UNIT 6 CONTENT DEVELOPMENT - CONTEXT SETTING

Structure

6.0 OBJECTIVES

After reading this you will be able to:

- know the concept of Content Development;
- study the difference between print and electronic medium;
- discuss Syntactic Context and Semantic Context; and
- get yourself introduced to Ontologies.

6.1 INTRODUCTION

Ideas/concepts, discussions and explanations on a topic in books and other documents constitute the thought content. In information processing activities the thought content is analyzed and represented in a more concise manner so as to provide access to the information within resources. Thus traditionally, several processing tools have been evolved to enable representation of the thought content of documents to facilitate information retrieval. However, in the present connotation the terms 'Content' and 'Content Development' have been used in the parlance of electronic information sources the most popular being Internet resources. With the adoption and deployment of technology in the field of publishing there are now information sources in varied forms and formats such as CDs and Web pages. Change in media has created new dimensions in the library field with a shift in the accessioning, processing and retrieval issues. Also it has been received by the end-users with mixed reactions of excitement

of the novel and at the same time a wary and cautious approach, skeptical as to whether the electronic medium will take over print medium completely. According to Demas, "Electronic publishing has profound implications for collection development, which is defined as the intentional and systematic building of the set of information resources to which the library provides access. While the principles of collection development, which were developed in the world of print publications, do not change radically with new publishing technologies, methods of decision making and specific selection guidelines must be adjusted significantly to incorporate new publishing formats".

6.2 PRINT VERSUS ELECTRONIC MEDIUM

Traditionally academics have been acquainted with information in printed resources. Hence library professionals have developed and used tools and techniques suitable for the processing resources in the print medium. But of late there has been a proliferation of other media in the publications industry. The present supply of information resources is made up of a range of products that exist in several different forms. For example, a bibliographic database may be available in paper form (traditional library catalogs), on a CD-ROM, and as an online accessible database (either traditional online, or internet). The apprehension that print medium may vanish probably started when the supply of online databases began to increase rapidly. Similar prophecies were pronounced on both printed material and online sources when the CD-ROM's began to flourish. In 1993, when the Internet, especially the World Wide Web, became a popular place to start looking for information, great expectations arose foretelling that the future belonged to that new, marvelous, medium alone. In general the resources available in various media mentioned below are:

- printed material
- microforms
- online accessible databases
- CD-ROM databases
- World Wide Web sources

Resources in the different media listed above have been appearing and co-existing in the academic and research world in recent times. But the apprehensions of the end users have also been voiced from time to time. According to a study by the European Commission the main reasons for not using electronic information services among information professionals are (3):

1) *Lack of awareness.* First of all, there is a lack of knowledge about the use and the value of electronic information services. The study opines that many users still focus on existing, traditional and familiar sources, e.g. printed media and personal contacts. The European users obviously feel that there is a need for highly condensed, easy to grasp, practical information in electronic form. This type of information, however, is not easy to obtain, since it is not adequately provided by existing information services.

2) *Unsatisfactory relationships between supply and demand.* Users found that there were deficiencies in the information offered at three different levels:

a) The information searched for is not available (there is some superstition around saying that all relevant information is available in electronic form).

b) The information offered is not user -oriented

c) Information offered is not complete (full text/original sources are expected by users)

3) *Prices of services are too high:* The price structure is prohibitive to the common user who cannot see through the layers of intermediating suppliers (database owner, producer, host, network, intermediary, etc.)

4) *Lack of network capacities and lack of user friendliness.* A system is characterized as user friendly if it is easy to learn and handle, effective and satisfactory to use.

In the light of the above discussion, the apprehensions of the users of electronic documents stems from the fact that the documents in the new forms are often compared to the printed forms for performance. However if the user is made aware of the basic difference that exists they may gear up to using the electronic versions. In general the differences between the print and electronic resources can be summarized as follows:

Print Medium	Electronic Medium
Non-interactive	Interaction can be included
Continuously presented	Each document can be split into multiple hyper linked Pages
No links to further information except through the contents pages and index	Links can be provided to further information through hyper linking
Portable (can be borrowed or carried)	Only available through computer and other devices
User training not required	Basic training required to access information
Technology independent	Technology dependent

Self Check Exercise

1) Point out the differences in the print and electronic documents.

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6.3 USER PERSPECTIVE OF THE ELECTRONIC CONTENT AND WEB DOCUMENTS

There are differences in the print and electronic medium in the physical form. The approach of users to the information in the two media is also varied. Especially this is true of the users of the resources on Internet. People rarely read web pages word by word; instead, they scan the page, picking out individual

words and sentences. In a study by John Morkes and Jakob Neilson, it was found that 79 per cent of the test users always scanned any new page they came across; only 16 per cent read word-by-word. According to the study, four plausible reasons why 79 per cent of Web users scan rather than read are:

1) **Reading from computer screens is tiring** for the eyes and about 25 per cent slower than reading from paper. This may be one reason why people attempt to minimize the number of words they read. To some extent this reason explains users' behavior, however, they should read more when there is high-resolution. High-scan rate monitors in five years since laboratory studies have shown such screens to have the same readability as paper.

2) **The Web is a user-driven medium** where users feel that they have to move on and click on things. People want to feel that they are active when they are on the Web.

3) **Each page has to compete** with hundreds of millions of other pages for the user's attention. Users don't know whether this page is the one they need or whether some other page would be better: they are not willing to commit the investment of reading the page in the hope that it will be good. Most pages are in fact not worth the users' time, so experience encourages them to rely on information foraging. Instead of spending a lot of time on a single page, users move between many pages and try to pick the most appealing segments of each.

4) **Modern life is hectic** and people simply don't have time to work too hard for their information.

As a result, Web pages have to employ scannable text, using

1) highlighted keywords

   - hypertext links serve as one form of highlighting;
   - typeface variations and
   - color

2) meaningful sub-headings and

3) bulleted lists.

It is more important to take care of user behavior while using Internet. For example, it is best to maintain one idea per paragraph. Users will skip over any additional ideas if they are not caught by the first few words in the paragraph. It is found that credibility is important for Web users, since it is unclear as to who is behind the information on the Web and whether a page can be trusted. Credibility can be increased by high-quality graphics, good writing, and use of outbound hypertext links. Links to other sites show that the authors have done their homework and are not afraid to let readers visit other sites. Users do not usually appreciate propaganda and promotional writing style with boastful subjective claims that are prevalent on the Web. Also, credibility suffers when users clearly see that the site exaggerates the facts.

Usability tests must study users over time as they develop expertise in using the

site or service. Some websites command sufficient loyalty that users return frequently and begin using them on a daily basis. Users of the web will be satisfied if the retrieval answers their mission-critical applications. There will most likely be a huge growth in Internet-based applications that are not really websites but where users perform daily tasks across the Internet for example, online calendars and maybe even entire office suites. The scene then changes from the casual web surfing approach to the approach of expert users using specific applications. Increased attention to expert performance has four implications:

1) It becomes even more important to design smooth navigation paths and fast-loading pages.

2) Traditional tricks from the GUI world may be revised on the Web: for example, shortcuts for the experienced user that are invisible or downplayed for the novice user.

3) Maybe even training wheels interfaces where the average site visitor gets a simplified design that is easy to learn and loyal users get an advanced design that is more powerful.

4) The need to stop using Web browsers as the platform for Internet-enabled applications, except when they are targeted purely at casual users. Frequent users will need an optimized interface that takes full advantage of the device they are using. In-depth content and advanced information should be added to sites to provide the depth expected by experts.

Self Check Exercise

2) What are the implications of user studies on Content Development?

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6.4 DOCUMENT CONTENT, STRUCTURE, AND PRESENTATION

Content development encompasses the many different aspects in web page architecture. Basically as the case in any document the content in electronic form should be coherent and meaningful. The second important factor is the structuring or sequencing of ideas. Here again the ideas have to be organised and then structured in the web authoring langauge using the available markup tags. The third aspect deals with the presentation. It mainly deals with choice of fonts, headings, colour for text, background and such details. The three concepts defined by the W3C (WWW Consortium) are as follows (6):

1) the content of a document refers to what it says to the user through natural language, images, sounds, movies, animations, etc.

2) The structure of a document is how it is organized logically (e.g., by chapter,

with an introduction and table of contents, etc.). An element (e.g., P, STRONG, BLOCKQUOTE in HTML) that specifies document structure is called a structural element.

3) The presentation of a document is how the document is rendered (e.g., as print, as a two-dimensional graphical presentation, as a text-only presentation, as synthesized speech, as braille, etc.) An element that specifies document presentation (e.g., B, FONT, CENTER) is called a presentation element. Consider a document header, for example. The content of the header is what the header says (e.g., "Sailboats"). In HTML, the header is a structural element marked up with, for example, an H2 element. Finally, the presentation of the header might be a bold block text in the margin, a centered line of text, a title spoken with a certain voice style (like an aural font), etc.

6.5 DESIGN ASPECTS

The first stage in content development is getting the content ready. But to effectively find an audience, special attention should be given to the design of the resources. The available and widely used method is to put together all the information using HyperText Markup Language (HTML). The tag set in HTML allows authoring of web documents and has simplified it by adding multimedia components in hyper-linked form. While it is possible to add on as many images as one wants it is always advised that the web pages should not be image and graphic intensive as it takes more time to download onto users' screen and burdens the network traffic. One of the main problems of electronic resource is of how it should be noticed by the end users. Many a time the users only accidentally find the resources. Even if once they are accessing a particular page they are always tempted to surf away from it through the links given. But it is important to get users to use the resources and also to retain their attention. Some of the design elements that will increase the usability of websites as suggested by Neilson are as follows:

1) Provide search if the site has more than 100 pages.

2) Place name and logo on every page and make the logo a link to the home page (except on the home page itself, where the logo should not be a link: never have a link that points right back to the current page).

3) Write straightforward and simple headlines and page titles that clearly explain what the page is about and that will make sense when read out-of-context in a search engine results listing.

4) Structure the page to facilitate scanning and help users ignore large chunks of the page in a single glance: for example, use grouping and subheadings to break a long list into several smaller units.

5) Instead of cramming everything about a product or topic into a single, infinite page, use hypertext to structure the content space into a starting page that provides an overview and several secondary pages that each focus on a specific topic. The goal is to allow users to avoid wasting time on those subtopics that don't concern them.

6) Use of Photos: use product photos and logos, but avoid cluttered and bloated product family pages with lots of photos. Instead have a small

photo on each of the individual product pages and link the photo to one or more bigger ones that show as much detail as users need. This varies depending on type of product. Some products may even need zoomable or rotatable photos, but reserve all such advanced features for the secondary pages. The primary product page must be fast and should be limited to a thumbnail shot.

7) Use relevance-enhanced image reduction when preparing small photos and images: instead of simply resizing the original image to a tiny and unreadable thumbnail, zoom in on the most relevant detail and use a combination of cropping and resizing.

8) *Use link titles to provide users with a preview of where each link will take them,* before *they have clicked on it.*

9) Ensure that all important pages are accessible for users with disabilities.

10) Do the same as everybody else: if most big websites do something in a certain way, then follow along since users will expect things to work the same on your site. Safest is to use mainstream applications that are widely accepted and used.

Finally, always test your design with real users as a reality check. Even the most carefully planned project will learn from usability testing.

6.6 CRITERIA IN CONTENT DEVELOPMENT

The chief criterion in developing and making available content is to make it useful and available to target audience or the end-users. According Jan Spyridakis (8), the main criteria to be considered in Content Development are the users' reading processes, effective text strategies, providing context and internationalization in hosting and presentation of ideas. Each of the points are elaborated in the following sections:

Reading process: All parts of the reading process use a reader's attentional resources, a limited commodity. If a reader can devote less attention to lower level tasks such as decoding letters, words, and syntactic structures, he or she will have more attention available for higher level tasks, such as combining text-based information with other text-based information and also with information stored in long term memory.

Tradeoffs: Writers' decisions can amount to tradeoffs between the use of effective and less effective text strategies. Effective text strategies ease the reader's load and make more attention available for more difficult reading tasks. The guidelines discussed here describe numerous effective text strategies, not all of which an author will choose to use. Authors and evaluators, though, should recognize that some strategies are more effective than others, and understand that the degree of effectiveness relates to context and audience.

Context: Audience and purpose: All writing decisions or evaluations of effectiveness must be made in the context of the abilities and knowledge set of the intended audience, and the purpose of the Web site.

Internationalization: Writers must decide whether they want a Web site to serve audiences beyond a specific English speaking audience. If so, they may

want to internationalize the Web pages (remove content and concepts specific to only one culture) and then localize the pages (translate the pages to meet the needs of different cultures). Alternatively, they may want to globalize the pages, making them readable by readers in any culture who speak English.

Effective Text Strategies

The following guidelines describe numerous effective text strategies:

1) Selecting and presenting content
2) Organizing content on the page
3) Manipulating style
4) Establishing credibility
5) Communicating with international audiences

1) ***Selecting and presenting content***

a) Content should be presented in such a way that readers can orient themselves and access relevant prior knowledge so that they can comprehend new information when they arrive on a new page.

Effective text features

- An informative title at the top of each page
- An introduction or introductory sentence that announces the topic and specifies the intended audience
- Repetition of company or agency names, redefinition of specific terminology, and spelling out acronyms on each page

b) Content that is interesting and relevant to the audience should be selected for inclusion. Readers will attend to and retain such content better than content they find less interesting and relevant.

Many authors reuse content from existing printed texts or Web sites just because they have the information. Readers are often not interested in an organization's mission statement or management chart, topics common to many Web sites.

c) Minimize the amount of information per page.

Effective text features

- Short pages instead of long pages (in general)
- Only a few examples of a concept versus exhaustive coverage
- Summaries or abstracts with links to longer articles or discussions

2) ***Organizing content on the page***

Note: Group information to help readers create hierarchical frameworks for storing incoming information in long-term memory.

Effective text features

Five or fewer items per group at one level of the organizational hierarchy While this ideal number may be difficult to achieve with the overall site design, information on pages can often fit within the ideal. Readers retain more information and discriminate among ideas best when the number of items at any one hierarchical level is five or fewer.

Grouped ideas on one page should be at the same conceptual level

Note: Create order within **and across grouped content.**

Effective text features

Information that a reader is likely to know is placed before new information (within sentences, paragraphs, and pages)

Deductive organization, reinforced with a topic sentence

Important information near the top of paragraphs and pages

Note: Use organizational cues to make text visually accessible and scannable (easily skimmed or quickly read through at a top level); and to facilitate search tasks, comprehension, and recall. Do not distract readers with unnecessary cues.

Effective text features

Headings and subordinate headings

Introductions

Overview (preview) and topic sentences

Lists or tables

Link labels

Tables of contents, overviews, or site maps

3) ***Manipulating style***

- ***Use words that readers can easily and accurately understand.***

Effective text features

Concrete words

Words that appear frequently in the language

Short words (fewer syllables)

Pronounceable words

Link labels that create clear context for the linked page

Words that readers are familiar with (the audience's vocabulary set)

- ***Use syntax (grammatical order) that readers can easily understand.***

Effective text features

Active voice verbs

Few embedded relative clauses (a relative clause inside another clause-for example, "The boy, *who is tall*, fell down.")

Few embedded links

Important information placed in independent clauses

- ***State ideas concisely.***

Effective text features

Omission of unnecessary detail

Concise wording

Short sentences

- ***Choose a tone that fits the message and the audience.***

Effective text features

Use objective tone instead of promotional tone (for informational Web sites), Personal tone using the pronoun *you* (when appropriate) and plain language instead of inflated, pseudo-intellectual language.

4) ***Establishing credibility***

Readers are more likely to continue reading and return to a page if they feel the information is credible.

Effective text features

Always furnish Author's name, credentials, and e-mail address *and*

Date on which that site was posted or last updated

Citation of sources when appropriate

Statement regarding Web site's use of reader's personal information

Up-to-date information

Links to *relevant* outside sites

Accurate information

Lack of typos, grammatical errors, and spelling mistakes

Lack of "hyped-up" language

5) ***Communicating with international audiences***

- ***Select content that is relevant to the audience and purpose of the site.***

Effective text features

For globalized sites, culturally generic content (that is, lack of culturally specific content)

For localized sites, content that serves a specific culture's interests

- ***If localizing a site, consider using an organizational structure suited to the preferences of readers in the target culture.***

- ***Use a style that is culturally generic and is easily translatable.***

Effective text features

Measurement terminology in either international units (for example, the metric system, 24-hour military-time clock) or units specific to different cultures:

Internationalized words and phrases

Lack of jargon, abbreviations, and idioms

Lack of catchy wording, titles, and phrases

Simple sentence structures

6.7 CONTEXT SETTING

The content that constitutes the electronic and Internet resources is only sensible in the proper context. Context should be set in the given topic and also in the design of the resources. Context setting has within it two important aspects:

1) Syntactic Context
2) Semantic Context

6.7.1 Syntactic Linking

Syntactic context deals with the structure of the resource. The issues that arise in this level are those that set the parameters of the electronic forms or websites such as (10)

- the depth and the breadth of the site.
- How many links should be given?
- In what way should they be integrated?
- How much graphics to be integrated?
- And how it should be presented.

There are no hard and fast rules restricting or dictating the architecture to be followed in content development. However some guidelines that help in the development of user-friendly documents are listed below:

Avoid links to external sites if you want to preserve interest of your reader.

Although it may be very useful to provide links to resources outside of your site, think carefully before providing them. If you want to integrate links to external pages, you must regularly verify to see if the linked pages still exist. As soon as users have accessed an external page, they will no longer have visual reminders about your site. And if they begin to follow the links available at this new site, then you run the risk of their losing interest in your site, or simply forget to go back once they have explored the external link.

Avoid too many links on a text page.

In general, the more links that there are on the page the less chance users have to find the good link to obtain the wanted information.

All links must lead to a page or to another place in the page.

If the link does not lead to a page or lead to a page in construction, it could frustrate the user and push him to quit your site. So test every link and links should be maintained and checked regularly.

It is a must to have a link back to home page or index page or previous reference.

To avoid the blind alleys there should always be a link back to homepage or page with related information.

Use appropriately named links.

Use appropriately named links. Avoid using browser-specific terms like links' names. That is using names such as 'back' or 'forward' instead the link can be named as 'go to page *titled...*', so users coming to the page from any other than your "previous" page know where they are going.

Use an appropriate length for links.

In fact a single word may be too small and may not be meaningful. But using an entire sentence for a link may prove difficult to read, especially if the text extends over multiple lines. So try to use an appropriate length for your links.

Try to match the link text with the resulting page title.

In general, it's an impossible task to make the text displayed in a link match the title of the destination page. It may result in additional maintenance work as the titles of the documents change. Try to choose link text that has a conceptual similarity to the resulting page title. So when users see the link they are able to guess what the resulting page contains.

Create a context for a link.

When you write surrounding text it will help people to understand what the link does. Help your reader understand where the link will lead, and what the resulting section contains. They are paying a time penalty for every link they follow. So help them to understand what value they will receive if they traverse a link. For that, if you want give a small definition of the action of the link.

The link must be easily discernible from its context.

Links should be discernible, so users won't have any difficulty in discerning the link from the text. Usually the appearance of text used as link changes when links are given from one location to the other.

For lists of links with similar text, link only text that is different.
Users will see immediately the difference between the links.

Try to keep default links colours.

Don't change the default colours for visited and unvisited links. An unvisited link is generally blue and a visited link is purple. They are the usual colours that people expect to see.

Provide the size of the destination graphic.

If there is a link leading to a graphic provide text citing the size of the destination graphic. According to the size users will decide if they want to take the time to load this graphic. This is a must with 'download' links.

Provide the format of the destination graphic.
To say to users what kind of graphics they will find. In fact, some browsers do not support JPEG images, and those that do may not present them in-line.

Self Check Exercise

1) What is syntactic context setting? What are the parameters to be considered for syntactic context setting?

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6.7.2 Semantic Context Setting

Semantic context of electronic resources deals with the information contained within and the expressed inter-relations of concepts in the resources. Semantic context setting enhances the value and the usage of documents. There have been several efforts at setting semantic schema to information organization in the web resources. The discussions include adapting well-known ontology to map the information on the web. The attempt to map information also involves the study of the universe of subjects or topics that are represented and are to be represented on the Web. Library and information studies have already suggested mapping knowledge through formal structures in the classification system, indexing system and thesauri. However the delineation between the syntactic and semantic layer at the design level is difficult as work in the two levels is simultaneous.

The Semantic Web is a vision for the future of the Web in which information is given explicit meaning, making it easier for machines to automatically process and integrate information available on the Web. The Semantic Web will build on XML's (extensible Markup Language) ability to define customized tagging schemes and RDF's (Resource Description Framework) flexible approach to representing data. The next element required for the Semantic Web is a Web ontology language, which can formally describe the semantics of classes and properties, used in web documents. It is expected that future languages will extend this one, adding, among other things, greater logical capabilities and the ability to establish trust on the Semantic Web.

In addition to the effort at building formal representation languages for describing web resources, research is also taking the user perspective in the design of websites. Consider the Troyer and Leune model, which is a user centered design for websites. The model consists of three basic components i.e. *information components*, *navigation components* and *external components*

To arrive at a Navigational Model, a navigation track is constructed. Such a navigation track consists of three layers. The top layer is the *context layer* and is used later on to connect the different navigation tracks. The middle layer, *the navigation layer* provides different ways to access the information. The lowest layer is the *information layer* and contains the actual information by means of the information components.

In the above-discussed model, a well-defined syntactic structure supported by descriptive semantic components is interspersed to give added value to the information content to the websites. It is achieved by the following:

Packaging information in right-sized chunks. Humans can process only a limited amount of information at a time. Therefore, the amount of information on any page should not overwhelm the user. In addition it should also not take a long download time. In this model, the Web developer can decide to cluster components connected by links and to represent them on a single page. Navigation components can be implemented by means of (ordered or unordered) lists.

Use of index page. An index page links to every page of the entire Web site, it provides a central point for the user to locate a page in the Web site. This index page may be seen as a simplified version of a conceptual model. The index page may be replaced by a representation of the conceptual model of the site, which not only allows the user to locate information but also helps the user to build a mental model of the site.

Use navigation cues. Web sites designed are centered around the concepts based on the user's perspective. However, the pages may contain external links and inter-perspective links (links between pages from different navigational tracks). It is good practice to use different navigation cues for links to external pages and inter-perspective (area defined by keyword/s) links. In this way, the user will be aware of his leaving the perspective or the local site.

Use context and information cues. Explicit statements about the target audience as well as on the purpose of the page can help the user to see immediately whether the information on that page is of interest. If a page is publicly available, provide enough cues so that a user can place the information in the global context of the WWW (e.g. organizational information, copyright notices).

6.7.3 Ontology

Off late, there has been a lot of interest in Ontologies. Many information professionals are undertaking research in this area, to study the Knowledge Structures or Ontology in Information Retrieval (IR) especially in the context of Internet. A major problem faced by traditional Information Retrieval Systems is the vocabulary inconsistency between the user queries and information actually provided. Further, the statistical approach in retrieving data based on frequency of occurrences and co-occurrences, often gives irrelevant results to user queries. Ontology mapping logically abstracts the information so as to provide concepts and relations for users to form and refine their queries consistently. It retrieves relevant information based on its inference functions.

There has been no standard definition for Ontology so far. But the definition given by T.R. Gruber is widely accepted. He states *"the term ontology refers to the shared understanding of some domains of interest, which is often conceived as a set of classes (concepts), relations, functions, axioms and instances"*.

In an attempt to bring semantic context to web content, the W3C (WWW Consortium) recommends the Web Ontology Language which is to be adopted to describe the content of the resources.

The W3C Web Ontology Working Group has published an initial working draft document outlining requirements for the Ontology Web Language (OWL) 1.0

specification. The draft document "specifies usage scenarios, goals and requirements for a web ontology language. Automated tools can use common sets of terms called ontologies to power services such as more accurate Web search, intelligent software agents, and knowledge management." An 'ontology' in terms of the W3C Working Group charter "defines the terms used to describe and represent an area of knowledge. Ontologies are used by people, databases, and applications that need to share domain information, where a domain is just a specific subject area or area of knowledge, like medicine, tool manufacturing, real estate, automobile repair, financial management, etc. Ontologies include computer-usable definitions of basic concepts in the domain and the relationships among them. Ontology formally defines a common set of terms that are used to describe and represent a domain. The specification motivates the need for a Web ontology language by describing six use cases. Some of these use cases are based on efforts currently underway in industry and academia, others demonstrate more long-term possibilities. The use cases are followed by design goals that describe high-level objectives and guidelines for the development of the language."

Ontology can be represented by a language. Currently available languages are logic base (first-order logic), frame-based (frame logic), or web-based (RDF, XML, HTML). Among them are OIL (Ontology Interchange Layer) a language proposed by ***Ontoknowledge*** Project and IBROW (An Intelligent Brokering Service for Knowledge-Component Reuse on the World Wide Web) fused three paradigms: frame-based modeling with semantics based on the description logic, and syntax based on web standards such as XML schema and RDF schema. OIL has been successfully applied in several areas like knowledge management, electronic commerce and so on.

6.8 SUMMARY

The context to the content has always been an important issue in retrieval of information. However with electronic forms of information giving context takes on a completely new dimension. As discussed earlier, context is to be built in the architecture of the documents at the stage of authoring. Further, semantic context has to brought about keeping in mind the readers perspective and behavior with respect to approaching and using electronic information.

6.9 ANSWERS TO SELF CHECK EXERCISES

1) The differences in the print to electronic media should be considered from two perspectives: 1.User perspective 2. Perspective of the staff responsible for handling data.

   From both the points there are differences in the two media. Print medium has become familiar because of its presence as the only medium for a long time. Moreover a magazine or print out is portable and can be carried physically and referred to anywhere. Whereas in electronic formats while being relatively new is also technology dependent for portability.

2) Developing electronic context has its own implications. It is important to assess the potential users or target audience to study and consolidate their requirement before actually developing the content. There are various

studies undertaken to study the Internet content and its impact on users and users approach to the electronic documents. The general approach of the users to electronic forms has been cautious. With the hyperlinking it is possible to surf the webpages effortlessly without remembering various lengthy web addresses and hence it is very difficult to retain the attention of users at one site for a long time. It is therefore important to study and develop content according to the needs of the target audience so that the documents in electronic forms are also sought just as the printed documents.

3) Syntactic context deals with the architecture of the electronic document. It is mainly how a document is structured. There are various parameters to be considered in setting the context such as: the depth and the breadth of the site; How many links should be given? - - In what way should they integrated? - How much graphics to be integrated? — And how it should be presented.

6.10 KEYWORDS

Authoring : Putting content in packages or web pages integrating different media

Code : (1) A set of symbols for representing something. E.g. most computers use ASCII codes to represent characters. (2) Written computer instructions (program).

Cyberspace : A word or metaphor used to describe the non-physical "space" linking one computer system to another.

Data Compression : To copy data (usually a file) from a main source to a peripheral device (e.g. a PC). The term can be used for copying a file from an on-line service or bulletin board service (BBS) to an individual's personal computer. Downloading can also refer to copying a file from a network file server to a computer on a network.

Embedded link : Links within the content of a webpage or hypertext document that are explicitly authored to lead to a relevant area.

File : A format for encoding information in a file. Different file types have different formats. File formats specify first whether the file is a binary or ASCII file, and second, how the information is organised.

HTML : Hyper Text Markup Language - language used to author web pages.

Hypermedia : An extension to hypertext which supports links through graphics, video and image elements, as well as sound and text elements.

Hypertext	:	A special type of database system created in the 1960s where objects; text, pictures, programs, music, etc. can be linked to each other.
ICT	:	Information Communication Technologies.
Information Society	:	A society influenced and impacted by the changes taking place in the information, communications and technology (ICT) sectors.
Multimedia	:	The use of computers and/or digital functions to present various forms of visual and audio media in a meaningful context. Incorporating: animation, audio elements, CD-ROM, computer entertainment, convergence media, data compression, DVD, graphics and graphics interfaces, hypermedia, text, video etc.
Ontology	:	Mapping of knowledge domains
XML	:	Extensible markup language, which allows designers to customise formatting (tags), to greater definition, achieve transmission, validation, and interpretation of data between applications and organisations.

6.11 REFERENCES AND FURTHER READING

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