might otherwise not approach? Did the Octopus and the News-Gazette attract different types of participants and sponsors, thus broadening GirlZone’s appeal or thus brewing potential problems? It was the particular configurations that participants recognized and resisted that determined the material and semiotic work of these representations. Drawing on local media reports, the next section explores recognized configurations by and about RadioGirls. The range of the media’s refracted messages was highlighted in two February 1999 articles. The “Spin Off” section of the News-Gazette and the WEFT Revue, a paper sponsored, in part, by the Octopus, presented girls with different myths. Both myths have a similar plot of girls putting on a radio show, but the agency of the
leading characters differs. How RadioGirls negotiated competing myths’ representations both reflected and constructed the cultural expectations defining certain meanings of pre/adolescent girl. Or, adapting Gee (2000), the recognized configurations RadioGirls saw and made available to themselves were shaped by the work that the myths and counter myths made viable.

Capturing the Message: What Is a RadioGirl?

Strategies of containment: RadioGirls as competent. As a new RadioGirl member, Miriam wrote an article for the News-Gazette (1999). “Want to be on the air? YOU GO, GIRLS: WEFT turns over radio station for kids’ show every other Sunday” depicted RadioGirl as a fun activity for “kids” to learn about radio programs. In this article, RadioGirl was “a program devoted to giving girls a forum to talk about whatever they want to talk about.” Miriam provided important background about RadioGirl, such as its affiliation with GirlZone, described the many activities girls did in planning shows, and quoted the girls and Ayleen. In her description of what RadioGirls do, Miriam wrote,

Chloe announced how girls can get involved in RadioGirl. . . . Camille did an announcement on art classes for children. And Emma gave the weather report. The girls delivered their announcements well, and none seemed nervous. (p. B-8)

The theme of this Sunday’s show was Martin Luther King, Jr. and the civil rights movement. The girls played songs sung by Black artists and aired a prerecorded piece that they took from a book on King. Their conversation, though, was on tamagotchis, gigapets, and Beanie Babies, and it had a spontaneous quality that made it fun to hear.

This article accurately depicted some aspects of this RadioGirl show. People often balance multiple interaction expectations—what Erving Goffman (1982) described as participants’ footings—and Miriam (1999) captured one expected interaction patterns of 8-year-old girls. This description, however, diminished the goal of change that RadioGirl and its members represented. This article made the girls appear competent at mechanical activities (reading announcements and weather reports) but contained—their only spontaneity coming from discussions of tamagotchis, gigapets, and Beanie Babies. Ironically, when describing the
mechanical activities, Miriam generally described the girls actively (RadioGirls “announce[d],” “delivered,” and “aired”), but when describing the girls’ spontaneity, Miriam nominalized the action or made it grammatically passive. Grammatically, the girls were portrayed passively when they were arguably most active. In addition, the girls’ activism in political or social issues received short shrift; as GirlZone documents highlighted, activism is not a typical role available to pre/adolescent girls within dominant myths. The unheard dialogue of dominant myths pervaded this article and reinscribed representations of RadioGirls within more limiting myths about what pre/adolescent girls should be.

In his discussion of interaction formats, Goffman (1982) outlined several potential roles speakers have. Speakers can be merely animators, “functional nodes in communication system,” authors who actively “selected the sentiments that are being expressed and the words in which they are encoded,” or principals “whose position is established by the words that are spoken, someone whose beliefs have been told, someone who is committed to what the words say” (p. 144). In these varying roles, speakers demonstrate their alignment with what they are saying. For example, RadioGirls might inhabit certain speaker roles by selecting which report they read on-air. Reading the weather report did not indicate a girl’s alignment with explicit GirlZone ideals in the same way that reading a two-line plug for GirlZone or an independently researched and written report about women role models would.12

Most of the girls’ roles as speakers in Miriam’s (1999) article were what Goffman (1982) would describe as animators—their reading of things written out for them made the girls’ “functional nodes in a communication system” (p. 144). When the girls acted as principals—a position with more agency, in which girls established their position “by the words that are spoken, [as] someone whose beliefs have been told, someone who is committed to what the words say” (p. 144)—the girls were talking about Beanie Babies. Curiously, in a show dominated by both the girls’ on-air time and off-air research about Martin Luther King, Jr. and his role as a civil rights leader—what Miriam described as what the girls “took from a book”—the primary description of the girls as agents was when they described tamagotchis, gigapets, and Beanie Babies. This depiction distorted the literate activities of these 7- to 12-year-old RadioGirls—they did, after all, research, read, and write about Martin Luther King, Jr. and the civil
rights movement—and obscured how the girls created themselves as aware of and honoring such activities. Even though highlighting injustice, the girls were grammatically positioned passively, a construction that conformed to dominant myths’ expectations of pre/adolescent girls.

To understand the complexity of interactions, such as the one Miriam described at RadioGirl, Goffman (1982) not only examined the production format (the role of speakers) but also the participation format (the role of hearers) of an utterance within a given social situation. Hearers also can have many roles, such as ratified, bystanders, or addressed. Radio complicates the listener role. Unlike many interactions (although not unlike writing), speakers on the radio do not see their hearers; the speakers do not have an actual audience that acts as a coparticipant. Rather, Goffman argued, radio speakers have an imagined audience (p. 138). Although this is not fully accurate at RadioGirl (Ayleen and the other RadioGirls acted as an important audience), this imagined audience did strongly influence what myths the RadioGirls would recognize in their literate activities.

In my conversations with Miriam, the “Spin Off” correspondent and new RadioGirl participant, I could not determine if she was aware of her own sense of audience. When asked directly, Miriam said she didn’t know, yet when on-air, Miriam implied she was aware of her RadioGirl audience: “For ideas, I try to do current topics and topics that I think might interest other teenagers and kids” (personal communication, August 1, 1999). I believe Miriam was at least tacitly aware of the power of her audience, as the roles available for the girls that Miriam laid out conformed to the myths that frequently dominated the News-Gazette. Miriam’s (1999) engaging and highly readable article reflected how dominant myths defined girls as having fun but being contained. These expectations framed RadioGirls as “full of energy” and involved in fun activities, yet as tame animators voicing what others had written. This position was one of many available to pre/adolescent girls. Privileging the expectations of this dominant myth, however, limited the roles available to participants; Miriam obscured a counter myth that encouraged girls to imagine they could be whatever they chose and to believe they did not need to conform to others’ expectations of them. By omitting this RadioGirl myth (and GirlZone mantra), this News-Gazette article contained the political import of RadioGirl’s myth building project.

A “Responsible Radio Alternative”: RadioGirls as agents. As the name indicates, the WEFT Revue primarily described activities of the WEFT
radio station. The *WEFT Revue*, unlike the *News-Gazette*, recognized GirlZone’s desire to build counter myths. This willingness to support counter myths was apparent in the *WEFT Revue’s* writing about RadioGirl. Although much of the *WEFT Revue’s* “RadioGirl: Giving Voices To Youths,” was about Ayleen, the RadioGirl facilitator and a WEFT employee, when correspondent Melissa Mitchell (1999) described the girls, she reinforced the importance of building counter myths that foregrounded active, self-confident pre/adolescent girls. In her depiction, Mitchell described how RadioGirl offered girls the opportunity to present a radio show about issues that they cared about. In the ten short paragraphs describing RadioGirl participants, the girls were the grammatical subjects almost 70% of the time, overwhelmingly in active positions. In those linguistic representations, girls picked the topics, researched and wrote the segments, selected music, and broadcast live or prerecorded pieces for their biweekly radio program. By depicting RadioGirls as knowledgeable “airshifters” who had valuable social and political ideas to share, Mitchell (1999) validated RadioGirl’s agenda to build counter myths:

[Cyan’s last name], a 7-year-old home-schooled vegetarian from Monticello, also is interested in social and political issues that some might think would be reserved for adult concerns.

[Cyan’s last name] is so troubled by the Chief Illiniwek issue that she wrote a letter to the UI’s Board of Trustees, suggesting that they change the mascot to some type of sports figure. Her idea of a hero, she said, is not someone like John Glenn, “who doesn’t think women should be astronauts;” instead, she looks up to Native American activist and artist Charlene Teeters, “because she is a leader in the group against Chief Illiniwek.”

[Cyan’s mother] said what [Cyan’s last name] likes best about “Radio Girl” is “the fact that it allows [the girls] to have voices at this young age. They are tuned in to what’s going on in the world, and unless there’s a forum to talk about those things, that’s quite a wait for these children.” (p. 3)

Throughout the article, Mitchell (1999) depicted girls as active. Grammatically, Mitchell overwhelmingly used state-of-being verbs, defining, almost constituting, RadioGirls as doers. Similarly, Mitchell placed RadioGirls or their ideas as the subject of every sentence in this passage. Semantically, RadioGirls were “interested in social and political issues that some might think would be reserved for adult concerns” and “tuned in to what’s going on in the world.” RadioGirls
identified problems and actively addressed them. Cyan spoke as what Goffman (1982) would call a principal, closely linked to what she was saying. By writing a letter to the university Board of Trustees and writing segments for RadioGirl arguing for the abolition of Chief Illiniwek, Cyan was represented as an activist taking a stand against the university mascot—a potentially controversial stance in this university town. Instead of describing her high-pitched, youthful voice that might diminish Cyan’s authority, Mitchell described Cyan by her last name, by her choices, and by her awareness of current issues. This discursive work represents a material and semiotic challenge to dominant myths’ representations of pre/adolescent girls.

The *News-Gazette* and the *WEFT Revue* privileged different myths, yet obviously neither representation was the accurate one. Instead, they reflected competing attempts to configure pre/adolescent girls with varying degrees of agency. On the one hand, the *News-Gazette* reinscribed the potential disruption of RadioGirl’s counter myths within the expectations of dominant myths. On the other hand, the *WEFT Revue* ratified the counter myths RadioGirl attempted to build. However, it was through the myths’ interanimation and not their isolation that girls made sense of them. The consequences of this myth making, of recognizing and resisting the configurations of certain myths, were multiple and often surprising, as was seen at RadioGirl. Ayleen imagined RadioGirl as a forum for building counter myths. Implicitly, this called on girls to understand dominant myths as well as their mutability. This mutability, in turn, highlighted how myths were interanimated by many other myths. As the next section illustrates, the ways the girls accepted, rejected, and modified RadioGirl’s myth-building agenda demonstrated the importance of attending to myths’ interanimation.

**Hidden Dialogicality and Myths That Bind**

Although the more conservative *News-Gazette* privileged dominant myths and the more left-leaning *WEFT Revue* privileged counter myths, RadioGirls typically negotiated these as well as other myths. For example, Mudita and Brittany (1999) wrote and read a poem on-air about what it meant to be a RadioGirl:

“R” Responsible for everything we do;
“A” Attitude, strength, and health;
“D” Determined to reach our goals;
“I’" Intelligent as we come;
“O” Outstanding, unique, and talented;
“G” Girls are as equal as anybody;
“I’” Inside and out filled with beauty;
“R” Respectful to others;
“L.” Living our lives up;
“S” Sisters with attitude;
and that spells RadioGirls.

The boldness of the girls’ voices and the unusually loud volume of much of this poem indicated the RadioGirls’ enthusiasm for and alignment with the poem they wrote. Indeed, this poem sounded like a middle-school cheer. As cheerleaders for RadioGirl, Mudita and Brittany (1999) seemed to conform to the expectations of dominant myths, that girls are contained and ornamental. Yet the content of their cheer troubled an analysis that assumed cheerleaders only functioned within the bounds of dominant myths. Indeed, this poem indicated RadioGirls’ alignment with counter myths (i.e., representations of girls with attitude, talent, intelligence) and indexed dominant myths RadioGirls were reacting against (i.e., beauty as superficial and exterior, girls as subservient). It is this interanimation of competing myths that this poem most highlights. Instead of adopting dominant or counter myths, this “RadioGirl” poem engages stereotypical activities from dominant myths while heeding the invisible speakers from counter myths. By taking up Ayleen’s (see appendix) encouragement to build counter myths in ways that both recognized explicit GirlZone myths and enacted their own version of these myths, RadioGirls balanced multiple myths about what it means to be a pre/adolescent RadioGirl. Their own versions often included more than traces of dominant myths but less than reinscription within them. This sense of agency, of altering the recognized interanimation between myths, was what GirlZone and RadioGirl advocated.

As the “RadioGirl” poem indicated, however, GirlZone and RadioGirl were not free from the constraints of dominant myths. Even if RadioGirls could unsettle idealized dominant myths, they faced the risk that others would not recognize them because they were acting outside of the expected social systems. As is always the case, RadioGirls did not have free reign to build counter myths, not only because dominant myths were sedimented into their practices, languages, and ideas, but also because their counter myths might not be recognized. Although GirlZone and RadioGirl organizers fostered
counter myths, the force of the dominant myths surfaced when RadioGirls invoked them to say what they, as RadioGirls, were not (e.g., instead of being submissive or passive, RadioGirls had attitude and were determined). As became apparent in the textual traces of this “RadioGirls” poem, the hidden dialogicality of the dominant myth did not wholly constrain the counter myths, but it did forcefully shape them. For GirlZone and RadioGirl participants, then, interanimating dominant myths could prove a more promising path for social change rather than inverting the dominant-counter binary.

DISCUSSION

Drawing on a sociohistoric emphasis of situated mediational means (e.g., myths and myth building) and on postmodern feminist understandings of the embodied, material ways to imagine alternative means, this article examines how myth building can facilitate social change on a local level. Counter myth building is one part of Haraway’s (1989) critically productive project that seeks to expose the limitations of dominant myths in part to create new meanings and new myths. Haraway considers this project a form of social action (p. 289), as these myths provide resources to change meanings and to create new ways of being in the world. Imagining and enacting these new ways requires attention to myths’ constructive as well as constraining possibilities. In addition, myths are neither static nor singular, and the ways myths interanimate each other cannot be predetermined. Highlighting the multidirectionality of these myths enacts what Haraway (1991) might consider a feminist epistemology that holds conventionally incompatible ideas in tension because “all or both [of these perspectives] are necessary and true” (p. 149).

I argue that at GirlZone and RadioGirl, valuing and engaging the tensions within and between various myths, proved more productive than seeking to overcome them. For example, only recognizing and exposing discrete configurations of myths could lock participants into a false binary. Although conservative media’s dominant myths and GirlZone’s counter myths typify competing ways to define pre/adolescent girls, taken alone that they reflect neither the complexity of how these myths are enacted nor the potential that myths have in creating new meaning. GirlZone and RadioGirl illustrate the promise and perils of this potential. Organizers hoped to expand the range of perspectives deemed necessary and true. Seeking systematic ways to
enlarge the options girls saw available to them, organizers built and displayed counter myths, recognizing that both the myths and the presentation of these myths are complex material and semiotic activities that can challenge the limitations of dominant myths. Girls often took up these myths, although in unanticipated ways. Their multiple, often incongruous identifications as middle schooler, journalist, rock star, or cheerleader both challenged and bolstered the counter myths GirlZone and RadioGirl built. These identifications exposed how dominant and counter myths, to paraphrase Bakhtin (1986), act as the invisible second speaker shaping what configurations seem viable. These identifications acknowledged how myths interanimated each other and, by doing so, troubled any counter-dominant myth binary.

To enact Haraway’s (2000) promise for myth building, participants must not only unmask relationships and “build alternative ontologies” (p. 120), but also do so while acknowledging their counter, interanimated context. Myth building, then, requires explicit attention to the (productive potential of) hidden dialogicality between and within competing myths. By exposing this need, GirlZone found ways to use myth building as a resource—far more than “an accidental addition”—for its larger projects. By building counter myths and by highlighting how these myths engage other myths, GirlZone and RadioGirl organizers found viable, if troubled, resources in their work toward social change.

### APPENDIX

#### GirlZone and RadioGirl Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Age (approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aimee</td>
<td>Organizer of GirlZone</td>
<td>Adult (mid-20s)</td>
</tr>
<tr>
<td>Gina</td>
<td>Organizer of GirlZone</td>
<td>Adult (early 30s)</td>
</tr>
<tr>
<td>Ayleen</td>
<td>Organizer of RadioGirl</td>
<td>Adult (early 20s)</td>
</tr>
<tr>
<td>Elizabeth and Angie</td>
<td>GirlZone facilitator of rock workshop and Octopus correspondent</td>
<td>Adults (late 20s)</td>
</tr>
<tr>
<td>Faith Swords</td>
<td>NewsGazette correspondent</td>
<td>Pre/adolescent (high school)</td>
</tr>
<tr>
<td>Miriam</td>
<td>RadioGirl participant and NewsGazette correspondent</td>
<td>Pre/adolescent (12-13)</td>
</tr>
<tr>
<td>Melissa Mitchell</td>
<td>WEFT Revue correspondent</td>
<td>Adult</td>
</tr>
<tr>
<td>Cyan</td>
<td>RadioGirl and GirlZone participant</td>
<td>Pre/adolescent (7)</td>
</tr>
<tr>
<td>Mudita and Brittany</td>
<td>RadioGirl participants</td>
<td>Pre/adolescents (10)</td>
</tr>
<tr>
<td>Melissa Merli</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTES

1. See Dyson (1997) for a detailed description of how the media’s overwhelmingly stereotypical gender representation, where males are active and females are sexualized and in need of saving, impacts pre/adolescents.

2. Similar to Lila Abu-Lughod’s (1995) experiences, I realized that my pregnancy provided access to resources that I previously had not noticed missing.

3. Another strand of teacher research, one tapping narrative theory, similarly argued that limiting dominant narratives hinder the participants and limit the context, in this case, the entire learning project. For example, Margaret Finders (1998) argued that the narratives of in-service middle-school teachers lock these nascent teachers into a limiting construction of their students, themselves, and education of adolescents in general. Finders argued that teacher educators need to highlight these limiting narratives and push preservice teachers to challenge (and alter) this frame that will inform their experiences (see also Carter, 1993; Wilson & Ritchie, 1994). These studies share an inquiry into how particular discursive strategies (e.g., counter myth building) can provide an expanded range of acceptable ways of being in the world.


5. Similar to Bakhtin’s (1986) and Bazerman’s (1994) notions of speech genres, Goffman (1961, 1982) believed scripts both largely determine and are largely determined by the interactions within a social setting. According to Goffman, people bring background understanding to bear on the current situation to define or look at a situation and determine what counts for epistemological status (truth/false actions). The social situations in which interactions occur can be quite complicated, yet often they are ritualized into patterns where participants take up previously established positions (e.g., the joint activity between a patient and doctor). People act out these socially defined scripts. The many variables of any situated interaction, however, mean that participants can never fully inhabit an idealized subject position of a given script; rather, individual enactments appropriate these positions (roles that Goffman considers resources for conduct) as well as resist and disrupt scripts and their associated positions.

6. Butler relied heavily on Lacan in ways I do not; however, the goals of the projects are similar.

7. See Takayoshi, Huot, and Huot (1999) for fuller description of this dilemma.

8. Several participants requested to use their own names instead of a pseudonym. I honored their requests. However, some participants requested pseudonyms with only first names. To keep consistency, I refer to all GirlZone participants by their (real or pseudonymous) first name, altering other sources (e.g., newspaper accounts) to do the same. See the appendix for a list of names, activities, and ages of the participants.

9. Although I, too, refer to participants by their first name, the naming practices in my research are the participants’ choice, and all GirlZone participants, organizers, workshop facilitators, and workshops attendees are treated similarly.

10. Although there are many poppy-girl punk bands, Feaze seemed to adopt their role models’ stance—following the RiotGrrrls—that to avoid being bullied and dismissed, women need to make a space for themselves. In this way, the name Feaze highlights how band members wanted to be seen as punk musicians with a message of disrupting the established order of ignoring female musicians, instead of being seen as a poppy-girl punk band, especially if this is conflated with scantily clad female bodies on stage.
11. The organizers repeatedly struggled with this issue. Early on, for example, Aimee believed all press was good press. Later, however, the organizers revisited the coding of GirlZone’s counter myth building as girls requested activities seemingly antithetical to GirlZone’s goals of broadening options for girls. For example, when girls asked to do a fashion show/makeup makeover, the portrayal of GirlZone (by local media and GirlZone itself) as a site where “girls learn they have the right to choose what to participate in” left the organizers without a language to explain their resistance to a practice that they felt embodied patriarchal and capitalistic values of having girls buy products to change their appearance so that the girls could feel valued and valuable.

12. This reading could be contested. Perhaps when a girl reads the weather she could be imagining herself as a meteorologist, a position likely welcomed by those with counter myths building agendas. However, selection criteria for public service announcements (PSAs) seldom included the topic (though topics about GirlZone and about animals were notable exceptions). Instead, PSAs functioned as one way to ensure everyone spoke on-air and selection criteria centered on the reading difficulty and the length.

13. Ayleen believed this portrayal of the girls as contained was shaped by Miriam being a young journalist as well as by “what the News-Gazette is happy settling for” (personal communication, 1999, May 26).

REFERENCES


Using the notion of design developed as part of the New London Group’s Multiliteracies Project, this qualitative multicase study examines undergraduate academic literacy as a multimodal achievement game. Retrospective interviews and textual analyses revealed a series of operations on course content that constituted moves in the game. The goal of the game was to find, move, and display content, including not only facts but also concepts and forms of situated knowledge that would gain the highest points on assessments. Better “players” were more aware than their lower achieving counterparts of the game as specific activity different from learning. They also had more nuanced and planned versions of the operations that began with what was expected on assessments and moved backwards toward sources. Findings support forms of preparing students for academic success through the multiliteracies pedagogy that combines consciousness raising through overt instruction with forms of immersion and critical analysis.

**The Academic Achievement Game**

*Designs of Undergraduates’ Efforts to Get Grades*

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*During the 1980s*, a new type of game spread among some U.S. undergraduates, particularly those known as nerds (i.e., members of a peer culture associated with intellectual interests, computer skills, and a striving for high grades).¹ This game, called Dungeons and Dragons, or, more familiarly, D & D, involves solving puzzles such as finding treasure in a pseudomedieval setting that exists only in the players’ minds. There are no boards, pictures, or screens, only paper and pen to keep track of play. Another curious feature of D & D is that content, scoring, and rules are not constant from game to game but are fixed by

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a nonplaying character, called a dungeon master, from within a template of possibilities. The dungeon master also moderates play, supplies clues, and answers questions.

It is my contention in this study that D & D and other role-playing games that grew out of it capture some fundamental aspects of academic literacy as it looks to students. From their perspective, college coursework can seem game-like in the sense that “players” combine skill with chance to receive scores in the form of grades. More specifically, both D & D and classes employ similar interactions with the same type of material: information that is sorted, used, and displayed for points. D & D players and students have to infer implicit information from explicit hints made available by the dungeon master and professor respectively. Furthermore, the mutable structure of D & D mirrors students’ experience of how content, rules, and tasks vary from class to class. Skillful students and players must be perceptive enough to recognize which changes are taking place and flexible enough to modify play accordingly. There is even, if one pardons the implications, a parallel between the basic functions of the dungeon master and professor, which is to create, organize, and moderate but not compete.

For the literacy researcher, there are theoretical, empirical, and pedagogical advantages to examining what I will call academic achievement, that is, the pursuit of grades, in terms of this type of game. Theoretically, this perspective lends itself to a description of achievement in terms of design, a concept developed as part of the Multiliteracies Project (New London Group, 1996/2000) to account for the systematicity in all literacies. Designs are essentially grammars, consisting of rules, principles, or other elements whose employment constitutes using literate systems. For instance, in the case of alphabetic literacy, the design minimally includes the alphabet, particularly all its mappings to sound and meaning, together with the genre rules employed in written texts. In the case of computer literacy, it consists of knowledge of what common applications can and cannot do and how they can be used. Also, at more advanced levels it may include the kinds of features such programs are likely to have and how yet unfamiliar features can be accessed.

The mutable nature of rules in role-playing games, such as D & D, is also a characteristic of design. According to the New London Group, design is an emergent rather than a fixed structure. In fact, as Kress (2000a) pointed out, the word design has a “felicitous ambiguity” between a nominal sense of the structure (i.e., as an entity) and the
The verbal sense of creating structures (i.e., as an activity) (p. 158). On this view, existing designs are used as resources by individuals to design new structures, which the New London Group calls the Redesigned. As Kress (2000a) put it, “In this view, individual action and agency are brought together with the effect of social form and structure, without any incompatibility” (p. 158).

The rules of the academic achievement game can thus vary from class to class as each combination of professor and students builds it anew in a somewhat different form. Yet at the same time, the basic structure of finding, processing, and displaying information for grades remains unalterable. If it were to be altered, as would happen if, say, a professor announced on the first day that the whole class would get an “A”, the participants would be doing something else, not academic achievement.

Empirically, conceiving of college as a game implies a very different view than that usually assumed by faculty, administrators, or policy makers, most obviously because it marginalizes their interest in learning. Similarly, it differs from the perspective taken by most educational researchers, who also focus on learning outcomes. Yet it is naïve to imagine that learning is the only purpose of studying, that assessment is essentially a measure of learning, or that students should entirely share their teachers’ learning-based goals in classes. Moreover, it is disingenuous to ignore or condemn how students respond to a grading system that we, in our role as teachers, use to influence their behavior. Certainly, these points can be found as undercurrents in many fields of educational research. They include sociology (Becker, Geer, & Hughes, 1968; Miller & Parlett, 1974; Robinson & Taylor, 1989), cognition (Hounsell, 1984; Laurillard, 1984, 1987), assessment (Crooks, 1988; Kvale, 1993; Wineburg, 1997), motivation (Thorkildsen & Nicholls, 1991), ESL (Gordon & Hanauer, 1995; Hill & Parry, 1992, 1994; Yorio, 1986), reading (Mann, 2000), literacy (Freedman & Medway, 1994), and composition (Nelson, 1990). Despite their diversity, these studies coincide in cautioning against conflation of learning with the attainment of grades. From a multi-literacies perspective, we might say these two aspects of academic literacy have essentially different designs.

Therefore, a view that includes the game-like aspect is more complete and realistic than one that focuses exclusively on the faculty and administration’s concerns with learning. It captures the fact that getting grades, not learning, is the task that is institutionally set for students. Similarly, factoring it into accounts of academic literacy
extends a fruitful trend in academic literacy research toward understanding literacy as a situated phenomenon. As work in the past quarter century has shown, success at academic literacy is not merely a question of skills but the result of situated knowledge. However, content knowledge, even including genres, concepts, and strategies, is not enough on its own to maximize students’ performance. Steinberg, Bohning, and Choning (1991), for example, showed that developmental readers can possess potentially helpful learning and study strategies, but they implement them in a disordered and ineffective fashion. Block (1986) showed that personal engagement with a text can actually be detrimental to performance when the task does not call for that approach. Similarly, Johns (1991) pointed out how a writer can be quite sophisticated in his approaches to one kind of disciplinary writing but unable to apply this kind of generic knowledge in another.

Pedagogically, a program to aid academic literacy should be based not (only) on making students more expert in professional or expressive genres. It should situate generic knowledge in the context of a real classroom in which students need to achieve. Freedman and Medway (1994) put it as follows: “A pedagogy that takes account of these realities [of grading] is presumably more likely to be successful, particularly with those students who do not have the rhetorical competence to work out the real expectations behind the teachers’ instructions” (p. 18).

However, what do these “realities” actually consist of? What are the details of the design of the game? How do players design their own games? And which designs are more successful than others? We know much about various areas of academic literacy, including epistemics (Alexander & Dochy, 1994; Hammer, 1994; Langer, 1992), writing (Greene, 1993; Herrington, 1985; Leki, 1995, Spack, 1997; Walvoord & McCarthy, 1990), reading (Block, 1986; Greene, 1993), test taking (Johns, 1991) study skills (Haas, 1994; Nist, Simpson, Olejnik, & Mealey, 1991), and specific literacy demands of courses (Carson, Chase, Gibson, & Hargrove, 1992; Freedman, Adam, & Smart, 1994; Horowitz, 1986). Yet there is little exploration of the mechanics of this academic achievement. So we know little about how it functions in the lives of individual students who are trying to maximize their grades in courses.

Therefore, this study explores academic performance in terms of how well different outcomes relate to the different ways students understood the game, rather than simply learned the content of their courses. It investigates the types of “moves” they made and how they
explained those actions in terms of their ultimate goal to get high grades. After all, it is to be expected that a greater sophistication in understanding the design of a game will lead in very clear ways to better scores. The idea I proposed in undertaking this research project is to uncover exactly what such expertise consists of—in other words, what stronger students know about achievement that their less successful counterparts do not. The answer will be given in terms of specific elements of the game that are used in moving information from sources (i.e., texts, class discussions, and lectures) to targets (i.e., assessments of various kinds).

These assessments usually take the form of some kind of academic writing, whether that be a paper, essay, or answer to a question on a test item. If, as Freedman et al. (1994) argued, the essence of “student writing is . . . knowing made manifest for inspection” (p. 206), it is important to contextualize that knowing in the context of a form of literacy and see which “knowings” are more successful than others. Such findings can help programs in academic literacy generally and composition in particular better meet students’ academic needs.

THEORETICAL BACKGROUND

The present work is informed by the theoretical perspective Johns (1997) called socioliteracy, which understands literacy in terms of social practices. It varies from these studies not only in a tight focus on academic achievement but also in the adoption of the perspective of the Multiliteracies Project (New London Group 1996/2000; Cope & Kalantzis, 2000a).2 There are four motives for adopting this framework.

The first is that the Multiliteracies Project proposes a reconsideration of how literacy is defined, including removing print as a necessary component. Kress (2000a, p. 157), for example, speaks of literacy as encompassing all “socially made forms of representing and communicating.” These include visual (e.g., painting), spatial (e.g., architecture), auditory (e.g., music), gestural (e.g., dance), and linguistic in addition to multimodal, which integrates various modalities into one multimedium. This shift has advantages for exploring academic literacy, which can profitably be understood multimodally (see also Freedman et al., 1994; Hasan, 1998; Lemke, 2000). Students, after all, respond to and create oral language, written language, graphics,
pictures, computer code, physical models, and other modalities for grades.

The second advantage is that the notion of literacy as game, although not extensively theorized, is mentioned throughout the work of a number of multiliteracies authors (Cope & Kalantzis 2000a; Fairclough, 2000). This view, which is akin to Wittgenstein’s (1953) concept of language game, does not imply that all literacies share the prototypical features of competition and points that I have ascribed to academic achievement. Nevertheless, it does integrate the goal-oriented, dynamic, rule-governed, and social nature of all communicative systems.

The third advantage is that the New London Group, like Wittgenstein (1953), understands literacy games as arising in and from social interactions. Cope and Kalantzis (2000b) note that “in trying to characterise game and genre, we would start from the social context, the institutional location, the social relations of the texts and social practices within which they are embedded” (pp. 24–25). Socio-literacy has, of course, revealed much about the cultural dimensions of literacy practices, but it has not generally taken account of other social factors. For example, what most clearly differentiates academic literacies from their various professional and vernacular correlates is, arguably, their particular institutional nature.

In other words, to understand what happens at the location of this study, a major U.S. research institution I call Midwestern State University (MSU), it is important to consider how this institution constitutes a particular nexus of sometimes competing, sometimes cooperating interests. These stakeholders not only include faculty, staff, administration, and students but also taxpayers, politicians, foundations, parents, graduates, and prospective employers of graduates. The institutional structure provides a way for participants and other stakeholders to partially realize their often divergent interests by subordinating their actions to various interlocking systems of rules. Although these rules are not always entirely well liked, fair, or uncontested, social actors must accede to them for their actions to count as part of the institutional structure.

Surely, for students the most important of these institutional systems is grading. Students receive an opportunity to gain knowledge and credentials representing that knowledge in return for participating in the grading system. If they do not participate, as when they audit, their learning does not count institutionally. When they resist, for example, by avoiding task completion, they are made to look like
they did not learn at all. One rationale for the existence of grading is an assumption that students will not otherwise maximize their efforts at gaining knowledge. They need something that, as Laurillard (1987) bluntly put it, “directs them to look at the physics book rather than go to the movies” (p. 204). Another factor shaping the grading system is the consensus shared by stakeholders that not everyone who enters a course takes out the same amount of knowledge. As a result, grades have unequal values (as opposed to certificates of attendance), and these values are distributed via meritocratic criteria (as opposed to a lottery). The inequality and meritocracy lead to competition, which, in turn, implies the existence of norms if only as a way of avoiding disputes: Thus arises the prototypical game-like structure. These social realities also explain just why it is so resistant to fundamental reform and, therefore, why it is likely to be around for the foreseeable future.

The fourth benefit offered by multiliteracies is that it provides a way to teach the resulting design in a coherent pedagogy. This consists of a four-part method for implementing the findings in such a way to as make a difference in real students’ lives. This includes overt instruction of the design uncovered, situated practice in the game being played, critical framing that foments an awareness of the social and cultural contexts of practice, and, finally, transformed practice. In this final step, literates become able to take ownership of and change the practices they engage in.

METHOD

The present study forms part of a larger examination of academic achievement in three institutions using three languages: English, Catalan, and Spanish. The entire project uses the qualitative multi-case study design standard in socially grounded academic literacy research (e.g., Carson et al. 1992; Freedman et al., 1994; Greene, 1993; Haas, 1994; Hammer, 1994; Simpson & Nist, 1997; Walvoord & McCarthy, 1990). In the portion reported here, I compare and contrast how four U.S. undergraduate social science majors attending MSU constructed academic achievement during one 11-week quarter.

The qualitative case-study methodology gathers data from regular interviews with participants and analysis of documents, such as tests and readings, both by the researchers alone and researchers together with participants. The method is chosen because such research is interested in capturing participants’ perceptions of their experiences.
of studying and/or teaching. Data consist in large part of their expressions of these understandings triangulated with document analysis and interviews with others. In other words, this method gets at how participants construct their activities of studying. This study adopts this method because it shares these goals.

Nevertheless, it might be claimed that the gaining of these kinds of insights into another’s experience would be better served by a full ethnographic treatment, including participant observation such as that of Moffatt (1991), who lived part-time with the Rutgers undergraduates he studied. Nevertheless, academics constitute only a portion of an undergraduate’s life, and in fact, Moffatt had far more to say about the social aspects of life at Rutgers than the academic aspects. This kind of approach provides too wide a lens for an examination of academic literacy.

By the same token, it might be thought that a better understanding of what students do with course content could be gained by a more direct attack, such as think-aloud protocols. However, such work has proven most valuable in providing close-up views of specific narrow academic processes such as reading (e.g., Block, 1986) or writing (Flower, 1989). It is true that both these authors speculate on the role of task in determining their result, but they cannot actually show how different tasks change students’ approaches; that was not the purpose of their research. To do so requires an examination of a range of tasks in a naturalistic context, which only a qualitative case-study approach supplies (see also Merriam, 1988).

Participants were recruited through a variety of means designed to maximize the pool of potential students. These included posted announcements, class visits the previous quarter, and even chance encounters prior to the beginning of classes of autumn quarter 1994. Participants were selected from among the 24 volunteers to balance difference and similarity in a number of personal and academic characteristics. The reason for this balance was that I wanted data that would hint at the causes of different outcomes in a variety of different circumstances, including different courses and types of assessment tasks. However, I also wanted to achieve enough coherence to allow comparability between respondents, and this requires that they share certain qualities. Therefore, I decided to narrow the research down to four undergraduates of similar ethno-cultural background, sharing a single social science major but differing in terms of gender, levels of achievement, and years of study. I chose the social sciences because of the variety of literacy tasks, from essayistic interpretation to
quantitative analysis, that characterizes the component fields. Nevertheless, when I was unable to find four undergraduate volunteers with those qualities within a single major, I expanded the scope to include any social science major. The multiplicity of majors was less of a distortion than might initially appear because of the wide variety of classes these students took. One student, in fact, because of her work requirements ended up taking no major classes during the study quarter, and another took only one.

The four ultimately selected were 19 to 22 years old, working class to middle class, native speakers of English, and European Americans. They were also similar in their concern with learning. None could be found frequently partying, nor were any careerists cynically going to college just for the credentials. Besides pursuing different majors, they differed in their achievement, as shown by GPA’s and undergraduate experience, which ranged from third to fifth year. They are listed by pseudonym, major, and cumulative GPA (see Table 1).

As in other qualitative case studies, data were collected by naturalistic means. These included weekly open-ended individual interviews of between 30 and 90 minutes each with participants and five instructors and examination of documents such as tests, papers, exercises, and assigned readings. Logs kept by participants were examined during the interviews to provide insights about their actions during the week and to develop lines of questioning. Data collection was aided by a research assistant, Jerome Mescher. Most interviews took place in my office, although particularly toward the beginning, we occasionally held interviews in a local café to encourage the

<table>
<thead>
<tr>
<th>Students</th>
<th>GPA</th>
<th>Year</th>
<th>Major</th>
<th>Classes Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg</td>
<td>3.8</td>
<td>5th-year</td>
<td>Sociology/ German</td>
<td>Sociology methods, sociology statistics, modern European history, changing American family</td>
</tr>
<tr>
<td>Carmin</td>
<td>3.2</td>
<td>Junior</td>
<td>Social work</td>
<td>Social work statistics, social work policy, developmental psychology, introduction to theatre</td>
</tr>
<tr>
<td>Sophie</td>
<td>2.8</td>
<td>Junior</td>
<td>Social work</td>
<td>Introduction to chemistry, introduction to political science</td>
</tr>
<tr>
<td>Will</td>
<td>2.7</td>
<td>Sophomore</td>
<td>Psychology</td>
<td>Human biology, international relations, psychological writing</td>
</tr>
</tbody>
</table>
participants to relax and speak freely. After we got to know each other, they seemed to prefer the quiet of my office, and so we went there more often. All four participants appeared relaxed and, in fact, afterwards commented on having looked forward to the sessions. Therefore, I felt comfortable that I was able to access their perceptions with as much accuracy as possible.

We began interview sessions with various openings depending on circumstances. Some were general (“How was your week?”). Others focused on a particular reading when it was considered to provide a particular challenge (“Did you read anything from the Kaufmann packet?”). Sometimes, particularly when they were anxious, participants anticipated this kind of question and began to talk even before recording began, foregoing the usual polite conversational openings. After tests were given or papers handed in, we generally invited their impressions about their performance (“I guess the first thing I should ask you is about any tests this week.”). We also solicited news about any grades received (“All right, you got two test scores back.”). Openings were often informed by the logs (“So you read quite a bit since the last time.”) that requested comment or elaboration. In a few cases, the participants’ faces foretold their concerns (“Well, you were . . . you look like you have something to say.”). Often questions arose from reading the previous week’s transcripts, although these issues were often saved for the middle of the interview. They typically consisted of clarifications of students’ comments that were unclear or appeared to contradict something said earlier.

After the openings, the interviews rarely took a predictable course, depending as they did on the need to cover certain topics on certain weeks, subjects that arose in the course of the discussion, and the respondent’s personality and mood. Nevertheless, we always had a series of talking points that we wanted to cover and would be checked off in turn. These included

- recounting and impressions of readings and studying activities and plans for future studying in each course the participant was taking;
- reasoning behind studying-related decisions;
- discussing and analyzing exams, with a focus on missed questions;
- writing activities, including plans, drafts, revisions, and editing; and
- confusion or follow-up related to the previous week’s interview.

Many of the most interesting themes arose at the participants’ behest as they discussed their feelings about classes, professors,
readings, exams, and curricula. As a result of this spontaneous element, as is frequently the case in naturalistic research (Bogdan & Bilken, 1998; Merriam, 1988), the research questions themselves shifted during data collection. The original questions concerned the relation between reading and studying processes and academic achievement. However, it was observed almost immediately that respondents’ reading was impossibly tangled up with their uses of other information sources. To exclude the oral, diagrammatic, and computerized modalities of information exchange would be to impose a pre-existing and unnatural schema on data selection. At this point, only three weeks into the quarter, it was decided to follow the data where they led and examine information flows. Academic literacy was thus treated multimodally (Kress, 2000b).

After that decision, the unit of information operation—that is, an interaction with course content—emerged as the fundamental unit of analysis, and a major goal became to identify and categorize these operations. The term operation reflects the active intervention of the student as a player who acts on information. It is an atomic unit, as opposed to a strategy (e.g., Nolen, 1988; Weinstein & Meyer, 1986), which may consist of a series of operations designed to meet a certain end, such as memorization. The idea is to account for each effort a student made in taking content from source (e.g., a book) to target (e.g., a test item) individually, and then to classify these steps into categories depending on what the interaction consisted of. The (admittedly ambitious) goal of this analysis is to develop a formalism or, better, allow a formalism to emerge that can account for the design of academic achievement. Operations have a fundamental role to play in that design because they are the basic unit, analogous to moves in the game. They are the efforts students make to advance the informational content through the system.

During data collection, a gross four-stage taxonomy of these moves emerged, including what came eventually to be called exposure, extraction, manipulation, and display of information. The distinctions arose from a combination of intuitive reflection on students’ activities and preliminary categorizations of the operations they were describing. This framework, though it has suffered a good number of alterations to fit the data, forms the foundation for the classification discussed in the results section.

After the study quarter, transcripts and logs were read and reread to isolate and extract references to operations. References were categorized by similarities and differences, particularly how well they fit
into the four classes. This was done by cutting discussion of references to operations together with surrounding contexts out of transcripts and pasting them into operation-specific Microsoft Word documents. At times, two or more operations were referred to in tandem (e.g., when a student would discuss reading and highlighting or outlining and reviewing together), and these excerpts were placed into multiple documents. Then, each of these documents was reviewed, and each specific mention of the operation was highlighted electronically to isolate it from its context. Transcripts were then reread, and references to operations that did not seem to fit the definition of the category led to questioning and modification of the category, with the resulting changes to the collections of excerpts. The goal was to find categories of operations that were exhaustive and internally consistent in how information was treated.

An example of a change will serve to illustrate both the process and the nature of the categories. An original category called finding was meant to capture what students were doing as they initially read or heard content. However, the original intuition that students read or listened in class the first time to find information proved simply unsustainable as data analysis proceeded. They just did not always do so when first reading or attending class. Furthermore, they often repeated reading or reviewed previously extracted material; in both cases, they were making themselves aware of information, exposing themselves to it. Their effort could be accompanied by an attempt to find, isolate, and prioritize relevant information, but this was essentially a separate activity. Also, an initial reading or lecture could leave them mystified as to the point. In that case, they would have either to discard the possibility of knowing what was meant or go to some effort to recover the meaning, usually by asking a professor, classmate, or (re)reading. So the category of finding was abandoned. Students' first readings or listenings were distributed among exposure to describe the placing of content into awareness, extraction to describe the informational triage, and manipulation to describe their efforts to discern information.

Similarly, when respondents wrote what they knew on an exam and when they did it as part of a study activity in a chapter learning check, they were doing the same thing with the content; perhaps when they were lucky, even the questions they were responding to were the same. Both cases were considered to be display because they were manifestations for inspection of their knowledge. The difference was whether the display was an endgame, designed for a teacher to
inspect, that is, for a grade, or for practice or self-check. Again, the circumstances varied, but the actions of the student remained the same.

Reliability of category assignment was determined by having two colleagues, both applied linguists who were familiar with the concepts, duplicate the assignments of mentions of operations. Out of the total of 557 examples, 24 (about 4.3%), evenly culled from the four participants but otherwise randomly selected, were extracted for reliability checks. The reliability was more than satisfactory. One colleague agreed with my assignments 83.3% of the time, whereas the other did so 87.5%. They also agreed with each other on 87.5% of category assignments. Thus, the categories appear quite robust.

FINDINGS

Distinguishing Between the Achievement Game and Learning

There was a consistency in our respondents’ success, as measured by GPA, and their awareness of the game as a distinct activity that followed specific principles. What this means is that the two more successful respondents, Greg and Carmin, differentiated more clearly and consistently between the achievement game and learning than did Sophie and Will. This relative clarity seemed a likely prerequisite to purposeful and confident play because it provides a greater sense of purpose and direction in studying.

On this point, the achievement game can be differentiated from learning structurally in terms of the different flow patterns of information, as indicated in the diagrams below. The student who is aware of the appropriate pattern then thinks of studying with the final destination in mind. The one who is unaware may trust in assessments as a measure of learning and only attempt to learn the material, thinking that the assessments will take care of themselves.

It is possible to argue that this kind of characterization is applicable only to transmission models of pedagogy. On that view, information would consist of facts poured into the student’s mind. By contrast, socially situated knowledge, including genre norms, critical thinking, and concepts, would need to be constructed by students on the basis of implicit instruction and practice. Gaining and measuring these forms of knowledge would therefore not be accurately depicted in either diagram.
However, this view ignores the fact that neither mode of communication nor type of content is at issue. Instruction is communication of content, whether it is via implicit or explicit means. Exactly the same is true of assessment; only the direction is reversed. Similarly, concepts, schemata, procedures, critical thinking, and social conventions are curricular and assessment goals as much as facts are, and they, like facts, can and must be communicated. They therefore can be considered informational in nature, although of a higher order than facts. For example, a concept may be understood as a set of connections between facts (Hiebert & LeFevre, 1986) or as a tool for interpreting other information (Dretske, 1981). Processes have also been described in informational structures (Israel & Perry, 1991). Trimbur (1994) pointed out that even such apparently nontransferable features as “sincerity and authenticity of voice” can become “privileged terms of symbolic exchange” in writing classes (p. 110).

Therefore, communication in both instruction and assessment may need to be indirect and involve reconstruction rather than simple transmission. But the communication takes place just the same and in the patterns described in the chart; the difference is in the more active role of the receiver and the complexity of the signal. I do not mean to trivialize the contributions of constructivist pedagogies, but to capture the points they share with transmission models, as opposed to the fundamentally different designs of nonassessed communication (see Newman, in press). My only criticism is of claims such as those of Bartholomae and Petrosky (1986) and Halden-Sullivan (1998), who argue that constructivist pedagogies can do away with the
achievement game. As Freedman, Adam, and Smart (1994) demonstrated, the only way to do that is to eliminate assessment, not reform it.

Be that as it may, all case study participants systematically differentiated the achievement game from learning to some extent. However, the two lower achieving students appeared considerably less certain of the nature of the differences than did the two more successful ones. For example, Will described grading as “the law of here,” meaning college, but he was confused about what that law consisted of. At times, he claimed it was designed to measure learning, and he said, “I believe in the grading system; I believe that it’s pretty accurate.” Yet he also felt that he felt he could “learn a lot from a class and still get a B or C.” Pressed, he was unable to explicate what grading accomplished. Instead, he gave a salad of answers without really settling on one and ended by saying that this was “a really hard question.” It appeared that his expression of belief in the difference was something that he had just absorbed from other undergraduates without really understanding what it meant.

A clearer sense of Will’s conception of what he was supposed to be doing in classes could be derived from his actions. These made it clear that he believed that he needed to learn “all this stuff,” and that when he was able to do so, he would get better grades. Evidence for this belief can be found in his study strategies, which were biased toward memorizing massive amounts of factual content. For example, he reported having tried and given up before the study quarter a number of mnemonic techniques and basic study strategies he had learned in developmental classes, study skills books, and a video. During the quarter, his new trick was to record and transcribe lectures. He also believed that he should never highlight because that “only postpones learning.” Such an approach only makes sense if the task of studying is conceived of as learning all the course information and that tests will function as a probe of that knowledge.

More evidence can be found in the fact that he was heavily dependent on his professors’ instructions and support. His best class was one that provided outlines and specific directions as to what questions would be asked on exams and how answers should be organized. He was even able to handle abstract conceptual applications in this class because he had been told explicitly to learn them. His worst class, until late in the quarter, was his psychology writing class, in which instruction was indirect and the instructional goals were essentially rhetorical in nature.
Sophie also superficially differentiated a test orientation from a learning one, but when pressed to elaborate, she also proved unclear as to why grades were given. The closest she got to an answer was to say, “Well, you have to have certain requirements to meet whatever, certain goals that the university has and stuff like that.” Still, Sophie’s construal of the difference between grades and learning was different from Will’s, and it appeared initially more promising. She expressed it by using two separate terms, learning and memorization. She defined learning as long-term retention and memorization as destined to last only until the test. Where she went wrong, however, was in how she saw the difference in terms of her own preferences, not as different strategic goals. For Sophie, memorization involved information that would never be used because she was not interested in it, or it had no professional value to her, whereas learning was applied to useful or interesting information.

Consequently, she also tried to memorize whole chunks of course material, but unlike Will, she was less determined and often gave evidence of resisting the game. She studied in front of the TV, described herself as a “C student” as if that were inevitable and made little attempt to understand difficult readings. She justified these behaviors in terms of her professors’ refusing to provide her with sufficient guidance. If they would not do their part, why should she do hers?

By contrast, Carmin and Greg conceived of the achievement game as a distinct set of activities, and it was the object of considerable strategizing and planning (see also Entwistle, 1987). This planning started crucially from an anticipated assessment and worked its way backwards. By contrast, they believed learning happened if not effortlessly, at least not as the result of such calculation. Carmin believed “Classes … that really interest me, I think that I naturally absorb them easier,” and grades “might not matter to me so much.” Furthermore, both successful students expressed the opinion that attention to the achievement game actually detracted from learning. Greg believed a healthy approach to college would be to just consider grades as “side effects of the system that you’re in.” By contrast, an unhealthy one “would be to learn things not to understand them but so that you can spit them out and get a grade ultimately.” At the beginning of the study, he criticized himself for having taken the unhealthy approach for most of his life and vowed to carry out a learning-oriented approach during the study quarter. He was bored with and alienated from the game, and began to experiment with the effects of a partial withdrawal from play. Yet he was much more conscious of his
resistance than Sophie was of hers, and somewhat more prepared for the consequences in the form of lower grades, which he accepted as inevitable.

Still, when these lower grades came, Greg gave up his rebellion and went back to playing the achievement game, which he did with consummate skill. In the end, the only really disappointing grade he got was in statistics, in which he received a C+. An example of the depth of his strategizing can be seen in his history class, where he managed to find out that the instructor’s dissertation was on the Russian revolution. He then placed emphasis on that subject, predicting correctly that there would be a heavy stress on it on the final exam. He did not bother much with other areas, such as Germany, which he actually found more interesting because he had been there, rightly reasoning that he could read about them on his own. He was also aware of the full range of assessment criteria and knew precisely what rhetorical elements were desirable in a written report, which he was able to put together at the last minute, having done less than half the reading.

Carmin was similarly bloody minded about her grades. She calculated the grade she would need to get on a final exam to get an A in her human development class, based on her previous grades. Then, when she could not imagine getting lower than that magic number based on what she already knew, she stopped studying and went out with her roommates to celebrate her birthday the night before the exam. She was right; she got her A.

Use of Operations

The four informational operations that students use to move information from source to assessment are listed in Table 2. The farther right the processes are in the chart, the more they involve an active, creative role for the student. At the same time, information tends to flow from operations on the left of the chart toward those to the right, and display was always the objective. For example, a student might hear information in a lecture (exposure), take selective notes (extraction), invent mental visualizations relating the different ideas in the notes (manipulation), and finally use that information on an exam (display). In fact, the interrelations were usually far more complex, and students would often perform operations in tandem. Similarly, given a difficult reading, they might begin with manipulation, trying to figure out the meaning. Also, displays were sometimes performed
as a self-test or with a classmate or instructor in a nonassessment setting for practice. For example, consider the following annotated passage in which Greg describes his preparing for a sociology methods midterm (each mention of an operation is enclosed in curly brackets, and the specific operation indicated in a subscript following the closing bracket):

Greg: [I paid attention in class] exposure and [had often purposefully tried to construct that overarching perspective “Where do all of these things fit in that he’s talking about?” I would ask myself, “Uh, where’s the where’s this going? How would this method look if I were doing it in the field?”] manipulation, and [I imagined typing up the survey] manipulation {while he’s talking about question formation on a survey.} exposure {I didn’t take notes} extraction most of the time while I was doing that; however, it was very good for the exam [to talk with [a classmate] for about 2 hours] manipulation/display {about things he mentioned in class.} extraction {I vocalized things} display that [I had until then just accepted aurally you know just by sitting in class] exposure and [put them into my own words.] manipulation/display

Although I have isolated the operations in the following subsections, this should not imply that they are easy to disentangle. The point is only that it is possible to break down students’ efforts into these four categories and examine their study process in terms of them, alone or in combination. Such an analysis provides, I would argue, the most precise language available for discussing the design of what students do with course content.

Exposure. Exposure consists of a conscious effort to bring information to attention, to make oneself aware of information. Students used this operation in two contexts: to see new information and to review. To become aware of new information, the students in our study read, paid attention to lectures, and listened to classmates. Of course, it is well-known that information must be constructed from linguistic (and other) stimuli and that the process is in some sense more active than the term exposure makes it sound. However, when an experienced reader comes across a fact in a reading, these processes are automatic, and no conscious effort is made to decode. So if the focus is on the individual’s intention and approach, it seems reasonable to consider it exposure, if only to differentiate this form of interaction from those requiring conscious reasoning to act on information.

In any case, it is interesting to note that all respondents reported strong preferences for oral over written sources for new information.
In part, this preference was probably owed to the fact that if an item was mentioned in class, it was more likely to appear on an exam than if it were only written in a book. However, there also appeared to be a greater comfort with an oral over a written channel. Respondents described readings as boring and difficult far more often than lectures, and when a given reading was tedious, all four mentioned that it would sometimes be difficult to maintain attention. They all reported experiencing something like Carmin’s remark about a psychology reading: “I found myself reading and then I’d get all the way down the page and I’d notice I was thinking about something else, and don’t remember half the page I read.” By contrast, none reported drifting away during class, perhaps a consequence of their note taking, which they were consistently diligent about.

Complaints about lectures were quite different. Will complained about getting lost when he spent time trying to figure out the meaning of something his biology professor said and then having difficulty recovering the thread. Greg, by contrast, disliked his history professor’s lectures because she reminded him of “a bad high school teacher,” babying the students and rebuffing any interpretations other than her own. Yet it was telling that late in the quarter he remarked that to his surprise, he was learning far more from reading the text than listening.

By the same token, there was great variance in the amount of reading these students did. They all read when they felt that there was

Table 2

<table>
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<th>Processes</th>
<th>Exposure</th>
<th>Extraction</th>
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<td>Students exposed and re-exposed themselves to content</td>
<td>Students found and extracted content from texts, lectures, or discussions.</td>
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<td>Examples</td>
<td>Listening to lectures, reading assignments, reviewing.</td>
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By the same token, there was great variance in the amount of reading these students did. They all read when they felt that there was
something in a lecture or recitation that they either did not understand or they needed reinforcement on. They also all read on the few occasions that a professor announced explicitly that they would be responsible for material in readings that was not covered in class, and they believed this information would not be “obvious” or recoverable in some other way. Will and Sophie read more than did Greg or Carmin, and only Will—the lowest achiever—did his reading carefully when he did do it.

Insofar as reviewing was concerned, all respondents reported examining previously highlighted sections of readings and rereading lecture notes up to three or four times. Sophie used flash cards to memorize chemical formulas, combining exposure with display. Carmin, Will, and Greg examined outlines they had constructed in several courses. Will, as I said earlier, recorded and transcribed lectures and rewrote his notes several times over in the belief that the act of rewriting would aid his memorizing. Actually, he depended heavily on re-exposure as his main form of studying. He believed that “the only way I’m gonna have to really get a hold of this information is just to keep going over it.” Sophie also tended to rely on re-exposure, although she recognized this was not enough. She was actually less diligent than Will and often just read and reread the same passage over and over again. Greg and Carmin, by contrast, usually re-exposed themselves to information through a brief review of notes and highlighted portions as a kind of coup de grâce, right before an exam.

**Extraction.** Extraction is the result of informational triage, performed typically by taking notes, outlining, writing flashcards, or highlighting. Of these methods, highlighting was by far the most common for reading, as was note taking for lectures; both were used by all students in all classes. The only partial exception was Will, whose fear of missing important points in his notes drove him to his time-consuming transcriptions, which effectively postponed extraction. The other methods were more restricted, such as Sophie’s chemical formula flashcards and Will, Greg, and Sophie’s sporadic outlining. In fact, writing outlines can be manipulation as much as extraction when it involves indicating connections between pieces of information that may only be implicit in the textual source. Yet only Greg appeared to use them that way. Similarly, it can be exposure when it is simply a recopying of an existing outline, as Will generally did. Except for Greg, who wrote in the margins, the respondents rarely took notes from readings.
Sometimes extraction was performed for the students or was scaffolded by textbooks that indicated pieces of information through some form of textual enhancement (e.g., bold-facings), use of headings, or graphics. Other times, extraction was cued by instructors, through emphasis, repetition, or explicit indication, such as telling students they would be tested on a point. Will's political science professor was the most systematic at this because he supplied his class with his lecture outlines showing all the germane points. Will was thus able systematically to work through his readings, ignoring any point not appearing in the outline. It seems reasonable to consider the question that so exasperates professors, “Will this be on the test?” as students' effort to perform extraction by appealing directly to the source.

There was great variation in the ability of individual respondents at extraction. Generally, the two stronger students were more selective and so eliminated more information from consideration earlier on in their studying than the weaker two. They were also metacognitively more sophisticated and looked for information that was inherently central in some way or that they believed would trigger other knowledge. Most importantly, perhaps, they anticipated exam questions. Greg, who was by far the most canny, claimed it was not hard to do so:

Greg: You go through the chapters, you pick out the main topics of each chapter, and you don’t go into the details. If you only have 50 minutes for an exam, you know that you will probably not be tested over the fourth level of a process that you only discussed until the third level in class. You know if he talked about sampling methods, then he would be talking about probability and nonprobability, and then he would break the probability down into a number of different examples of probability sampling, and then he would break down nonprobability sampling. It’s like the tree that kind of grows down into the roots, and in each one of those specific roots, he will have mentioned an example or a sample calculation, maybe even done one on the board. Those probably won’t be on the exam. Just from experience, he will ask you the difference between sampling and nonsampling methods; he will give you a scenario and ask you if it is sampling or nonsampling. He might even ask you to define which one, but he’s not going to get into the sublevel situations.

He was thus able to be quite efficient in his use of time.

Manipulation. Manipulation consists of using explicit information in a reading or lecture and finding implicit information. A history pro-
fessor may recount some events of the reign of Henry IV, his assassina-
tion, and the enthronement and reign of Louis XIII. However, that
professor need not directly state that Henry was a more effective
leader or even that Louis succeeded Henry to expect a student to dis-
play that information on a test. Similarly, a professor is unlikely to be
able to list all the implications that might fall out from the mean of a
sample, but may still expect the student to be able to find and/or ap-
ply them to a problem set.

In a review of the literature on writing to learn, Applebee (1984)
found that that the act of manipulating course content was a strong
factor in learning. Therefore, it is not surprising that the weaker stu-
dents manipulated less and less effectively than the stronger ones.
Even activities considered to promote manipulation did not necessar-
ily do so for Will and Sophie; neither reported that their outlining
changed the way they thought about material, as manipulation must
do by definition. In fact, most of Will’s active engagement with alter-
ing material tended to be limited to rewording texts he felt to be
unclear, with the objective of understanding them for the first time.

Will understood his limitations in this area: “If they give a concept
and basically what it’s about I can pretty much bring it into what its
actual functions are, and I can see how it would correlate to something
in the real world.” However, when a concept was left buried in a read-
ing “in paragraph form,” as he put it, he “would have a harder time
because I think I’d get caught up on some of the other words, and a lot
of times there’s too many words. The meaning would be like lessened,
like you could take it in a different way.”

This pattern at first suggested to me that he had difficulties with
how to manipulate information. However, I was forced to revise my
view because as time went on he occasionally recounted quite sophis-
ticated manipulations, such as visualizations of holistic relations. For
example, he described imagining himself inside a placenta, taking an
embryo’s point of view in his human biology course. Nevertheless, he
did this kind of activity rarely and without a specific goal. The prob-
lem thus did not appear to lie in any inability to manipulate, so much
as his uncertainty about when to do so or even to realize a need to do
so in many cases. He had little sense of the effects such manipulations
could have on his efforts to move course content from sources to tar-
gets. Ironically, he emphasized a number of times the importance of
active involvement with content to learn it. Yet he did not recognize
what constituted that kind of engagement, which I would classify as
manipulation and extraction. Instead, he thought of rewriting over
and over or transcribing as active interaction even though little information was discovered through this process. At most, he noticed something he had not seen before.

The interpretation that the problem was not one of skills so much as misapplication is also supported by his experiences in political science, a course in which he was most successful. Just as with extraction, in this class, the professor largely agreed with Will that it was the instructor’s job to supply explicitly all conceptual and connective cues that students needed for manipulation. This professor had what he considered “a realistic” view of undergraduates’ abilities, and he made great efforts to provide ample scaffolding, in Vygotsky’s sense (1960/1981), to limit uncertainty in tasks. This belief was the reason he made available copies of his lecture outlines, in which many conceptual connections of subordination of one idea to another were explicitly indicated. There was thus less need to manipulate in his class as well as to decide when to do so. By contrast, in Will’s biology class, students were supplied with large numbers of facts. The resulting challenge turned out to function as an effective, if somewhat ruthless, filtering tool for an oversubscribed major and, arguably, the health professions that this major ultimately feeds into. The writing class was even worse in this respect. Here, the instructor believed that students should be able to read the book without support and that his task was to make them think like psychologists. He relied heavily on implicit instruction and immersion in the task of writing short reports on psychological issues he thought would be of interest to students.

However, in most classes instructors did supply some scaffolding for manipulation. A common form was combining it with display on tasks, such as textbook “learning checks,” study questions, practice tests, and problem sets. In this way, realizations that they had produced incorrect displays, as well as the task of constructing the display itself, led the students to manipulate the information. Yet the questions were sometimes so elementary that Carmin considered them busy work. She had already come up with the desired concepts and relations on her own. As a result, she became so disillusioned with her social work major that she decided to change to physical therapy even though that switch obligated her to transfer to a different university. So it would be wrong to conclude that highly scaffolded courses will be universally appreciated. Just as expert players of any game can feel dissatisfied with too easy a level, the lack of challenge in a course can also be discouraging to better students.
Manipulation was also combined with display, although in a less scaffolded way, in study group discussions. However, only Greg participated in these, and only with one other person in one subject, statistics. Greg also showed the greatest sophistication in his use of manipulation, which from beginning to end was determined by the ultimate goal of the endgame display. In the case of a paper, he would display connections between material derived from the wording of the assignment with his own ideas. This personal connection made sure that the work “wouldn’t be total BS, in that sense that it was something made up that I didn’t care about.” Furthermore, he took care to display logic: “I would, you know, have a hypothesis; I would have some type of rigor in the paper.”

Greg was even able, sometimes, to compensate late in the game for a course he had been “blowing off” by looking for the significant connections apparent in the little material he had examined. For example, the following extensive quotation captures his thought process as he reproduced what he remembered from a cram for the modern European history midterm:

Greg: I’ll see if I can still remember from this morning. Uh, [Napoleon] transformed economics by introducing the Bank of France, transformed religion by making a deal in 1801 with Pope Pius. He transformed—now I’m gonna take some more time to think about these last two because they aren’t sticking out (pause)—the legal status with the civil code. Now it’s coming back to me, and the fourth one was, was, I arranged them into categories to help me remember, they go along with my political, economic, and the governmental’s the last one. He, he made it a centralized government, a bureaucracy. Now that’s basically a memorization game right there. I don’t know that material. I understand the implications of memorizing it. I mean I understand the implication of that knowledge that I have memorized.

Investigator: What is the implication?

Greg: I get an idea of how the government changed which is some type of knowledge.

Finally, sometimes the connections created can be meaningless, as in mnemonics. Carmin developed an acronym out of the definitions of reality given her (improbably) in a social work policy class. The use of these types of strategies was quite limited, even though Will’s study skills books recommended them. He had by this quarter abandoned all these tricks as ineffective.
Display. Display is related but not identical to Bloome, Puro, and Theodorou’s (1989) concept of procedural display. These authors anticipate my understanding of educational activities as products of “cultural institutions” with an existence independent of their “explicitly stated purpose . . . for students to learn academic content, skills, and stated affective qualities” (p. 271). Procedural displays are particular cultural artifacts that exhibit fulfillment of culturally determined roles, such as teacher and student, in classroom communication. Display as used here is similarly expressive of the cultural or, better, institutional role of the student. However, it is not limited to classrooms but can happen whenever a student expresses knowledge of content, whether it be alone with flashcards or while taking a test for a grade. In fact, these situations describe the two main purposes for display: for a student to assay his or her own knowledge or for a teacher to do so and assign a grade. Respondents in this study encountered a number of genres used for the latter purpose, including

- test questions, subdivided into multiple choice items, essay questions, and short answer questions;
- written papers, short two-page responses, summaries of presentations;
- oral presentations, done in groups; and
- exercises, answering book problem sets, and more advanced assignments designed to be done on computer.

The genre determined the way students prepared, and so they made it their business to know what form assessment would take as early in the process as they could. Professors, for their part, always accommodated students in this request by indicating, for example, how many questions on a test would be multiple choice versus short answer or informing them about the desired length of a reaction paper. A full account of assessment genres would take up more space than is available here, so I will limit discussion to multiple choice questions and response papers.

The multiple choice format is ubiquitous in U.S. education, so it may require a certain amount of conscious distancing to realize just how bizarre it is to display knowledge by selecting one choice from among a small set of possibilities after a short prompt. For one thing, selection is conditioned by the wording of the prompt (either a question or an incomplete proposition) and by the choices (Hill & Larsen, 2000). In fact, this format is quite unusual outside the United States,
and at least in Europe, it has a sometimes sinister reputation. It is also no secret, of course, that its standardized incarnation has given birth to an entire industry designed to exploit its weaknesses, particularly in East Asia and U.S. suburbs.

The students in this study generally encountered multiple choice items as a portion of a midterm or final exam, in which the items were less well polished than on standardized tests; some were simply sloppy. One common problem occurred when students were able to discern the target (or at least eliminate a few choices) based on coherence without reference to course content. The opposite problem was that students were misled by questionable wording. The following is one of at least four such dubious items culled from one of Carmin’s development midterms:

Which of the following best describes Vygotsky’s zone of proximal development?

a) cognitive distance between acquired development and level of potential development under guidance.

b) speed of movement through ZPD is influenced by instructor’s voice, personal motivation, familiarity with the tasks.

c) role of adults who interact with preschool children is to use language to facilitate the child’s learning of new ideas.

d) all of the above.

Carmin chose a, but the target was d. Quite apart from the contradiction between a “best describes” item and an “all of the above” target, which Carmin did not notice, she defended her choice in terms of the semantics of the verb describe. She argued that although “b) and c) are also factors in” the zone of proximal development, only a) was descriptive of it.

The other three students were also led to pick a distractor at times by the wording of multiple choice items. Greg eliminated a target on one item because when it was paired with the stem, the result was ungrammatical. Will did not do nearly as well on a multiple choice section of a political science midterm than on the essay portion that covered much the same curricular content. He ascribed the difference to being led astray by tempting distractors and his own insecurity. To compensate for this tendency, he decided that from then on he would “read the question and not really look at the answers because a lot of times I think that the answers can lead you away from the correct one.” Once he had an answer, he would then look to see which choice
was closest. Sophie was even more sensitive to wording. She reported panicking when the questions on a practice chemistry midterm, actually an old exam, contained words she did not expect, and she ran to the teaching assistant in tears. She also described how she preferred items with short choices because those with long ones confused her; in fact, on one political science exam of 30 items, five out of the six she missed had long choices. On the following item, for example, she was caught between two:

A factor accounting for the higher voter turnout in Australia and Great Britain compared to the United States is . . .

b) more demanding residency requirements in Australia and Britain.
c) less demanding registration procedures in Australia and Britain.

Note in her retrospective description of her thought process how the focus on word meaning led her entirely astray; it is as if she had a key word strategy based on the wrong words.

Sophie: I had a real problem with that because in Australia, it’s required that you vote. It’s not you know a freedom, like in the United States. And so the way the answers are worded, B and C, my choice was between the two and I couldn’t tell which one, so I just kind of guessed B . . . [Nevertheless] “more demanding residency requirements in Australia and Britain” was wrong because they don’t have lots of requirements as far as residency goes, that you don’t need to live there for so long, and I didn’t look at the answer being that way. I was looking at the words “demanding residency requirements” and “demanding registration procedures,” which to me meant the same thing.

Finally, she made use of a number of rather unsuccessful language-based strategies when she was uncertain of the target:

- selecting the choice of different length from the rest;
- selecting a choice with unfamiliar words; and
- selecting a choice with a word that is the same as one in the item stem.

In sum, it is commonly assumed by students and faculty that multiple choice test taking itself is a specific skill or set of skills, and there is evidence from these data to support this interpretation. This test wisdom involves an ability to disentangle complex semantic structures created by the interaction of stem and choices. It also includes awareness that items are not always best approached through course
content, but that selection can instead be based solely on item-interna-
coherence.

Response essays present different issues, many of which are cov-
ered in the research on composing (e.g., Greene, 1993; Herrington,
1985; Johns, 1991; Leki, 1995; McCarthy, 1987). In what follows, I will
only describe some points relating to short response and analysis
papers, the only extended writing produced during the study quarter.
Will and Greg were the only ones in this study who had to do any
nontest essay writing (apart from a write-up of an oral presentation
by Carmin), and Will was far less successful at this than Greg.

Will began his writing class with the belief that he would be able to
“talk about my feelings and my interpretations.” In fact, he misread
the instructor’s remark that essay content was not the core of the
grade as a sign that the writing would be easy, not that he should be
looking outside of factual content for what to display. Yet he soon
began a search for the needed information, and after reading the
course handbook on writing, he decided that what mattered was
stylistic—in particular, avoiding wordiness, complication, and bias.
The week after that, however, just before handing in his first assign-
ment, he decided that bias was not an issue for him. Instead, he found
himself in the thick of a struggle with language that involved mainly
tense consistency and lexical correctness. He constructed an under-
standing that his goal in the assignment was to avoid mechanical
problems that he had received feedback on in the past.

The next week, he was disappointed to receive only 16 points out of
a possible 30, which was slightly above the class average. He then
began to focus on the issue of register, prompted by his instructor’s
feedback to the class, which Will reported amounted to saying that
“we were writing in the style that we’ve learned through our entire
life, which is not very descriptive.” The instructor told them to avoid
ambiguity, and he said that “writing for psychology has to be very
spelled out. It can’t really imply much, and if you do, it has to be very,
very clear.” However, Will was unsure as to which modifications
were necessary to achieve this descriptiveness and clarity, and he
changed his criteria weekly as each hypothesized improvement failed
to satisfy his instructor. By the 7th week, he became less able to gener-
ate hypotheses about what was expected of him, and frustration set
in. He despaired that “I tried everything that I can think of, and I don’t
feel much improvement.” He was uncertain who to blame, his
instructor, who he liked, or himself.
Our analysis of Will’s papers indicated a number of problems on the level of register, concepts employed, and purpose. In particular, he tended to answer the questions directly and not use them as vehicles to employ psychological concepts, something implicit in the instructor’s conception of the task. Will missed this hidden assumption, which the successful students had either known from the beginning or soon figured out. On the contrary, his very interest in the problems—and particularly the fact that he had thought about them on his own—caused him to write about them from the point of view of personal experience. The result was impressionistic rather than abstract employment of concepts such as validity, means, repressed memory, math anxiety, and so on. His instructor, a teaching assistant, was also unable to see this problem. He had so completely assumed that the nominal essay topics were mere vehicles for displaying generic norms that he did not recognize the possibility that this purpose might not be transparent to the students. Therefore, he assumed that if Will did not display these norms in his writing, it must be that he did not know them. Not surprisingly, he was baffled by how to help Will, who he was quite concerned about because Will was evidently trying so hard and wanted to succeed so much.

What helped Will in the end was the use of models that employed the same highly austere prose needed to cover fairly broad topics in a short space and that provided examples of the detached register that the instructor expected. After reading a few of them, something clicked in terms of the purpose of the assessment, and Will, far from having to learn how to perfect this genre through trial and error, successfully adopted it immediately. On his last paper, he received 26 points out of 30.

By contrast, Greg found success on writing too easy. He recounted during his sophomore year having written a paper at the last minute with some facts that he had only pulled from the class rather than his own research. He had been somewhat embarrassed at the lack of effort but nevertheless got “a really positive reaction.” The sense of academic writing as a vehicle for the display of generic features was captured in his conclusion that “boy, it doesn’t really matter so much what you write but how you write it.” He was, in fact, quite able to explicitly state a number of these for sociology, including looking at an issues “from a number of sides,” critiquing the subject matter based on a variety of contrasting assumptions, and summarizing the different critiques. He still criticized academic language for its opac-
ity and felt uncomfortable with his own production of it. Take the opening sentence from his paper for his changing family class:

The thing that strikes me most about Giddens' *The Transformation of Intimacy* is his reoccurring concept of intimacy as a progressively more liberating facet of individuality which intentionally breaks from the prior norm of intimacy as a result of commitment seen by Giddens as a restrictive promise.

Greg's comment was that this sentence was loaded and not clear. Although this may be true, it reaches so far beyond the rhetorical expectations of a paper for an undergraduate course that it hardly matters. Yet because the instructor let slip two grammar errors later in the paper, Greg suspected her of not reading his work and giving it an A based on style alone.

To summarize, appropriate ordering and use of the four operations led to more successful outcomes. Greg and Carmin depended less on exposure than did Sophie and Will. The higher achievers extracted less information, did their extractions earlier, and manipulated more and in more self-directed ways. They also worked backwards from anticipated assessments to determine information needed for end-game display. All of the students had difficulty displaying their knowledge on multiple choice items. Greg approached short compositions with a different set of goals than did Will. Greg understood that he needed to display generic features deemed characteristic of disciplinary rhetoric, particularly sophisticated analyses, whereas Will for most of the quarter mistakenly believed he should just directly answer the questions given. Over time and after a great deal of suffering, he came to understand that what he had to do was display generic norms, particularly abstract use of concepts. This awareness did not so much involve acquiring the complex knowledge of how to do so as realizing that this was what the task required.

CONCLUSION

Many of the findings recounted above have, undoubtedly, a familiar ring. It is no surprise that a more profound, active engagement with course content produces better results for students (Entwistle, 1984, 1987; Weinstein & Meyer, 1991). Nor is it surprising that greater
awareness of generic norms leads to success in writing (Berkenkotter & Huckin, 1995). Another limitation of this study is that the analyses are only valid for the student participants here, who were, it should be noted, an ethnically and disciplinarily homogeneous group. Other students in other situations will undoubtedly provide different takes on the game.

However, this research does suggest that it is not enough to advocate an approach to improving academic literacy that is merely based on better learning of curricular goals. Literacy programs need to situate writing, reading, and studying in a realistic context. Instead of focusing on learning strategies (e.g., Caverly & Orlando, 1991), for example, it may make more sense to help students understand academic achievement as a game with a specific design. Instead of just fostering improved writing and reading processes as ends in themselves, it may be more helpful to students to show how these activities are subcomponents of a distinct academic achievement game—that is, to situate them in their authentic context. If this proposal seems to be an apology for measurement-driven instruction, it should also be noted that any efforts at reform of assessment practices must start from this same realistic foundation.

It is precisely a better understanding of the design of this game that the present multicase study begins to elucidate. Through the respondents' recounting of their efforts to achieve academically, it has become clear that greater awareness of this design enhanced their performance. This is true on the level of differentiating the designs of achievement from those of learning, as only Carmin and Greg clearly did. Such awareness leads to an overall strategic way of thinking about academic literacy as a game-like activity that ends with the goal of getting an A. It was also true on the level of understanding the fine points of the design for achievement. Again, Greg and Carmin had a clearer sense than Will and Sophie of how each operation might contribute to their ability to find, uncover, and move the information they needed to display on exams and papers.

Although there is no way of knowing, it seems to me plausible that the popularity of role-playing games such as D & D represents the transfer into a play format of a number of elements of academic literacy that are missing from a learning-based view. Certainly, the fact that D & D was particularly picked up by a peer culture associated with academic success would support this conjecture. Such students, after all, are the ones most familiar with these elements.
Note that this view concords with the four parts of the multi-literacies pedagogy (Kalantzis & Cope, 2000). This pedagogy proposes balancing situated practice, an immersion experience in a literacy, with overt instruction, designed to make students conscious of design features of that literacy. It should be possible to actually show the four operations explicitly to students; in particular, it would be conceivable to show them how high-achieving students use them in their studying. It also fits in with two other parts of the multiliteracies pedagogy called critical framing and transformed practice. The first of these involves developing students’ ability to interrogate the design of the literacy they are in, and the second involves the ability to change their approaches to that literacy.

Two quarters after the data gathering ended, Will stopped by my office unannounced. He reported that he was now getting an A– average. He was grateful for the type of reflection his participation in the study had prompted in him, and he came by to express his thanks. Just being asked about academic literacy had apparently made him reflect on the need to look for the possibilities the interactions of course information and task demands afforded him. Although this improvement came too late for him to continue with his goals of getting into graduate school in psychology, he was doing better than he had imagined possible in his fallback business major. Studying, he reported, was not really all that hard, and he laughed at the amount of work he used to do while achieving so little in the way of results.

NOTES

1. For work on nerds, see Bucholtz (1999).
3. This project has been conducted in conjunction with Mercè Pujol and Mireia Trenchs (Newman, in press; Newman & Trenchs, 1997; Newman, Trenchs, & Pujol, in press), and examines students cross-culturally.
4. There were 186 examples of exposure, 99 of extraction, 63 of manipulation, and 209 of display. However, I do not think that much significance can be attached to the actual numbers for two reasons. First, the numbers often depended on how much effort was needed to explore a subject. Second, although distinguishing between categories was relatively straightforward, the decision to count mentions of the same operation in a given set of discourse was often complicated because discussion would often wander from one test question to another or from one reading to another.
REFERENCES


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L2 writing scholars have recently debated the appropriateness of using cultural constructs to enhance the teaching of English. An important aspect of writing, critical thinking, has received considerable attention. Some have suggested that Asians, including Japanese, do not display critical thought in their writing in English. Other researchers claim that Asians display critical thinking abilities differently than Western learners. In addition, they argue that learners from a particular culture are too diverse to make claims about the whole group’s thinking abilities. This study proposes a model for assessing critical thinking in the writing of L2 learners to determine whether content familiarity plays a role in critical thinking. Findings of a study of 45 Japanese undergraduate students indicate that the quality of critical thought depended on the topic content, with a familiar topic generating better critical thinking. Results also suggested that differing assumptions between the L1 and L2 culture may lead to misinterpretations of the critical thinking ability of L2 learners.

Assessing Critical Thinking in the Writing of Japanese University Students
Insights About Assumptions and Content Familiarity

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Considerable debate has taken place in recent years over whether cultural constructs depicting the speakers of various languages are helpful in the teaching of English. Participants in these discussions can generally be grouped into two broad schools of thought. The first school assumes that speakers of a given language exhibit a certain uniformity of cultural behavior and believe that this knowledge...
about a learner’s native language (L1) culture can enhance teaching. The opposing school questions whether groups of diverse learners can be legitimately characterized as culturally homogeneous, and suggests that such characterization is unhelpful and potentially damaging.

Various researchers in second language education (Atkinson, 1997; Carson, 1998; Fox, 1994; Nelson, 1998; Ramanathan & Kaplan, 1996a, 1996b; Sower, 1999) argue that knowledge about a learner’s culture can be used to anticipate certain behavior and avoid areas of sensitivity, thereby improving teaching effectiveness. These attempts to understand and classify languages and cultures into broad groups reflect a universal approach to theory building, which assumes that frameworks characterize all people while ignoring the characteristics of the particular (Siegel, 1997, pp. 169-170). These frameworks are considered useful for isolating patterns that simplify and generalize behavior. Historian David Landes (1998) claims that constructs that highlight intercultural differences are actually “indispensable tools of inquiry” (p. 415). Landes argues that although every event and individual is unique, some effort must be made to simplify and identify patterns. Landes claims that rather than creating polarizations, distinctions “as any good comparitivist knows . . . are the stuff of understanding” (p. 415). Likewise, Siegel (1997) points to achievements in physics and biology, in which much of the epistemic power depends upon the refinement of explanatory constructs (but which notably developed in discourses that excluded both women and non-European men). Sokal and Bricmont (1998), defending science’s epistemic practices against postmodern critique, argue that although no statement characterizing the real world can ever be literally proven, such statements can sometimes be proven beyond a reasonable doubt. In illustrating how this construct building works in the field of second language learning, Sower (1999) argues, “For someone who has never been to Japan or worked with Japanese students, some introduction [about Japanese culture] is not only important but necessary” (p. 738).

In the late 20th century, as postmodern theories emerged, concerns arose in the field of second language learning about models that focused on native speaker proficiency as the norm. It was recognized that models focusing on the language product failed to consider the learning processes, social context, and individual variables in which the second language was learned and used (Kubota, 1999; McKay & Wong, 1996; Spack, 1997a, 1997b; Zamel, 1997). In addition, as larger concerns about ethnocentrism and Orientalism (Said, 1978) appeared,
the notion of the rhetoric of a whole culture being reduced to a label
such as “linear” or “direct,” as proposed by Kaplan (1966) became
increasingly controversial. Again, L2 scholarship has followed the
lead of larger forces in society and academia that have criticized uni-
versal themes as exclusionary. Postmodernists propose an
inclusionary way of building models that recognizes the voices of
those who have traditionally been excluded. In this view, the critics of
universal themes argue that any group of learners is highly idiosyncratic,
and labels claiming to represent the whole are both reductive (Zamel,
1997) and deterministic (Kubota, 1999). At a more pervasive level,
these labels are said to dichotomize Western (English language) cul-
ture and Eastern (the L1) culture to place the West above the East
(Said, 1978).

It is not surprising in such a debate that both sides go out of their
way to stress the need for a realization that the extremes must be
avoided. Zamel (1997), for example, says about the proponents of cul-
tural constructs,

Although I recognize that this [their] work stems from the well-inten-
tioned notion that taking into account students’ linguistic and cultural
background gives educators insight into and makes them sensitive to
students’ struggles with language and writing, I am also struck by the
way that this leads to a deterministic stance. (p. 341)

Meanwhile, Ramanathan and Atkinson (1999) write about the post-
modern view:

“While we have sympathy for such viewpoints, particularly where
they serve to correct earlier views of culture(s) as monolithic, static,
essentialist, and all-encompassing, they also indicate to us a pendu-
lum-like swing toward the opposite extreme” (p. 67).

On a wider scale, Wilson (1998) sums up the dichotomy with the
following statement: “Enlightenment thinkers believe we can know
everything, and radical postmodernists believe we can know noth-
ing” (p. 40).

Critical Thinking

One area that has received considerable attention in this debate is
critical thinking. Those taking a universalist stance claim that certain
groups of learners, specifically non-Western or Asians, are deficient in critical thinking abilities because they have been raised under social practices where group harmony and conformity are stressed. Atkinson (1997) contends that critical thinking is a tacit, commonsense behavior that is learned “through the pores” (p. 73) by mainstream U.S. children as they grow up. Because of this, he claims the existence of and ability to teach critical thinking to learners from cultures where it is not a social practice remain questionable. Atkinson offers two kinds of evidence to support his claim. First he claims that critical thinking is a difficult term to define and provides several examples where researchers have tried but failed to come up with suitable definitions. He concludes that this self-evident yet ineffable nature of critical thinking suggests it exists at the level of a social practice. His second piece of evidence comes from anthropological studies in which that of mainstream U.S. children’s learning behavior is contrasted with nonmainstream children. Citing two studies among several, Atkinson (1997) and Ramanathan and Atkinson (1999) discuss anthropological research conducted by Scollon and Scollon (1981) and Heath (1991). Scollon and Scollon (1981), in a study of the “writings” of their own 2-year-old daughter, found that she was able to write fictionalized accounts about herself in the third person, whereas the older Athabaskan children in their study did not have this ability. Likewise, Heath (1991 cited in Ramanathan & Atkinson, 1999) describes how mainstream U.S. children can become detached from their own experience in order to engage to general argumentative principles unlike nonmainstream children, who are confused by such behavior. Two other studies used by Ramanathan and Atkinson (1999), one semiethnographic (Li, 1996), and the other anecdotal, (Shen, 1989), compared writing in America with writing in Chinese, both finding that the writing style in the United States has much more focus on creating a personal voice. Atkinson (1997) reports on an empirical study by Clancy (1986) in which it was found that Japanese mothers appealed to social norms when correcting misbehavior, whereas American mothers expressed themselves personally. Atkinson points to several other studies on Japan that reveal how children are socialized to show empathy and conformity. Naturally, Atkinson argues, qualities such as empathy and conformity run counter to the spirit of critical thinking, which requires the qualities characterized by those of the children in the studies by Heath and Scollon and Scollon. In conclusion, Ramanathan and Atkinson (1999) claim that because teaching critical thinking involves individualistic and
adversarial practices, it is problematic for L2 writers, and “TESOL educators should approach the critical thinking bandwagon with care and caution” (Atkinson, 1997, p. 87).

Problematic Aspects of Critical Thinking as a Social Practice

Although Atkinson (1997) appears correct in advising care and caution, his belief that critical thinking does not exist in Japanese learners poses problems. Much of his evidence has not been based on empirical studies that have directly measured critical thinking ability in Japanese learners of English. Although the findings described above are revealing and no doubt have some validity, they remain either distant from the claim they support or anecdotal. It will be argued that a more important aspect of critical thinking assessment concerns factors related to culture, prior knowledge, and assumptions. To illustrate, in a study of 10 L1 writing textbooks used in American universities (Ramanathan & Kaplan, 1996b), the five most common topics in order of frequency were as follows: (a) censorship/freedom of speech, (b) gender issues/homosexuality, (c) death penalty-abortion/euthanasia, (d) gun control, (e) ethnicity/discrimination/affirmative action (pp. 248-249). Although all of these are also important issues in Japanese society, they tend to hold a much smaller place in the public consciousness than in the United States. This is a critical point because research on schemata, or a person’s prior knowledge, suggests that performance in thinking tasks is related to a learner’s familiarity with the topic at hand (Carrell, 1987; Franklin, 1985; Glaser, 1984). Kennedy, Fisher, and Ennis (1991) contend that there is general agreement that a learner’s familiarity with subject matter plays an important role in the person’s performance on thinking tasks. This is significant when one considers the many studies that have suggested that Asian students in the United States lack critical thinking skills. For example, Fox (1994), who is liberally cited in Atkinson (1997), comments on the lack of critical thinking displayed in the academic writing of Japanese ESL college students; however, her study took place in an American context using American topics. Countering these types of studies are researchers such as Simmons (1985), who notes that critical thinking performance can vary depending on the degree of familiarity the learner has with the cultural context of the task. Franklin (1985), contrary to Heath’s (1991) later results, found that the low performance of nonmainstream students
on organizational tasks disappeared when they were familiar with the task material. Given these differing interpretations and results, more research is needed to determine the extent to which critical thinking occurs in Japanese learners and the degree to which it is influenced by content familiarity.

Defining Critical Thinking

Before proceeding with the method, some definition and discussion of critical thinking is required. In recent years, the nature of critical thinking has received considerable attention in the field of education and language teaching. Many researchers have attempted to offer satisfactory definitions; however, the term continues to be redefined. Educator John Dewey (1933) is often cited for first bringing attention to “reflective thinking.” He defined this as “the kind of thinking that consists in turning a subject over in the mind and giving it serious consecutive consideration” (p. 3). Later, critical thinking developed both narrow and broad definitions, with both critical thinking skills and dispositions being described. Skills include identifying assumptions, clarifying, focusing, and staying relevant (Kennedy et al. 1991). Siegel (1997) refers to the “critical spirit” that encompasses a whole set of dispositions, including attitudes, habits of mind, and character traits, that incline one to seek reasons and evidence carefully while rejecting partiality. In addition to these specific definitions, many others have tried to encapsulate critical thinking into a few words. Siegel calls the critical thinker one who “is appropriately moved by reasons” (p. 3). Norris and Ennis (1989) define critical thinking as “reasonable and reflective thinking that is focused upon deciding what to believe and do” (p. 3), whereas Lipman (1991) defines it as healthy skepticism. Others remark on how difficult critical thinking is to define. Nickerson (1990) explains how language is limited in its ability to describe thinking skills and processes. Likewise, Resnick (1987) claims, “Thinking skills resist precise forms of definition” (p. 2).

Turning to the L2 learning field, in a study of 12 argument-oriented L1 freshman composition textbooks, Ramanathan and Kaplan (1996b) found that although there were similarities among the texts with regard to the general benefits of critical thinking, no definitive set of skills could be highlighted for teaching and testing. However, Davidson (1998) suggests that a thread of meaning runs through many definitions of critical thinking. He argues that although ample
evidence exists to suggest that critical thinking is not clearly understood, that does not mean that it does not exist as a clear concept. Textbooks that teach critical thinking and writing skills appear to support Davidson’s claim, at least where skills are concerned.

As explained in the Methods section below, two opposing schools exist regarding critical thinking. On one side are those who claim critical thinking is a clearly definable notion that can be empirically tested (Davidson, 1998; Ennis & Weir 1985; Siegel, 1990). On the other side are those who believe critical thinking is a less clear concept that is either subject-specific and without empirical parameters (McPeck, 1990), or an ineffable social practice that exists at the level of common sense (Atkinson, 1997). The present study, in attempting both to define critical thinking and to measure elements of it in the writing of learners, clearly takes the former position. Naturally, those who believe that critical thinking cannot be defined will question the validity of the model presented in this study. Given the extended discussion that the definability of critical thinking continues to receive, there would appear to be little room for further discussion in this area. Still, if critical thinking cannot be defined, and therefore cannot be empirically studied, statements made by those who claim Japanese cannot and do not think critically remain suspect because they are not made on the basis of experimental or empirical data directly related to critical thinking.

It is suggested that a better way to determine whether Japanese exhibit critical thinking in the realm of foreign language learning is to set a task on a divisive issue and establish criteria related to critical thought that can be reliably measured. Although those on the other side of this debate would argue that one cannot measure what one cannot define, it is believed that the proposed method yields a more accurate representation of reality than the circumstantial evidence presented from studies that do not directly address the issue. Accordingly, this study asks, Does content familiarity play a role in critical thinking?

METHODS

This study took writing samples from 45 Japanese undergraduate university students from three different classrooms. All students were in the first semester of their second year. All participants were taking a class called “English Writing.” Students in these classes had
selected the writing skill over three other language skills: speaking, listening, and reading.

The samples were responses to two short, provocative essays written by the author of this study, one of which was on a topic familiar to the majority of Japanese people, the other deemed unfamiliar. Half of the randomly selected participants in each group supplied writing samples on the familiar topic, whereas the other half wrote on the unfamiliar topic. In addition, participants were given a questionnaire and some were interviewed.

Each writing sample was assessed blindly by two raters for elements of critical thinking taken from a review of L1 and L2 writing textbooks. Additionally, some elements were borrowed from the well-established Toulmin model of argument. Toulmin’s model (1958), discussed later in more detail, is often said to best capture the features of persuasive writing (Crammond, 1998); persuasiveness is connected to critical thinking because writers must predict their audience’s needs, and therefore both anticipate counterarguments and question their own assumptions (Ramage & Bean, 1999). These abilities are components of critical thinking (Browne & Keeley, 1994). Data from each group were separated by writing topic, categorized, and compared for interrater reliability. The results of the text analysis, questionnaire, and interviews were examined to assess the participants’ degree of critical thinking and the factors contributing to it.

Writing Tasks

For the familiar topic, the issue of rice importation to Japan was selected. Japan has only recently opened its market to foreign rice under an agreement with the WTO (World Trade Organization); however, tariffs still remain so high (about $3/kilogram in 2000) that foreign rice has been largely unavailable. Apart from a 1993 crop failure, when Thai rice was allowed to meet the shortfall, virtually no Japanese person has eaten foreign rice in their home (although in 2001, it has become increasingly available). Despite declining consumption, rice plays a prominent role in the history and culture of Japan. Hendry (1995) claims that “Japan’s attachment to her own varieties of rice is quite phenomenal, causing entirely uneconomic behavior” (p. 18). Within this context, the 300-word passage (Appendix A) strongly advocated allowing rice imports in an effort to set out a clear position on a complex issue. One factual inaccuracy was included (foreign rice is not actually banned as the passage claimed, but simply highly tariffed),
along with several questionable claims. These were included as potential points of disagreement for knowledgeable students.

Likewise, the unfamiliar topic, gun control in the United States, set out a clear antigun control position in a 300-word passage (Appendix B). This topic was deemed unfamiliar because ownership of handguns is strictly forbidden in Japan and there are few incidents involving guns compared with the United States. The murder rate in Japan is about one seventh that of America, and this fraction is reduced dramatically for murders involving guns. In 1998, there were only 19 recorded gun killings in Japan (Japan Almanac 2000) compared with 32,000 yearly in the United States (Kettle, 2000), and most of these were intergangster related. Another reason for choosing this topic was because it is frequently used in composition texts in the United States for both L1 and L2 students (Ramanathan & Kaplan, 1996a). As with rice importation into Japan, the topic is replete with complexities that can be argued about at several levels. As in the rice passage, one factual inaccuracy was included regarding the rate of gun ownership, along with some questionable claims as points of potential disagreement.

Thus, these two topics provided participants a good opportunity to use critical thinking skills to explore the topics’ intricacies and complexities. A potential criticism of using familiar content to elicit critical thinking is that it encourages well-rehearsed reasons and evidence absorbed through exposure to the media, schooling, and parents. Such exposure can build entrenched positions that tend to impede effective critical thinking because they can block out alternate viewpoints. On the other hand, Glaser (1984) claims that people having little familiarity with a topic lack the schemata with which to infer further knowledge. Accordingly, it was surmised that the benefits related to schemata evoked by a familiar topic more than compensated for its potential impediments to critical thinking. Indeed, the main aim of choosing both a familiar and unfamiliar topic was to explore how students’ rich schemata with regards to Japan’s rice situation compared with their schemata on gun control, which was presumed to be considerably poorer. It was hypothesized that rich schemata would enhance critical thinking abilities.

Essay Evaluation

Although critical thinking has received much attention in the second language learning field, there has been surprisingly little textual analysis and few scoring guides for testing critical thinking quality in
Although critical thinking tests do exist, they tend to be test specific, with criteria laid out that specifically pertain to the content of the test itself (Davidson & Dunham, 1997). The Ennis-Weir Test of Critical Thinking (Ennis & Weir, 1985) is one such test. Hatcher (1995) claims, “it is the only critical thinking test currently in print that asks students for a written response judging the quality of reasoning in a piece of writing” (p. 27). It has since gone out of print. This test presents a fictitious letter written to a newspaper listing reasons why parking should be made illegal on a certain street. Test-takers respond to the letter with reasoning that either refutes or supports the letter’s arguments. A scoring model is included with the test to assess the responses of test-takers. Raters give points according to whether test-takers find flaws in reasoning and explain why the reasons are fallacious. The points are used to determine a total score, which is then measured against a descriptive assessment. General concepts of critical thinking can be derived from a model of this sort; however, the model itself is test specific, directly referring to the logic used by the letter writer in the parking example. Accordingly, it has no wider applicability.

Other critical thinking tests are available; McPeck (1990) claims to know of at least 26 other tests designed to measure critical thinking ability, but they are often limited to multiple-choice instruments that do not allow any probing of the reasoning behind the examinee’s answer (Davidson & Dunham, 1997). In this sense, they stray even further from the focus of this study, which attempts to measure critical thinking ability reflected in students’ writing. The model proposed in this study attempts to address the lack of adequate critical thinking tests by offering a scheme that can be used in assessing any argumentative passage. Raters in the present study used the model to identify key elements of critical thinking displayed in the students’ writing, assessing each paper for (a) number of arguments, (b) extent of evidence, (c) recognition of opposing arguments and (d) corresponding refutations, and (e) number of fallacies. Figure 1 uses one paraphrased example to show the relationship between these elements, which are discussed in the following sections.

**Key Elements of Critical Thinking**

*Argument*. Raters first evaluated and tallied the number of arguments in each paper. To do this, they determined whether the participants reached a conclusion about the issue at hand because conclu-
sessions indicate the presence of arguments. Although it was expected that most participants would either agree or disagree with the passage, such a definitive conclusion was not considered necessary: One can remain undecided and still be a good critical thinker, provided one offers balanced reasons and evidence for one’s indecision. To identify conclusions, raters looked for claim markers such as “I think” or “In my opinion” and claim assertions such as “Rice imports should not be allowed.”

Arguments were taken to be claims supported by reasons; unsupported claims are merely opinions (Browne & Keeley, 1994). If the reason supporting a claim was deemed inadequate, then the argument was considered flawed. Similarly, if an essay simply restated an argument from the passage using the same reasons, this was not scored as an argument: Critical thinking entails going beyond what has already been stated (Browne & Keeley, 1994) to discover, develop, and clarify an argument and the thinking process involved (Ramage & Bean, 1999). Identification of arguments was based on semantic structures and linguistic elements that typically signal the presence of reasons. Because conjunction is central to arguments (Crammond, 1998), this cohesive relation was used in assessment. Examples of explicit conjunctions include “because” and prepositional phrases such as “for
that reason.” In addition, writers sometimes only imply their position without stating it directly (Ramage & Bean, 1999). Therefore, again following Crammond (1998), who describes how raters can infer arguments based on knowledge of reasoning structures that may not be explicitly linked by conjunctive devices, raters made judgments about the writers’ intent. Arguments with implied claims or conclusions were considered valid provided they were supported by valid reasons. Appendix C provides rubrics for arguments as well as other critical thinking elements measured in this study.

Evidence. Raters evaluated and counted each piece of evidence in support of a reason. In order to establish the legitimacy of an argument, some sort of proof is required as support (Browne & Keeley, 1994). This can come in many forms, including personal experience, research studies, statistics, citing authorities, analogies, pointing out consequences, and precisely defining words (compiled from Browne & Keeley, 1994; Leki, 1995; and Ramage & Bean, 1999). Although these sources of evidence vary in strength, their existence in any argument points to a writer's understanding that arguments must be supported with evidence of some sort. Raters isolated these pieces of evidence and categorized them according to the list above.

Recognition of opposition. Raters looked for the participants’ recognition of the multisided nature of the issues in question. They evaluated and tallied each time an opposing view was recognized, as well as each time the participant went on to refute the opposition. Browne and Keeley (1994) speak of “weak” and “strong sense” critical thinking. Weak sense critical thinking is described as a method for defending initial beliefs, whereas strong sense critical thinking “requires us to apply critical questions to all claims, including our own” (p. 8). Both Leki (1995) and Ramage and Bean (1999) stress the importance of analyzing both sides of an issue and accommodating one’s audience. Accordingly, students were given credit for recognizing opposing views and both refuting their reasoning as well as challenging their support. The recognition of other or opposite viewpoints was identified via the presence of specific structures such as, “Some people claim that/ It is said that... however.”

To this point, this study follows elements set out in Toulmin’s (1958) argumentative writing model, although it uses different terminology. The first two elements in Toulmin’s model consist of a “Claim,” which is an assertion in response to a problem. “Data” refers to the reasons, evidence, or both on which the claim is based. Another important element, the “Warrant,” which authorizes the link between
data and claim, involves an often implicit assumption of conjunctive cohesion. Finally, in Toulmin’s model, recognition of opposition would most closely be associated with “Rebuttal,” which refers to circumstances in which the warrant does not hold. Toulmin’s model, however, only partially addresses critical thinking: it examines the form of an argument but does not fully assess the quality of the thinking behind the form. Because the present study attempts to go beyond argumentative writing to assess critical thinking, other elements not present in Toulmin’s model need to be included.

Fallacies. In some cases, arguments are flawed. “Fallacies” describe the different types of errors in reasoning. Three of the critical thinking and argumentative writing texts used in this study, Browne and Keeley (1994), Leki (1995), and Ramage and Bean (1999), include sections on fallacies using similar terminology. Ramage and Bean (pp. 239-244) identify three broad types of fallacies based on appeals to pathos, ethos, and logos. Fallacies of pathos characterize flaws in the relationship between what is argued and the audience, one example being emotional misdirection. Ethos fallacies characterize flaws in the relationship between the argument and the character of those involved in the argument, one example being attacking the character of the opponent. Logos fallacies characterize flaws in the relationship between the claim and the reasons or evidence in an argument, one example being hasty generalization on the basis of too little evidence. Raters noted and counted these fallacies by name. This process of assessing arguments as fallacious is rife with difficulties. A lack of shared assumptions and values among individuals can result in one person judging an argument completely logical whereas another finds it fallacious. Nevertheless, even while one person’s fallacy can be another’s logical argument, at some point a decision must be made about whether a reason supports a conclusion. It is at this point that the dichotomy between universalists and postmodernists again enters the debate. Postmodernists argue that the legitimacy of judgments is bound by the perspective from which they are made. In other words, almost any statement that is grounded in one’s perspective can be considered part of a legitimate argument. Siegel (1997) counters, “Though we judge from the perspectives of our own schemes, our judgments and their legitimacy regularly extend beyond the bounds of those schemes” (p. 176). This implies that some universal standard must exist for evaluating arguments. In this study, where the gap between reasons and conclusions was deemed too wide, raters scored the attempt at constructing an argument as a fallacy. To illus-
trate, in the pilot study some participants who disagreed with the rice imports prompt (Appendix A) used the following argument: “Imports should be restricted because foreign rice doesn’t taste good.” This was deemed a fallacy of logos because the taste of a product is irrelevant in matters of trade. Likewise, some participants appealed to nationalistic sentiments such as “Japan should not comply with selfish American requests.” This was deemed a fallacy of ethos because it shifts attention to an irrelevancy by way of attacking a purported national characteristic. On the other hand, when participants mentioned reasons that involved loss of jobs, food self-sufficiency, or food safety, such factors were central to the debate surrounding free trade and were considered legitimate.

The Debate Over Quantifying Critical Thinking

There has been considerable debate about whether critical thinking encompasses a set of skills that are generalizable, such as those that this study uses. McPeck (1990) claims that because thinking critically always implies thinking about something, the knowledge and skills required for one thinking activity are different from those required for another. McPeck therefore argues that what might be fallacious reasoning in one domain may be correct reasoning in another. Similarly, Resnick (1987) states that the social context in which critical thinking occurs is not just a peripheral element, but an integral part of the activity. McPeck cites contexts such as scientific and public issues as being too diverse to be sufficiently covered by one set of skills. According to McPeck, not only do these concerns call critical thinking tests and evaluation models (like the one proposed in this study) into question, they also ignore the fact that there is still much disagreement over the definition of critical thinking. In conclusion, McPeck suggests that if instruction in critical thinking occurs, it should be integrated into the specific discipline.

On the other hand, some researchers (Ennis, 1998; Siegel, 1990, 1997) assert that critical thinking is generalizable. Siegel (1990) states, “There are readily identifiable reasoning skills which do not refer to any specific subject matter, which do apply to diverse situations, and which are in fact the sort of skills which courses in critical thinking seek to develop” (p. 77). These include identifying standard fallacies and assumptions, and tracing relationships between premises and conclusions, all of which are said to transcend subject matter and to be
applicable to fields as diverse as religion and physics (Siegel, 1990). Citing the various skills identified in the model above, Siegel states that McPeck’s claims fail to distinguish between specific acts of thinking and general critical thinking skills. Siegel does, however, concede that sometimes specialized knowledge is needed for reason assessment.

Although the model proposed in this study takes Siegel’s side in attempting to quantify general critical thinking skills, it does appreciate McPeck’s view. In assessing students’ critical thinking skills in familiar and unfamiliar topics, the study examined the role of specialist knowledge. In this sense, although the assessment instrument rests firmly in the belief that critical thinking is generalizable, results could show that critical thinking does have a connection with specialized knowledge.

**Raters**

The key elements of critical thinking outlined above may appear transparent in meaning; however, isolating these elements in the texts of a second language learner’s writing proved to be considerably murkier. A pilot study revealed considerable disagreement between raters in deciding which arguments were fallacious. Sometimes, even establishing whether the participant was providing a reason or evidence was difficult. Accordingly, because of the subjectivity involved in evaluating the elements of critical thinking, two raters read and scored all essay samples. One rater was the author of this study and a teacher of English language at the Japanese university where it was conducted. The other rater was a Japanese graduate student fluent in English. The discrepancies that arose between the raters also offered useful insight into the values and assumptions shared by the participants and the Japanese rater.

Each rater independently coded each essay for all the critical thinking elements. The total number of each element—arguments, pieces of evidence, alternate viewpoints and refutations, and fallacies—upon which the raters agreed was divided by the total number of distinct instances of that element identified by either rater, in order to reach a reliability percentage. In the example below, rater A identified 10 arguments, whereas rater B identified 11.

Rater A: A B C D E F G H I J
Rater B: A B D E F H I J K L M
Between them, Raters A and B identified 13 different arguments, for eight of which they concurred. To obtain a reliability figure, the 8 agreed-on arguments are divided by the 13 total arguments, resulting in a percentage of 61.5.

Analysis

Finally, it should be noted that when dealing with a notion such as critical thinking, which has multiple definitions, concerns arise as to whether the “thinking” displayed in the writing of the participants truly reflects their real thought processes. For example, although participants may write views that oppose their own, and be given credit in the model’s scoring system for doing so, this does not necessarily mean that they deeply considered these views, as required by true critical thinking. Rather, they may be simply following argumentative form and avoiding fallacies in the absence of sincere reflection. Although this remains a difficult problem to overcome, the various quantitative and qualitative measures used here sought to detect this “weak sense” of critical thinking.

RESULTS

Essay samples were scored blindly and independently by the two raters, and each critical thinking element was rated for interrater reliability. The interrater reliability percentages for each of the five elements were as follows: arguments = 77%, pieces of evidence = 68%, recognition of opposition = 78%, refutation = 84%, and fallacies = 79%, resulting in an overall reliability of 75.7%. The results in Table 1 reveal that participants who wrote on the familiar topic included significantly more arguments ($t = 4.43$), and considerably more evidence and refutations, than those writing on the unfamiliar topic. Interestingly, however, participants writing on the unfamiliar topic recognized opposing viewpoints more often and made fewer fallacious arguments. Although the statistics appear to suggest that familiarity with a topic enhances the number of arguments and the amount of evidence each participant advances ($p = .001$ and .09, respectively), it did not appear to improve the participants’ ability to recognize other viewpoints or avoid fallacies. However, this result only reveals the amount of output from each student, that is, the number of critical thinking elements, without revealing its quality.
Appendix C1 shows the total variety of arguments for both the familiar and unfamiliar topics. Although four distinct types of argument were supplied for the unfamiliar topic prompt, there were 12 for the familiar topic prompt. In addition, for the familiar topic, four of the argument types were further subdivided. For example, among those who agreed with the prompt, a common claim was that the “competitiveness” of farmers would improve under free trade. This “competitiveness” claim subdivided among three different participants into three distinct claims: that competition (a) makes farmers more internationally minded, (b) improves Japan’s self-sufficiency, and (c) produces enhanced agricultural technology. Among those who disagreed with the prompt, concerns about the environmental effects of losing rice paddies focused on two areas: (a) how rice paddies serve as a water conservation measure in a humid, mountainous country, and (b) how paddies act as micro ecosystems for plants and animals. On the other hand, only one of the argument types in the unfamiliar topic prompt was subdivided: the claim that guns facilitate various types of crime. Moreover, large differences were noted in the variety of argument types between the essays from the two

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Familiar Topic</th>
<th>Unfamiliar Topic</th>
<th>t Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arguments</td>
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<td>1.29 0.72</td>
<td>4.43</td>
<td>.00</td>
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<td>Pieces of evidence</td>
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<td>1.62 0.86</td>
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<tr>
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<td>0.90</td>
<td>.19</td>
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<tr>
<td>References</td>
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<td>1.60 1.10</td>
<td>1.92</td>
<td>.03</td>
</tr>
</tbody>
</table>

NOTE: The maximum number of arguments recorded in any one sample essay was 4 for the familiar topic; whereas for the unfamiliar topic, the maximum number was 2. The maximum number of pieces of evidence recorded in any one sample essay for the familiar topic was 3, whereas for the unfamiliar topic, the maximum number was 2. For opposite viewpoints recognized, participants were scored either 1 for recognizing one or more, or 0 for not including any. For refutations, participants were scored either 1 for one or more appropriate refutations, or 0 for not doing so. No participant scored more than one fallacy. A maximum of six references was recorded for the familiar topic, whereas the maximum was four references for the unfamiliar topic.
prompts. The unfamiliar prompt produced arguments of three broad types: physical safety (guns facilitate crime/self-defense), individual rights (Second Amendment concerns), and climate of fear (the latter could arguably be converged with physical safety). In contrast, the familiar prompt produced arguments of 11 distinct types, including arguments concerning the fairness and waste of imported rice (both on the disagree side), and the issue of the Japanese prejudice against foreign rice (on the agree side).

Related to the analysis of arguments was whether participants would find the mistake that was planted in the prompt. As it turned out, among the familiar topic essays, five participants explained the correct version of the trade agreement, although only one of those writing on the unfamiliar passage mentioned or corrected the mistake in the prompt.

Appendix C2 lists the pieces of evidence for both familiar and unfamiliar topic essays. Although essays from both prompts encompassed a wide range of evidence types, the depth and variety of actual pieces of evidence in the familiar topic essays is striking. The familiar-topic essays offer 24 distinct pieces of evidence, whereas the unfamiliar prompt essays offer 13. Likewise, the familiar-prompt essays outnumbered those of the unfamiliar 6 to 1 in providing comparisons or analogies. Participants writing on the familiar topic were also able to include two forms of evidence—personal experience and expert opinion—that were absent from the unfamiliar prompt. Not only was the variety of evidence greater in the rice imports essays, but the depth of abstraction (see Discussion section) was as well. Whereas the unfamiliar topic mostly offered evidence related to crime, or at a deeper level, power, the familiar topic had multiple foci. “Comparison—Analogy,” for example, covered a range of issues. One participant argued that forcing rice imports on Japan is analogous to forcing wheat or corn on the United States. Another tried to relate the topic to the perils of economic growth by arguing that unfettered free trade contributes to environmental destruction. Such evidence typifies the level of abstraction that was noted many times in the familiar essays. The unfamiliar topic essays only occasionally included evidence that reached higher levels of abstraction: for example, two participants described how the free acquisition of weapons results in a vicious circle, and two others discussed the Second Amendment, which constitutionally guarantees the right to own a weapon. However, these were exceptional.
Besides levels of abstraction, another indicator arose out of the results useful for assessing critical thinking: the inclusion of references. One aspect of critical thinking is the extent to which an individual considers other viewpoints. As a rough measure, the variety of references can be taken as an indication that a participant has at least explored new ideas concerning a topic and perhaps to indicate the extent to which the participant was exposed to and considered other viewpoints. In this study, the familiar topic essays included a total of 57 references, with a mean of 2.3 references per essay and a standard deviation of 1.7 (see Table 1). The references made for the familiar topic were most often to websites, and these encompassed a wide range of sources including agricultural cooperatives, national and local governments, newspapers, and NGOs (Non-Governmental Organization) specializing in rice. The unfamiliar topic had only 1.6 references per paper with a standard deviation of 1.1, showing a significant difference (at the .1 level). These references were most often to websites at newspapers and NGOs.

As previously mentioned, participants writing on the unfamiliar topic actually outperformed their familiar topic counterparts in recognizing opposing viewpoints. In terms of the variety of other arguments recognized, both groups recognized a total of seven opposing argument types (Appendix C3). However, for both the familiar and unfamiliar topic, four of the seven opposing viewpoints were mentioned or implied in the prompt. Revealingly, six of the seven opposing viewpoints mentioned by the unfamiliar topic participants concerned personal safety, whereas for the familiar topic, the opposing viewpoints covered a wider range (unemployment, price of rice, self-sufficiency, World Trade Organization rulings, etc.).

Familiar topic essays included slightly more unique refutations (13, \(M = .67\)) than the unfamiliar topic (12, \(M = .57\)). Again, because the variety of recognized opposing views was so much greater for the familiar topic, the refutations of these views covered many facets of the issue. On the other hand, for the unfamiliar topic, although the 12 refutations of opposing views used different reasoning, all of them referred to the issue of bodily harm. In other words, not one participant in their recognition or refutation of opposing views discussed principles related to the issue of gun control such as civil liberties, political lobbying, constitutional amendments, and so on.

As noted above, participants writing on the familiar topic made more fallacious arguments than those writing on the unfamiliar topic;
they also made a greater variety of them. Appendix C4 shows this variety. Particularly prevalent were fallacies resulting from emotional appeals. Even some of those fallacies that were not included in this category had notions of nationalism attached. In contrast, the unfamiliar topic produced no such fallacies; rather, fallacies were confined to oversimplifications and irrelevancies.

**DISCUSSION**

Although the data appear to indicate that the participants had a grasp of critical thinking at some level, the analysis below provides specific insights that arose from the study. One such insight concerns levels of argumentation or depth of abstraction. Although this concept was not part of the study’s original design, this element emerged as an important factor in determining a learner’s ability to display innovative thought, which is directly linked to critical thinking (Browne & Keeley, 1994). This abstraction is perhaps best illustrated via reference to the gun control essays. Although it may appear obvious that arguments such as “the need to defend oneself with a weapon” and “the right to civil liberties” occupy two different levels, some model is needed to determine in what way their depth varies. Although depth of thought cannot be objectively measured, if arguments can be classified into hierarchical levels of abstraction some comparative conclusions might be reached. The field of psychology presents a model with parallels to levels of abstraction. Maslow’s (1943) “hierarchy of needs” model depicts the way in which humans behave with respect to their needs. The model has five levels, beginning with “physical needs” at the base and advancing up through four more stages of needs: “safety,” “social,” “esteem,” and “self-realization.” “Physical needs” include food and other immediate survival basics, “safety needs” include avoiding pain and injury, “social needs” refer to companionship and love, “esteem needs” encompass attributes such as responsibility and self-respect, and “self-realization needs” include such abstract notions as independence, creativity, and self-expression. Maslow maintains that each more basic need must first be satisfied before reaching the needs higher up. This model allows us to assess depth of abstraction. In the case of the two examples given above, “the need to defend oneself with a weapon” and “the right to civil liberties,” the former clearly fits into Maslow’s second level,
safety needs, whereas the latter argument type best matches the more abstract self-realization needs.

The essays on the familiar topic of rice imports can also be analyzed using Maslow’s (1943) model. For example, food safety, although not as explicitly tied to safety needs as the self-defense argument in the gun control essays, can still be related to notions of self-preservation. Likewise, concerns about the loss of farm jobs or environmental deterioration appear to be related to safety as well as social needs. Other arguments that appeared in the rice imports essays referred to notions of competition and fairness, which appear to be most closely matched with social and esteem needs, respectively. Another argument that was related to esthetics—concern about the loss of rural Japan’s traditional visual appeal as represented by rice paddies—fits the most abstract of Maslow’s levels, self-realization.

Results from the unfamiliar topic essays show similarities to the pattern in the familiar topic essays: Participants supported their opinions with reasons and evidence, although there were significantly fewer arguments and less evidence. There were also large differences in the relative quality of the arguments. Specifically, the variety of responses and the depth of abstraction were much shallower in the gun control essays than in the rice imports essays. Those who disagreed with the prompt wrote almost exclusively about how guns facilitate murder or crime, whereas the few who agreed spoke largely of the need for protection. Both of these arguments fall into Maslow’s second lowest level in the hierarchy of needs model. Even so, a few participants did go beyond lower levels to discuss more abstract issues, such as the displacement of power and the climate of fear that guns can create. Although these two arguments cannot easily be classified into Maslow’s model, they appear to show higher level reasoning. Significantly, despite Atkinson’s (1997) claim that critical thinking is a social practice not shared by Japanese, even for the unfamiliar topic, for which the arguments were generally less abstract than for the familiar topic, participants demonstrated a fundamental understanding that opinions require support.

Participants included a variety of types of evidence, showing an understanding that reasons need to be backed up with proof of some sort. The broad variety of evidence used in the familiar topic essays, including logical explanations, facts, consequences, comparisons, analogies, and personal experience, all of which appear as acceptable evidence types in critical thinking texts, suggests some intuitive
understanding of what constitutes legitimate proof. Again, the volume and variety of different pieces of evidence used both to agree and to disagree with the prompt (Appendix C2) indicate that participants were not simply summoning up well-rehearsed responses that they had used in the past or had heard used by others. This was further borne out by the amount and variety of pieces of evidence that were supplied for the unfamiliar topic essays (Appendix C2). Participants supplied several different types of evidence, similar to the essays written for the familiar topic, although most of this evidence was focused at the safety needs level, that is, concern that guns are the cause of death and crime.

Although it is true that some of the arguments and evidence used are widely discussed in schools and the media, the diversity of levels of reasoning from practical to abstract again suggests an element of choice among the participants, that is, “A voice that individuates a writer from all other writers” (Elbow, 1999, p. 335). Ramanathan and Atkinson (1999), in a section subtitled “Critical thinking and individualism” (p. 59), claim, “Empowering one’s individual point of view with whatever resources of evidence/support that can be brought to bear . . . [has] frequently been found to be problematic for L2 writers from more interdependently oriented cultural backgrounds” (p. 61). However, the results outlined above stand clearly contrary to this statement. Not only did the participants in this study largely choose to take a stand on the issue, but as a group they also supported their opinions with reasons from a full range of levels of abstraction with equally diverse types of evidence.

Responses to a questionnaire (see Stapleton, in press) further supported what is borne out by the results, namely, that the participants’ own beliefs about writing their opinions correspond with what and how they wrote. Generally, participants believed that a clear voice supported by objective reasoning—which avoids vagueness and emotion, was desirable, even if the topic was controversial.

Discourse on critical thinking frequently stresses the importance of going beyond simply supporting opinions with reasons and evidence. Giving full consideration to other points of view and refuting them if one does not agree is another crucial step. Mean scores show that participants did less well in this area, especially in refuting opposing views. However, this widely accepted account of critical thinking may be unsound. Recognizing opposing views in writing does not necessarily indicate that writers have given those views deep consideration. Instead, they could simply be isolating weaker
aspects of the opposing side and creating a “straw man” argument without sincere reflection (Browne & Keeley, 1994). This is especially so in an essay assignment for which there is a limit on the number of words. Although this remains a concern, the results point in a different direction. When writing about rice imports, participants identified 10 distinct opposing viewpoints, although six of those were taken from the prompt. Refutations, although limited to only half of the participants, sometimes displayed considerable sophistication or inside knowledge.

Although fallacies were found in the participants’ writing in this study, it is important to note that the key role they are given in critical thinking textbooks suggests that they are also common in the writing of L1 students. This is significant because many of those who claim that Asians do not think critically, and imply that critical thinking instruction to them is unwise (Atkinson, 1997; Fox, 1994; Ramanatham & Kaplan, 1996b), also imply that L1 learners are well versed in critical thought. Yet critical thinking textbooks for L1 students usually include prominent sections on fallacies, so L1 students must also often have problems with them. In response to claims that L2 learners have difficulty with issues of audience and voice compared to their L1 counterparts, Raimes and Zamel (1997) ask, “Who are these L1 students who . . . have a relatively easier time in writing classes? They are certainly not the students who populate the composition courses at public, urban institutes [in the United States] where we teach” (p. 80).

In summary, it appears that it is not only Japanese, Asian, or even L2 students as a whole who have problems in generating and formulating ideas into sound, cogent arguments. It is also their L1 counterparts, who have served as the implied object of comparison for this study.

Not surprisingly, then, fallacies of several different types appeared in roughly one third of the participants’ essays on both topics. All of these could be categorized into the conventional types such as irrelevancy, oversimplification, overgeneralization, and misleading emotional appeal. Again, the existence of these fallacies in recognizable forms suggests some similarity with what might be expected from L1 students. The greater number of fallacies in the familiar topic essays may be explained by the participants’ greater emotional involvement with the topic due to their familiarity. Many of the fallacies fell in the “appeal to stirring symbols” category, which may indicate that participants, in their zeal to support ideas, failed to recognize that they had gone beyond a point of reasonableness.
Accounting for Why Japanese Learners Are Perceived as Noncritical Thinkers

The results as described above appear to indicate that participants did display critical thought, contrary to the claims of various scholars that Japanese learners do not think critically and should not even be given instruction in critical thinking because it may interfere with social practices. What accounts for such a difference in beliefs about Asian learners, including Japanese learners in particular? The answer appears to lie in two areas: differing assumptions and the type of content used to assess critical thinking. These issues are discussed below.

Assumptions. Assumptions shared by one group of people often conflict with those of another group. Poignant examples of this phenomenon arose in the context of this study. One instance occurred when the non-Japanese rater called a particular attempt at an argument a fallacy (irrelevant), while the Japanese rater saw it as a legitimate argument. In this instance, one of the essays stated that rice imports should not be allowed because the imported rice would simply go to waste in Japan, as had happened in the past. A substantial amount of the Thai rice that was imported during Japan’s 1993 rice crop failure was in fact discarded. The participant went on to argue that this rice would be put to better use in the Third World. The non-Japanese rater labeled this argument as fallacious because it did not address the main issue: fair trade. The assumption held by the non-Japanese rater was that in matters of trade, the products’ end use, whether consumed or wasted by the importing country, was immaterial. Supply and demand was assumed to mitigate waste in the long run. On the other hand, the Japanese rater felt that the essay’s argument was legitimate. In follow up discussions, it emerged that the Japanese rater assumed that avoiding wasting food held precedence over free trade. As it turns out, a common practice among Japanese families is to instill a sense of shame in their children about wasting food, particularly rice. A similar potential conflict arose over the question of self-sufficiency. Many participants who disagreed with the familiar topic prompt claimed that Japan, as a resource-poor island, needed to maintain some level of food self-sufficiency, on the assumption that national food security takes precedence over more idealistic assumptions about free trade. Such deep-set notions as these can serve to create assumptions that have far-reaching effects, for example, during Japanese-American disputes about trade and military bases.
Interestingly, these examples about differing assumptions concern food and survival. Japan, as a recently developed economy, still harbors an older generation who were left impoverished by World War II, often experiencing food shortages (Reischauer, 1988). As a result, assumptions about the value of food resources may resonate with much more emotional intensity. On the other hand, in the United States, which has become the de facto foil of this study, notions of fairness (in trade), which exist at a more abstract level, often take precedence over the more prosaic issues, perhaps a reflection of America’s earlier economic development. In this sense, our assumptions can be said to emerge from the social context. Such a suggestion does not at all mean that Japanese are incapable of making abstract assumptions; rather, when they look critically at an event, their assumptions may simply be influenced by social practices that are reflective of their country’s history and economy.

The claims that Japanese cannot think critically may in part be explained by a lack of shared assumptions between the non-Asian researchers and their Japanese students. When assessing the critical thinking ability of learners, it is natural to make judgments based on one’s own assumptions. When attempts at arguments appear fallacious, there is a tendency to believe that the purveyor of the “fallacy” is not a good critical thinker.

Content familiarity. This study shows that content familiarity powerfully shapes both the range and depth of argumentation, consistent with theories on schemata and knowledge structures. Rumelhart (1981) describes schemata as prototypes of memory arising from familiar experiences that individuals use to interpret related knowledge. When people encounter new information, it is often incomplete; their schemata direct its elaboration. Those whose schemata are deficient in a particular area of knowledge, however, tend to have a knowledge structure that is

organized around the literal objects explicitly given in a problem statement. Experts’ knowledge, on the other hand, is organized around principles and abstractions that subsume these objects. These principles are not apparent in the problem statement but derive from knowledge of the subject matter. In addition, the knowledge of experts includes knowledge about the application of what they know. For the expert, these aspects of knowledge comprise tightly connected schema. The novice’s schema, on the other hand, may contain sufficient information about a problem situation but lack knowledge of related principles and their application (Glaser, 1984, p. 99).
A look at the arguments for the familiar and unfamiliar topics (Appendix C1) appears to support Glaser’s (1984) notion. For example, although several “literal objects” were discussed in the prompts for both topics, the number and variety of principles and abstractions that participants derived from the familiar topic far outnumbered those of the unfamiliar topic. For the familiar topic, for example, three participants in favor of rice imports tied their arguments to principles of competitiveness. Participants divided this principle into three distinct claims, implying that their knowledge was not likely the simple repetition of well-rehearsed information. Several other participants on both the agree and disagree sides tied their arguments to principles of national food security and self-sufficiency. Although casual observers of the Japanese media realize that these two principles are discussed at length in the public domain, they remain abstractions that require some inside knowledge and understanding of the issues.

Another argument that stood out in terms of its abstraction concerned the issue of agricultural subsidies. The participant who used this issue to disagree with the prompt argued that agricultural subsidies in Western countries are equivalent to unfair trade practices. For example, by supplying water cheaply to rice farmers in California, the government subsidizes the lower production cost of rice, in effect skewing the link between price and cost (Executive Summary, 2000), contrary to the ideals of free trade. Such an argument corresponds well with Glaser’s claim about principles that are not apparent in problem statements. The participant in this case not only displayed the ability to make connections that extended to principles of fair trade, but was also knowledgeable about deeper principles of trade, or understood the topic well enough to know in what direction to extend her thinking and research. By contrast, the participants who wrote on the unfamiliar topic included a total of only three distinct argument types, with the overwhelming majority presenting only minor variations on the same theme, which revolved around the issue of the need for gun control to enhance personal safety. Although this argument did have variations, they were still closely related to the idea of the same literal object in the prompt. In other words, the majority of participants did not go beyond this level to abstractions. Glaser (1984) claims, “The problem-solving difficulties of novices can be attributed largely to the inadequacies of their knowledge bases and not to limitations in their processing capabilities” (p. 99). This dovetails with research by Sternglass (1984, cited in French & Rhoder, 1992), who traced the developmental process of college freshmen’s
writing. Her findings revealed that abstraction of thought increased as the content became more personally meaningful.

Ramanathan and Kaplan (1996a), in their study of 12 composition texts and how American university freshmen are inducted into the critical thinking practice, found that topics for discussion and writing were limited to a range of matters of public controversy. Although these particular issues are forefront in the public domain in the United States and other Western countries, they are not yet widely discussed in Japan. Thus, when a Japanese student enters a university writing class in the United States along with students who are well versed in American and Western issues of the day, their lack of familiarity with these issues may often disadvantage them. According to Ramanathan and Kaplan (1996b),

As for L2 student-writers, given that they have not necessarily been socialized in this [American] culture, they may not perceive alleged “problems” as problems at all, or even as matters of particular interest. … For example, a topic such as gun control may not be seen as a “problem” by individuals from other cultures in which guns are prohibited entirely, and that individuals from other cultures may not understand the implied constitutional right to bear arms that among other issues, underlies the gun control debate in the United States. (p. 239)

This appears to be the case in the present study, in which the Japanese participants focused on literal objects for the unfamiliar topic. However, such lack of abstraction in turn may lead to suppositions among researchers (in this case, American) that Japanese students lack critical thinking skills when in fact these skills are handicapped by their lack of any knowledge structure for the topic presented them. The issue of gun control is a prime example. While all participants in the present study found gun ownership to be a problem, contrary to the above suggestion by Ramanathan and Kaplan, most did not even mention the issue of civil liberties, which is at the heart of the issue. This may be because Japan, despite its democratic structure, remains a society with authoritarian features (Johnson, 1995; Sugimoto, 1997; Van Wolfelen, 1989): Much is still made of the need in Meiji Era Japan (1868-1912) to create Japanese terms for the words individual, rights, and freedom, which did not exist in Japan until that time (Yanabu, 1982). As such, it can be argued that the weaker sense of individualism in Japan (Mallaby, 1994) may contribute to incomplete schemata
among Japanese learners in this area. Regardless, to draw the conclusion that Japanese cannot think critically simply because they are unable to reach the depth of abstraction on an issue of controversy in American society that is seldom discussed in Japan appears both unfair and ethnocentric. The depth of abstraction shown by the arguments put forth on the rice imports topic suggests a deeper critical understanding of the issue among at least some of the participants. Whether non-Japanese participants would have been able to provide the same abstraction is questionable.

Continuing the pattern established by the number, variety, and depth of arguments, the evidence supplied for the familiar topic was considerably greater than that of the unfamiliar. Again, this difference seems related to content familiarity. By virtue of growing up in Japan and being exposed to its media, teachers, and parents, participants were able to supply evidence from a wider variety of sources for the familiar topic. Although supplying arguments to support one’s reasoning is relatively easy, finding solid supporting evidence requires research, especially if one is writing a university assignment. Participants who wrote about rice imports had a greater investment in the topic. They were aware of the competing issues and had a better understanding of the social implications of the positions they took. On the other hand, participants writing on the unfamiliar topic were unaware of many more abstract issues involved in the gun control debate. This ignorance is reflected in the significantly fewer references they supplied. If one is not knowledgeable about the political lobbying that clouds the issue of gun control, one is unlikely to arrive at the website of the National Rifle Association. Although the number of references is a crude way to measure critical thinking, it is yet one more indicator of the extent to which a writer has sought other ideas within a topic. This relative depth is illustrated in the results, where each type of evidence is represented for the familiar topic often with multiple examples, whereas for the unfamiliar topic some types are missing, and those present are sometimes weakly represented.

CONCLUSION

Although a study of this nature cannot definitively prove whether Japanese learners of English think critically, the isolated and analyzed elements in the participants’ writing make a strong case that the participants in this experiment displayed critical thought. Perhaps more
definitively, this study has shown that in general, participants did have individualized voices, which are closely related to critical thinking ability. This point is significant because an undercurrent of the positions to which this study responds is the notion that Japanese, or L2 learners at large, are uncomfortable with individualized voices. The strong voices manifested in many of the elements isolated by the study suggest that this idea needs rethinking.

Responding to the debate between universalism and postmodernism described at the beginning of this paper, the results of this study call into question the universalist notion claiming that Asians, including Japanese, are deficient in critical thinking ability. This study suggests that the fact differing assumptions among groups can lead to questionable conclusions, such as that groups of people have limited critical thinking ability. Although constructs describing certain groups of learners are without doubt helpful, one must remain fully mindful of the underlying assumptions held by the group they describe. This not only avoids ethnocentrism, it also demonstrates good critical thinking.

APPENDIX A
Japan’s Rice Policy
By Paul Stapleton

In the past several years, the relationship between Japan and the United States has come under severe pressure. The main cause of this tension has been the disagreements that the two countries have over trade. For many years, Japan has had a trade surplus of more than 5,000,000,000,000 yen each year. This means that the United States pays this amount of money to buy products from Japan more than what Japan buys from America. American people are upset about this deficit. They feel that Japanese people should buy more American products; however, they believe that the Japanese government is preventing American products from being sold in Japan. At the front of the problem is one product: rice.

In the past few years, the world has seen great changes. One of these changes has been the increase in the amount of free trade in the world. In North America, Europe and Asia, trading blocks have been set up so the countries can buy and sell products and services without any restrictions. Most people agree that the trend toward free trade is good for the world community. Everybody benefits because prices become lower which creates more spending, and therefore, more jobs. To prevent a legal product from entering a country, as Japan does with rice, is against the trend toward free trade in the world. It means that Japan has an unfair advantage over other countries that practice free trade.
Japanese say that their farmers are special because their families have farmed the same land for generations. This may be true; however, many American auto workers, whose families have been in the auto industry for generations, have lost their jobs because of imported Japanese cars. The same goes for televisions. The TV is an American invention, but no televisions are made in the United States now because the Japanese have taken over. This seems unfair too.

But it isn’t unfair; it is a fact of life in the free market. America lost its television industry because Japanese could make TVs cheaper and better. Therefore the American TV industry died. The Japanese won. That’s what happens in a free market. There is no reason why rice is any different. Japan already imports half of their food from abroad. If Japan imports rice from abroad, it will not make a big difference. In a time of war, if one country tries to stop food imports to Japan, Japan can easily look to other countries.

The fact is that Japan’s rice market is mostly controlled by farmers who have too much power because of an old electoral system that allows them too much control of the government. If this system is reformed most Japanese will benefit because rice will become cheaper and land will become free for more efficient uses.

In conclusion, Japan should accept the realities of globalization and the new economic order that exists in the 21st century. By opening the rice market completely, Japan will show the world that it is ready to compete fairly.

Report

Now write a short (between 300-400 words) essay giving your opinion about the passage (above).

APPENDIX B
Gun Control
By Paul Stapleton

For many years, there has been a debate in the United States over the issue of gun control. Every few months the issue rises again after there has been a mass shooting at a school or office. After these killings, the public, the media and some politicians say that laws need to be made to restrict the sale of guns. In the end though, very little change occurs.

In the United States now, while it is possible to buy a handgun in every state, it is generally more difficult to buy a gun now than it was years ago. In most states, purchasers must wait several days for a police check, before they receive their gun. These new controls have been effective and there is now no longer any need to increase the control of guns.

Gun ownership is estimated to be about 50% in America. That means that one out of two people on average owns a gun. The huge majority of gun
owners are responsible people who would never think about using their gun to shoot a human being. However, America does have a problem with crime. Because of various social problems such as the large gap between the rich and poor, and drug abuse, American society is not so safe, especially in big cities. Criminals can easily buy handguns illegally and use them to commit crimes. In order to feel safe and protect oneself against gun-carrying criminals, the average person is fortunately free to buy a gun. If gun controls are made stricter, the average person will have less ability to buy a gun, while criminals will still be able to get guns illegally. This could upset the balance that now exists. More gun control will only give more advantage to criminals.

People in favor of more gun control often speak out when some unhappy worker or student kills several people. They argue that if there were more controls on guns, these events would not happen. While it is true that these mass killings are tragedies, it is not the gun that causes the killing, but the person who pulls the trigger. Knives and poison can be equally effective in the hands of a killer.

In fact, the murder rate in the United States has been falling every year for the past 10 years, but guns are still easily available. This shows that guns are not the problem; rather, it is other social causes that are to blame.

In conclusion, guns should be freely available in the U.S. to everyone who passes a police check. They are important for protection and to keep a balance between responsible gun owners and criminals.

Report

Now write a short (between 300-400 words) essay giving your opinion about the passage (above).

NOTE: Examples used in these rubrics have been taken from participants’ essays and paraphrased for illustrative purposes.

APPENDIX C

Rubrics for Elements of Critical Thinking

Conclusion

A Conclusion is a statement or series of statements in which a writer sets out what she wants the reader to believe. This belief is conveyed via an Argument, Evidence, and other statements that the author uses to signal her belief. Conclusions are usually limited to agreeing, disagreeing, or taking some middle ground with respect to the prompt. Conclusions may be explicit, or self-announcing, using clear language. Such Conclusions are often preceded by declarations such as “I agree,” “I disagree,” “I am undecided,” or indicator words or phrases including “therefore,” “instead,” and “as a result.”
Conclusions may also be implicit, or unfolding, where the author’s belief is unstated and left for the reader to infer.

**Argument**

Each Argument consists of a Claim supported by a Reason. A Claim consists of a statement whose truth is arguable, and is often advanced in answer to a problem or controversial issue. (In this study, a contentious passage served as the prompt for discussion.) A Claim which stands alone without a supporting reason is an opinion and cannot be classified as an Argument. Claims are often expressed using claim markers such as “I think” or “In my opinion.” Claim assertions can come in various forms, including

- Proposals: “Rice imports should be allowed.”
- Definitions: “Guns are weapons of violence.”
- Evaluations: “Increasing gun control would be good.”

Reasons are statements used to support Claims and generally answer why the Claim should be believed. Reasons must show a direct logical link to the Claim in order to be bound into a single proposition called an Argument. Reasons need not be new; however, if they are a simple repetition of those found in the prompt, without elaboration, they do not indicate critical thinking. Reasons are often identified by indicator words and phrases such as “because,” “for this reason,” and “for one thing.”

**Evidence**

Evidence constitutes statements or assertions which serve to strengthen the Argument. Evidence comes in many forms including

- Personal experience: “When I visited New York, I felt unsafe in the knowledge that people could legally possess guns.”
- Research studies: “In a study conducted past year, laws that allow concealed firearms actually were found to decrease crime.”
- Statistics: “The consumption of rice has declined over 50% in the past 30 years.”
- Citing authorities: “According to the Ministry of Agriculture, 20% of farmers lost their jobs when import restrictions were relaxed.”
- Comparisons and analogies: “Allowing unrestricted rice imports is as good as accepting the complete demise of rice farming in this country.”
- Pointing out consequences: “If gun control is relaxed, the crime rate is bound to increase.”
- Facts: “In 1993, much of the rice that was imported went to waste.”
• Logical explanations: “Rice paddies act as both a flood control mechanism and an intact ecosystem.”
• Precisely defining words: “A handgun is defined as a gun that can be held in one hand while firing.”

Evidence must show integrity for timeliness (not too old), representativeness (not extreme examples), sufficiency (not based on limited data), objectivity (not biased), and trustworthiness (sources are reputable) (Ramage & Bean, 1999).

Recognition of Opposition and Refutation

Opposing viewpoints constitute statements that run counter or offer alternative interpretations to those expressed in the Claim. As with Arguments, these alternative viewpoints do not have to be original: they can be taken from the prompt. Refutations are statements in which the writer responds to the opposing viewpoint in a way that shows that it is inadequate in some way. Shortcomings in opposing viewpoints can include logical flaws, poor support, erroneous assumptions, or wrong values (Ramage & Bean, 1999, p. 117). Refutations must be logically linked to the opposing views which they profess to counter. They can also offer rival causes or solutions. In refuting an opposing or alternate view, the writer maintains his Conclusion. Opposing viewpoints and Refutations are identified by indicator phrases and words such as,

• “It is said that . . . but,”
• “Some people claim that . . . however,”
• Conjunctive devices, including “although,” “despite,” and “even though.”

Examples:

• “It is said that Japan needs to maintain its food self-sufficiency, but in times of food shortages, any shortfall can be met through imports.”
• “Some people claim that rather than guns being the cause of death, it is the fault of the gun owner. However, in Japan, where guns are difficult to obtain, weapons used in their place, such as knives, lead to less deadly results.”

Fallacies

Fallacies are errors in reasoning. They occur when the Reason does not adequately support the Claim in one of a number of ways. The following are summarized from Ramage and Bean (1999, pp. 239-244). A flawed
relationship can exist between the statements in an argument attempt. These are called logos fallacies and they include fallacies such as irrelevancy, false analogy, hasty generalization, slippery slope, oversimplification, and begging the question. In addition, a flawed relationship can exist between the argument and the character of those involved in the argument. These are called fallacies of ethos and include appeals to false authorities, attacking the character of the arguer, and strawperson (oversimplifying an opponent’s argument to make it easy to refute). Flawed relationships can also exist between what is argued and the audience. These flawed arguments, called fallacies of pathos, include, appealing to stirring symbols (such as nationalistic values), provincialism, appealing to emotional premises, and red herring (shifting the audience’s attention). Examples include

“Japan doesn’t need to comply with U.S. demands to accept its rice exports because . . .”
- “America is trying to rule the world economy.” (appeal to stirring symbols)
- “Japan already imports so much food from the U.S.” (irrelevant)

“Guns ownership should be further controlled because . . .”
- “All guns are only used for killing.” (oversimplification)

APPENDIX C1
Argument Types

Familiar Topic (rice imports)

Agree

1. Fair trade
   - Must cooperate in world community
   - Japan depends on trade partners for food
   - Eases trade surplus
   - Market forces increase yield, feeding a hungry world
2. Consumer benefits
   - Brings down price
3. Encourages competitiveness
   - Produces international farmers
   - Helps self-sufficiency
   - Produces enhanced technology
4. Japanese have prejudice against foreign rice


Disagree

1. Food security (self-sufficiency)
   • Food can be used as a weapon in time of conflict
2. Food safety
3. Environment
   • Rice paddies serve as a dam
   • Rice paddy ecology
4. Rice is special for Japanese/Esthetic notions about rice paddy beauty
5. Japanese economy is now weak
6. Japanese farmers will lose their jobs/Agricultural sector will be weakened
7. Imported rice goes to waste/No space for excess rice
8. Fair trade
   • Subsidies exist in agriculture of other countries
   • Japan already imports most of wheat and fish

Unfamiliar Topic (gun control)

Agree

1. Trade of illegal guns causes crime
2. Protection/self-defense
3. Individual rights (Second Amendment)

Disagree

1. Guns facilitate
   • Killing
   • Crime
   • Accidents
   • Brutality of crime
Familiar Topic

Disagree

1. Logic
   - Explanation of how paddies prevent floods/paddy ecology
   - Explanation of experiment on insect resistant to chemical preservatives
2. Fact
   - Thai rice in 1993
   - Low self-sufficiency of wheat and soy (statistics)
   - Statistics for self-sufficiency, paddy water holdings, decrease in consumption, meat and fish imports
   - Soviet use of food as a weapon against Afghanistan
   - Higher restrictions on Malathion in Japan (statistics)
   - Japanese supermarkets distinguish between foods with and without pesticides
   - Deformed zoo animals (eating post harvest chemical-laden rice)
3. Personal Experience
   - Description of paddy ecology
4. Consequence
   - Unemployment will increase if there is fair trade
   - Agriculture will collapse under free trade
   - Developing countries could be put at a disadvantage
5. Comparison/Analogy
   - Comparative data: agricultural subsidies in several countries showing Japan at the bottom
   - Parallels with environmental destruction of forests in SE Asia and Japan due to overexpansion of free trade
   - Importance of agriculture shown in Mesopotamian example
   - Self-sufficiency compared to other countries
   - Forcing Japan to import rice (a product which the government pays farmers not to grow) is like forcing the United States to import wheat or corn (U.S. products of abundance)
**Agree**

1. **Logic**
   - 1993 rice shortage was exceptional
2. **Fact**
   - Statistics showing dependence on imports/productivity costs of Japanese rice
   - GATT terms (requiring imports)
3. **Consequences**
   - Average family would save 3000 yen under liberalized system
4. **Comparison/Analogy**
   - Top-end rice similar to Matsuzaka beef is a possible solution
5. **Expert opinion**
   - Reciprocal trade is better than free trade

**Unfamiliar Topic**

**Disagree**

1. **Logic**
   - Japan has few guns and few murders
   - Knife or bat has different level of power
2. **Fact**
   - U.S. and Japanese statistics on gun crime/arrest rate/public opinion/gun ownership
   - Columbine incident
   - Hattori incident
   - 6-year-old incident
   - London school incident
3. **Consequence**
   - Illegal guns would be more difficult to obtain; therefore less crime
   - Knives (the weapon of choice in Japan less likely to end in murder
   - If gun ownership in Japan were 50%, I couldn’t even go out
4. **Comparison/Analogy**
   - Vicious circle (of power)

**Agree**

1. **Facts**
   - Statistics showing drop in U.S. crime with gun ownership
   - Statistics showing drop in rape with gun ownership
Recognizing Alternative Views and Refuting Them

Familiar Topic

Agree

It is said that . . .

1. Japan needs to protect its rice crop in order to feed itself, but . . .
   - Japan needs to look at the larger picture and maximize rice crop to benefit a world short of food
   - In the remote case of a bad harvest, Japan can easily import rice
2. Farmers will lose their jobs, but . . .
   - Most rice farmers have other jobs and can make a living without agriculture
3. Farmers must be protected and the WTO rulings be revised, but . . .
   - Japan needs to become more internationalized to increase competitiveness

Disagree

It is said that . . .

1. Under free trade, the price of rice will become lower, but . . .
   - Keeping native culture is important
2. It is unfair not to open the rice market, but . . .
   - Food is special because it is a necessity, unlike most other tradable goods
   - Japan already pays its farmers not to grow rice
   - EU and the United States has import controls on butter, beef, peanuts, and so on.
   - Free trade of food often causes crops to be grown in environmentally unsuitable areas
   - If rice is imported, it would make only a small difference in the trade surplus
   - Free trade encourages a concentration of food production in limited areas; in a time of climate change this could be dangerous
3. Unfair trade has caused unemployment in the United States, but . . .
   - It is illogical to force rice imports upon Japan, which pays farmers not to grow rice

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4. Japan can compete in an open world rice market, but . . .
   • Japan cannot compete against the efficient U.S. agricultural industry

Unfamiliar Topic

**Disagree**

It is said that . . .

1. Guns don’t kill, people do, but . . .
   • There is no other function of a (hand) gun than to kill or injure people
   • Recent case in Japan where a boy beat friends with a bat would have had a much worse result with a gun
   • Trigger is easier than a knife or poison
2. To control guns is to violate the pioneering spirit, but . . .
   • Guns have killed far more people than have helped them
3. Guns are good for protection, but . . .
   • Violence meeting violence creates a vicious circle
   • A violent end brings grief to both the victim and the family of the perpetrator
   • Gun control would make it more difficult for criminals to get guns
   • Law against “carrying” a gun (as opposed to owning one) could be a deterrent
4. There are so many guns in circulation that gun control will have no effect, but . . .
   • Without it the situation would be even worse
5. It is impossible to get rid of guns, but . . .
   • To do nothing will mean no effort to improve the situation

**Agree**

It is said that . . .

1. Violent crime statistics fall in states that have stricter gun control but . . .
   • Guns are not the only type of violence
2. People can live more safely under gun control but . . .
   • Those who already possess guns may not be willing to give them up creating polarities
APPENDIX C4
Fallacies

Familiar Topic

1. Appeal to stirring symbols
   • The United States is trying to rule the world economy
   • America is not trying to reach a fair accord; they are only trying to benefit their own cause
   • Japan doesn’t have to follow free trade trend
2. Hasty generalization
   • 1,000 out of 1,000 people think Japanese culture is rice
3. Irrelevancy
   • Japan already imports so much food from the United States
4. Nonsequitur
   • Imported rice has a different taste and shape; therefore, it can taste better

Unfamiliar Topic

1. Oversimplification/Straw man
   • Guns are only for killing
2. Irrelevancy
   • Guns are expensive

REFERENCES


*Paul Stapleton, associate professor at Hokkaido University, has taught English language in Japan, Hong Kong, Macau, and Canada over the past 20 years. His current interest is in critical thinking and the impact natural sciences will have on language teaching.*
Much of the literature concerning participant relationships in academic writing has discussed features that project the stance, identity, or credibility of the writer, rather than examining how writers engage with readers. In contrast, this article focuses on strategies that presuppose the active role of addressees, examining six key ways that writers seek explicitly to establish the presence of their readers in the discourse. Based on an analysis of 240 published research articles from eight disciplines and insider informant interviews, the author examines the dialogic nature of persuasion in research writing through the ways writers (a) address readers directly using inclusive or second person pronouns and interjections and (b) position them with questions, directives, and references to shared knowledge. The analysis underlines the importance of audience engagement in academic argument and provides insights into how the discoursal preferences of disciplinary communities rhetorically construct readers.

Bringing in the Reader
Addressee Features in Academic Articles

KEN HYLAND
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Increasingly, academic writing is coming to be viewed as a persuasive endeavor that owes as much to a writer’s development of an appropriate relationship with his or her readers as the demonstration of absolute truth, empirical evidence, or flawless logic. A substantial literature is beginning to show how various linguistic features contribute to this relationship as writers shape their texts to the expectations of their audiences (Bazerman, 1988; Hyland, 2000; Swales, 1990). The central point here is that readers can always refute claims, and this gives them an active and constitutive role in how writers construct such claims. Arguments, results, and interpretations need to be presented in ways that readers are likely to find both credible and persuasive, and this means writers must draw on familiar ways of expressing their arguments, representing themselves, and engaging their audiences. This social constructionist view therefore locates participant relationships at the heart of academic writing, assuming that
every successful text must display the writer’s awareness of both its readers and its consequences.

A central aspect of the writer-reader dialogue involves careful interpersonal negotiations in which writers seek to balance claims for the significance, originality, and truth of their work against the convictions of their readers. This negotiation is accomplished in numerous ways, but evidence for writer-reader interactions has largely been provided by examining writer-oriented features of the dialogue. Some studies, for instance, have highlighted the ways authors construct a credible academic identity through self-mention (e.g., Hyland, 2001; Ivanic, 1998). Other research has shown how writers intrude into their texts to express affective and epistemic attitudes through hedges and boosters (Hyland, 1998a), evaluative commentary (Hunston & Thompson, 2000; Thetela, 1997), interpersonal metadiscourse (Crismore, 1989; Hyland, 1998b), theme selections (Gosden, 1993), and stance markers (Hyland, 1999). All these devices clearly carry meanings that anticipate possible reader objections or acknowledge their interpersonal concerns, but the ways writers explicitly bring readers into their texts, as opposed to elaborating their own positions, have generally received less attention.

In this article, I want to redress this imbalance by exploring some key ways that writers explicitly establish the presence of their readers in the discourse rather than manage their own performance of self. This is most obviously achieved when writers address readers directly, using inclusive or second person pronouns and interjections, and when they position them with questions, directives, and references to shared knowledge. Based on insider interviews and a corpus of 240 research articles in eight disciplines, this article will examine these features to reveal something of how disciplinary communities construct readers in published research texts.

Disciplinary Audiences and the Rhetorical Construction of Readers

To view writing as interactive means examining discourse features in terms of the writer’s projection of the perceptions, interests, and needs of a potential audience. The notion of audience, however, is notoriously elusive and controversial. For some analysts, audience is actual people outside a text whom the writer must accommodate, whereas for others, it is a fiction embodied in the writer’s rhetorical choices (Kirsch & Roen, 1990; Park, 1986; Selzer, 1992). Clearly,
academic research may have multiple audiences and may be read by specialists, students, practitioners, lay people, and interested members of the discipline—hardly a homogeneous grouping. Audience is, in fact, rarely a concrete reality in academic environments. Essentially, it represents the writer’s awareness of the circumstances that define a rhetorical context and the ways that the current text is multiply aligned with other texts. Writers construct an audience by drawing on their knowledge of earlier texts and relying on readers’ abilities to recognize intertextuality between texts. This view thus sees writer-reader relationships as central to academic writing because it highlights the dialogic role of discourse in predicting a reader’s reaction and in responding to a larger textual conversation among members of a disciplinary community (Swales, 1990; Hyland, 2000).

Presenting and supporting a position always assumes a dialogue. Any text anticipates a reader’s response and itself responds to a larger discourse already in progress, so argument incorporates the active role of an addressee and is understood against a background of other opinions and viewpoints on the same theme in prior texts (Bakhtin, 1986). Any contribution to an academic debate thus locates the writer intertextually within a larger controversy and within a community whose members are likely to both hold a position on the issue under debate and to recognize only certain forms of argument as valid and effective. Writers must therefore take account of this wider discourse, meeting adequacy conditions by showing how their arguments display a community-oriented representation of reality and by framing their contributions within familiar patterns of proof and refutation. Simultaneously, however, they must also incorporate an awareness of interpersonal factors, meeting acceptability conditions by presenting their arguments to attend to the beliefs and sensibilities of readers, strategically addressing them as intelligent equals in a shared disciplinary endeavor (Hyland, 1998a).

Because utterances are socially mediated to anticipate readers’ possible objections and engage them in appropriate ways, successful academic writing in English incorporates an awareness of audience. An important element of this dialogue with the reader is a range of interaction management issues. These include politeness, mitigation, reference to shared knowledge, persona, status, and the positioning of readers by maneuvering them to see things in the same way as the writer. On one side, this interaction is clear in the ways writers explicitly intrude into the discourse to stamp their personal authority or beliefs onto an argument. Equally, we can see the writer’s construc-
tion of readers through presuppositions of their knowledge and beliefs. Perhaps the most obvious indication of a writer’s dialogic awareness, however, occurs where he or she overtly refers to readers, introducing them as real players in the discourse rather than merely as implied observers of the discussion.

Explicit features of reader orientation are the subject of this article. They represent a major way that writers respond to the potential negatability of their claims by intervening to engage actively or position readers, focusing their attention, recognizing their uncertainties, including them as discourse participants and guiding them to interpretations. The role of these dialogic features is therefore rhetorical in academic discourse, concerned with galvanizing support, expressing collegiality, resolving difficulties, and heading off objections. By anticipating their background knowledge, interests, and interpersonal expectations, a writer can seek to monitor readers’ understanding and response to a text and manage their impression of the writer.

In the next section, I outline my data and methodology, then go on to present my results and describe how these features are used in different fields.

CORPUS AND PROCEDURE

The data for this study consist of a corpus of research articles and interviews with academics from the same disciplines. The text corpus comprised 240 published articles, three from each of 10 leading journals in eight disciplines. These were chosen both to represent a broad cross section of academic practice and facilitate to access to expert informants in my university. The fields were mechanical engineering (ME), electrical engineering (EE), marketing (Mk), philosophy (Phil), sociology (Soc), applied linguistics (AL), physics (Phy), and microbiology (Bio). The journals were nominated by discipline informants as among the leading publications in their fields, and the articles chosen at random from current issues. These texts were scanned to produce an electronic corpus of 1.4 million words and searched for specific features seen as initiating writer-reader dialogues using WordPilot 2000 (Milton, 1999), a text analysis and concordance program.

A list of 85 potentially productive search items was compiled based on previous research into interactive features of academic writing (e.g., Bondi, 1999; Hyland, 1999, 2000) and from grammars (Biber,
Johansson, Leech, Conrad, & Finegan, 1999; Halliday, 1994). These sources revealed a number of devices that provided potential surface feature evidence of reader engagement. Illustrated below by examples from my corpus, these features are (1) questions, both real and rhetorical; (2) inclusive first person, indefinite, and second person pronouns and items referring to readers; (3) directives, including imperatives, obligation modals referring to actions of the reader (must, ought, should, have to, need to) (e.g., Coates, 1983; Palmer, 1990), and adjectival predicates controlling a complement to-clause, directing readers to a particular action; (4) references to shared knowledge; and (5) asides addressed to the reader, marked off from the ongoing flow of text.

(1) What is it then that the Zapatistas want? (Soc)

What would you do in this situation? (Phil)

(2) As we can see, their algorithm is practical for solving the problems with up to 35 jobs. (EE)

Unless your application requires all or most of these advantages you should consider natural gas-fired infrared heating. (ME)

I must ask readers to trust me that a viable syntax and semantics can be had for a language, to be called PWQ, whose following sentences disambiguate. (Phil)

(3) Note that xylem pressure (tension) values are quoted as absolute pressures (tensions). (Bio)

A distinction must be made between cytogenetic and molecular resolution. (ME)

It is important to see that by glorifying these common-or-garden everyday phenomena as knowledge, Giddens and Hayek create what Wittgenstein . . . (Phil)

(4) The obviously correct relation between these two lengths is $a = b$ ( Phy)

(5) And—as I believe many TESOL professionals will readily acknowledge—critical thinking has now begun to make its mark, particularly in the area of L2 composition. (AL)
All examples were carefully examined in their sentential context to ensure they only addressed readers. All instances that referred to other participants or expressed the writer’s stance were eliminated. The corpus data were supplemented with interviews with experienced researchers/writers from the target fields to obtain participant perspectives on disciplinary practices. These were conducted using a semistructured format of open-ended prompts (Cohen, Manion, & Morrison, 2000). These began with detailed examinations of text extracts from participants’ and others’ writing to explore what writers had tried to achieve with specific choices. These discourse-based interviews then moved to more general observations that focused on participants’ impressions of disciplinary practices but allowed them to raise any other relevant issues. Participants could therefore respond to texts as readers with insider community understandings, while also discussing their own discoursal preferences.

### EXTENT AND DISTRIBUTION OF READER FEATURES

The frequency counts reveal the extent of dialogic interactions in the corpus and suggest that academic writing is not the impersonal prose it is often depicted to be. Table 1 shows the devices initiating these interactions in rank order, with inclusive first person pronouns and imperatives amounting to more than half of all the features.

### Table 1

*Reader Features (per 10,000 words)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Total No. of Signals</th>
<th>Items per 10,000 Words</th>
<th>% of Total Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusive pronouns</td>
<td>2,843</td>
<td>21.5</td>
<td>36.5</td>
</tr>
<tr>
<td>Imperative</td>
<td>1,661</td>
<td>12.6</td>
<td>21.3</td>
</tr>
<tr>
<td>Obligation modal</td>
<td>730</td>
<td>5.5</td>
<td>9.4</td>
</tr>
<tr>
<td>Indefinite pronoun</td>
<td>720</td>
<td>5.4</td>
<td>9.2</td>
</tr>
<tr>
<td>Knowledge reference</td>
<td>642</td>
<td>4.9</td>
<td>8.2</td>
</tr>
<tr>
<td>Rhetorical questions</td>
<td>511</td>
<td>3.9</td>
<td>6.6</td>
</tr>
<tr>
<td>Second person pronouns</td>
<td>261</td>
<td>2.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Asides</td>
<td>148</td>
<td>1.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Real questions</td>
<td>145</td>
<td>1.1</td>
<td>1.9</td>
</tr>
<tr>
<td>It is (adjective) to do</td>
<td>124</td>
<td>0.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>7,785</td>
<td>58.9</td>
<td>100</td>
</tr>
</tbody>
</table>
Because these signals cue much longer stretches of text where writers seek to involve readers, the totals actually underrepresent the extent of dialogic interaction in the corpus. The raw figures have therefore been normalized to compare the occurrence of devices in corpora of unequal sizes. Overall, they occurred about 32 times per article, almost two on every page.

The results show some interesting cross-discipline similarities. Few writers made personal asides to the reader, for instance, and only the philosophy texts contained genuine questions or you pronouns. More obvious, however, are the disciplinary variations, where philosophers employed 10 times more devices than did biologists, for example. Table 2 shows that in general, the more discursive “soft” fields of the humanities and social sciences employed more reader-oriented markers than the sciences and engineering did. This symmetry was upset by the physicists, who joined philosophers, sociologists, and applied linguists in a relatively high use of inclusive we pronouns and explicit references to shared assumptions. Directives of various kinds tended to compose the highest proportion of features in the hard sciences. Questions were largely a feature of the soft disciplines.

These results suggest that successful academic writing requires a clear awareness of, and appropriate engagement with, one’s likely readers. The extent to which writers represent their readers in these texts shows that such connections help facilitate the negotiation of knowledge in research genres, but their uneven distribution also points to the rhetorical constraints of different disciplinary practices. In the following sections, I will discuss these devices in more detail and draw some tentative links between reader engagement and the discoursal preferences of different fields.

**READER ENGAGEMENT AND WRITER PURPOSE**

There appear to be two main rhetorical purposes to writers’ use of these appeals to the reader:

1. The first is primarily interpersonal and acknowledges the need to sufficiently meet readers’ expectations of inclusion. Here then, we find readers addressed as participants in an argument with inclusive or second person pronouns and interjections to effect interpersonal solidarity and membership of a disciplinary in-group.
Table 2

Frequency of Reader Features per Discipline (per 10,000 words)

| Discipline            | Questions | Pronouns | | | | | |
|-----------------------|-----------|----------|----------------|-----------|----------------|-----------|----------------|-----------|----------|
|                       | Real      | Rhetorical | Asides | Inclusive | Second Person | Indefinite | Shared Knowledge | Directives | Total    |
| Philosophy            | 4.3       | 10.1      | 2.2    | 81.7      | 12.1          | 16.3       | 9.9             | 26.1       | 162.7    |
| Sociology             | 0.9       | 5.8       | 1.8    | 19.9      | 0.1           | 2.5        | 4.2             | 15.8       | 51.0     |
| Applied linguistics   | 0.7       | 4.2       | 1.4    | 13.3      | 0.0           | 5.8        | 5.5             | 19.5       | 50.3     |
| Physics               | 0.2       | 0.8       | 0.3    | 12.9      | 0.0           | 8.0        | 5.2             | 21.1       | 48.5     |
| Electrical engineering| 0.0       | 0.0       | 0.0    | 6.8       | 0.0           | 2.7        | 3.9             | 29.0       | 42.3     |
| Marketing             | 0.7       | 2.6       | 1.4    | 8.0       | 0.1           | 3.2        | 3.8             | 12.6       | 32.4     |
| Mechanical engineering| 0.1      | 0.8       | 0.1    | 2.4       | 0.3           | 1.8        | 3.0             | 19.9       | 28.4     |
| Biology               | 0.2       | 0.8       | 0.0    | 0.8       | 0.0           | 0.3        | 1.3             | 13.0       | 16.4     |
| Overall               | 1.1       | 3.9       | 1.1    | 21.5      | 2.0           | 5.4        | 4.9             | 19.0       | 58.9     |
2. The second purpose seems more to do with rhetorically positioning the audience, recognizing the reader’s role as a critic and potential negator of claims by predicting and responding to possible objections and alternative interpretations. Here the writer pulls the audience into the discourse at critical points to guide them to particular interpretations with questions, directives, and references to shared knowledge.

In sum, the use (or nonuse) of these features reflects the writer’s assessment of his or her readers’ likely response not only to the message but also to the interpersonal tone in which it is presented. These broad functions are not clearly distinct, of course, as writers invariably use language to solicit reader collusion on more than one front simultaneously—arousing interest, establishing solidarity and credibility, anticipating objections, and so on. However, these two overarching purposes allow us to see some of the ways writers project readers into their texts more clearly and to compare the rhetorical patterns of such engagement in different discourse communities.

Soliciting Reader Solidarity

*Personal pronouns.* Readers are most explicitly brought into the text as discourse participants by the use of personal pronouns, most commonly the inclusive *we*. The clearest acknowledgments of the reader’s presence, second person *you* and *your*, occur only rarely in the corpus and then almost exclusively in philosophy, a discipline with distinctive patterns of interactional engagement (Bloor, 1996, p. 34). This widespread avoidance may indicate that writers generally seek to circumvent the stark detachment from their audience that *you* suggests, thus minimizing any implication that the writer and reader are not closely linked as members of the same disciplinary community. Where we do find second person and indefinite pronouns, then, they often carry an interactive and encompassing meaning, which shows that writers are able to identify with readers, anticipating their objections, voicing their concerns, and expressing their views:

(6) If you concede that mental properties have causal powers, while accepting at the same time the causal closure of the physical domain, then you must consider the causal role of mental properties to be somehow dependent on the causal role of physical properties. (Phil)
One might argue that in order to understand the codes, the learner needs to become . . . (AL)

We would expect that over time, plant genotypes that maximize mycorrhizal benefits would be at a selective advantage. (Bio)

One can even imagine using the paramagnet in place of the Einstein solid as . . . (Phy)

At this point the reader might wish to ask me what happened in the cycle after the 1992 study. (AL)

Here the writer adopts the position of an imaginary reader to suggest what any reasonable, thinking member of the community might conclude or do. As I will discuss further below, reference to the discourse participants in this way sends a clear signal of membership, textually constructing both the writer and the reader as participants with similar understanding and goals. It also sets up a dialogue between equals in which the potential point of view of the reader is woven into the fabric of the argument, articulating the thoughts and counterclaims of fellow professionals. It should not be overlooked, however, that this is essentially a persuasive strategy, and although writers are trying to predict and respond to their readers’ lines of thought, they are also trying to encourage particular reactions to their argument—specifically, to secure their agreement. Once again, then, this audience orientation extends into explicitly spelling out the conclusions the writer wants the reader to draw:

(7) The reader will note the use of the passive voice when referring to what the learner does, constant in the literature which makes reference to learner autonomy. (AL)

To this end, we remind the reader that in the case of the nonrelativistic hydrogenic atom a similar situation occurs. (Phy)

Furthermore, one has to consider that splice variants may alter the transactivation . . . (Bio)

Laying stress on their membership—that is, their joint affiliation to a community-situated pursuit of knowledge—is an important way that writers give persuasive weight to their texts:
Part of what you are doing in writing a paper is getting your readers onside, not just getting down a list of facts, but showing that you have similar interests and concerns. That you are looking at issues in much the same way they would, not spelling everything out, but following the same procedures and asking the questions they might have. (Bio interview)

I picture an ideal reader. Someone who is curious about the same kinds of issues, motivated by the same problems. I try and make that clear in the way I write, as if I am talking to a colleague, to someone I know. (Soc interview)

So, instead of addressing readers as a separate, disembodied audience, there is heavy emphasis on binding writer and reader together, particularly through the use of inclusive we, which was the most frequent reader device in the corpus. This is widely used to express peer solidarity and membership of a disciplinary in-group:

(8) Although we lack knowledge about a definitive biological function for the transcripts from the 93D locus, their sequences provide us with an ideal system to identify a specific transcriptionally active site in embryonic nuclei. (Bio)

On what basis do we (who call ourselves applied linguists) decide to include or exclude them? (AL)

Classical electromagnetic theory [9] tells us that a couple of potentials, A, V may be replaced by A – Vtp and V + tp without affecting the fields. (EE)

We know, however, it is only in the last few years that Weber and Simmel have really been brought back to a place of honour in Francophone sociology. (Soc)

Here, we can see that the inclusive pronoun invites the reader into the argument and presupposes a certain communality, a set of mutual, discipline-identifying understandings. This is particularly clear in (9), where the writer marks his own unique contribution as firmly located within the professional beliefs and practices he confidently asserts to be shared by his readers, identifying himself with them as an educator and moving closer to them with a rhetorical question:
(9) But if my interpretation of Resnick’s conclusion is correct—that we as educators should adopt thinking skills instruction primarily for its own sake, just as we might teach spelling rules or grammar—then why are we trying to “reform” education by introducing such innovations in the first place? (AL)

Several of my informants were very conscious of their use of we:

Of course we are involved in research and using “we” emphasizes this. . . . I can tell people not just what I think, but what we all think. It lets me draw on a lot of background. (Phy interview)

I often use “we” to include readers. I suppose it brings out something of the collective endeavour, what we all know and want to accomplish. I’ve never thought of it as a strategy, but I suppose I am trying to lead readers along with me. (ME interview)

It helps to locate you in a network. It shows that you are just doing and thinking what they might do and think. Or what you would like them to, anyway. (Soc interview)

This kind of appeal to scholarly solidarity thus also addresses the reader from a position of confidence, as there is a claiming of authority grafted onto communality in the inclusive use of we (cf. Pennycook, 1994, p. 176). Thus, we can be employed to guide readers through an argument and towards a preferred interpretation of a phenomenon, shading into explicit positioning of the reader. It draws, however, on a strategy that stresses the involvement of the writer and reader in a shared journey of exploration, although it is always clear who is leading the expedition:

(10) Now that we have a plausible theory of depiction, we should be able to answer the question of what static images depict. But this turns out to be not at all a straightforward matter. We seem, in fact, to be faced with a dilemma. Suppose we say that static images can depict movement. This brings us into conflict with Currie’s account. . . . (Phil)

We can readily see that there are two kinds of degeneracies present. (Phy)

Therefore, if we consider the friction force as a threshold, we can suppose that the output force of SDA is nearly zero below the threshold and increases radically with the pulse peak . . . . (EE)
Personal asides. In addition to bringing readers into the text in the main discourse, writers also address them directly through asides and interruptions to the ongoing discussion, briefly breaking off the argument to offer a metacomment on an aspect of what has been said. Like the use of personal pronouns, this kind of engagement is far more of a feature of academic argument in the soft fields. All writing needs to solicit reader collusion, but the social sciences and humanities typically rely far more on an explicitly interpretative framework. Because these fields deal with greater contextual vagaries, less predictable variables, and more diverse research outcomes, readers must be drawn in and involved as participants in a dialogue to a greater extent than in the sciences. Quite simply, there are generally fewer unequivocal bases for accepting claims, so writers can generally take less for granted. They must appeal more to the reader’s willingness to follow their reasoning and rely far more on focusing readers on the negotiation of their claims and the arguments themselves rather than how they have processed and understood natural phenomena.

Although asides express something of the writer’s personality and willingness to intervene explicitly to offer a view, they can also be seen as an essentially reader-oriented strategy. By turning to the reader in mid-argumentative flow, the writer once again acknowledges and responds to an active audience, often to initiate a brief dialogue that is largely interpersonal. As we can see, such comments often add more to the writer-reader relationship than to the propositional development of the discourse:

(11) And—as I believe many TESOL professionals will readily acknowledge—critical thinking has now begun to make its mark, particularly in the area of L2 composition. (AL)

It is worth noting in passing, that the conscience of those engaged in the moral condemnation that accompanied such reporting does not seem to have been greatly troubled by Britain’s own nineteenth century history as an international profiteer in the export of opium. (Soc)

What sort of rigidity a designator is endowed with seems to be determined by convention (this, by the way, is exactly the target of Wittgensteinian critiques of Kripke’s essentialism). (Phil)
... who above all provoked the mistrust of academics, both because of his trenchant opinions (often, it is true, insufficiently thought out) and his political opinions. (Soc)

This kind of direct engagement builds a relationship between participants that is not dependent on an assessment of what needs to be made explicit to elaborate a position, anticipate an objection, or ease processing constraints. The writer introduces the audience into the text because he or she wants to reinforce the dialogic relationship at that point. It is an intervention simply to connect, to show that they are all—writer and readers alike—engaged in the same game and are in a position to draw on shared understandings, if not of actual content, then at least of what might be considered a relevant aside. Essentially, these diversions project the reader into the discourse and draw on the knowledge relationships that unite the writer to them. This is clear in (12), for example, where both writers allude to commonly accepted in-group understandings (labeled respectively as usual and standard practices) only to discount them briefly without need for extended explanation, and move on:

(12) K one usually (but incorrectly, from our point of view) refers to as ‘cos (40’). (Phy)

The standard (and, in my view, misguided) Rawlsian application of the difference principle can be modeled as follows. (Phil)

In this section, I have suggested how writers draw in their readers to engage them explicitly in the discourse, referring to them directly either through use of pronouns or asides, to establish or maintain solidarity. Such moves are clearly not innocent of rhetorical intention. We always need to recruit our audiences to our purposes and positions, and part of this involves establishing a professionally acceptable persona and an appropriate attitude, not only to our material but also to our readers. By addressing ourselves to our colleagues and showing concern for their need for involvement in the discussion, we also display our disciplinary credentials as a reasonable, intelligent co-player in the community’s efforts to construct knowledge.
Crafting Reader Agreement

Although writers often use inclusion for explicitly persuasive ends, encouraging readers to see what they see and to draw the same conclusions, more overtly rhetorical strategies take a dialogic position that draws on directives, interrogatives, and appeals to shared knowledge. I will discuss these below.

Directives. The most frequent devices used to initiate reader participation in academic texts are directives. These are utterances that instruct the reader to perform an action or to see things in a way determined by the writer (Hyland, submitted for publication). As noted earlier, directive force is typically realized in three main ways: by the presence of an imperative (13), by a modal of obligation addressed to the reader (14), and by a predicative adjective expressing the writer’s judgment of necessity/importance controlling a complement to-clause (15):

(13) Consider now the simple conventional reflection effect in a magnetic interface. (Phy)

With this in our mind, let us underline what has turned out problematic in the speech act theories. (AL)

(14) What we now need to examine is whether there is more to constancy than this. (Phil)

We must identify the principal screws Sx and Sp. (ME)

(15) As marketers, however, it is important to understand how the information consumers associate with a company affects their responses to the products. (Mk)

Hence it is necessary to understand the capacitive coupling of the devices to the metal gates. (Phy)

There is a clear reader-oriented focus to these statements and an explicit rejection of the positivist conventions of objectivity. Here, the writer signals a recognition of the dialogic dimension of research writing, intervening to direct the reader to some action or understanding. Many of these directives are used to guide metadiscursively
readers through the discussion, steering them to tables, examples, arguments, or other sources to support the writer’s argument. The item see composed more than half of all imperatives in the corpus, for instance.

Equally, however, directives functioned to position readers, requiring them to note, concede, or consider something in the text, thereby leading them to a particular interpretation. Typically, these conducted readers toward the writer’s conclusions by setting up premises (16) or emphasizing what they should attend to in the argument (17):

(16) Now suppose a speculative philosophical naturalist turns into a real scientist. (Phil)

Then, let us consider a reference field which has rigid rotation $W,^*(p)$ and a rigid displacement $w(p)$ at source point. (EE)

Imagine that you are about to buy a product in that category. (Mk)

(17) Mark that it is possible to interpret the larger symmetry in terms of supersymmetric quantum mechanics. (Phy)

It is important to note that these results do indeed warrant the quasiness many U.S. students feel when they see copious teacher comments on their papers. (AL)

This must not be seen as obviating the need for a caring critical sociology, which is a more fundamental project. (Soc)

This strategy therefore seeks explicitly to introduce the reader into the text in order to move him or her in a particular direction: focusing attention and emphasizing important points.

It is also worth noting here that directives were not confined to the more discursive soft fields, where we might expect writers to work harder to engage readers in their arguments. About half of all directives occurred in the science and engineering articles where, in fact, they composed 61% of all the features examined in the hard fields compared with only 25% in the soft articles. A possible reason for this imbalance is the kind of relationship that these features imply. I suggested earlier that reader-oriented features predominate in those disciplines where most rides on the interpersonal relationship the writer is able to establish with readers because there are less objective or clear-cut criteria for accepting arguments. However, although
directives seek to engage and position readers, they carry strong connotations of unequal power, claiming greater authority for the writer by requiring readers to act or see things in a way determined by the writer.

This tactic is not without risks, of course, as it can violate the conventional fiction of democratic peer relationships diligently cultivated in published research writing. Some of my respondents noted this in the interviews:

I am very conscious of using words like must and consider and so on and use them for a purpose. I want to say “Right, stop here. This is important, and I want you to take notice of it.” So I suppose I am trying to take control of the reader and getting them to see things my way. (Soc interview)

I am aware of the effect that an imperative can have so I tend to use the more gentle ones. I don’t want to bang them over the head with an argument I want them to reflect on what I’m saying. I use consider and “let’s look at this” rather than something stronger. (AL interview)

This potentially negative effect on readers means that writers are often cautious in how they use directives, tempering their efforts to bring readers into alignment with their position with respect for the possible alternative views of their readers and their right to hold these views. As a result, most directives tend to be citational in the soft fields, a less threatening role than those that explicitly tell readers how to interpret an argument. In addition, their possible imposition is also further reduced by the fact that they are often marked off from the main text by their placement in brackets or footnotes (Hyland, submitted for publication; Swales et al., 1998).

In the hard knowledge articles, on the other hand, there is far greater use of noncitational directives and an apparently more direct style of engagement. Directives allow an economy of expression highly valued by information-saturated scientists who often read rapidly, searching for the value in a paper (e.g., Berkenkotter & Huckin, 1995). Several informants mentioned the efficient style that directives facilitate:

I rarely give a lot of attention to the dressing, I look for the meat—the findings—and if the argument is sound. If someone wants to save me time in getting there then that is fine. No, I’m not worried about imperatives leading me through it. (EE interview)
I’m very conscious of how I write, and I am happy to use an imperative if it puts my idea over clearly. Often, we are trying to work to word limits anyway, squeezing fairly complex arguments into a tight space. (ME interview)

In addition, the hard sciences place considerable emphasis on precision, particularly to ensure the accurate understanding of procedures. This may be a consequence of the fact that the sciences employ a far more linear and problem-oriented approach to knowledge construction, which allows arguments to be formulated in a highly standardized code. Research tends to be highly focused and so arguments can often be framed in familiar, almost shorthand, ways that presuppose a degree of theoretical knowledge and routine practices not possible in the soft fields. Directives thus offer writers a useful form of expression that is both economical and precise, enabling them to cut more immediately to the heart of technical arguments.

Appeals to shared knowledge. Generally, writers seem to expect a considerable amount of cooperation from their readers as they maneuver them into agreement through steps in an argument. But because not all readers may agree to be pushed along with directives, writers can deploy other rhetorical tools. A less imposing involvement strategy is to position readers within the apparently naturalized and unproblematic boundaries of disciplinary understandings through appeals to shared knowledge. The notion of what can be reliably considered shared is clearly problematic, and writers may misjudge or, more often, deliberately exploit what is controversial for rhetorical ends. The ethical implications of manipulating readers in this way have yet to be written about, but it is a strategy that lends itself to the more epideictic rhetoric of the humanities (MacDonald, 1994). Obviously, readers can only be brought to agreement with the writer by building on some kind of implicit contract concerning what is relatively incontrovertible. In asking them to identify with particular beliefs or knowledge, however, writers are actually constructing readers by presupposing that they hold such beliefs.

Successful texts therefore draw on what is common between writers and readers in numerous ways, and any production of insider discourse conjures up a basis for mutual understandings via the symbolic capital of the discipline. The use of jargon, acronyms, preferred metaphors, familiar argument structures, citational practices, and so forth all foreground a common frame for seeing the world, identifying problems, and resolving issues (e.g., Faber, 1996; Hyland, 2000). Often, however, these constructions of solidarity involve direct and
explicit calls for the reader to recognize some disciplinary acknowledged cognitive or procedural perception. These calls both invite readers into the argument and construct them as fellow travelers through a disciplinary landscape, recognizing its familiar topographical features and sharing a common destination:

(18) This measurement is distinctly different from the more familiar NMR pulsed field gradient measurement of solvent self-diffusion. (Phy)

For the numerical integration, the semiellipse is parameterized in the usual way and a standard Gaussian quadrature is applied. (EE)

This tendency obviously reflects the preponderance of brand-image advertising in fashion merchandising. (Mk)

It should be obvious that very cognitively disabled people do not, and cannot, constitute a social-historical force in the sense I intend. (Soc)

More than three fourths of all such explicit appeals to collective understandings occurred in the soft articles. Although the hard articles drew extensively on considerable domain knowledge of specialized methods, instruments, materials, and theoretical models, these understandings were, with the exception of methods sections, generally signaled less explicitly (e.g., MacDonald, 1994; Myers, 1991). Writers of scientific articles expect their readers to have considerable conceptual knowledge and to be able to decode lexical and mathematical relations to unpack their arguments. Knowledge is situated in craft practices and accessible to those who specialize in them. The soft fields, in contrast, tend toward greater elaboration. This is not to say that writers do not draw on familiar specialized disciplinary vocabularies in constructing their material; they too must represent their ideas in terms of the understandings and relations recognizable to coprofessionals. But both their topics and audiences are often less homogeneous, and their discourse is frequently required to venture into other disciplines and discursive sites to encode wider cultural systems. Readers are therefore given rather more help in identifying entities, making connections, and drawing inferences.

The adverbial phrase of course composed almost half of these explicit appeals to shared understandings. Although generally seen as a marker of epistemic stance, indicating the writer’s certainty of a proposition (e.g., Biber et al., 1999, p. 540; Hyland, 1998a), of course actually moves the focus of the discourse away from the writer to shape the role of the reader:
Of course, we know that the indigenous communities of today have been reorganized by the Catholic church in colonial times and after. (Soc)

Clahsen’s well-known conclusion is, of course, that Universal Grammar is not available to the adult L2 learner. (AL)

Chesterton was of course wrong to suppose that Islam denied “even souls to women” (Phil)

The use implies that the audience already knows, or will readily accept, the accompanying statement, and seeks to recruit the reader as a partner in the argument by pointing to some expected knowledge. Bondi (1999) makes a similar point:

The reference to the text receiver, to what can be expected of the other participant, is thus embedded in the line of the writer’s argument and becomes essential to its development. This, of course, may also be a very important way by which a common background is actually constructed in discourse. (p. 54)

One key way in which writers seek to engage readers as cooperative participants in an argument is to project them into the text by anticipating a possible objection or inference that they are likely to make. By conceding what any reasonable and knowledgeable colleague might interject into the discourse, the writer assigns readers a role in the construction of the argument, acknowledging their contribution and implying a clear dialogue with them, as these examples suggest:

Of course, this is consistent with reports in the trade press which attest to EDLP’s higher profitability (see Table 1). But our analysis allows us to gain insights into why this is the case. (Mk)

Of course, someone might suggest that Euler did not see that “the details could be filled in in the right sort of way.” In that case, however . . . (Phil)

It is, of course, important to encourage practitioners to become more reflective about their day-to-day activities (as Standing Accused has done) but there are other ways of changing professional practices. (Soc)
This strategy clearly positions readers, asking them to cooperate in the construction of the argument by making inferences, objecting, or counter-claiming. Typically, the writer will concede this point, only to bring the reader to agreement with a responding argument introduce by but or however. It is, then, the concession that seeks to engage and turn the reader, setting up an explicit dialogue with a virtual debater.

Direct questions. The final strategy of positioning readers I want to touch on here is the use of questions. Questions have not received a great deal of attention in academic writing, and although Swales (1990) observes that they are a “minor way of establishing a niche” in research article introductions (p. 156), they most often appear in the pedagogic literature as strategies to be avoided and replaced with indirect questions (e.g., Swales & Feak, 1994, p. 74). It is true that direct questions are considerably underrepresented in academic writing, composing only 8.5% of the features in my study, and they are some 50 times more common in conversation than in academic prose in the 40 million word Longman corpus (Biber et al., 1999, p. 211). The reason for this, of course, is that they are the strategy of dialogic involvement par excellence, inviting engagement and bringing the interlocutor into a discourse arena where they can be led to the writer’s viewpoint. As Webber (1994), in her study of questions in academic medical journals, pointed out,

Questions create anticipation, arouse interest, challenge the reader into thinking about the topic of the text, and have a direct appeal in bringing the second person into a kind of dialogue with the writer, which other rhetorical devices do not have to the same extent. (p. 266)

Writers sometimes open with a question to “establish a niche” and draw the reader in from the beginning, creating interest and clearly setting out the topic the article will respond to. In this way, a problem is invested with significance, and the reader is immediately invited to explore an unresolved issue with the writer as an equal conversational partner and to share his or her curiosity and follow where the argument leads:

(21) Which point in a moving body is a characteristic point? What special geometrical properties does its trajectory have? Where are they? And next, which line in a moving body is a characteristic line? And where is it located? How can we identify the characteristic lines into the axis
of C-pair, H-pair, R-pair and P-pair respectively? and so on. None of these problems are completely solved so far. (ME)

Although real questions do occur, however, these are usually employed to close articles, holding the reader’s interest beyond the discourse to the results of further research. Opening questions are frequently only a rhetorical device, as writers subsequently go on to answer them themselves:

(22) How can these findings be reconciled? Our goal in this paper is to offer an explanation for these stylized facts. We accomplish this by analysing the competition between supermarkets pursuing EDLP and Hi-Lo strategies. (Mk)

First, how do the system enforce the “don’t rock the boat defence”? Secondly, why was the US military so preoccupied with sex-related offences in a friendly country during World War II? Answers to both queries require an understanding of the origins and development of the military in the United States. (Soc)

Of all questions in the corpus, 80% were rhetorical, presenting an opinion as an interrogative, so the reader appears to be the judge, but actually expecting no response. This kind of rhetorical positioning of readers is perhaps most obvious when the writer poses a question only to reply immediately, simultaneously initiating and closing the dialogue:

(23) Are there objects that, by themselves, demand a certain sort of rigid designation rather than some other? The question has to be answered in the positive. (Phil)

Why does the capacitance behave this way? To understand we first notice that at large B there are regular and nearly equal-spaced peaks in both C3(B) and C31(-B). (Phy)

Is it, in fact, necessary to choose between nurture and nature? My contention is that it is not. (Soc)

Largely confined to the soft disciplines, this common strategy seems to be principally interpersonal. Once again, the reader is brought into the discourse as a participating equal, and his or her words are inserted into the argument. The question is interjected on
behalf of the intelligent reader, who has followed the discussion to this point and is eager to cut to the chase. The most powerful rhetorical questions thus provide no answers at all, but position the reader by presupposing the reader’s response as well, assuming the reader will see the answer as too obvious to mention:

(24) What can we know from a perspective limited to monolingual, monocultural writers and writing? Is the question really how a monolingual community learns culture-specific forms? Or is it the wider question of how different writers learn to deal with variable demands in various situations? (AL)

In sum, these different features, taken together, are important ways of situating academic arguments in the social interactions of members of disciplinary communities. Through their use of directives, personal pronouns, interjections, questions, and so on, we can recover something of how writers construct their readers by drawing them into both a dialogue and a relationship. These features represent relatively conventional ways of making meaning and so elucidate a context for interpretation, showing how writers and readers make connections, through texts, to their disciplinary cultures.

CONCLUSION

My argument has been that academic writing presupposes the active role of readers and that the engagement of audience is an important constitutive element not only of a writer’s argument but also of a disciplinary context. Writing is a social act, and every successful text must display its writer’s ability to engage appropriately with his or her audience. The discursive features identified in this study represent key ways in which this is achieved, as academic writers seek to bring readers into their text as participants in an unfolding dialogue.

Although these forms convey different degrees of emphasis, they all represent authorial attempts to construct disciplinary readers through the assumptions they carry about the needs, rhetorical preferences, attitudes, and knowledge of this audience. As a result, the distribution of these features is contextually variable, socially grounded in both the broad inquiry patterns and knowledge structures of different disciplines. Examining these surface signals thus
provides not only tangible evidence of interaction in the research article genre, but also insights into the epistemological and sociological characteristics of the disciplinary cultures that they help create. But although these preferred forms of participation are influenced by disciplinary practices, they must be seen as enabling rather than deterministic. Typical patterns of engagement only provide broad parameters of choice, and individual factors, such as experience, confidence, or professional rank, can always intervene.

Disciplines are human institutions in which actions and understandings are influenced by the personal and interpersonal, as well as the institutional and sociocultural. I have been principally interested in identifying general patterns, painting with a broad brush, and further research is needed to fine-tune this analysis. We need, for example, to examine particular disciplines, features, and writers in greater detail to tease out the limits of personal choice and the kinds of engagement that are acceptable as well as expected. We also need more corpus data on the relative frequencies of these features in other fields and subdisciplines and case study research to learn more about how readers respond to them. It would be interesting, for example, to look more closely at unsuccessful strategies and why they fail to bring in the reader, teasing out the engaging from the alienating.

It is important to recognize, however, that the features writers select are always relative to a particular audience and social purpose, and their success in achieving these purposes ultimately depends on analyzing readers and engaging with them in appropriate ways. This study has attempted to show one way in which this is accomplished and, as such, is a contribution to the growing literature that contends that the features of academic texts can only be explained when considered as the actions of socially situated writers.

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Marginalia

by Tim Flower

INTRODUCING THE ALL-NEW POST-FORDIST FORD
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