Knowledge Media Institute

Managing Persistent Discourse:
Organizational Goals and Digital Texts

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Organizational Goals and Digital Texts

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ABSTRACT

Prior to digital communications media, texts were primarily judged using hidden but assumed institutional practices (e.g., journal peer review processes, editorial mediation). Increasingly, digital communications media can make these previously invisible discursive practices visible in a persistent medium. Doing so transforms these discourses into texts where they are subject to: (1) a reader's interpretation and judgment and (2) explicit manipulation by writers or publishers seeking to influence this interpretative process. In this article, we focus on *managed* persistent discourse where explicit practices and roles are adopted within an institution to actively manipulate and transform digitally-preserved discourse, with the aim of influencing readers' interpretative processes in ways that reflect organizational goals. We examine in detail two cases – political manifestos in the UK and an interactive journal with on-line peer review – to illustrate these new roles and practices, and the different organizational goals the managed discourse is used to support.

INTRODUCTION

"Where and with whom is the interpretation taking place in a multimedia document?"

Ricki Goldman-Segall, 1995

Why would somebody manipulate someone else's discourse? It already happens all the time. Reporters take excerpts from recorded interviews and use them in print articles or newscasts, often resulting in 'sound bites' with interpretations the original speaker may find surprising. Similarly, academics and researchers often use quotes from other people's articles (such as ours from Ricki Goldman-Segall (Goldman-Segall 1995) to contrast with, or lend support to, their own ideas or theories. In essence, many writers use snippets of other people's discourse to support, guide or influence the reader's interpretative process.

The influence can stem from several factors, including the perceived authority of the person whose discourse is being used or the juxtaposition the writer has created between the discourse snippet and the primary text. Such juxtapositions or interconnections between texts are termed ‘intertextuality’. Intertextuality can range from 'manifest' to 'latent', with a continuum in between. An example of manifest intertextuality would be quotes in newspaper articles. An example of latent intertextuality would be the styling of a film or book in mimicry of an existing film or book. Intertextuality links often mark the key relationships between the texts of a discourse.

Here, we'll examine how practices surrounding discourse intertextuality are being changed (or not) by the affordances and use of web-based digital communications

media. In doing so, we'll unpack the concept of 'discourse' and examine how it is being transformed and managed towards very different interpretative ends, in order to serve different organizational goals. Along the way, we'll introduce what we regard as a chief contribution of new technology – the ability to render discourses 'practically persistent'.

Our ultimate goals in this article are two-fold. On the one hand, we hope to challenge 'techno-optimism' by questioning the often implicit, taken-for-granted position that digital communications technology will *necessarily* positively influence people's discursive practices. On the other hand, we want to better understand the critical factors (e.g., social practices and roles) influencing such successes when they do occur.

In the remainder of this article, we'll begin by laying out a number of related definitions of discourse and persistence that we shall deploy in the presentation of the cases. We then present two cases where persistent discourse is being explicitly managed to influence the reader's interpretative process. In both cases, we examine the role of editorial or designer mediation and the specific 'discourse management' activities they engage in. We then look into the future and consider various emerging hypermedia technologies and analyze the intertextuality practices that these technologies support.

DISCOURSE AND PERSISTENCE

'Discourse' is a widely used term in the social sciences. Its contemporary uses derive from two broad sources. First, the term has been used by linguists and those working in areas such as conversation analysis to denote verbal interactions (spoken or written) which maintain a syntactic, semantic, narrative and pragmatic coherence over time. Such discourses form essentially complete texts – where a text is defined as a socially and contextually complete utterance, interaction or communication (Halliday 1978). Under this definition a book, a film, a short phone conversation, and an email interaction can all be viewed as texts. In this definition, it is the fact that the text makes ‘sense’ as a whole which defines it as a discourse. In this case, discourse analysis explores how the text makes linguistic sense – this might involve considering how turns were taken in a conversation or how specific linguistic markers guide the reader through the narrative of a novel. For the purposes of this paper we will call this model of discourse *micro-discourse*.

Second, the term discourse has become used by sociologists and those working in the field of cultural studies to denote the intersection of a system of knowledge, related texts from a range of media and the related material and social practices which generate and are generated by these texts. This second model of discourse is tied to the work of Foucault (Foucault 1979) and other post-structuralist writers. In this model discourses consist of:

- Statements (texts) about a specific topic (e.g. politics, IT in education, academic journals).
- Socially constructed rules that prescribe ways of talking or thinking about these topics.
- Subjects (people and objects) which personify or characterize aspects of the discourse (e.g. politicians, types of educational technology).
- Systems of authority that mark out this knowledge as truthful, valid or reliable.
- Social practices which produce and reinforce the above texts, rules, subjects and systems of authority (e.g.,, journal review processes).

Within this paper, we term this model *macro-discourse*. Discourse analysis in this case means analyzing the form, content and functioning of these five elements of macro-discourse, and pointing out the specific intertextual links between texts produced by discursive practices. Clearly texts formed from micro-discourses are themselves part of macro-discourses. Recently, socio-linguists (Fairclough 1992) and discursive

psychologists (Wetherell and Potter 1992) have married these two levels in order to explore how the macro-discourses both produce and are produced by the micro-discourses of day-to-day interactions.

The second key concept we need to consider before presenting our cases is that of ‘persistence’. In thinking about the ways in which new digital technologies engender ‘persistent discourse’ the focus is often upon micro-discourses (e.g. considering how CMC technologies make email interactions persistent). Here, we will expand 'persistence' to consider both micro and macro discourses and their interdependencies. Consider the distinction between persistent texts and transitory texts. Speech is the archetypal transitory text. Though we have memories of a spoken interaction there is no material record – unless we made a recording. Persistence is in part therefore a product of the medium. Tape recordings, printed texts, photographs etc. make a text persist that would otherwise be transitory. However, in addition to material persistence, there is also cultural persistence. The Bible and the Koran are classic examples of texts which are culturally persistent. Even though the original material texts do not exist, a complex set of cultural and material practices maintain the existence of the texts. In effect, materials can capture micro discourses, but additionally, practices play a key role in maintaining macro discourses.

We also distinguish between 'permanent persistence' and 'practical persistence'. Many libraries keep copies of newspapers and media companies keep archives of footage, making these texts persistent. However, access to these persistent texts is limited or difficult, making them inaccessible to all but a few motivated people. On the other hand, an archived Usenet discussion can be practically persistent in a manner which a TV news interview is not. Thus, practical persistence is less about permanence, and more about the capturing of texts and their intertextual connections in accessible ways.

The following cases highlight two examples of the ways in which macro and micro discourses are rendered practically persistent by Web based technologies. In each case, micro-discourses related to a key central text are being captured. At the same time, these Web sites are themselves embedded in a macro-discourse, and previously transitory elements of the macro discourses, such as the intertextual links and discursive practices, have also become persistent, visible and accessible. The cases differ in their relationship to the macro discourses in which they are embedded (i.e., supporting or challenging) and way in which the site attempts to control the discourses which they present.

Each case begins with general background information on the site goals and organizations involved. Then we describe the central text and analyze the supporting discourse and intertextual discourse relations. Finally, we discuss the overall site management process and analyze the roles and activities involved in managing and transforming the persistent discourses in the two sites.

CASE: POLITICAL MANIFESTOS IN THE UNITED KINGDOM

Over the last two decades a growing number of social and computer scientists, social commentators, and political activists have claimed that telecommunications technologies will radically alter the process of democratic politics. This computer-mediated political communication (CMPC) is often seen as having a ‘positive’ effect upon democracy. Debates over the uses and social impacts of the Internet have argued that CMPC will lead to increased openness and interactivity in public debate due to the technologies perceived equalities of access. In such models, new technologies are presented as providing the means to ‘counter’ or ‘alleviate’ perceived problems with contemporary democratic politics, such as: ‘voter apathy’; ‘influence of the mass media’; ‘remoteness of politicians and political institutions’.

The equation ‘more information equals more democracy’ is often taken as the justification for development of various forms of computer-mediated political communication. In limited ways, the Web has allowed political parties and individuals who are largely ignored by mainstream media to reach voters directly (e.g., independent candidates in the 1992 US presidential elections such as Ralph Nader and Ross Perot) (Hall 1997; Kern 1997), as well as extreme political parties). However, a number of recent studies of actual CMPC have found the reality quite different from the rhetoric (Yates and Perrone 1998). The following case explores the actual use of Internet and computer-mediated communication (CMC) technologies during the 1997 UK general election.

Central document

The five main UK political parties - Labour Party, Conservative Party, Liberal Democratic Party, Scottish National Party (Scottish independence) and Plyd Cymru (Welsh independence) – all made use of Web sites during the 1997 general election. During a UK election campaign party manifestos (their platform policy documents) take up a central role and great deal of the political debate with the public sphere takes place around these key documents. In all but one case (Plyd Cymru) the election manifesto forms parts of the Web site. The party Web sites serve two functions. First, they present information about the Party, provide information on becoming a party member, and even sell party merchandise. Second, during the election, they served as a medium for the presentation, discussion and expansion of manifesto-based policy information. As such they captured in one site, with one Web text, aspects of the wider political macro discourse taking place during the election campaign (Figure 1).

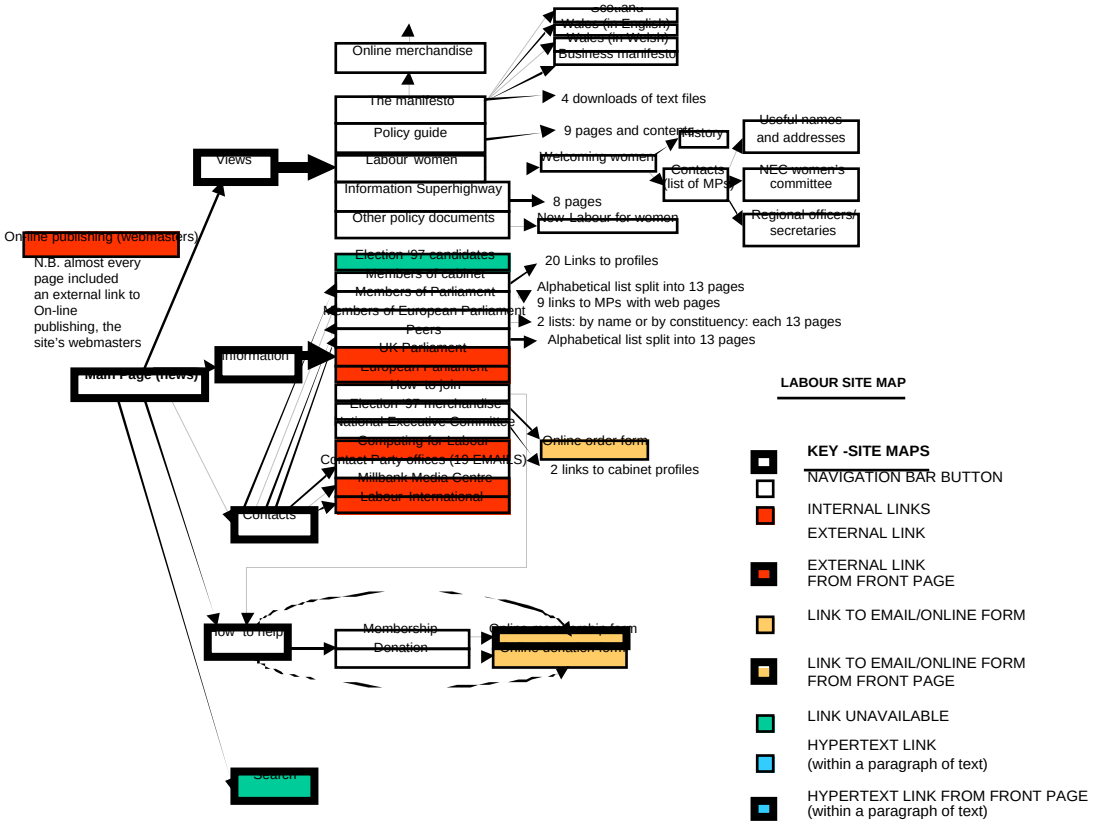


Figure 1: Structure of Labour Party Web site 1997, UK General Election

Discourses and discourse relations

During the 1997 UK election a wide range of 'in real life' political communication genres were in use. Some of the most important of these included:

- Party Manifestos (main platform document)
- Public speeches
- Party press releases
- Party-political broadcasts
- TV/Radio/Press political journalism
- TV/Radio/Press face-to-face political debate
- Political Leaflets

All of these genres have developed over the history of UK parliamentary politics. In each case the genre is just about as old as the medium/media which it makes primary use of. The political leaflet can easily be traced back to the rise of the printing press and the party political broadcast to the development of radio and television. Many of these types of communication have become highly conventionalized through both formal and informal social processes. For instance, in the UK the party political broadcast is a highly regulated use of the medium of television.

Many of these communications media are both transitory and dispersed. Speeches, debates, news reports, broadcasts etc. are all ‘one shot’ acts of communication. Though key elements from debates or statements might get repeated in later reports or broadcasts, the original text is lost. Even political leaflets tend to be read and then discarded. In the UK context the texts that remain permanently present throughout the campaign are the party manifestos.

At the same time as being transitory these texts are essentially dispersed and disconnected from each other. Though a press release might comment upon (spin) a part of the manifesto, it is delivered separately through a different medium - the TV or newspaper report. This act of re-presentation and re-interpretation involves actors not under the control of the political parties such as TV producers and newspaper editors. This complex set of institutional relationships between political parties, broadcasters and the public is at best opaque and is believed by many cyber-enthusiasts to be a problem which CMC and the Internet can solve.

The party Web site brings many of these texts together in one place under the control of the political party. Transitory elements of the macro-discourse that existed at the time of the election are made persistent, especially the relationships between the manifesto and the ancillary texts surrounding it. In bringing these texts together in the dynamic medium of the Web site the parties are also making the texts and their relations practically persistent. This aspect of party web sites is now being exploited in a number of academic and educational research projects where archives of party web sites are being maintained in order to allow the tracking of policy changes and political macro-discourse.

Processes and issues

Why are parties constructing and managing these persistent macro- discourses? Table 1 shows the type of documents provided by the parties on their Web sites. Our research seems to imply that the major function of the Web sites was to contextualise the party manifestos. As such the Web sites allowed the parties to control the 'spin' (i.e., the re-presentation and re-interpretation) of their key electoral document. The main content of the sites consisted of the Manifesto itself, related policy documents that elaborated on the manifesto and current or archived press releases. In bringing all of these previously transitory documents together, the Web site provided the opportunity to control the relationship between these various statements. In doing this a previously transitory

discourse, whose development was not under the control of the parties, became a practically persistent discourse whose spin was now under party control. Only two of the party sites provided search engines to allow users to easily find information. Whether or not this was intentional the lack of a search engine forced users to follow routes through the Web site and the various documents that were essentially defined by the site designers.

Table 1: Policy documents

Party	Manifestos	Other policy documents	Press releases	Press release archives
Labour	1	4	0	0
Conservative	1	4	90	219
Liberal Democrat	1	51	8	285
Plaid Cymru	0	3	20	38
SNP	1	81	132	432

Table 2 shows that the party Web sites provided little if any opportunity for the public to interact with the party or the site via CMC in the manners proposed by the proponents of cyber democracy. Especially as the email address essentially served to gather information for the party rather than as points of contact for political debate. If the parties are not engaging in the use of the Web for the expansion of democratic involvement what are their aims?

Table 2 Electronic mail links

	Conservative	Labour	Liberal Democrat	Plaid Cymru	SNP
Feedback	1	0	0	1	2
Information	0	2	1	0	2
HQ	0	8	6	0	2
Total emails	1	10	7	1	6

By and large, the political websites studied attempted to limit the range of interpretations of the main manifesto to produce a ‘permanent discourse’ in which the relations between the original text and the party-generated interpretations becomes overt. The site authors were using intertextuality to influence readers to reach the desired interpretation. This finding points to some of the naivetes in the cyber-democracy argument. First, it points out the inherent technological determinism of the argument. Not only are the parties failing to take up the affordances of the technologies, they are also choosing to ignore some the democratic possibilities offered by these affordances. Second, it highlights the individualist and rationalist model of democracy that underlies many of the cyber-democracy argument. Representative democracy involves considerable interaction between groups and institutions whose goal is to attempt to persuade voters by a complex range of means. The use of Web by UK parties in the 1997 election indicates that their considerable expertise in manipulating media discourse to this end has only been aided by, and indeed transferred to, the medium of the Web. Despite the hopes of making the political communications process dialogical, the current use of the Web by UK political parties remains essentially monological.

Discourse Management and Designer Mediation

The design of party Web sites is therefore driven by a very different ideological agenda than that of the cyber-democracy enthusiasts. Many proponents of cyber-democracy are basing their claims upon a complex ideology which mixes specific types of individualist models of democracy with specific interpretations of information and communications technologies and their impacts. Those designing political party Web sites were driven by the same goals as those people creating posters and pamphlets, as one of the Web designers for one of the UK 97 election sites interviewed during our research stated:

> *"I think you'll find that the underlying objectives were essentially propaganda driven."*

As Barnett (Barnett 1997) puts it:

> *"…realistically, the public relations efforts of companies and public bodies keen to place the best public face on their statistics and strategic decisions are not going to be diminished simply because they are disseminating their information through a different mechanism. British Nuclear Fuels or the Department of Employment or the Labour Party are not going to become models of openness and transparency on the superhighway wile they continue to obfuscate, brief and spin to journalists in the old media" (Barnett, S., 1997, p.209).*

In fact, the technologies of the Web allow the parties even greater control over the dissemination and presentation of information than before, whilst at the same time making their selection, re-presentation and re-interpretation of public political discourse more persistent than before.

CASE: JIME

The Journal of Interactive Media In Education (JIME) is a freely available e-journal targeted at researchers and practitioners interested in educational technology, both in school and workplace settings (JIME 1996). JIME is published by the Knowledge Media Institute and two of this paper's authors (Sumner and Buckingham Shum) are founding editors. JIME was founded with three goals in mind. First, as with most journals, it is intended to be a forum for innovative work in its field (educational technology). Second, rather than simply reading about interactive media, we wanted to make it possible for readers to directly experience the systems and techniques being described. Third, we believed that such a multidisciplinary field could be best advanced by bringing together people reflecting the field's multiplicity of perspectives. Thus, we wanted to foster discussions between participants from diverse backgrounds (e.g., researchers, educators, system designers, and policy makers) and distant geographic locations.

Central document

With these goals in mind, we created the document interface shown in Figure 2. The rationale and human-computer interface considerations that went into this design are fully described in (Sumner and Buckingham Shum 1998a, 1998b). The document (i.e., journal article) is the central artifact and is shown in the left pane. Referring back to our earlier definitions of discourse, the journal sits within two macro discourses – the system of knowledge related to JIME's specific contents (the field of interactive media in education) and the system of knowledge related to academic journals (how they operate, their basis for authority, the roles of participants such as authors, reviewers, and editors, etc.).

Discourses and discourse relations

Most of the review process takes place using the document interface, with supplement from email. The discourse (i.e., discussions between readers, authors, reviewers, and editors) is shown in the right pane. A key aspect of our design is the integration between the document and the discourse, where links to the discourse are embedded directly into the document form itself (e.g., the comment icons at the start of every section heading). We refer to this form of explicit support for discourse intertextuality as 'document-centered discourse'. Thus, the technology supports the micro discourse of journal reviewing practices, but the capturing of the review discourse also makes persistent and visible to others the previously hidden macro discourse of academic journals.

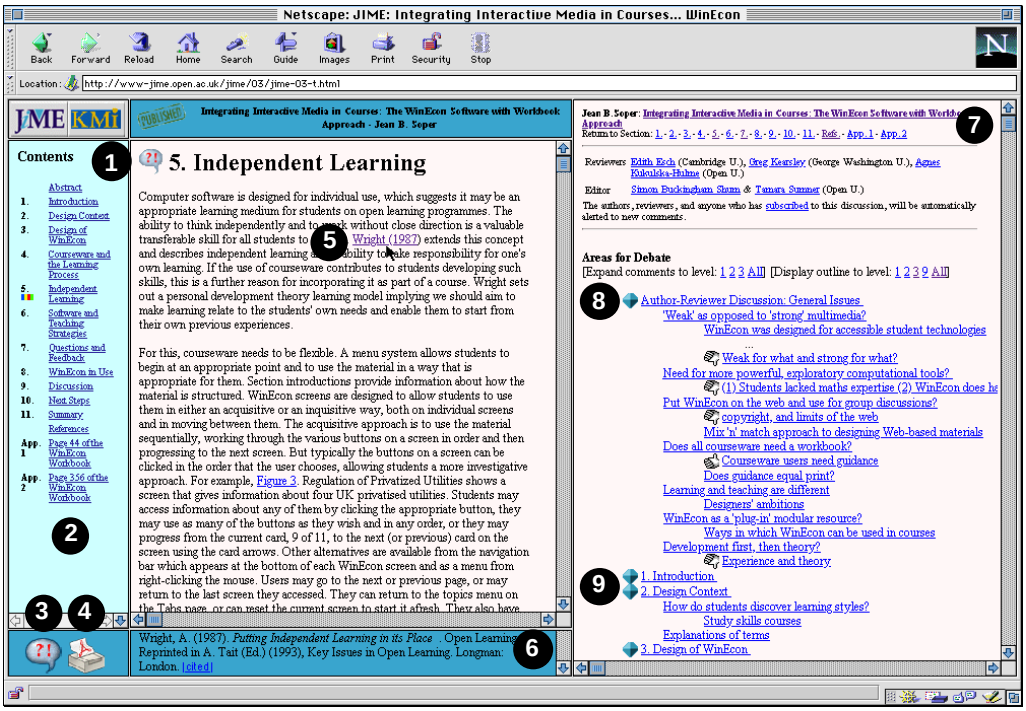


Figure 2: Document-Centered Discourse Interface. On the left is the Article Window, on the right the Commentaries Window showing the outline view of review discussion Key: [1] Comment icon embedded in each section heading displays section-specific comments; [2] active contents list; [3] iconic link to display top level discussion outline; [4] iconic link to download PDF version; [5] citation is automatically linked to entry in references, displayed in footnote window; [6] reverse link to citation(s) in the text; [7] links from discussion back into article; [8] general heading for discussion; [9] headings for section-specific comments.

This document-centered discourse interface is very link-rich, making the publication of documents with associated discourse time and effort intensive. To make the publication of these documents tractable, we created the D3E toolkit to automate large parts of the mark-up and publication process. To date, we have used this toolkit to create document-centered discourse sites in numerous contexts, including two e-journals (JIME 1996; Buckingham Shum and McKnight 1997), a national policy debate (KMi 1997a), and an academic conference making innovative use of digital and face-to-face communication modes (KMi 1997b). Our experiences across these sites indicate that the technology alone is insufficient to ensure that (1) discourse occurs and (2) that it serves the desired goals. By far the most important factor is the redesign of practices, specifically the roles and processes whereby discourse takes place and is captured, managed and transformed to achieve the organizational goals.

Processes and issues

In the case of JIME, this entailed rethinking and redesigning the journal peer review process and participant roles (Figure 3). When an article is received and judged to be relevant to the journal, the publisher (often the same person as the editor) uses the D3E toolkit to create a secret review site for that article resulting in the document-centered discourse interface. The editor solicits reviewers and when all reviewers (usually three) are arranged, the editor uses email to introduce the participants (authors and reviewers) to each other and brief them on the review process.

Next, for a one month 'closed review' period, reviewers and authors discuss and debate the article. While reviewers may choose to remain anonymous, journal policy is to encourage named review and, with only a couple of exceptions, all reviewers to date have done so. During this period, editors support the debate process in many ways. For instance, we may need to answer questions participants have about the process or the technologies. Often, we need to remind authors that they are not only allowed, but encouraged, to participate. In some cases, for reasons such as poor web connectivity or lack of experience with web technologies or hypermedia, reviewers need assistance either structuring their comments or adding them into the review space.

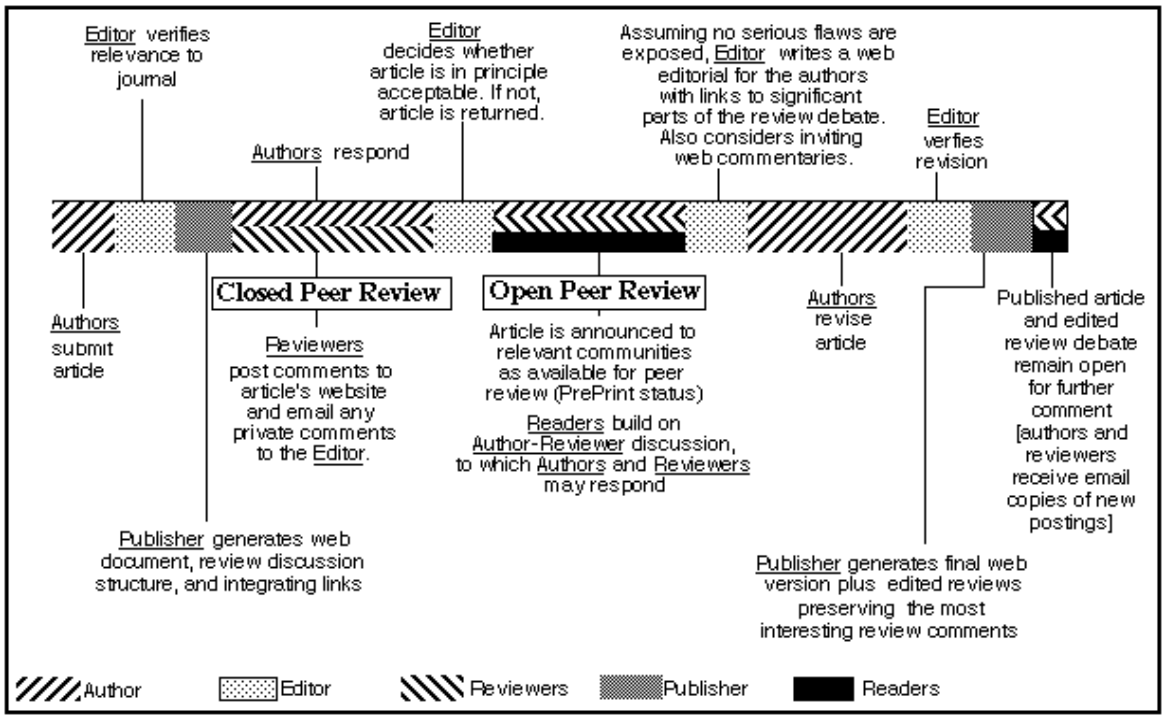
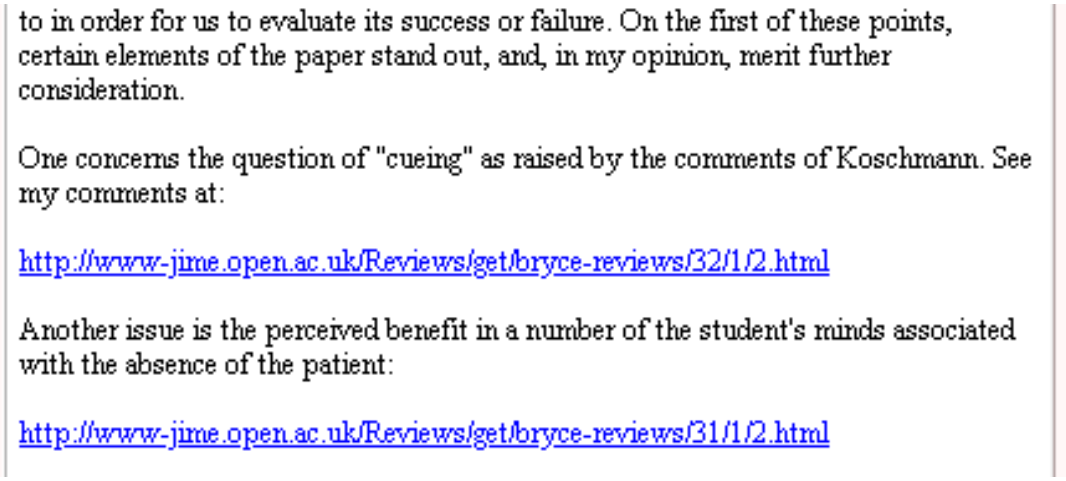


Figure 3: The JIME review lifecycle, showing the closed and open peer review periods, and the active stakeholders at different points.

Based on the outcome of the closed review period, the editor decides whether or not the article is in principle acceptable and should move to the open review period. If so, the secret site containing the submitted article and review debate is made available to the public for a one month open review period. During that period, readers are also able to join the discussion.

After the open period, the editor performs a meta-review of the article, summarizing the reviewers' points, adding additional comments, and formulating required and suggested changes to the article. These editorial comments are made directly into the review debate and additionally, all people subscribed to that article (minimally the authors and the reviewers) also receive these comments in their email and are free to respond. Authors can use this opportunity to challenge and negotiate the change requests suggested by the editor by responding in the review discussion area.

An important form of editorial comment concerns suggesting and promoting new forms of 'hypermedia literacies'. For instance, as shown in Figure 4, we try to demonstrate and promote interlinking between: (1) the article and its associated review debate and (2) other articles.


to in order for us to evaluate its success or failure. On the first of these points, certain elements of the paper stand out, and, in my opinion, merit further consideration.

One concerns the question of "cueing" as raised by the comments of Koschmann. See my comments at:

http://www-jime.open.ac.uk/Reviews/get/bryce-reviews/32/1/2.html

Another issue is the perceived benefit in a number of the student's minds associated with the absence of the patient:

http://www-jime.open.ac.uk/Reviews/get/bryce-reviews/31/1/2.html

Figure 4: Editorial demonstrations of ‘threaded hypertext literacy’—contributions to online peer review debates with citation and cross-linking from one review discussion to another.

Sometimes, instead of requesting authors to modify part of their article in response to a comment, the editor will instead ask authors to respond in the review debate and suggest linking to this part of the debate in the article itself. Figure 5 shows how authors linked from within their published article back to a particularly interesting thread in the article's review discussion. Such linking enables authors to use the review discussion as a form of 'amplifying footnote'. In this way, the narrative flow of the central document is preserved, but the intellectual effort invested in the review process is re-used by drawing readers' attention to the availability of this secondary resource.

The authors then modify the article in response to the review debate and the editorial meta-review. When the editor receives the final article and judges the modifications to be acceptable, the editor then edits the review debate to determine which parts will be published with the final article. Low-level comments pertaining to writing style or syntax are removed since these should have been addressed in the rewrite. Likewise, comments suggesting how to change parts of the article that have been addressed are also removed.

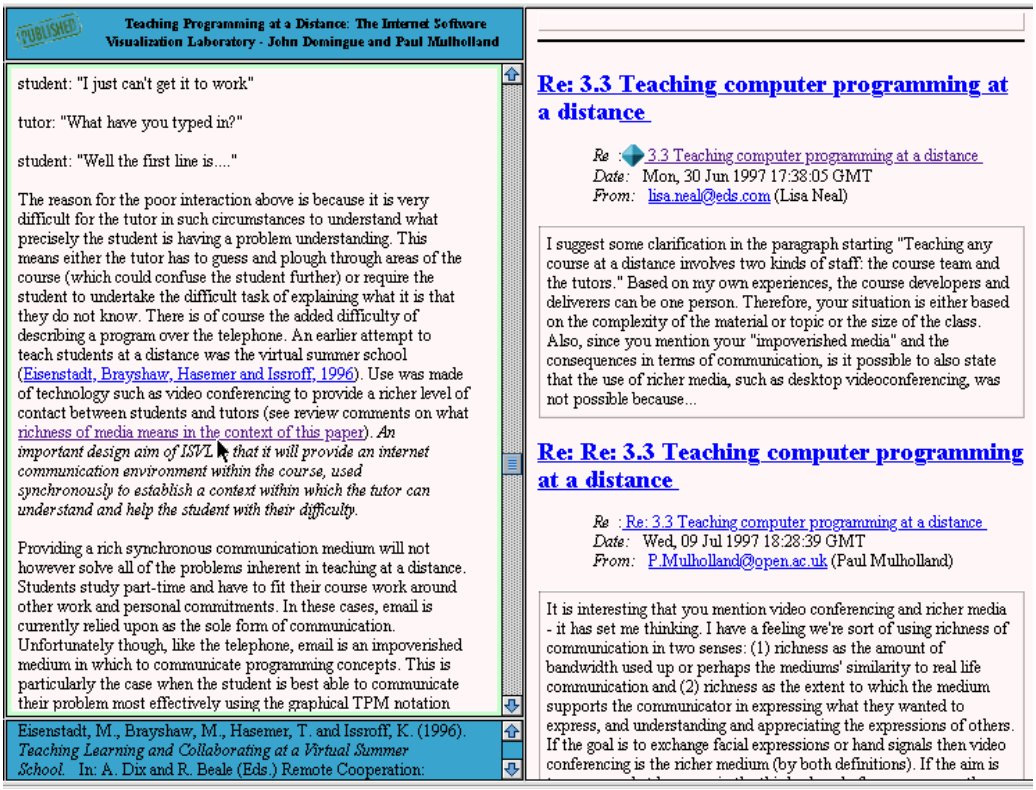


Figure 5: The persistence of the review discussion makes it a resource for authors to point readers to. This screenshot shows part of a published JIME article on the left, and the review discussion for that section on the right. The authors have inserted a link in their final text taking the reader to an interesting discussion thread that arose during the review process, preserved with the final publication, and available for readers to respond to.

Essentially, the editor culls the review debate to make sure the context that the comment pertained to still exists. If it doesn't, the comment is removed. Sometimes the editor will ask reviewers if they wish to modify a specific comment or add another one in light of changes in the article. Often the comments left after this culling are those related to broader theoretical or methodological issues, related experiences or systems, ancillary questions, etc. Thus, the review discussion in not persistent in the sense that comments are archived forever. Instead it is 'practically persistent' in the sense that comments are accessible and inspectable for the duration of the context in which they are meaningful.

Discourse Management and Editorial Mediation

Using technology and process redesign, we have transformed journal reviewing from a one-way, hidden exchange of transitory monologic statements to a multi-way open dialogue between participants. By doing so, we hope to support readers to judge documents by taking into account the multiple perspectives within the field of educational technology and hence, to consider the multiple possible interpretations.

Specifically, JIME tries to do this in several ways. First, the policy of named participation urges participants to take ownership of their point of view which, in turn, helps readers to trace the perspective that comments are based on. Second, the 'practical persistence' of the debate makes the review process, and the multiple perspectives, open and inspectable to all participants and the public. Thus, the multiplicity of perspectives and opinions is preserved and visible, which is quite different from traditional journals where the final article embodies a single (and supposedly united) perspective coming out of the editorial process. Third, and most importantly, JIME editors play an active role in managing and transforming the micro discourses (the review process) and mediating the macro discourses (particularly the discourse of academic journals).

At the micro level, the editor manages the discursive process by setting the time limits and guiding participants through the closed and open review periods. The editor also takes active steps to manage and actively transform the discourse itself, taking what steps seem necessary to preserve comments' contexts or relationships with the document as the document is rewritten during the publishing process. These steps include culling out comments that may no longer be appropriate, rearranging comments if the document is reorganized, and sometimes seeking additions or changes to comments from the original commenter.

At the macro discourse level, for participants to successfully enact the new review process, editors must take active mediation steps to change participants' system of knowledge about practices surrounding academic journals. In effect, editors engage in 'technology-use mediation' which Orlikowski, et. al. define as a set of activities which are deliberate, explicit, ongoing, and organizationally-sanctioned interventions within the context of use that can significantly influence the effectiveness of computer conferencing technology (Orlikowski, Yates et al. 1995). These mediation activities help to adapt new communication technology to the context of use and to adapt or configure users to both the new context and the affordances of the new technology (e.g., reminding authors to participate in the closed review, guiding participants through the two review periods, suggesting to authors and other participants new ways to take advantage of hypermedia).

DISCUSSION

In both of the above cases an organization has managed digital texts in order to support or influence the interpretation made of a key document. In doing so they have, intentionally or not, captured elements of a macro-discourse, producing in turn a micro-discourse that itself becomes a persistent element of the original macro-discourse. Table 3 summarizes the key points of both cases.

Table 3: Comparing the two cases

Case	**Political Web sites**	**JIME**
Organization	Political party	Educational institution
Goals	Control of presentation of policy during an election	Supporting new models of academic publishing
Technology	Standard Web pages	Specialized Web and CMC environment
Central document	Party manifesto	Academic article
Macro-discourse	Public political debate	IT in education, Academic Journals
Micro-discourse	Structured intertextual connections between manifesto and ancillary policy documents	Structured review discussion between authors, reviewers, editors, and readers that is tightly linked to the journal article
What is persistent?	Unintentionally captures part of the macro discourse of relations between policy statements and current policy emphasis	Intentionally captures the micro discussion and attempts to alter and record the macro discourse of the journal reviewing process
Role of management	Discourse management to control interpretations	Discourse management to support varied interpretations

In both cases the overall model (Figure 6) is the same, as are the underlying technologies (e.g. HTML pages). What differs between the cases are the organizational goals and the type of selection and *re-mediation* that this leads to. 'Remediation' is the process whereby new media re-fashion or re-represent earlier media to achieve their cultural significance (Bolter and Grusin 1996). Bolter and Grusin note that "much of the current World Wide Web also remediates older forms without challenging them", a type of re-representation or remediation they refer to as 'transparent immediacy.' However, there is another type they term 'hypermediacy' – a fascination with the medium itself – whereby new media refashion earlier media (e.g., by re-contextualizing snippets or creating new juxtapositions). Here, both organizations practices different forms of explicit hypermediacy.

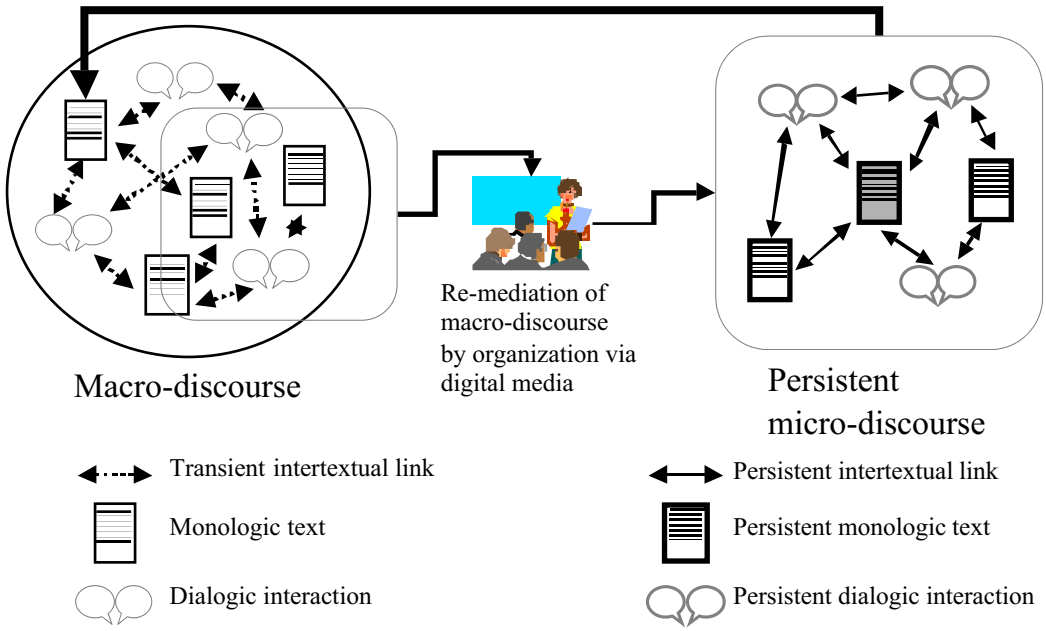


Figure 6: Managing persistent discourse

In the case of political party Web sites the final outcome is a persistent discourse which attempts to limit and/or guide the interpretations of the readers. Part of this task is achieved through two types of textual practice. First, the site designers limited and controlled the relationships between the central text of the manifesto and the ancillary policy texts. This set of relations were previously not so easy to control as the re-mediation task was undertaken by other institutions such as journalists, newspaper editors or TV news producers. Second, they limited the content of the site to monological texts and kept interaction and debate invisible. The final Web site becomes a element of that part of the on-going political macro discourse which is most closely associated with the party in question.

In the JIME case the final outcome is a much more open discourse in which the previously hidden communicative relationships within the academic review process become overtly visible. The re-mediation role here is one of supporting the presentation of competing interpretations of the central document and keeping open the opportunity for further interpretations. The JIME case is also one where the dialogical discourses of debate and conflict are also captured and remain persistent. As such the final persistent discourse becomes an element of the existing macro-discourse whose position within that discourse is less determined than that of the political party Web site. In the same manner that printing made individual texts practically fixed and persistent new digital

technologies may make the intertextual relations of macro-discourses practically persistent.

In comparing our cases and developing the model above two important points become clear. First, that the persistence provided by digital technologies differs from that provided by other communications technologies. In other previous work (Bolter 1989, Anderson 1983) the term 'fixity' has been used to describe the ability of printed text to materially fix acts of communication. As we have argued elsewhere (Yates and Sumner 1997), digital technologies threaten the material basis upon which 'fixity' and its cultural uses are based. As we noted, new cultural practices can compensate for such developments, providing digital texts with 'fixity'.

LOOKING TO THE FUTURE

The Web uses a very simplistic hypermedia model compared to hypermedia systems that have been built over the last decade. The Web's obvious strength—it's sheer scale—is attributable to a large extent to this simplicity, but the absence of a number of key features is making Web authoring and reading/searching increasingly difficult. A number of 'next generation' hypermedia features are beginning to emerge (reviewed by (Bieber, Vitali et al. 1997)) which have implications for the forms that persistent discourse may take in the future, and how they may be managed. To illustrate, we take three significant technical developments on the Web, introducing each, and considering its implications for managing discourse: semantically encoded hypertext, open hypermedia, and network visualization.

Semantically encoded hypertext

Until very recently, as far as computational agents (e.g. Web servers, browsers, search engines) were concerned, the Web comprised undifferentiated documents and links. Without the addition of special analytical capabilities that would allow it to analyse the text in a document, an agent could not distinguish one *type* of document or relational link from another because no information about them was made explicit. Adding explicit information about the function or meaning of a link or document creates a richer *semantic* hypertext network.

Use to *discourage* multiple interpretations and debate	**Use to *encourage* multiple interpretations and debate**
A site concerned to control interpretation could design a metadata scheme which supported their world view (i.e. their ontological position). By defining what the concepts and inter-relations are "that count", one can convince others of the rigour of one's position, unless they are able to challenge either the ontology, or the way in which it has been instantiated. Example: a political party could introduce the reader to a metadata scheme, implemented in its website, of "the key process for tracking manifesto promises": for every *promise*, there must be *evidence.* Visual maps could be provided to show the mapping between promises and evidence; users could search for *evidence: employment* to focus only on evidence.	A semantic hypertext defined by an ontology which assumes from the start a multiplicity of perspectives and definitions provides the building blocks for different stakeholders to contest meaning. Example: in a real debate, one would expect to be able to *Agree* and *Disagree*, to explore *Pros* and *Cons*, to post *Questions* about *Solutions* and *Claims.* The whole tenor of the ontology that is set up for discourse is different.

This can be implemented in a number of ways, still being developed. *Metadata* initiatives (data about data) are one of the most significant efforts, aiming to provide standard, structured information about a document's content and links (IMS 1994;

Dublin Core 1995; W3C 1997). The *kind* of metadata provided is determined by the information that a user community will find most valuable to use when searching for documents. Since metadata schemes only work if a critical mass of major players in a given community or discipline adopt it, and information that is not in the metadata scheme will remain 'invisible', defining a scheme is like defining an ontology—a structured view of the critical concepts in the field. Other initiatives are using knowledge modelling schemes to add 'ontological tags' to web documents, and knowledge-based software agents to search for and reason about document inter-relationships (e.g. KA2). Elsewhere, we have explored the tradeoff between providing a very rich, expressive semantic scheme, and the added complexity for users (Buckingham Shum, MacLean et al. 1997).

Open hypermedia

At present, web links are embedded in the content of documents. To add or change a link, you need authorial access to the document. However, at a technical level in hypertext, document content and inter-document relationships are in principle separable, and next generation web systems make it possible for "linksets" to be stored on "link servers", specifying source and destination addresses (e.g. (Webcosm)). Using such a system, one views a website, and can then view different linksets overlaid on the website's pages, that is, words become links to wherever the linkset has specified. This effectively wrests some authorial control from the document's author, since they can no longer predict how words are linked, and hence how the whole document is interpreted.

External link servers are a key component of what are termed 'open hypermedia systems' which aim to enable "anything to be linked to anything". Such functionality has been available for non-Web environments for a while (e.g. (Microcosm)), but have been developed for the Web only recently.

Use to *discourage* multiple interpretations and debate	**Use to *encourage* multiple interpretations and debate**
External link bases are difficult to conceive as a technology for controlling interpretation, since their purpose is explicitly to enable multiple layers of links, and linking to and from websites to which one does not have any other form of authorial access.	Different link layers can be added by anyone, taking readers to different interpretations of texts. Example: in JIME, one could switch between links that amplify and support the author, and those which challenge.
One can envisage sites devising a way to block access to link servers if they do not wish other groups to impose their linksets. Such a site could use an internal open hypermedia system as a publishing tool to *generate* their site, since such tools provide useful facilities for managing links.	Example: every occurrence of the word "manifesto" on a political party site is turned into a link to a site which criticises it.

Site mapping and visualization tools

An extremely common finding in hypermedia research is that a well designed visual map of the key parts of the network is a powerful navigational aid for users, particularly if it shows where they currently are, and where they have been. Unless intentional disorientation of users is a goal, there is no reason for any website not to seek to aid navigation. An interesting development is the ability to generate a website map automatically with tools that analyse the site's link structure, and even the content and similarity of documents (Chen and Czerwinski 1998), and then render these structures visually. Such tools provide a way to see 'behind the scenes', that is, behind the carefully constructed map provided by the publisher, and perhaps beyond the hypertext links to conceptual links between documents that are otherwise unlinked. This

represents another possible way to change the discourse from that intended by the authors of the primary document(s).

Use to *discourage* multiple interpretations and debate	Use to *encourage* multiple interpretations and debate
Provide a static, crafted map of the site that emphasises its coherence, and draws attention to particular documents and relationships.	Provide users with active maps that allow one to see the current threads and activity hotspots in the site, which is constantly evolving through open discourse.

To conclude, this paper has argued that some technological innovations are open as to whether they can be used to control interpretation and discourse (as with the political websites), or open it up for a multiplicity of perspectives (as with JIME). Other technologies are harder to envisage as anything but threats to unitary control of discourse, suggesting that they simply will not be deployed by certain organisations. It is not simply the affordances of the technology but the combination of these affordances with associated cultural practices and institutional goals which provide persistence. In the case of digital technologies, especially hypertexts/media, one important affordance is the ability to capture both the texts and their intertextual relationships and to make these links both visible and interactive. Combining this affordance with the cultural practice of developing Web sites from elements of a macro-discourse makes it possible to have practically persistent discourses of the kinds outlined in our two cases.

REFERENCES

Anderson, B., *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Verso, London, 1983.

Barnett, S. (1997). "New Media, Old Problems." *European Journal of Communication*, 12(2): 193-218.

Bieber, M., F. Vitali, et al. (1997). "Fourth Generation Hypermedia: Some Missing Links for the World Wide Web." *Int. J. Human-Computer Studies, World Wide Web Usability Special Issue*, (Eds.) S. Buckingham Shum & C. McKnight ,47(1): 31-65. <http://www.hbuk.co.uk/ap/ijhcs/webusability>

Bolter, J. D., "Beyond Word-Processing - The Computer as a New Writing Space," *Language & Communication*, Vol. 9, Iss. 2-3, pp. 129-142, 1989.

Bolter, J. D. and R. Grusin (1996). "Remediation." *Configurations* ,4(3): <http://muse.jhu.edu/journals/configurations/v004/4.3bolter.html>

Buckingham Shum, S., A. MacLean, et al. (1997). "Graphical Argumentation and Design Cognition." *Human-Computer Interaction* ,12(3): 267-300.

Buckingham Shum, S. and C. McKnight (1997). (Eds.) "*World Wide Web Usability: Special Issue, Int. J. Human-Computer Studies*." 47 (1): 1-222. <http://www.hbuk.co.uk/ap/ijhcs/webusability>

Chen, C. and M. Czerwinski (1998). From Latent Semantics to Spatial Hypermedia: An Integrated Approach., *Proceedings of Hypertext'98*: 9th ACM Conference on Hypertext, Pittsburgh, ACM Press: New York.

Dublin Core (1995). *Metadata Element Set*. <http://purl.oclc.org/metadata/dublin_core>

Fairclough, N. (1992). *Discourse and Social Change*. Cambridge, Polity Press.

Foucault, M. (1979). *Discipline and Punish: The Birth of the Prison*. London, Penguin.

Goldman-Segall, R. (1995). Deconstructing the Humpty Dumpty Myth: Putting It Together to Create Cultural Meaning. *Contextual Media: Multimedia and Interpretation*. Cambridge, Massachusetts, MIT Press. 27-52.

Hall, M. (1997). "One-to-one politics in cyberspace." *Media Studies Journal* (11): <http://www.mediastudies.org/cov96/hall.html>.

Halliday, M. A. K. (1978). *Language as Social Semiotic: The Social Interpretation of Language and Meaning*. Edward Arnold, Ltd.

IMS: "*The Instructional Management System (IMS) Project*," 1994. <http://www.imsproject.org>

JIME (1996). "An Interactive Journal for Interactive Media." *Journal of Interactive Media in Education* <http://www-jime.open.ac.uk>

Kern, M. (1997). "Social Capital and Citizen Interpretation of Political Ads, News, and Web Site Information in the 1996 Presidential Election." *American Behavioral Scientist* (40): 1238-1249.

KMi (1997a). *Dearing Report Discussion Site*. Knowledge Media Institute, The Open University, U.K. <http://kmi.open.ac.uk/Dearing/>

KMi (1997b). *Learning.Org Conference*. Knowledge Media Institute, The Open University, U.K. , <http://kmi.open.ac.uk/learning.org>

Microcosm: Multicosm Ltd., Southampton. <http://www.webcosm.com/>

Orlikowski, W., J. Yates, et al. (1995). "Shaping Electronic Communication: The Metastructuring of Technology in the Context of Use." *Organization Science* ,6(4): 423-444.

Sumner, T. and S. Buckingham Shum (1998a). From Documents to Discourse: Shifting Conceptions of Scholarly Publishing., *Human Factors in Computing Systems (CHI '98)*, Los Angeles (April 18-23),

Sumner, T. and S. Buckingham Shum (1998b). A Toolkit for Publishing Web Discussion Documents: Design Principles and Case Studies., *Asia Pacific Computer Human Interaction 1998 (APCHI 98)*, Shonan Village Center, Japan (July 15-17),

W3C (1997). *Metadata and Resource Description*. World Wide Web Consortium. <http://www.w3.org/Metadata/>

Webcosm: Multicosm Ltd., Southampton. <http://www.webcosm.com/>

Wetherell, M. and J. Potter (1992). *Mapping the Language of Racism : Discourse and the Legitimation of Exploitation*. New York, NY; London, Harvester Wheatsheaf.

Yates, S. and T. Sumner (1997). Digital Genres and the New Burden of Fixity., *Hawaiian International Conference on System Sciences (HICCS 30)*, Wailea, HA (Jan 7-10), IEEE Computer Press.

Yates, S. J. and J. L. Perrone (1998). Politics on the Web. *International Conference on Internet Research and Information in the Social Sciences*, Bristol, UK, <http://www.sosig.ac.uk/iriss/papers/paper46.htm>