

LINKING IN E-JOURNALS : A CASE STUDY

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Creating links to related materials enhances the utility of an e-document. Links give structure to the dynamic activity of browsing and also to the information being browsed. This paper has made an attempt to study the links in e-journal articles, which have been considered as e-documents in this study. The latest three complete volumes of the three e-journals : Information Research : An International Electronic Journal (IR), LIBRES : Library and Information Science Research Electronic Journal (LIBRES), and Library Philosophy and Practice (LPP) have been studied for the accessibility, temporality and volatility of the e-resources that have been referenced in the 105 articles of the 9 volumes of these e-journals. Links to nodes within the next have also been studied for their functionality. It was found that there were dead links, incorrect links and links that did not point to the exact location in the node. Broadly, accessibility to e-resources accounted for 73.78% whereas 26.22% were inaccessible. The e-resources that have been referenced in these articles have been categorized according to their contents. E-references included a plethora of e-resources : the major categories being web pages (32.32%), home pages (24.39%), personal papers (14.63%), e-journal articles (10.06%), documents (5.18%), and reports (4.88%). The other categories (8.54%) included catalogue, e-book, e-mails, e-zine, encyclopaedia, exhibits, FAQs, help page, listservs, local files, newsletters, news service, press release, and syllabus. E-documents are unstable since their creators can easily update, change, or even move their contents. Links to such sources are always volatile. But with the collaborative effort of the authors, editors, publishers, and interface designers the links can be kept alive and up-to-date. Efforts should also be made to create error free links so as to avoid dead links and incorrect links.

0 Introduction

Modern technology has made it possible for new and better features to be supported electronically. Of these new features links are the most important. Links have the power to alter the character of the electronic document. Hyperlinks are not just add-on features for electronic documents but they serve some specific purposes like :

- ❖ enhance presentation by giving seamless access to readers to items of their interest irrespective of the location
- ❖ provide faster and direct access to related information

- ❖ enable backward and forward access from the text and to the text from external resources with equal ease [2].

Links within the text may be a tool to connect the internal parts of a document like contents, figures, tables, illustrations, appendices, reference section and also external electronic resources. Links to external resources may be to home pages, web pages, E-journal articles, Personal papers, Documents, Reports, Discussion groups, E-books, Listservs, Local files, Exhibits, Newsletters, E-mails, FAQs, Press releases, Catalogues, Help pages, E-zines, News services, Syllabi, Encyclopaedias, etc.

This study has laid emphasis on the functionality of hyperlinks and the accessibility of e-resources with respect to their temporal and volatile nature.

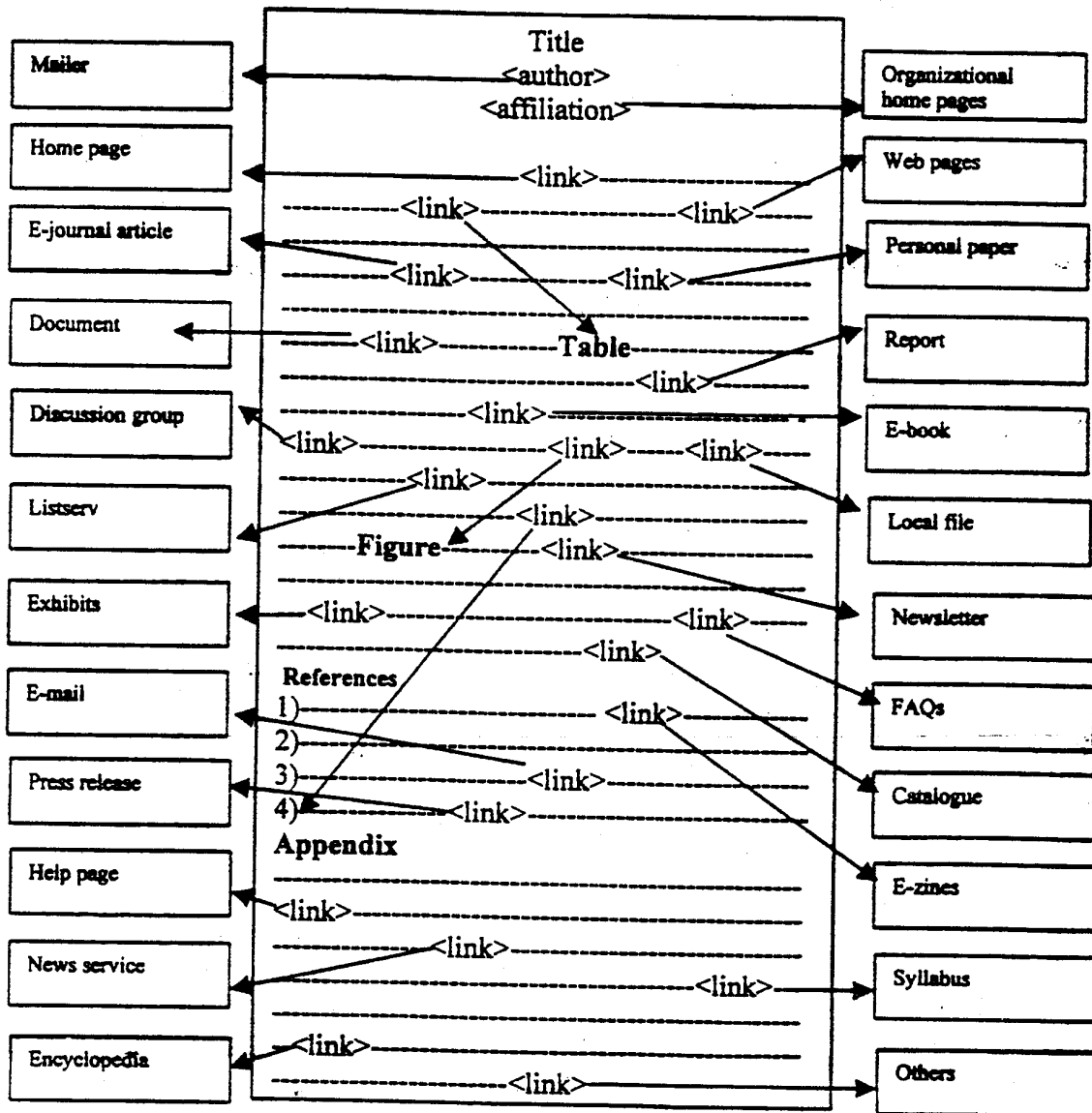
1 Cognitive Design of Hyperlinks

The major purpose of reading a document, is comprehension. In cognitive science comprehension is often characterized as the construction of a mental

model that represents the objects and semantic relations described in a text. In a hyperdocument these relationships are created through hyperlinks [1].

Figure 1 indicates some of these hyperlinks in electronic journal articles, which have been considered as hyperdocuments in this study. Hyperlinks may

Fig. 1 : Cognition networks observed in e-journals



be given from the name of authors to their e-mail IDs which lead to mailers (Microsoft Outlook Express) and from authors' affiliations to their respective organizational home pages; from text to tables, figures, illustrations, appendices, and notes, from text to the e-resources; or to the full citation in the reference section; and from the reference section to the e-resources.

Readers need knowledge about the structure of the hyperdocument. They must be able to keep track of their various moves through the maze of the hyperlinks in the document. The readers should be able to :

- identify their current position with respect to over all structure
- to reconstruct the way that lead them to the present position
- to have options to move on from the present position
- colour scheme can be used for hyperlinks in the text as orientation cues : for example.
- red to indicate the readers' actual node
- pink to indicate the node that has been visited immediately before, but is no longer activated
- white to indicate the nodes that have been opened yet

Such visual cues enable readers to see where they

are, where they had been, and where they can go.

Electronic texts are infinitely malleable : they can be updated, re-edited, or completely re-written at any time by their creators. In other words, e-resources are volatile in nature because the contents are likely to change as the creator updates or the links may even point to nothing at all as the unstable web makes them obsolete.

1.1 Objectives

The present paper proposes to study :

- cognition in e-documents
- volatile and temporal nature of e-resources
- categorization of e-resources referenced in electronic documents

1.2 Materials and Methods

All the articles of three journals Information Research : an International Electronic Journal (IR); LIBRES : Library and Information Science Electronic Journal (LIBRES); and Library Philosophy and Practice (LPP) from the most recent complete three volumes were downloaded from their respective sites. Table 1 shows the volumes and number of articles that were included in the study.

References to e-resources in the text and in the reference sections have been considered as e-references for the study. Links, which are leading to different parts of the text, links from the text to the

Table 1 : Distribution of articles included in the study

E-journal	ISSN	Website	Volumes	No. of articles
IR	1368-1613	http : //informationr.net/ir	III-V	78
LIBRES	1058-6768	http : //www.libres.curtin.edu.au	VIII-X	8
LPP	1522-0222	http : //www.uidaho.edu/~mobolin/lp&p.htm	I-III	19
Total			9	105

reference section and links from the text to external e-resources were tested for their functionality [3.4]. The electronic resources were categorized according to their contents.

1.3 Results and Discussion

Electronic publishing being a relatively new concept, standardization in many areas has still not been attained. It was observed that there was no consistency in the style of referencing, in the layout and format of the articles of the three e-journals under study.

Hyperlinks were provided in most of the articles from the text to the full citation in the reference section. Some articles did not have such links, which makes it rather tedious to scroll through the text and the references. Few articles had the convenience of backward links from the references to their respective links in the text.

Some articles had hyperlinks to contents of the article, like abstract, introduction, methodology, results, discussion, conclusion, and reference section, which allow multiple entry points to readers. The use of colour scheme for hyperlinks as orientation cues, which is another useful feature had been used in some articles.

Access to e-resources was either directly from the text or from the text to the reference section and then to the source. For the sake of coherence it would be more convenient for the readers to have access to all e-resources directly from the text and a full citation to non-electronic references in the reference section.

It was also a very common occurrence in the articles for the hyperlinks not leading to the exact location in the node. This necessitates readers to scroll down the page to find the exact location of information.

Out of 105 articles, 50 articles (47.62%) had e-references. Figure 2 indicates the percentage distribution of e-references in IR, LIBRES, and LPP.

Table 2 indicates the distribution of electronic and non-electronic references in the e-journals. Out of 441 e-references 113 references (25.62%) could not be accessed for the following reasons :

- 44 e-references resulted in the message "Page cannot be found";
- 39 e-references gave the message "Page cannot be displayed";
- 25 e-references could not be accessed because of incorrect URLs; and
- 5 e-references had moved to different pages but the new addresses were not provided.

The temporality and volatility of hyperdocuments account for the inaccessibility of electronic resources. E-documents are unstable and ever-changing : they are constantly growing, acquiring new texts that are connected by an evolving network of links.

It is believed that as many as one in five web links

Fig. 2 : Percentage distribution of e-references in IR, LIBRES and LPP

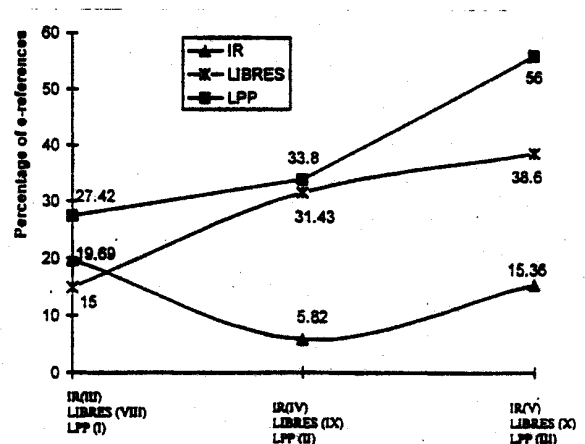


Table 2 : Distribution of electronic and non-electronic references in IR, LIBRES and LPP

E-Journal (Volume No.)		Distribution of references						
		E-references Accessibility Yes No		Total (a)	% of accessible	Non-electronic e-references (b)	Total references references	% of E-references (a+b)
IR	(III)	47	56	103	45.63	420	523	19.69
	(IV)	36	15	51	70.59	825	876	5.82
	(V)	90	28	118	76.27	650	768	15.36
LIBRES	(VIII)	6	0	6	100.00	34	40	15.00
	(IX)	21	1	22	95.45	48	70	31.43
	(X)	39	5	44	88.64	70	114	38.60
LPP	(I)	15	2	17	88.24	45	62	27.42
	(II)	20	4	24	83.33	47	71	33.80
	(III)	54	2	56	96.43	44	100	56.00
Total		328	113	331	74.38	2183	2624	16.81

that are more than a year old may be out of date. When surfers click on such links they get a "404 error" message. The more active a web site is, the faster it changes [5].

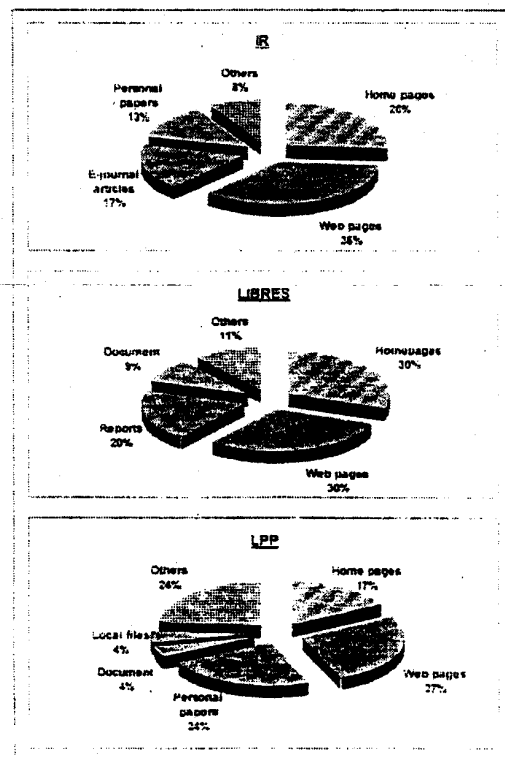
Figure 3 indicates the percentage of e-resources that were distributed in the three e-journals : IR, LIBRES and LPP.

Some discrepancies were noticed in the hyperlinks of the articles :

- ❖ links which did not lead anywhere – dead links
- ❖ links which did lead to wrong positions in the nodes
- ❖ links with no citations in the reference section

Table 3 indicates the categories of e-references that were encountered in the articles under study. The major categories were web pages (32.32%), home pages (24.39%), personal papers (14.63%), e-journal articles (10.06%), documents (5.18%). and re-

Fig. 3 : Percentage of e-references according to the type of contents.



ports (4.88%). The other categories (8.54%) included catalogue, e-book, e-mail, e-zine, encyclopaedia, exhibits, FAQs, help page, listserv, local files, newsletter, news service, press release, and syllabus.

This indicates the plethora of e-resources that are available on the Web, which can be exploited by authors of electronic documents to enhance the scholarship of their communication.

2 Conclusion

Non-functionable or incorrect links in hyperdocuments can frustrate readers.

The following flaws encountered in this study should be avoided :

- blind links i. e. links that lead nowhere
- incorrect links i.e. links leading to incorrect nodes
- links that lead to incorrect positions in the nodes
- links that lead to URLs that have moved but new addresses not provided
- incorrect URLs

Besides these flaws some of the articles of the e-journals that have been included in the study did not have even the simple links from the references in the text to the full citation in the reference section. This makes it very tedious to scroll back and forth for time and again from the text to reference section. Few articles had backward linking from the reference section to the corresponding link in the text, or from a figure in the text to the corresponding position in the text. In these cases one tends to get lost in 'hyperspace'.

The work and technical challenge of publishing elec-

tronic content is quite substantial. Contributors of electronic contents include authors, editors, programmers and interface designers. It is the combination of the skills and capabilities of this workforce that can result in creation of an "intelligent" hyperdocument that has visual coherence and style, and that keeps the various fragments of the document unified, manageable and accessible [6,7].

References

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Table 3 : Distribution of types of linked electronic resources in the e-journals

Electronic resources	IR	LIBRES	LPP	Total	%
Web page	62	20	24	106	32.32
Home page	45	20	15	80	24.39
Personal papers	22	5	21	48	14.63
E-journal article	30	0	3	33	10.06
Document	7	6	4	17	5.18
Report	2	13	1	16	4.88
Local files	0	0	4	4	1.22
Discussion group	3	0	0	3	0.92
Exhibits	0	0	3	3	0.92
Newsletter	0	0	3	3	0.92
E-mail	0	0	2	2	0.62
Encyclopaedia	1	0	1	2	0.62
Listserv	0	2	0	2	0.62
Catalogue	0	0	1	1	0.30
E-book	1	0	0	1	0.30
E-zine	0	0	1	1	0.30
FAQs	0	0	1	1	0.30
Help page	0	0	1	1	0.30
News service	0	0	1	1	0.30
Others	0	0	1	1	0.30
Press release	0	0	1	1	0.30
Syllabus	0	0	1	1	0.30
Total	173	66	89	328	100.00