



## CHAPTER 1

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# CHAPTER 1

## ***INTRODUCTION***

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### **1.1 Overview**

This thesis reports on the research done to determine the following:

- Different options to design and develop a web site to serve as a functional marketing tool.
- Ways of utilising a web site to enable universal communication, especially regarding marketing issues.

Geography has ceased to be a barrier as a result of the Internet. Until 1993 the Internet was largely text-based as there was no graphic user interface, but the beginning of multimedia has led to the Web becoming the most popular Internet tool for marketing and advertising. (Ellsworth & Ellsworth, 1995:256; Wilson, 1996a)

The real promise of the Internet is the ability to extend the 'business' beyond the present market area.

Using the Web as a marketing tool has numerous advantages and benefits such as:

- Instant updating of information.
- Global exposure and visibility.
- Provides time saving activity.
- Significantly less expensive and more accurate.
- Possibility of interaction by means of different communication facilities.

(Ellsworth & Ellsworth, 1995:256-271; Marketing on the Internet, 2000)

**"Marketing is a process of promoting, selling and distributing products or services from producer to consumer." (Baroudi & Levine, 1995:77)**

To benefit from marketing, a proper and in-depth understanding of product and/or service and consumer is essential. Therefore an effective marketing tool has to be in place before a marketing campaign can be launched.

Effective communication is the cornerstone of successful marketing. (Ellsworth, 1995:58; Tips for writing..., 2000).

The Internet is an **international** network of computers, which is readily accessible. Therefore countries, industries and companies are no longer isolated. Across the globe, technical innovations and cutting-edge business practices generate success. Free trade agreements, common markets and future world-wide treaties will also increase competitive pressures. Even small- and medium-sized firms must have an international perspective to succeed.

**National** economic survival also increasingly demands a global approach. In today's world-wide market place all the major players in the economy--business, labour, educational institutions and governments--must cooperate to increase competitiveness locally, nationally as well as internationally.  
(Strategic Research Themes, 2001)

Locally, participation in activities on the Internet and WWW, especially marketing and communication has become a very important aspect of a sound business practice. Involvement in the cyber environment immediately provides endless international exposure.

For optimal visibility in a fast moving, competitive market, a partnership with the WWW and more specifically the Internet is imperative.

The proposed web site is a product of two different studies from different viewpoints. This study covers one part of the research. A discussion of the total research team follows in 1.6.2.

## **1.1.1 Background**

### **1.1.1.1 Program in Interior Design**

According to the research diary (client interview) Program in Interior and Product Design resorted as a sub division of the degree in Home Economics up to 1994 and this field was not regarded as a feasible career as such. Therefore a lack of focus in the training as well as an insufficient curriculum resulted in meagre career opportunities.

In 1995 the Program in Interior and Product Design (known as the **Program** during the course of the research) was introduced at the University of Pretoria and this resulted in multiple career opportunities. The name has since changed to Program in Interior Design at the beginning of the year 2000. The focus changed to design, communication and management, strongly supported by views on the interdisciplinary nature of realities in the professional environment. Careers such as Interior and Product Design, Design Marketing and Architectural Design are within the spectrum of choices.

### **1.1.1.2 Future Trends Research Laboratory (FTR Lab)**

A definite need for an interdisciplinary co-operation between technology and strategic design arose, due to the highly competitive environment in which we live. The Future Trends Research Laboratory was initiated to create a meaningful relationship between the needs encountered in the industry on the one hand and academic research on the other.

The FTR Lab has distinctive objectives, which have to be adhered to. The design and development of the products have to:

- be typically South African,
- be market driven, ethically accountable,
- create an interactive interface between the principles of design, the industry and the technology in general; and
- maintain a balance between aesthetic added value, the applicable technology and economic reality.

The FTR Laboratory operates as a self-sufficient research unit within the **Program** and operates in close contact with relevant postgraduate research groups. In this way the students receive optimal opportunities of establishing networks for their future careers.

#### 1.1.1.3 Virtual Workshop

The Virtual Workshop is a specific research group, which also collaborates with the FTR Laboratory. This group is not static by any means and includes participation of students from universities across the globe. Specific projects arguments and exhibitions are the main objectives.

The FTR Laboratory and the Virtual workshop are integrated components of the **Program** and would benefit from any future means of marketing and communication facilities. Therefore they are mentioned and briefly described as separate entities.

## 1.2 **Motivation for the study**

### 1.2.1 **Research problem**

As a result of the nature of the design environment which is a fast moving, process driven, competitive industry, it is of cardinal importance to keep and stay ahead, because the effectiveness of a design process depends on rapid, correct and clear responses.

At the commencement of this study the **Program** had no specific marketing tool, in fact no market strategy existed. Because of the inadequate marketing "tools", the communication, especially regarding the marketing issues, was extremely insufficient. The lack of communication as well as the absence of proper marketing was visible in different areas as could be seen in some of the following problems that were encountered:

- The **Open day** of the University during September 2000 for example was advertised by means of posters against lampposts in the streets of Pretoria, which immediately excluded potential interested parties in other geographical areas. Alternative means of advertising included word of mouth, flyers and announcements at schools. This however was insufficient as no important information was conveyed and interested



parties had to struggle to obtain relevant information regarding the **Open day**. This resulted in poor attendance.

- The industry did not benefit from any alliance with the **Program** because of limited or no advertisements or exposure.
- Traditional ways of marketing did not reach the potential students located all over the country.
- Interested parties abroad such as design orientated companies and academic institutions did not have easy access to achievements within the **Program**.
- Communication facilities for sufficient contact between the industry, FTR Laboratory, Virtual Workshop and the **Program** were limited.
- Global communication for the purpose of exposure as well as cross-pollination within the design environment was non-existent.
- Advertising and marketing are expensive.

The **Program** is a dynamic entity and has so much to give to potential students and to the design world. By means of a web site as the marketing tool, the 110 students currently enrolled (research diary) could multiply and the **Program** could expand, thus serving the University of Pretoria and the design industry.

Communication facilities in aid of marketing, whereby students, lecturers as well as the **Program** would benefit, had to be established. Constant and available communication would be beneficial to the participants in the **Program** and it would be indispensable for the proper operation of a web site as an optimal marketing tool.

### **1.2.2 Purpose of the study**

The purpose of this study was to create a workable product to serve as a functional marketing tool and provide communication facilities to optimise the marketing function and allow global communication.

### 1.2.3 Objectives of the study

The specific objectives of this study were to:

- Build a workable and functional web site that adheres to the basic design principles.
- Create the web site to serve as an optimal marketing tool.
- Provide communication facilities with regards to marketing.
- Provide interactive networking with the industry and relevant professional entities e.g. designers, producers, providers and end users who are dependent on one another for information.
- Expand opportunities for interaction with other academic institutions and the industry, locally as well as internationally.
- Establish links to relevant sites on the Web.
- Create a "links" page from where users can find different services related to design issues.
- Provide a facility where information can easily be altered or updated.

### 1.3 Research question

The main research question was:

What are the issues to consider when building a web site to serve as a functional marketing tool and to provide effective communication?

Table 1.1 displays the sub questions that had to be addressed in order for the main research question to be answered.



**Table 1.1 Sub questions and issues to be addressed**

| <b>Issues</b>       | <b>Sub questions</b>  |
|---------------------|---|
| Information needs   | What are the characteristics of the target population? <ul style="list-style-type: none"> <li>• Computer literacy?</li> <li>• Ability/aptitude?</li> <li>• Different target groups.</li> <li>• What are the needs?</li> </ul> |
| Design issues       | What methods should be applied to ensure the effectiveness of the site? <ul style="list-style-type: none"> <li>• What are the design considerations?</li> <li>• What are the practical considerations?</li> </ul>             |
| Marketing           | What methods should be applied for optimal exposure to web-based marketing?   |
| Communication       | How can efficient and effective communication be obtained?  |
| Evaluation/Findings | How can functionality and sustainability be ensured? <ul style="list-style-type: none"> <li>• Does the site prove to be functional?</li> <li>• What are the prerequisites for sustainability?</li> </ul>                      |

## **1.4 Value of this research**

### **1.4.1 The value of the research in terms of external validity**

The contributions of this research study are the following:

- Availability of a basic structure for a workable marketing tool.
- Displays the value of functional communication facilities integrated with a marketing tool.
- Provide an institution of the same nature with guidelines for establishing a multi-purpose web site.
- Indicate the importance of a web presence for exposure and visibility.

### **1.4.2 The value of the web site as a product of the research.**

The value of the research for the **Program** is the following:



- Information about the likes and dislikes of the general target population will be available for future use.
- A functional marketing tool will provide exposure and probably lead to growth in student numbers.
- Active links to relevant web sites will be available.
- Structured information, completed projects and student work will be available for viewing.
- The means of communication will be available 24 hours a day at the convenience of any interested party.
- The web site will serve as a constant line for the exchanging of information and for keeping track of development and changes, in the industry.
- The **Program** will be able to stay on track with new trends and will be able to give input on a daily basis.
- By means of e-mail, discussion groups and other communication tools everybody in the **Program** will be able to converse with one another. These facilities will be an asset to the FTR Laboratory, since the people involved are from different environments and do not have daily contact with one another.

Specialists from different professions get together for a specific project. Creating an ultra modern bar chair for instance would require the skills of people in different professions. Without having to physically meet on a regular basis the progress could be communicated by mail or by placing the information on the web site.

## **1.5 Research methodology**

### **1.5.1 Research design**

Evaluation research was used. This is a form of social research where general rules apply and the outcomes are based on probabilities. Theoretical, as well as empirical principles were involved, because of observations and measurements of reality. Causal as well as general relations were applicable.

This study follows a participant-oriented model, because of the importance of the evaluation participants. (Trochim, 1999)

### **1.5.2 Population and sample**

The target population for this research was:

- Current and potential students at the University of Pretoria.
- Lecturers from the University of Pretoria.
- Experts in the field of web design.

### **1.5.3 Data collection technique and methods**

The literature review was used as the data collection technique. The data was collected through the process of data and methodological triangulation. (Reeves, 1994)

Data triangulation implies a collection of data from different sources where one source is used to validate the data from the other.

In methodological triangulation different quantitative instruments are utilised.

The data collection methods were the following:

- Literature: books, articles, on-line articles on the Internet
- Discussions with the appropriate people involved with the **Program**.
- Questionnaires.
- Focus Groups.
- Interviews.
- Research diary (Information gathered throughout the study)

### **1.5.4 Research questions and data collection methods**

Table 1.2 displays the different research questions and the collection methods used.

**Table 1.2 Research questions and the relevant collection methods.**

| Topics addressed   | Literature  | Diary      | Questionnaire    | Focus group | Interview |
|--|-------------|------------|------------------|-------------|-----------|
| <b>Information needs</b><br>What are the characteristics of the target population?<br><ul style="list-style-type: none"> <li>• Computer literacy?</li> <li>• Ability/aptitude?</li> </ul> What are the needs of the different target groups?   |             | X<br><br>X | X<br>X<br>X<br>X | X<br><br>X  | X         |
| <b>Design Issues</b><br>What methods should be applied to ensure the effectiveness of the site?<br><ul style="list-style-type: none"> <li>• What are the design considerations?</li> <li>• What are the practical considerations?</li> </ul>   | X<br><br>X  | X<br><br>X | X<br><br>X       | X<br><br>X  | X         |
| <b>Marketing issues</b><br>What methods should be applied to create a web-based marketing tool?  | X           |            | X                | X           |           |
| <b>Communication issues</b><br>How can efficient and effective communication be obtained?  | X           |            | X                |             |           |
| <b>Evaluation /Findings</b><br><ul style="list-style-type: none"> <li>• How is functionality and sustainability ensured?</li> <li>• Does the site prove to be functional?</li> <li>• What are the prerequisites for sustainability?</li> </ul> | X<br>X<br>X | X          | X<br>X           | X<br>X      | X         |

## 1.6 Output

### 1.6.1 Description of the product

The final product is an interactive web site with the main aim to serve as a marketing tool, providing exposure and visibility and a communication facility to further marketing issues and provide global communication.

### 1.6.2 Description of the project team

The research for the project as a whole was done from two different perspectives and points



of focus.

- Marketing and global communication.
- Education matters and internal communication regarding the academic institution.

Two researchers, M. Meter and F. van Zyl were involved. M. Meter handled the marketing and external communication issues, while F. van Zyl was responsible for the education and communication matters within the academic institution.

The final product had to answer to all the needs of the client. Therefore the researchers (who were also the designers and developers) had to work extremely close together to ensure a smooth integration of their respective issues and delivering a diverse and workable product.

All shared information throughout this study is indicated by the following symbol: [†]

Table 1.3, indicates the different issues handled by each researcher and also indicates where the researchers worked together and had shared interests.

**Table 1.3 Activities of the researchers [†]**

| Phases                 | F. van Zyl   | M. Meter  | Comments   |
|------------------------|--|---|--|
| <b>Analysis</b>        |  |   |  |
| - Goal                 | -Promote effective learning<br>-Create a communication facility for students and lecturers | -Create an effective marketing tool.<br>-Create external and global communication channels      | Two perspectives :<br>• Academic enhancement<br>• Provision of a marketing tool for the institution    |
| - Target               | - Potential students<br>-Enrolled students in different year groups<br>-Lecturers          | -Potential students<br>-Individuals in the Design Industry<br>-Any interested party /web surfer | Different groups are applicable to accommodate the two perspectives.                                   |
| - Content/ Information | -Content provided by client  | -Relevant information provided by client  | Content regarding academic issues. Information regarding design related fields for marketing purposes. |
| <b>Design</b>          |  |   |  |
| -Objectives            | -Effective internal communication facilities<br>-Tools to stimulate and enhance learning.  | -Effective marketing tool<br>-Relevant communication facilities                                 | Objectives from the two perspectives are integrated in the design phase.                               |
| -Specifications        | -Education and internal communication according to the literature.                         | -Enhance marketing and communication globally according to the literature.                      | Refer to Literature Review (Chapter 2)   |





Table 1.3 (continued)

| Phases                | F. van Zyl   | M. Meter  | Comments   |
|-----------------------|--|---|--|
| <b>Development</b>    |  |   |  |
| -Program editor       | -Dreamweaver   | -Dreamweaver  | The decision of both researchers.  |
| -Delivery system      | -WWW, Internet, CD   | - WWW, Internet, CD   | Decision of client and both researchers  |
| -Prototype            | -Create web site according to specifications                   | - Create web site according to specifications   | The researchers worked as a team in the design, development and production of the prototype.   |
| -Formative evaluation | -Discussions with the client, enrolled students and lecturers. | -Discussions with the client, independent marketing consultants, potential students, individuals in the Design Industry and interested parties. | Alpha testing by the different groups for the different issues. ( e.g. education matters, communication matters, marketing)                                  |
| -Summative evaluation | -Questionnaire-Evaluation of the prototype                     | -Questionnaire-Evaluation of the prototype  | Both researchers used the same questionnaire. Specific questions in the single questionnaire addressed the different issues. (Refer to Chapter 5, Table 5.1) |

## 1.7 Overview of research report

The study comprises of six chapters, which are displayed and briefly discussed in Table 1.4.

Table 1.4 Brief discussion of each chapter

| Chapter   | Name of chapter   | Description   |
|-----------|-------------------|---|
| Chapter 1 | Introduction      | This chapter contains a brief overview of the <b>Program</b> , portrays the motivation, purpose and objectives of the study and displays the research questions that have to be answered for this study to be successful.   |
| Chapter 2 | Literature review | Information regarding the following is provided: <ul style="list-style-type: none"> <li>▪ Internet, World Wide Web, relevant multimedia elements for building web sites.</li> <li>▪ Marketing issues.</li> <li>▪ Communication in the marketing environment.</li> </ul> |





Table 1.4 (continued)

| Chapter   | Name of chapter                    | Description   |
|-----------|------------------------------------|---|
| Chapter 3 | Design, development and production | The different analyses, the methods uses for each analysis, and the results of each analysis are discussed.<br>The different considerations that were taken into account as well as the design specifications applicable in the design of the product were described in detail.<br>During the development phase the researcher provided a detailed description of all the steps taken during the different phases, an overview of the authoring tool used and discussions on the evaluation and testing phases. |
| Chapter 4 | Evaluation                         | The following were discussed in the course of this chapter: <ul style="list-style-type: none"><li>▪ Formative and summative evaluations.</li><li>▪ Samples and instruments used.</li><li>▪ Relationships between the research questions and the questionnaires.</li><li>▪ Manner of data collection.</li></ul>  |
| Chapter 5 | Findings                           | This chapter reports on the findings of the summative evaluation phase. Descriptions of the instrument used as well as the different groups of respondents are provided. Results of the different groups were interpreted and compared  |
| Chapter 6 | Conclusions and recommendations    | The outcomes of the results received in Chapter 5 are discussed under the different objectives and average percentages are used in the conclusions. Recommendations are provided for improvement of the product and also for future research in the same field.   |

## 1.8 Limitations of this research

- Initially the Program was part of the Department of Engineering and a web site had to be constructed within the rules and regulations of the University of Pretoria and the Department of Engineering.
- Since the beginning of 2000 the **Program** was incorporated in the School of the Built Environment and presently resides with the Department of Architecture and Landscape Architecture. Again the web site had to adhere to different rules and regulations, not yet clearly defined. Therefore the researcher had to use a very basic structure in the design of the site to allow for changes in future.

Additional limitations throughout the course of the study are discussed in Chapter 6.





## CHAPTER 2

### LITERATURE REVIEW

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## CHAPTER 2

### *LITERATURE REVIEW*

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#### **2.1 Introduction**

This chapter primarily deals with the gathering of information on all aspects to be considered when developing a successful web site, with specific reference to utilising the site as a marketing tool and providing a useful means of communication.

Secondly, the Internet as an entity and the World Wide Web as the vehicle of multimedia and thus web sites will be researched and discussed to indicate that the use of a web site is the most appropriate manner for functional communication and the ultimate marketing tool.

The success of a web site depends on the choices made during the initial planning, development and design phases of the project. By means of a thorough study of the literature, a substantial percentage of the research questions will be answered or at least partially dealt with. This implies that correct decisions have been made, substantiated or brought forward by the literature research.

Figure 2.1 displays the questions (as stipulated in Chapter 1) that have to be satisfactory answered in order for the web site and study to be successful.

**Figure 2.1** Questions relevant to the research

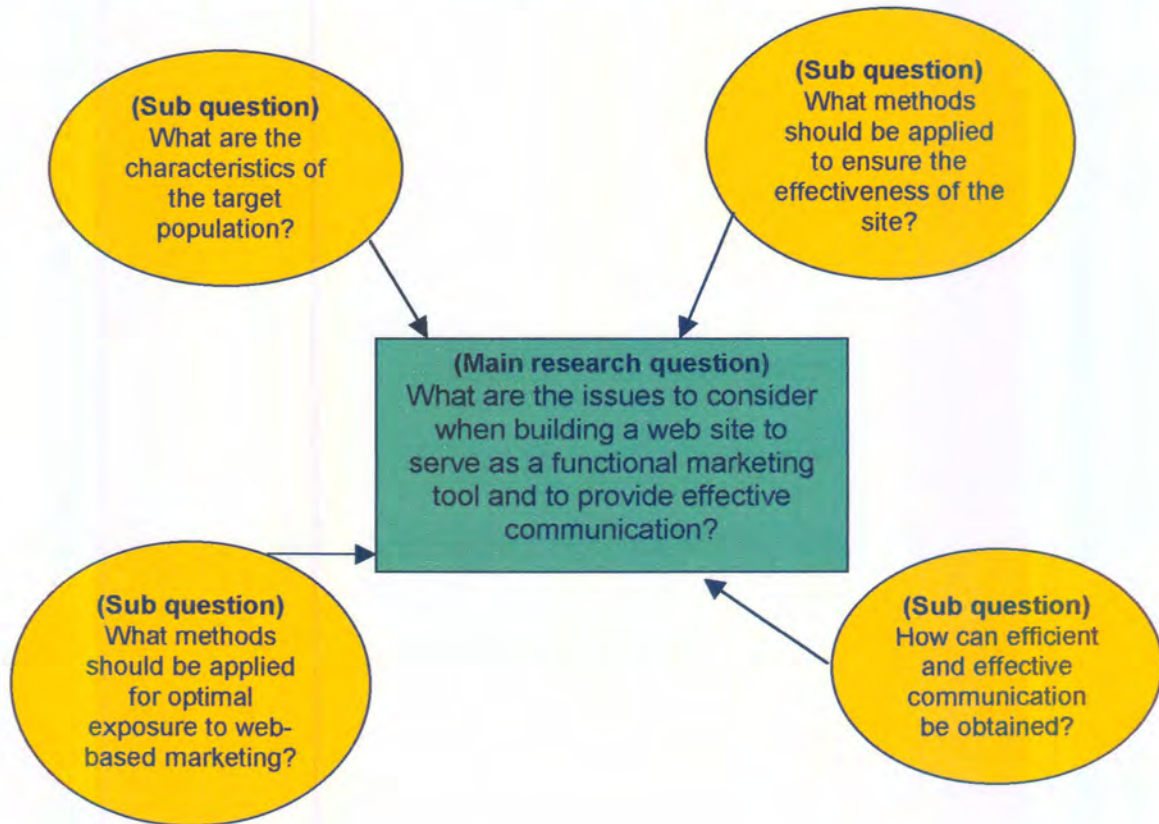


Table 2.1 displays the different issues concerned when building a usable and successful web site and also reveals the sub topics relevant to each issue that are discussed in the course of this chapter. As web marketing as an appropriate tool and communication channels via a web site are the primary matters of concern, issues regarding the presentation, technology and design interface on the World Wide Web are discussed to provide a sound foundation for the above- mentioned matters.



**Table 2.1 Issues and sub topics**

| Issues                         | Topics per issue   |
|--------------------------------|--|
| <b>Presentation Issues</b>     | <ul style="list-style-type: none"> <li>▪ Internet</li> <li>▪ World Wide Web (W W W)</li> <li>▪ Multimedia</li> </ul>   |
| <b>Technological Issues</b>    | <ul style="list-style-type: none"> <li>▪ Hardware</li> <li>▪ Html/ VRML</li> <li>▪ Browsers</li> <li>▪ Authoring Tools</li> </ul>  |
| <b>Design Interface Issues</b> | <ul style="list-style-type: none"> <li>▪ User centred design</li> <li>▪ Navigation</li> <li>▪ Design considerations</li> <li>▪ Screen layout</li> <li>▪ Building blocks</li> </ul>   |
| <b>Marketing Issues</b>        | <ul style="list-style-type: none"> <li>▪ Marketing plan</li> <li>▪ Target population</li> <li>▪ Promoting the site</li> <li>▪ Links</li> <li>▪ Attracting visitors and traffic</li> <li>▪ Search engines, directories &amp; portals</li> <li>▪ E-mail</li> </ul> |
| <b>Communication Issues</b>    | <ul style="list-style-type: none"> <li>▪ E-mail</li> <li>▪ Discussion groups</li> <li>▪ Bulletin boards</li> <li>▪ Listservs</li> <li>▪ Chat rooms</li> <li>▪ Teleconferencing</li> <li>▪ Business opportunities</li> </ul>                                      |

## **2.2 Presentation issues**

### **2.2.1 Internet**

The basic idea of the Internet was developed during the period 1969 to the 1970"s. Initially the Internet was a widespread interconnection of computers and computer networks all over the world using telephone lines and other long-distance methods, but this did not provide easy communication. The Internet is a set of standards and procedures by which all kinds of computers are connected together to communicate and share information. (Alessi & Trollip, 2001:139; Ellsworth & Ellsworth, 1995:3; Sachs & Stair, 1997:4)

Kennedy (1997:415) defines the Internet as: **"a co-operatively run global collection of computer networks with a common addressing scheme"**

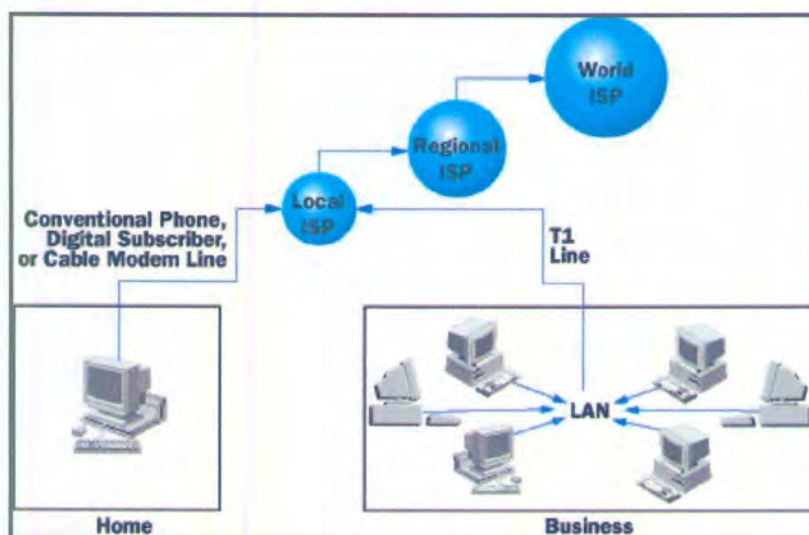
### 2.2.1.1 Basic structure and function of the Internet

For many years the Internet was only a research network utilised and funded by the government specifically the U.S. Defence Department as well as universities. In 1983 the general idea of the Internet was still that of computer science research and the transfer of information back and forth and the access was then limited to a few experts in this field. The total network consisted of several hundred computers on a few local area networks.

Figure 2.2 displays an illustration of the layout and structure of the Internet, in order to realise the tremendous impact on the whole world especially regarding marketing and communication possibilities.

(Allesi & Trollip, 2001:373; Ellsworth & Ellsworth, 1995:3; Vaughan, 1998:375; Brian, 2001b)

**Figure 2.2 The structure and layout of the Internet**



(Source: Brian, 2001b)

This network which began as a government research project, eventually became commercial and allowed anyone to take advantage of the facility. More and more private companies, businesses and individuals linked up to the Internet for different purposes such as communication, marketing, exposure etc. The explosive growth of the Internet brought about one of the biggest changes in the world during the 1990s. Table 2.2 displays the extent of this explosion.



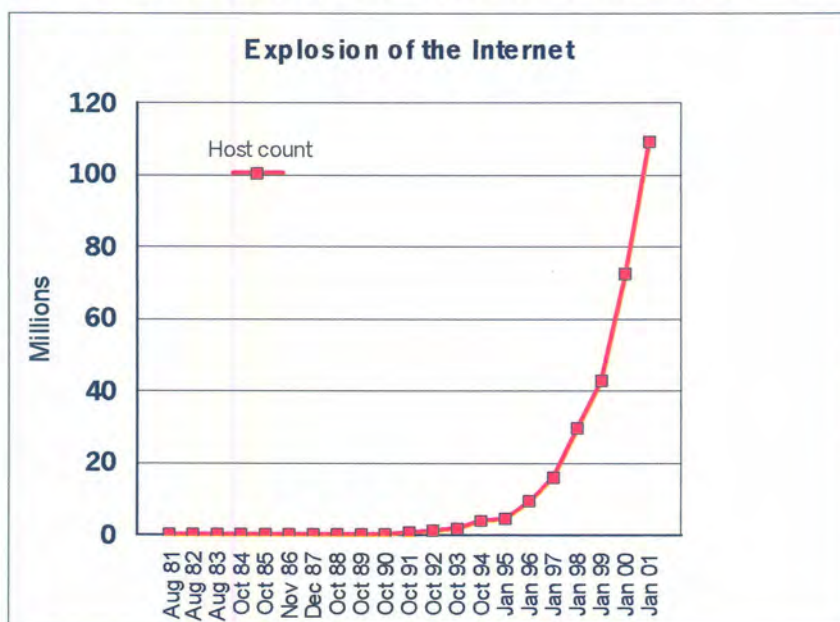
**Table 2.2 Growth of the Internet from 1981 to 2001**

| Date          | Host count | Date         | Host count  |
|---------------|------------|--------------|-------------|
| August 1981   | 213        | January 1992 | 727,000     |
| May 1982      | 235        | January 1993 | 1,313,000   |
| August 1983   | 562        | January 1994 | 2,217,000   |
| October 1984  | 1,024      | January 1995 | 4,852,000   |
| October 1985  | 1,961      | January 1996 | 9,472,000   |
| February 1986 | 2,308      | January 1997 | 16,146,000  |
| December 1987 | 28,174     | January 1998 | 29,670,000  |
| July 1988     | 33,000     | January 1999 | 43,230,000  |
| July 1989     | 130,000    | January 2000 | 72,398,092  |
| October 1990  | 313,000    | January 2001 | 109,574,429 |
| January 1991  | 376,000    |              |             |

(Summarised from Vaughan, 1998:376; Internet Software Consortium, 2001)

Figure 2.3 graphically displays the explosion of the Internet as set out in Table 2.2. The Internet has created a world market, because geography has ceased to be a barrier and even small businesses anywhere in the world have the opportunity to be a global company. (Wilson, 1999c; Patterson, 1997)

**Figure 2.3 Graphic display of the explosion of the Internet from 1981 to 2001**



### 2.2.1.2 Solution to the Internet access problem

Access to the Internet implies having access to all the main Internet systems such as FTP, e-mail, Gopher and the World Wide Web. The Internet was not the answer to easy communication and the comfortable transferring of images from one kind of computer to another. The Web, however, was the solution to the problem as a specific standard for encoding pages of text and images were produced, which provided easy communication between all kinds of computers.

(Allesi & Trollip, 2001:372; Ellsworth & Ellsworth, 1995:39; Patterson, 1997; Vaughan, 1998:391)

### 2.2.1.3 Summary

Statistics have shown that the Web is the largest and fastest growing part of the Internet. It has become the most attractive and functional marketing tool all around the world and has also become a primary means of communication amongst people. Therefore sound information regarding the Internet as well as the Web is important and relevant to this study and research.

(Allesi & Trollip, 2001:372; Ellsworth & Ellsworth, 1995:39)

## 2.2.2 **World Wide Web (W W W)**

### 2.2.2.1 Definition and description of the World Wide Web

"The Web represents the application of hypertext technology and a graphical interface to the Internet to retrieve information that is contained in specially formatted documents that may reside in the same computer or be distributed across many computers around the world." (World Wide Web, 2000)

Three elements are of importance:

- Hypertext Markup Language (HTML).  
(Discussed in 2.3.2)

## HyperText Transfer Protocol (HTTP)

The Internet uses a suite of protocols to control and direct the passing of data across the network called Transfer Control Protocol/Internet Protocol. (TCP/IP)

HTTP is the protocol used by the WWW to process and transfer HTML files.

Hypertext Transfer Protocol provides the following rules for the transaction between two computers on the Internet:

1. establishing a connection,
2. requesting the document to be sent,
3. sending of the document; and
4. closing the connection.

### ▪ Universal Resource Locators (URLs)

This a standardised way to provide information about a file's name, the location of the computer on which the site is stored, where in that specific computer the data is stored and which Internet protocol must be used to access the file.

The Web was created as an aid for the Internet. The Web is a set of standards for storing and sharing information on the Internet to enable the use of information (text, pictures, sounds and animation) by any type of computer. Any form of information as described above is encoded and formatted in an agreed-upon manner to enable users with all types of computers to exchange and use the information. The Web can therefore be seen as a world-wide collection of millions of hypermedia computer files. It is also described as a large-scale system of computerised, interconnected hypermedia resources accessible from computers connected to it. (Alessi & Trollip, 2001:139; Clarke, 1998:2,7; Ellsworth & Ellsworth, 1995:39-41; World Wide Web, 2001)

The Web is graphic intensive and not a linear experience. Hypermedia computer files are designed to display text, graphics, photographs, video animation, digitised sound or any of these combinations. With the use of HTML (Hypertext Markup Language) this material is written and designed to appear on a web page with the use of a suitable web browser, such as Mosaic (the first browser software), Netscape's Navigator or Microsoft's Internet Explorer. (Alessi & Trollip, 2001:373; Patterson, 1997:4; Vacca, 1996)





Table 2.3 displays the four components of the WWW as described by Sachs & Stair, (1997).

**Table 2.3 Four important components of the World Wide Web**

| Web components              | Activity                |
|-----------------------------|-------------------------|
| Global Internet             | To carry information    |
| Attached web servers        | To hold the information |
| Web browser software        | To show the information |
| Universal addressing scheme | To find the information |

Information as displayed in Table 2.3 communicate the fact that even though the above entities are separate, they function together to form an enormous information provider.

From a business point of view the Web enables the customer to visit the "show room" of a business and view the company's on-line colour brochure stored in "pages" or "files" which can be viewed in both text and pictures. The Web provides the advertiser with a way to introduce the business to the world in a series of "pages" connected by "links" The user may navigate through these "pages" and view as little or as much as interests him. (Wilson, 1998a)

#### 2.2.2.2 Features of the World Wide Web

The main advantage of the Web is that the information is readily obtainable, the publication and distribution thereof is easily facilitated and the updating is timeous. The Web is in actual fact a set of standards and software and provides the way of easy Internet use, because it provides platform independence, which implicates compatibility with every type of computer and operating system.

(Alessi & Trollip, 2001:139; 374; Clarke, 1998:2,7; Ellsworth & Ellsworth, 1995:39-45; Vaughan, 1998:398, World Wide Web, 2001)

Apart from text and images, the Web has different features, which add to its uniqueness, diversity and functionality.

Multimedia is a combination of different features such as animation, two- and three-dimensional graphics, video, audio and photo images and text. The above media should be applied with caution to enhance the use of the Web and not result in a user interface that is more difficult for the user to use and understand. (Multimedia, 2000)



Table 2.4 displays different features of the World Wide Web and provides the advantages, the disadvantages and the implications of each on in discussion.

**Table 2.4 Features of the World Wide Web**

| Feature          | Advantage   | Disadvantage  | Implications   |
|------------------|---|---|--|
| Animation        | Gain attention of the user.<br><br>Give the user a better understanding of the spatial structure of a 3-D object.                               | Permanent moving objects interfere with the concentration of the user.<br><br>Overpowering effect on the peripheral vision.<br><br>Size cause delay in download time. | Do not use permanent moving objects, except for a very particular reason.<br><br>Download time should not be longer than 15 seconds.<br><br>Use of animation has to be functional. |
| Graphics         | Visual impact- colour.<br><br>Attract attention-explain.  | Large graphics cause slow server response time.(download time)  | Minimize graphics and amount thereof.<br>Use dynamic HTML instead of applets.  |
| Video            | Functional for live impressions of a person.<br><br>Show things that move.<br><br>Trailers of shows and movies.                                 | Bandwidth problems.<br><br>Poor production values and low quality video defeat the object.<br><br>Long download time.   | Use professional quality audio equipment and professional service. Users do not tolerate poor video.<br><br>Download time should not be longer than 15 seconds.                    |
| Voice Recordings | Excellent to teach pronunciation.<br><br>Files are smaller; easier on bandwidth.<br><br>Some amount of personality makes sites more attractive. | Not advisable for hearing-impaired users.<br><br>Quality has to be good.<br><br>Sound may not be available on all computers.  | Ensure capability of stopping and rewinding.<br><br>Make provision for the hearing-impaired.<br><br>Keep in mind the sound possibilities of the users" computers.                  |
| Navigation       | Users have a sense of knowing where they are.<br><br>Enable users to go back and forth.   | Poor navigation can cause a user to get lost.   | Appropriate navigation aids.<br><br>Consistency and clarity.   |
| Thumbnails       | Represent images that are too large to download.  | Hard to interpret as the detail and meaning in context are lost in the minimizing process.  | Use relevance-enhanced image reduction. (crop and scale)   |
| Scrolling        | Important information regarding a specific topic may need an extent of scrolling.   | Only 10% of the users scroll beyond information visible on the screen.  | Most important information; navigation within the first screen.<br><br>Limit scrolling to the minimum  |

(Summary from: Allesi & Trollip, 2001; Nielsen, 1996a; Nielsen, 1999b; Vaughan, 1998)

### 2.2.2.3 Summary

Web sites are in actual fact Internet sites and use HTML tags to create multimedia documents by means of the different features displayed in Table 2.4. With the use of a browser, which translates the HTML into the text, graphical images and hypertext, the information is provided on any computer screen across the world.

The Web is therefore the ideal manner in which global communication can be facilitated and the recommended tool for marketing and presentation activities.

### 2.2.3 **Multimedia**

Multimedia is a combination of multiple forms of communication, such as text, audio, video, sound, animation and graphics delivered by a computer or some electronic means. It is a fundamental shift in how we present and conceive information. Together the information forms a superhighway which affects the way humans learn, work, communicate and even relax. (Vaughan, 1998; Willis, 1995; Schwier & Misanchuk, 1993:6; Phillips, 1997:8, Petersen, 1998:1)

Schwier & Misanchuk (1993:5) elaborate on this matter and describes multimedia as instructional, segmented, intentionally designed and coherent. He also states that multimedia is interactive when it is intentionally designed and the user becomes involved. Interactive multimedia is a "hybrid technology". This implies the integration of linked materials, which allows the user to browse and navigate through these materials by means of various ways of searching and sorting. Multimedia empowers the user to control the environment by means of the computer. The advantage of multimedia with the mixture of resources allows the designer to choose an appropriate medium to convey a specific message such as:

- text for thought,
- graphics for spatial relations, and
- animation for dynamic information.

(Phillips, 1997:11; Petersen, 1998:1)

One of the greatest advantages of multimedia instruction is the ability to simulate and visualise, especially by means of animation and graphics. This is appropriate in a tertiary curriculum e.g. laboratory or workshop where learners are required to understand



complex, abstract or dynamic processes and relationships between moving objects.  
(Phillips, 1997:11)

With this tool learners are allowed to visualise processes and construct mental models which assist the understanding of systems and their use in the explanation and prediction.

Multimedia is applied in many areas e.g. reference works, games, education, advertising, marketing, information gathering and network communication (such as video conferencing and mail).

The mixture of the different elements (graphics, animation, sound etc.) woven together in relationship with one another improves information retention. Therefore multimedia, which holds attention and creates interest, is more favourable than the traditional "text-only" computer interfaces. (Vaughan, 1998:8)

#### 2.2.3.1 Hypertext

Hypertext is described as text showing relationships between parts of information where links or pointers between passages of text exist, which enables the user to jump to any related articles. This is a vast improvement over linear paper documents, because apart from the fact that hypertext allows links to other pieces of relevant information, it also provides for navigation facilities such as backtracking, clickable indexes, tables of content, searching or to initiate some kind of interaction. Hypertext links concepts within text by using "hotwords". This is an active word, usually distinguished from other words by underlining them or displaying them in a different colour. When the user clicks on the underlined text, the relevant command is executed.

(Alessi & Trollip, 2001:138; Phillips, 1997; Shneiderman, 1998:553)

Examples of golden rules regarding functional hypertext, are the following:

- A large chunk of information has to be organised into numerous fragments.
- The fragments must relate to one another.
- The user may need only a small portion of the information at any give time.

Inappropriate or poor hypertext, on the other hand, may ruin a potentially functional web site.

The following common mistakes should be avoided:

- Too many links.
- Breaking text into unlogical fragments.
- Inadequate tables of contents.
- Too many long and uninteresting articles.

(Scheideman, 1998:556)

### 2.2.3.2 Hypermedia

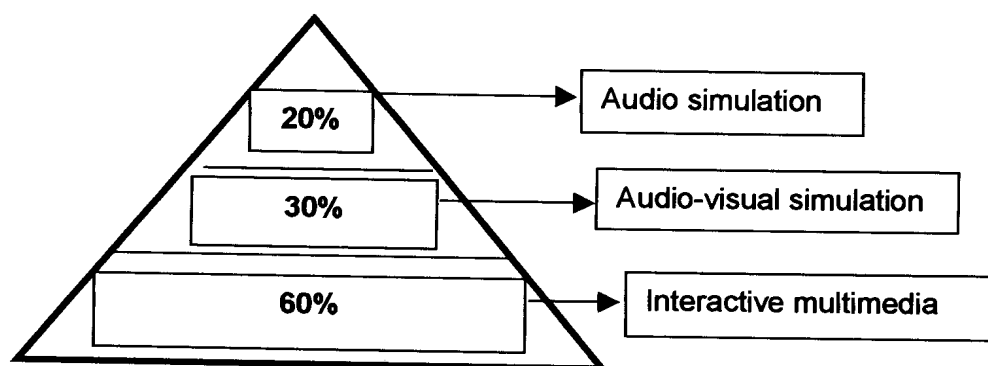
Interactive multimedia becomes hypermedia when the user is presented with a structure of linked elements through which he can navigate independently. Hypermedia is the extension of hyperlinks. Linked information is linked to collections of relevant information, including text, video, sound, photographs etc. By means of the World Wide Web hypermedia is extended to a gigantic network of computers, which enables millions of users to retrieve and create multimedia material from anywhere in the world in a matter of seconds.

(Alessi & Trollip, 2001; 138; Shneiderman, 1998:553)

Studies show that multimedia has a greater retention rate than most of the other methods/tools used. (Vaughan, 1998:8)

Figure 2.4 reflects the effectiveness of multimedia as a marketing and presentation tool.

**Figure 2.4 Retention rate of different mediums in relation to multimedia**



(Jay Sandom, Einstein & Sandom, cited by Vaughan, 1998:10)

A web site, created by using multimedia, would therefore be the ideal vehicle to achieve optimal marketing possibilities and create an endless means of global communication by providing the online facility. (Vaughan, 1998:8)

A structure of hypermedia is not navigation *per se* but has a navigational structure. It consists of many "pages" containing objects (e.g. text, images, and graphics) that are linked to other objects or "pages". This is known as a hypermedia structured program and it does not have a traditional organisation of pages in a sequence. A hypermedia program consists of the following:

- A database of information.
- Presentation of information via multiple media such as audio, video and text.
- Multiple ways of navigation, including hyperlinks.

(Alessi & Trollip, 2001:138-145; Vaughan, 1998:228)

The secret of hypermedia is to apply the different elements correctly and functionally.

Following in Table 2.5 are important considerations for using the different types included in hypermedia.

**Table 2.5 Considerations for the use of types of hypermedia**

| Hypermedia types              | Considerations for use  |   |
|-------------------------------|---|---|
|                               | Advantages  | Disadvantages   |
| <b>Text</b>                   | <ul style="list-style-type: none"> <li>▪ Process info at user's preferred rate.</li> <li>▪ Good for high-ability readers.</li> <li>▪ Easy to search.</li> <li>▪ Can be formatted in many ways.</li> <li>▪ Easy printable.</li> <li>▪ Easy displayable on computer screen.</li> </ul>            | <ul style="list-style-type: none"> <li>▪ Difficult for poor readers.</li> <li>▪ Does not attract attention well.</li> <li>▪ Incompatible with video and audio.</li> </ul> |
| <b>Still pictorial images</b> | <ul style="list-style-type: none"> <li>▪ Process at preferred rate.</li> <li>▪ Attract attention.</li> <li>▪ Add professional look to program.</li> <li>▪ More memorable.</li> <li>▪ Language independent.</li> <li>▪ Combine with text.</li> <li>▪ Convey spatial information well.</li> </ul> | <ul style="list-style-type: none"> <li>▪ More difficult to print.</li> <li>▪ May require artistic development.</li> </ul>   |





| Hypermedia elements  | Considerations for use   |   |
|--|--|---|
|  | Advantages   | Disadvantages   |
| <b>Aural information</b><br>(Voice, music & sound effects) | <ul style="list-style-type: none"> <li>▪ Attract attention.</li> <li>▪ Combines with pictorial and motion images.</li> <li>▪ Good for describing procedural information.</li> <li>▪ Good for conveying verbal information to poor readers.</li> <li>▪ Good for narrative information.</li> <li>▪ Relatively inexpensive and easy to design.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Process rate might not suit the user.</li> <li>▪ Does not combine well with textual information.</li> <li>▪ Not good for conveying spatial information.</li> </ul>     |
| <b>Motion images</b><br>(Video & animation)                | <ul style="list-style-type: none"> <li>▪ Attract attention.</li> <li>▪ Improve attitudes and motivation.</li> <li>▪ Convey spatial and temporal information well.</li> <li>▪ Combine well with audio.</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Processing at a rate that might not suit all users.</li> <li>▪ Do not combine well with text.</li> <li>▪ Costly to design.</li> <li>▪ Expensive to produce.</li> </ul> |

## 2.3 Technological issues

### 2.3.1 Hardware

"Selection of the proper platform for developing your multimedia project may be based on personal preference, budget constraints, delivery requirements, type of material and content in the project." (Vaughan, 1998:53)

Although the Macintosh, has been, by definition, a multimedia computer, the Windows Multimedia PC platform (MPC) is more commonly used in South Africa and complies with the standard specifications required for multimedia. A MPC is a standard and not a computer; therefore components can be separately assembled to meet the requirements of the user.

A common constraint in the multimedia environment is the hardware on which the product should run. Most web sites generally need powerful computers with sound cards and other peripherals.

Multimedia authoring consume a great deal of memory. Therefore provision has to be made for at least the minimum hardware requirements necessary.

The MPC2 standard is acceptable for basic multimedia. It consists of the following elements:

- CPU: 25 MHz 486SX,
- Hard disc: 160 Mb,
- Ram: 4 Mb,
- CD-ROM: double speed (300kb per second),
- Video card: 640x480 with 65,536 colours,
- Floppy disc: 3 1/2 inch,
- Sound card: 16-bit with 8-note synthesiser; and
- MIDI playback

(Vaughan, 1998:54-60)

As the building becomes more complex and include more and larger graphics and audio files, the necessary adaptations have to be made to suit the requirements of the product.

The most important factor to remember is that the product has to be available to the end-user. Computer hardware issues and constraints of the end-user, which will impact on the delivery and operation of the final product, have to be dealt with beforehand.

(Alessi & Trollip, 2001:442; Ellsworth & Ellsworth, 1995:379-388; Vaughan, 1998:51-91)

### 2.3.2 HTML / VRML

HTML is the core of information that shapes and forms the nature of multimedia on the Web, while VRML is an independent environment designed to take care of high-performance 3-D worlds. A web site can survive without the presence of VRML, but not without HTML.

#### 2.3.2.1 HTML

Hypertext Markup Language (HTML) is the underlying programming standard of the World Wide Web. HTML organises text, pictures and all other information in a hypertext fashion and serves as the underlying framework of the WWW. This implies that any piece of information can be linked to any other piece of information on any computer connected to the Internet.

An HTML document can contain hyperlinks that refer to other documents in the same or in other web site. Users are thus able to link and move around from one site to another. The only condition being the subscription to the standards of the Web.

By means of HTML, text and graphics can be displayed together using a 2-D page metaphor.

The creation of the Web and HTML brought hypertext and hypermedia into common use. (Alessi & Trollip, 2001: 139; Patterson, 1997:116; Vacca, 1996:1-10; Vaughan, 1998:392)

### 2.3.2.2 VRML

Virtual Reality Modelling Language (VRML) is a 3-D navigation specification. It enables the creation of 3-D sites; e.g. chat rooms, which creates a very powerful medium for the exchange of information.

Virtual Reality can enhance a web site in the following instances:

- **Information visualisation**, which could be used internally on the Intranet or globally on the Internet for a better and easier understanding of complex information.
- **Model inspection** where the existence of a database, composed of a well-defined format to represent 3-D information makes it possible to move information from a conceptual design phase to manufacturing without losses.
- **Flying through 3-D worlds** could be functionally applied VRML for entertainment or advertising e.g. selecting seats at an auditorium or reviewing accommodation.
- **Visualise** database information in real-time.
- **Participate** in multi-player virtual reality games.
- **Walk through virtual product showrooms** with other on-line shoppers.

VRML is an excellent advertising vehicle because it can lead a user to an economic transaction and it provides the user with experiences for which he/she will be willing to pay e.g. show houses over a long distance and architectural models. It provides a freedom of choice regarding the perspective from which angle to view the world. (Patterson, 1997:93; Vaughan, 1998:421; Vacca, 1996:35)



### 2.3.3 Browsers

A web browser is the generic term for a software program that enables navigation on the Web. These programs act as an interface between the user and the Internet. A browser can run on a personal computer, which is connected, to an Internet access provider via a modem. Browsers were initially designed as interfaces for the World Wide Web, but most are now able to also interact directly with all the other Internet tools and systems.

When reading in a URL or site name into the browser, the following steps take place behind the scenes before the web page appear on the screen:

- The browser breaks down the URL into 3 parts:
  1. The protocol (http)
  2. The server name (e.g. www.encyclopedia.com)
  3. The file name (e.g. articlesnew/50589.html)
- The browser communicates with a server name to change the server name to an IP address, which in turn connects to the server at that specific address.
- After the HTTP protocol the browser requests the total file from the server.
- The server in turn sends the HTML text for the specific requested page to the browser.
- The browser read and translates the HTML tags and displays the page onto the screen.

Two groups of browsers are of importance:

- text-mode (words only, no pictures); and
- GUI(graphical user interface)

For the purpose of this study the latter is applicable.

GUI browsers are easier to master and faster to control. Most users make use of the custom browsers offered by Internet Service Providers, such as *Netscape Navigator* (50% usability) and *Internet Explorer* (23% usability). Mosaic, Cello, Chameleon and SlipKnot are other examples of other browsers available.

Because not all users have the latest versions of the software there are a few issues to consider in the design and development process:

- Limit the use of some components that does not comply with the HTML , e.g. video and motion.
- Check the compatibility of the different hardware platforms to ensure that the users have functional access to the web sites.
- Direct users to different screens for different browsers.
- Test each HTML document using as many browsers as possible.
- Do the testing with the lowest commonly used resolution. (e.g. standard 640x480 VGA mode)

(Brian, 2001b; Coetzee, 2000:77;, Ellsworth & Ellsworth, 1995:67-109, 242; Patterson, 1997:119, Vaughan, 1998:398-399: 477)

#### 2.3.4 Bandwidth

"Satisfaction with the Internet is a function of connection speed and the size of the data elements accessed."

$$\frac{\text{Bandwidth}}{\text{File size}} = \text{Satisfaction}$$

(Vaughan, 1998: 407)

Bandwidth, together with screen quality, is one of the most important elements in computing. Speed is described by the term "bandwidth". Large bandwidth thus implies higher speed connection.

The speed of the network communication is largely out of the designer's hands. Therefore the designer has to take the bandwidth of the typical user into consideration during the design and development process.

In the process of designing for home users with a slow telephone connection, data such as high-quality audio, large graphics or movies would result in very slow download. The download time for the same design for users with high-speed Web access (high bandwidth) would probably be fine.

In the case where the speed of the users' modems varies, the best solution is to design for the low-speed user or provide alternatives within the site for the different users. Some software packages provide for the problem with bandwidth.

Web design will change direction in 2003 and this change will have a positive response on the problem with bandwidth. Web design needs to cater for the masses that are low-end users and do not have ISDN lines but who use modems with a much lower KBPS. (Alessi & Trollip, 2001:387; Nielsen, 1998; Vaughan, 1998: 407)

### **2.3.5 Authoring Tool**

Authoring a program can either be done by the use of:

- programming languages, or
- authoring tools.

For the purpose of this study a choice will be made from a variety of authoring tools available, because it is easier to use and requires less programming skills.

The choice of an authoring tool is of primary importance, because the different features of each tool, manipulates the design and development of the product.

Therefore the advantages and disadvantages of the different authoring tools should be compared in order to choose the tool most suitable for the development of the specific product. (Shwier & Misanchuk, 1993: 131-142, Alessi & Trollip, 1991:344)

Table 2.6 outline important features that an authoring tool should support.

**Table 2.6 Important features for an acceptable authoring tool.**

| <b>Scheiderman (1998)</b>  | <b>Vaughan (1998)</b>  | <b>Schwier &amp; Misanchuk (1993)</b>  |
|--|--|--|
| User interaction.  | Provide user interaction.  |  |
| Edit a link.   | Manage individual multimedia elements.   | Text composition and editing features.   |
| Import and export article/collections of articles, animation, video, sound and graphics.                     | Create and edit and import specific types of data e.g. text, images, sound and movies. | Create, edit, and/or import graphics, video, animation, sound.                 |
| Print webs of links.   | Design user interface.   | Performance tracking e.g. reporting, answer-judging etc.                       |
| Help function.   |  | Author support feature.  |
| Search entire hypertext.   | Visual flowcharting system or overview facility.                                       |  |
| Range of editing functions e.g. insert, delete copy, move and availability of graphics and video facilities. | Programming with traditional languages.  | Accommodate analogue source output, digital source input and MIDI interface.   |
| Availability of lists of links.  | Allows precise timing of events.   |  |
| Link verification to check the correctness.  | Easy transfer across platforms.  | Portability for competing environments.  |
| Range of display-formatting commands   |  | Range of user control options available e.g. touch screen, speech recognition. |
| Control of colour.   |  |  |
| Capability to switch easily from author to browser to test ideas.  | Facility to build and test throughout.   | WYSIWYG environment or facility to move from an authoring to a run time mode.  |
|  | Facility for linking objects to pages/cards.   |  |
| Possibility of collaboration where more than one person can edit hypertext at a time.                        | One or more levels of interactivity, e.g. simple or, conditional branching.            | Flexibility to support the styles of work of everybody using the system.       |
| Security control to restrict access to hypertext or parts thereof.   |  | Documentation of work done, manuals and tutorials.                             |
| Reliability - bug-free performance and availability of search and replace functions                          | Good debugging facility.   | Programming features e.g. high level programming language, debugging tools.    |
| Possibility of integration with other software.  | Integration with other software.   | Integration of peripherals e.g. includes videodisc- and audio players etc.     |
| Import and export of standard interchange formats.   | Import objects from another application.   |  |

(Vaughan, 1998: 6; 148-174; Schwier & Misanchuk, 1993: 136-141; Scheiderman, 1998:556-560)



### 2.3.6 CD-ROM

CD-ROM (Compact disc-Read Only Memory) is becoming a common method for distributing all kinds of information. They are considered multimedia, because they can contain digital data, digitalized music and digitalized video material. Hypermedia on CD-ROM contains the knowledge of entire text books encyclopaedias and works of literature and many forms of pictorial information, including video, animation and sound.

Reasons for using CD-ROM:

- It is less expensive than printed books and quick to compile.
- A full text search is possible as well as random access to information stored.
- Movies are available in which three-dimensional works of art may be rotated to inspect all detail.
- It is a compact size, therefore portable.
- It has long recording time. (660MB)
- It is compatible across all brands of players.
- It can be mass-produced.

(Alessi & Trollip, 2001:140; Schwier & Misanchuk, 1993:104-107; Vaughan, 1998:5)

## 2.4 Design interface issues

"Proper World Wide Web site design is largely a matter of balancing the structure and relationship of menu or "home" pages and individual content pages or other linked graphics and documents. The goal is to build a hierarchy of menus and pages that feels natural and well-structured to the user, and does not interfere with their [sic] use of the Web site or mislead them" (Lynch, 1995 cited by Shneiderman, 1998:561)

### 2.4.1 User centred design

The design of a web site is the primary important factor for the success of the site, as it should grab the attention of the user within a few seconds. The design is therefore aimed at capturing the attention of a potential user.



It is apparent that the graphic user interfaces are specifically designed to allow users direct control over their personal computers. They expect a level of design sophistication from all interfaces, especially web pages. The goal is to provide for the needs of all the potential users, adapting web technology to their expectations and never requiring the user to simply conform to an interface that is not user friendly by placing obstacles in their paths.

Major concerns are usually the following:

- Organising the hypertext.
- Structuring the knowledge and content.
- Limiting the length of the articles.

(Shneiderman, 1998; Nielsen, 1999a; Lynch & Horton, 1997)

Research has proven that many shorter articles are more effective than lengthier articles. Users tend to get bored and lose interest with the lengthier pieces of written material.

The user should be accommodated in all instances. Therefore the structure should be easy to understand. Place a menu on the introductory-or home page, with a detailed table of contents and links to the main concepts. (Shneiderman, 1998:559)

#### **2.4.2 Navigation**

A web site or multimedia program consists of information through which the user must navigate by means of pressing a key or clicking with the mouse. Navigation is the greatest issue of concern in hypermedia programs. Hypermedia disorientation or "getting lost in cyberspace" occurs as a result of inadequate navigation.

The logical flow of the interactive interface, as well as the table of contents is provided by a navigation map or site map. Most user interactions with web pages involve navigating hypertext links between documents. The main interface problem in web sites is the lack of a sense of where the user is within the local organisation of information.



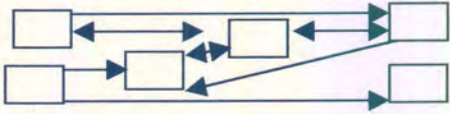
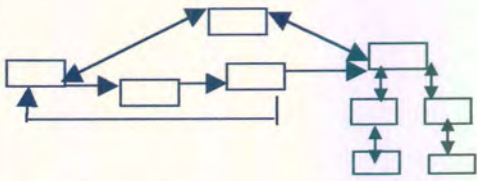
It is imperative to have clear, consistent icons, graphic identity schemes and graphic or text-based overview and summary screens that can supply the user with the information desired without wasting time. An image or icon link should appear close to a text hyperlink, because most of the time the user will admire the wonderful, colourful link, but

eventually use the familiar text links. For the same reason mentioned, it is advised to add the URL to an image map, serving as a navigation tool. (Sachs & Stair, 1997:175)

The product can be structured in different manners, which indicate different ways of navigation to take place.

Table 2.7 displays the four different navigation structures as described by Vaughan, 1998:464.

**Table 2.7 Navigation structures used in multimedia projects**

| Method       | Description   | Structural layout  |
|--------------|---|--|
| Linear       | The user navigates from a starting point to the finishing point without any deviations.                             |  |
| Hierarchical | The user navigates along a branched structure created by the natural logic of the content.                          |  |
| Non linear   | The user navigates through the program with no predetermined route.   |  |
| Composite    | The user may navigate freely, but linear presentations may occur where data are logically organised in a hierarchy. |  |

(Vaughan, 1998:465)

Within every structure the user has some sense of free choice. The more navigational freedom the user has, the more important the navigation becomes. Navigation plays a central role in interactivity. In a number of the structures displayed in Table 2.7 the user has a number of choices. In these instances navigation of each page is of great importance, because it could lead the user away from the site, the user could get lost in the loads of data and eventually the user will not revisit the site ever again.

#### 2.4.2.1 Elements of navigation relevant during design of the product

The following elements are of importance during the design phase:

1. Start the design with a good understanding of the structure and communicate this to the user from the start.
  - The **home page**, which is the entry point of the web site, should display a strong sense of structure and place.
  - A well-structured and understandable **site map** should let the users know where they are and where they can go from there.
2. Keep orientation information consistent on every page. This will assist users in knowing their whereabouts at all times.

- A link to the **home page, site map and contact details** (e.g. e-mail) should appear on each page.
3. Make provision for users to move **back and forward**. **Back and forward** features appear on most of the GUI browsers.
  4. **Links** are icons, graphics, "hotspots", buttons and/or underlined text on the screen, which execute a command when clicked.
    - Active text links that have not been visited should be underlined and blue, while the visited links should appear purple or red.
    - Add text labels to graphic navigation buttons if they have to be used.

#### 2.4.2.2 Alternative methods of navigation

Even though hyperlinks are the primary way of navigation, alternative navigation techniques or a combination of these will be applied in certain programs, depending on the hypermedia format, the content and the purpose of the program.

Table 2.8 displays a number of alternative navigation techniques, which may be successfully applied.



**Table 2.8 Alternative navigation techniques.**

| Navigation techniques | Comments   |
|-----------------------|--|
| Metaphors             | <ul style="list-style-type: none"> <li>▪ Good metaphors are things familiar to people e.g. post <b>box</b> for e-mail, <b>telephone</b> for telephone number etc.</li> <li>▪ Pictorial value of metaphor makes it memorable.</li> </ul>    |
| Indexes               | <ul style="list-style-type: none"> <li>▪ Alphabetical organisation of words helps in locating the word, without knowing the correct spelling.</li> <li>▪ Indexing allows browsing.</li> </ul>  |
| Timelines             | <ul style="list-style-type: none"> <li>▪ A timeline visually displays the time periods in the history and allows the user to make a choice.</li> </ul>   |
| Maps                  | <ul style="list-style-type: none"> <li>▪ Geographical and conceptual maps are good navigation techniques, because of they are visual.</li> <li>▪ Maps assist in the organising and presenting of information.</li> </ul>                   |
| Searching             | <ul style="list-style-type: none"> <li>▪ Users can search for anything they can think of.</li> <li>▪ The larger the database, the more important is the option for searching.</li> <li>▪ Search options are powerful and quick.</li> </ul> |
| Picture collections   | <ul style="list-style-type: none"> <li>▪ Pictures increase memorability.</li> <li>▪ A collection of pictures may be useful in the areas of art, culture, science, etc.</li> </ul>  |
| Tables of content     | <ul style="list-style-type: none"> <li>▪ A table of contents displays the larger structure of a database logically.</li> </ul>   |
| Menus                 | <ul style="list-style-type: none"> <li>▪ Menus provide an overview of contents and organisation.</li> <li>▪ A user can always go back to the menu to regain the sense of orientation.</li> </ul>   |

(Summary: Alessi & Trollip, 2001; Sachs & Stair, 1997)

#### 2.4.2.3 Summary

Every web page should contain at least one link, preferably to the home page or the site map or to the next page related to the information on the specific page. **"Dead-end"** pages with no links to any other local page in the site are totally unacceptable, as they frustrate the users and cause the rest of the web site to become inaccessible.

Users should never be uncertain where to go or where they are at a certain point in time. It is beneficial to provide good navigational assistance throughout the program.

This can only be accomplished in cases where the navigational structures and options are well designed and functionally developed.

(Alessi & Trollip, 2001:150-163; Coetzee, 2000:131; Nielsen, 1996a, Vaughan, 1998:189-191; 464-475; Sachs & Stair, 1997:174-175; Schwier & Misanchuk, 1993:173-180)



### 2.4.3 Design considerations

"The **design** part of your project is where your knowledge and skill with computers, your talent in graphic arts, video and music, and your ability to conceptualise logical pathways through information are all focused to create the real thing. **Design** is thinking, choosing, making and doing. It is shaping, smoothing, reworking, polishing, testing and editing"  
(Vaughan, 1998: 463)

Attractive screen design assists in transferring the visual communication of a message. Pictures or animation can, in many instances, be more functional in conveying a message than ordinary text. Therefore different factors need to be taken into consideration when attempting to create a successful web site.

(Phillips, 1997:78; Vaughan, 1998:462; Sachs & Stair, 1997; Schwier & Misanchuk, 1993:209)

Table 2.9 displays advice from different authors regarding the design of a web site.

**Table 2.9 Advice for the design of a web site**

| Author      | Advice  |
|-------------|---|
| Shneiderman | <ul style="list-style-type: none"><li>▪ <u>Know the users and their tasks</u><br/>Designers are not good judges for their own work. Consult the user throughout the design process.</li><li>▪ <u>Require low cognitive load</u><br/>Do not burden the user's short-term memory.</li><li>▪ <u>Meaningful structure must come first</u><br/>The presentation and structure of the information is the most important.</li><li>▪ <u>Make use of chunking</u><br/>Organise information into chunks that deal with one topic.</li><li>▪ <u>Design each screen with great care</u><br/>Screens should be clear and easy to grasp.</li><li>▪ <u>Use diverse skills</u><br/>Teams of experts in different fields should be used.</li><li>▪ <u>Show inter-relationships</u><br/>Articles must contain links to related work.</li><li>▪ <u>Ensure simplicity throughout</u><br/>The link structure must allow for consistent and easy navigation</li></ul> |



Table 2.9 (continued)

| Author           | Advice   |
|------------------|--|
| Nielsen          | <ul style="list-style-type: none"> <li>▪ <u>Structure the content.</u><br/>Provide an overview on topics discussed. This should save the user time in finding relevant information.</li> <li>▪ Limit constantly moving animation<br/>Moving elements on a page should not be constant attacks on the human senses, because they have a negative effect on peripheral vision.<br/>Blinking elements should not be used at all.</li> <li>▪ <u>Avoid orphan pages.</u><br/>Users may access a web site from different pages; therefore each page should have a link to the home page and identification unique to the web site.</li> <li>▪ <u>Avoid long scrolling pages.</u><br/>Research has indicated that a smaller percentage of the users scroll beyond information that is visible on the screen. Therefore the most significant data, as well as the navigation options, should appear at the top part of the page. Scrolling must be used with care and for specific purposes.</li> <li>▪ <u>Provide a search option.</u><br/>A search option for a large and growing site is advisable, because it assists the users in finding information quickly.</li> <li>▪ <u>Always keep the download time in mind.</u><br/>Sites need to be designed for speed. The limit for response time regarding the download is 15 seconds, otherwise the users lose interest.</li> <li>▪ <u>Utilise the standard "Back" button.</u><br/>The users know that they can try anything and then use the "<b>Back</b>" button to return to familiar screens. When designing the site this button should stay in tact and not be disabled.</li> <li>▪ <u>Do not pollute the screen with new browser windows.</u><br/>New browser windows are opened on the users' screens. The user apparently stays on the site, but in actual fact all the browser screens take over the user's machine and also disables the "<b>Back</b>" button.</li> <li>▪ <u>Place the logo and the name on each page.</u><br/>Use the logo as a link to the home page. Do not provide a link to the same page.</li> <li>▪ <u>Make use of chunking.</u><br/>Split the information by using subheadings and grouping.</li> </ul> |
| Alessi & Trollip | <ul style="list-style-type: none"> <li>▪ <u>Realise the needs of the target group.</u><br/>Set up design documents for good communication and involve the client.</li> <li>▪ <u>Use the experts in the different fields during design.</u><br/>A team of experts in different fields should be used to ensure the functionality, workability and aesthetics of the product.</li> <li>▪ <u>Use brainstorming.</u><br/>Brainstorming sessions to develop specific ideas about the content and other techniques.</li> <li>▪ <u>Establish possible constraints.</u><br/>This includes computer input capabilities, software and network capabilities, bandwidth, financial and timeline constraints.</li> <li>▪ <u>Provide user-friendly search facilities in large sites.</u><br/>The user should have the opportunity to search for a word or phrase.</li> <li>▪ <u>Take advantage of the communication facilities on the Web.</u><br/>Select appropriate facilities such as e-mail, listservs, bulletin boards, chat rooms and teleconferencing.</li> <li>▪ <u>Review and test the design continuously.</u></li> </ul>  |

(Alessi & Trollip, 2001; Shneiderman, 1998; Nielsen, 1996b; Nielsen, 1997; Nielsen, 1999a)



## 2.4.4 Multimedia building blocks

In order to produce a multimedia product, it is necessary to make use of individual building blocks. The most appropriate building blocks for the proposed product are discussed.

### 2.4.4.1 Text

Text is the most common way to present information and communicate ideas to the user. Words and symbols deliver the most widely understood meaning to the largest number of people. Therefore the choice of appropriate words are of the utmost importance.

Presentation of information should generally be short, especially in the case of complex data being presented. There are exceptions to the rule, e.g. in the case of a lengthy document covering a specific topic or issue. The information will be relevant to the user and scrolling down the page will not be a problem.

Balance is important in all areas of the design phase. When using too little text on the screen the user has to turn too many pages, which could result in frustration. Too much text on the other hand causes the screen to look overcrowded and unappealing. The appropriate length depends on the subject matter and the requirements of the target group.

The following issues regarding text should be taken into consideration during the design phase:

- Scrolling should be avoided or used in moderation in specific circumstances.
- Web pages should not be longer than one and a half to two times the size of the screen. A page of 400 pixels high will ensure no scrolling.
- Paragraphs and sentences should be well-formatted and consistent indentation or blank lines should be used to announce a new paragraph.
- Spacing between the lines improves the readability of the text.
- Text lines should be between 40-60 characters. (8 -10 words)
- Blinking and flashing text should be used with caution, only in very specific circumstances.

(Alessi & Trollip, 1992:34-35; Nielsen, 1996; Schwier & Misanchuk, 1993:231-251; Vaughan, 1998:190)

#### 2.4.4.2 Text attributes

The end user may not view a web site in the font that was used during the design phase, because user preferences in the browser may change the look of the text in the document. Therefore it is important to design according to certain basic principles and to have knowledge of the attributes of the building blocks used during the design phase.

The text attributes are mentioned and briefly discussed in Table 2.10.

**Table 2.10 Discussion of the different text attributes**

| Building blocks | Discussion  |
|-----------------|---|
| Fonts and faces | <ul style="list-style-type: none"> <li>▪ <b>Typeface</b> is a collection of characters, which include many type sizes and styles.</li> <li>▪ <b>Font</b> is a collection of a specific single size and style belonging to a typeface group.</li> <li>▪ Font styles are such as:               <ul style="list-style-type: none"> <li><b>bold</b> for emphasis and cueing,</li> <li><i>italics</i> for titles, specialised applications, technical terms, phrases and specific purposes.</li> </ul> </li> </ul> <p><u>Underlining</u>, <u>outlining</u> and <u>shadow</u>, <u>lettering</u> should be avoided.<br/>No more than 2 different fonts should be used on a single screen.</p> |
| Print size      | <ul style="list-style-type: none"> <li>▪ Font sizes from 9 to 12 points are suitable for body text.</li> <li>▪ Larger font sizes are more appropriate when used for titles, headings and for display.</li> <li>▪ Print size on screen should be appealing and easy and comfortable to read.</li> </ul>  |
| Colour          | <ul style="list-style-type: none"> <li>▪ Design for monochrome; colour displays may not be universally available.</li> <li>▪ Active hyperlinks should be blue; while visited links should be purple or red.</li> <li>▪ Guidelines for colour coding:               <ol style="list-style-type: none"> <li>1. Use colour for emphasis and for indicating differences.</li> <li>2. Font should contrast with the background e.g. black on white and vice versa.</li> <li>3. Use colours that are associated with social conventions.</li> <li>4. Be consistent in the application of colour.</li> <li>5. Consider the need of colour-deficient users.</li> </ol> </li> </ul>              |
| Justification   | <ul style="list-style-type: none"> <li>▪ Right-justified text creates too much white space and affects readers negatively.</li> <li>▪ No definite evidence exists to indicate that left justification is any more or less readable than justified text.</li> </ul>  |
| Case            | <ul style="list-style-type: none"> <li>▪ Use a combination of upper and lower case for easy reading (Sentence case)</li> </ul>  |
| Buttons         | <ul style="list-style-type: none"> <li>▪ Default Internet buttons may also be used.</li> <li>▪ The function of a button must be clear. Supply a text label or clear picture to indicate the purpose.</li> <li>▪ Buttons with clear meanings, confirmation or additional clarifying information in a text box, provide a user-friendly interface.</li> </ul>   |



**Table 2.10 (continued)**

| Building blocks   | Discussion   |
|-------------------|--|
| Symbols and Icons | <ul style="list-style-type: none"> <li>▪ Symbols usually convey important messages. Use those that are easily recalled and remembered.</li> <li>▪ It is advisable to combine symbols with text cues.</li> <li>▪ Text is more effective than imaginary pictures, but both can be applied effectively.</li> <li>▪ Icons must be unambiguous, relatively small and preferably simple line drawings.</li> </ul>  |
| Animating text    | <ul style="list-style-type: none"> <li>▪ Animation can recapture and retain/hold attention if applied correctly. It should not be overdone and without purpose.</li> <li>▪ A bulleted list of words flying in, dissolving others etc. can be effective.</li> </ul>   |
| Layout of text    | <ul style="list-style-type: none"> <li>▪ Text should be in the centre of the screen covering not more than 14 centimetres.</li> <li>▪ Leave enough white space to ensure clear display of text.</li> <li>▪ Use blank lines to indicate new paragraphs.</li> <li>▪ Limit down scrolling to an average of 2 screens.</li> <li>▪ Try to avoid horizontal scrolling.</li> <li>▪ Information should be provided in manageable chunks to prevent information overload.</li> <li>▪</li> </ul> |

(Vaughan, 1998:181; Misanchuk, 1992; Schwier & Misanchuk, 1993:244; Reeves, 1994; Schneideman, 1998:399-402)

#### 2.4.4.3 Screen design

The purpose of multimedia is primarily to create good communication and most effective communication comes with very selective use of the different multimedia "tools" and effects. Complexity usually interferes with communication. The most powerful concepts in screen design are accomplished by applying the following basic principles:

- simplicity,
- consistency,
- clarity,
- aesthetic consideration,
- white space,
- colour combinations; and
- graphics and images.

Table 2.11 displays the elements important to screen design and contains a brief discussion of each.



Table 2.11 Elements of screen design

| Screen design attributes   | Discussion   |
|--|--|
| <b>Simplicity</b>  | <ul style="list-style-type: none"> <li>▪ Keep it straightforward.</li> <li>▪ Be minimalistic in the approach and provide only the key message.</li> </ul>  |
| <b>Consistency</b>   | <p><b>Good screen design is reflected by consistency in:</b></p> <ul style="list-style-type: none"> <li>▪ screen layout throughout the site,</li> <li>▪ use of colour,</li> <li>▪ use of fonts and styles,</li> <li>▪ screen density and white space,</li> <li>▪ interactive behaviour,</li> <li>▪ style of graphics,</li> <li>▪ style of presentation; and</li> <li>▪ terminology such as directions, menus and help screens.</li> </ul>  |
| <b>Clarity</b>   | <ul style="list-style-type: none"> <li>▪ Use terminology familiar to the target group and related to the industry.</li> <li>▪ Use bulleted lists where applicable.</li> <li>▪ Keep sentences short.</li> <li>▪ Use active voice.</li> <li>▪ Stay away from negative statements if possible.</li> <li>▪ Use informal language.</li> <li>▪ Use inclusive language.</li> </ul>  |
| <p><b>Aesthetic consideration:</b></p> <ul style="list-style-type: none"> <li>-Balance</li> <li>-Harmony</li> <li>-Unity</li> <li>-Rhythm</li> </ul> | <ul style="list-style-type: none"> <li>▪ <b>Balance</b> creates a feeling of stability. It can be formal or informal, symmetric or asymmetric.</li> <li>▪ <b>Harmony</b> is achieved by consistency and repetition, e.g. the same fonts, colours and graphic style.</li> <li>▪ <b>Unity</b> - every element on the screen should fit in and it should look as though the elements belong together.</li> <li>▪ <b>Rhythm</b> is achieved by applying features such as headers, footers, page numbers and figure captions consistently.</li> </ul>   |
| <b>White space</b>   | <ul style="list-style-type: none"> <li>▪ White space refers to space without text or graphics, which has been purposely left blank to create a specific effect.</li> <li>▪ The purpose of white space is to:               <ol style="list-style-type: none"> <li>1. bring ideas together,</li> <li>2. illustrate relationships through the use of space; and</li> <li>3. create the illusion of lightness in the screen display.</li> </ol> </li> </ul>   |
| <b>Colour</b>  | <ul style="list-style-type: none"> <li>▪ Colours can be difficult to manage in cross-platform projects. Colours are matched to their nearest equivalents.</li> <li>▪ Colour monitors vary in the representation of the colours used and it is not always easy to predict what the end-user will see.</li> <li>▪ Colour attracts attention, but wrong use of colour can be the cause of ineffectiveness and poor design.</li> <li>▪ Colour can:               <ol style="list-style-type: none"> <li>1. soothe or strike the eye,</li> <li>2. draw attention to warnings,</li> <li>3. emphasise the logical flow of the material,</li> <li>4. add accents to dull displays,</li> <li>5. evoke emotional reactions such as joy, fear or anger, and facilitate subtle discriminations in complex displays.</li> </ol> </li> </ul> |



**Table 2.11 (continued)**

| Screen design attributes          | Discussion  |
|-----------------------------------|---|
| <p><b>Graphics and images</b></p> | <ul style="list-style-type: none"> <li>▪ GIF AND JPEG are the best-suited images to use.</li> <li>▪ Complex colour patterns are best saved in JPEG, because this format can save images with high density of colours, but it cannot be animated. It also has a high degree of compression, which results in quicker downloading.</li> <li>▪ GIF format is restricted to 256 colours.</li> <li>▪ The images used should not exceed 50K, to ensure fair download time.</li> <li>▪ To accommodate text-only browsers, alternative text must be provided for every image.</li> <li>▪ Still images are generated by the computer as bitmaps (paint graphics) and as vector-drawn graphics (lines, rectangles, ovals)</li> <li>▪ Objects can be scanned in and edited by means of image-editing tools.</li> <li>▪ Graphics and images can be imported from another source.</li> <li>▪ Pictures should appear together with the related text to allow the user to inspect the illustration and the explanation together.</li> <li>▪ Graphic information must be integrated with the message being conveyed.</li> <li>▪ With graphics and images the designer must follow the rule of consistency throughout the site.</li> </ul> |

(Alessi & Trollip, 2001:68; Misanchuk, 1992:167-178; Schwier & Misanchuk, 1993:209-246; Vaughan, 1998:181-317)

## 2.5 Marketing issues

As a result of the exploration of multimedia on the web, it has become the most popular Internet tool for marketing as well as advertising. The Internet via the web handles the markets, both horizontally as well as vertically, all depending on the product, the objective and the end goal. (Ellsworth & Ellsworth, 1995:269)

### 2.5.1 Marketing plan

To ensure success in the marketing of a web site, the development of a proper market plan is advisable. During the design of a market plan it is necessary to know the competitive advantages of the product. This is not a fixed procedure, but a strategy by parties involved in the web site. A brainstorming session or sessions can produce a workable plan. (Wilson, 1999d; Tips for writing..., 2000)



Table 2.12 displays a summary from three different sources regarding the different factors to consider when designing a web site as a tool for marketing purposes. The summarised information in Table 2.12 is thereafter discussed in the following manner:

Table 2.13: Discussion of factors as described in the article "Tips to writing a cyber marketing plan".

Table 2.14: Discussion of factors as described by Wilson.

Table 2.15: Discussion of factors as described by Ellsworth & Ellsworth.

**Table 2.7 Factors to consider when designing a web site as a marketing tool**

| Tips for writing..   | Ellsworth & Ellsworth   | Wilson   |
|--|---|--|
| <ul style="list-style-type: none"> <li>▪ Provide good service and support.</li> <li>▪ Know the target group.</li> <li>▪ Design for a specific objective.</li> <li>▪ Establish brand awareness.</li> <li>▪ Establish a feeling of loyalty.</li> <li>▪ Provide in-depth information.</li> <li>▪ Create a basis of trust and comfort.</li> <li>▪ Maintain good public relations.</li> <li>▪ Benefit from the research potential.</li> <li>▪ Decide on content.</li> <li>▪ Set milestones.</li> <li>▪ Work according to a timeline.</li> <li>▪ Use resources.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Supply links to sites of interest.</li> <li>▪ Research the interests of users.</li> <li>▪ Do competitive, technological and cultural scanning.</li> <li>▪ Use discussion lists.</li> <li>▪ Attract visitors.</li> <li>▪ One-on one promotion.</li> <li>▪ E-mail facility to ask questions.</li> <li>▪ Provide useful services and information.</li> <li>▪ Distribute news releases, sponsor events etc.</li> <li>▪ Integrate with other online activities.</li> <li>▪ Enhance visibility.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Access the interests, abilities and strength.</li> <li>▪ Monitor preferences.</li> <li>▪ Identify and keep the competitive advantage.</li> <li>▪ Attract visitors.</li> <li>▪ Outsource activities.</li> <li>▪ Content is primary.</li> <li>▪ Become destination site.</li> <li>▪ Establish a brand name.</li> <li>▪ Create an atmosphere of trust.</li> <li>▪ Create credibility by a professionally designed site.</li> <li>▪ Obtain an advertising strategy.</li> <li>▪ Present valuable information.</li> <li>▪ Get permission to send e-mail to visitors.</li> <li>▪ Work according to a timeline.</li> <li>▪ Set target dates.</li> </ul> |

(Ellsworth & Ellsworth, 1995:6; 58-66; 269-288; Tips for writing...,1997; Wilson,1996-1999)



Table 2.13 displays a discussion of the important factors to consider when designing a web site as a marketing tool as described in the article, "*Tips for writing a cyber marketing plan*" and summarised in Table 2.12.

**Table 2.13 Discussion of factors as described in "Tips for writing.."**

| Important factors                    | Discussion  |
|--------------------------------------|---|
| Know the target group.               | The capabilities, likes and dislikes of the target group must be established to ensure the attraction of visitors.  |
| Design for a specific objective.     | Decide what the main aim of the site has to be and design to reach the specific objectives.   |
| Establish brand awareness.           | Use promotions, sponsorships and hyperlinks to established sites to gain visibility and exhibit the product. Direct response promotions may gain competitive advantage. |
| Establish a feeling of loyalty.      | Establish a community of customers that are loyal to the product and company. Satisfied customers advertise by word of mouth.   |
| Provide in-depth information.        | Supply an in-depth understanding of the product or service and knowledge about the company and industry.  |
| Create a basis of trust and comfort. | Create an atmosphere of trust and comfort to ensure that the customer will want to liase with the company and not take the business elsewhere.                          |
| Maintain good public relations.      | Work with the journalists who work in cyberspace to get coverage of the business.   |
| Benefit from the research potential. | Feedback from users and competitors may be useful in adjusting the marketing tactics.   |
| Decide on content.                   | Become familiar with the elements of cyberspace. Technical designs and limitations will determine how the content should be structured.                                 |
| Milestones and timelines.            | Set specific target dates.  |
| Resources.                           | Determine what resources are needed and what outsourcing has to be done.  |

(Tips for writing...,2000)



Table 2.14 displays a discussion of the important factors to consider when designing a web site as a marketing tool as described by Wilson and summarised in Table 2.12.

**Table 2.14 Discussion of factors as described by Wilson.**

| Important factors   | Discussion  |
|---|---|
| Access the interests, abilities and strength.                   | Look for specific areas of competence and excellence.   |
| Monitor preferences.  | Combine excellence and enthusiasm to create a winning combination.  |
| Identify and keep the competitive advantage.                    | Strive to be better than the competition and determine how to keep the advantage.   |
| Identify possible ways of attracting visitors.                  | Use banner ads.<br>Ensure good search engine positioning.<br>Establish reciprocal links to the relevant industry organisations.<br>Give free information and advertise the product and services.      |
| Decide on the outsourcing of activities.                        | Provide for this in the marketing budget.   |
| Content is primary.   | With excellent content it will be easy to obtain reciprocal links.  |
| Plan on becoming a destination site.                            | Establish more links to major sites.  |
| Establish a brand name.   | The brand is the image of the business in the minds of the users. Numerous factors e.g. quality of design, colour scheme, download time, clarity of wording etc. contribute to the image of the site. |
| Create an atmosphere of trust.                                  | Credibility can be created by giving the full address and phone number, a photograph of the physical building and if applicable photos of the people involved.  |
| Create credibility by producing a professionally designed site. | First impressions are lasting.  |
| Decide on an advertising strategy.                              | Strategy differs for every type of site. The appropriate way of advertising for the specific site must be well defined.   |
| Present valuable information.                                   | Provide valuable information to the users on a regular basis via e-mail.  |
| Get permission to send e-mail to visitors.                      | Include a form that will collect their e-mail address. Adhere to a clear privacy policy regarding the information.  |
| Work according to a timeline.                                   | Keep the market strategy on track.  |
| Set target dates.   | Milestones and specific dates ensure timeous delivery.  |

(Wilson, 1996b, Wilson, 1996d, Wilson, 1997a, Wilson, 1998a, Wilson, 1999d)



Table 2.15 displays a discussion of the important factors to consider when designing a web site as a marketing tool as described by Ellsworth & Ellsworth and summarised in Table 2.12

**Table 2.15 Discussion of factors as described by Ellsworth & Ellsworth.**

| Important factors                                    | Discussion  |
|--|---|
| Provide useful services and information.             | Good information and support demonstrate quality, expertise and credibility of the company.   |
| Distribute news releases, sponsor events etc.        | Public relations activities such as distributing events, pages and publications should add to exposure of the business.                                       |
| One-on one promotion.                                | Marketing on the Web reaches out to the global community of users on a one-on-one basis.  |
| Do competitive, technological and cultural scanning. | Technological and competitive scanning ensure the advantage above the competitor and cultural scanning provides information of the target group.              |
| Supply links to sites of interest.                   | Offer links to existing databases, collections of Internet and Web guides, searching tools or a repository of images and files and also topic related issues. |
| E-mail facility for asking questions.                | Offer a feature such as " <b>ask the expert</b> " with an e-mail address for the questions and obtain a return address.                                       |
| Integrate with other online activities               | Supporting Web activities with other Internet activities results in successful marketing and promotion.   |
| Enhance visibility.                                  | Make the site visible by means of discussion lists, newsgroups and e-mail.  |

(Ellsworth & Ellsworth, 1995:58-66; 269-288)

### 2.5.2 Target population

As discussed in 2.5.1 the success of successful marketing lies in the designing of a proper marketing plan. Therefore it is fundamental to know the target population.

(Phillips, 1997:50; Wilson, 2000a)

Even a small business can have several different kinds of customers. It is important to be aware of these differences and adjust the market strategy accordingly. (Wilson, 2000a)

Table 2.16 displays different issues that have to be attended to when assessing the general target population.





**Table 2.16 Issues to address when assessing the target population**

| Phillips   | Wilson   | Alessi & Trollip   | Shneiderman  |
|--|--|--|--|
| <ul style="list-style-type: none"> <li>-Are they all in one place?</li> <li>-How are they going to use the product?</li> <li>-What is the size of the audience?</li> <li>-What is the level of computer literacy?</li> <li>-Which type of hardware is used?</li> <li>-English literacy?</li> </ul> | <ul style="list-style-type: none"> <li>-Age groups?</li> <li>-Gender?</li> <li>-Job responsibilities?</li> <li>-Field of interest?</li> <li>-Language literacy?</li> </ul> | <ul style="list-style-type: none"> <li>-Age?</li> <li>-Reading proficiency?</li> <li>-Motivation?</li> <li>-Computer literacy?</li> <li>-Access to the Web?</li> <li>-Familiarity with the Web?</li> <li>-Time availability?</li> <li>-Language literacy?</li> </ul> | <ul style="list-style-type: none"> <li>-Who are they?</li> <li>-What are the tasks?</li> <li>-Gender?</li> <li>-Age?</li> <li>-Economic status?</li> <li>-Educational background?</li> <li>-Language literacy?</li> <li>-Physical disabilities?</li> </ul> |

(Wilson, 1996a; Phillips, 1997: 127-144; Alessi & Trollip, 2001:440; Scheiderman, 1998:565)

A sound understanding of the nature of the target population is fundamental, for the successful use of a web site is measured against the visits and returns of the users. Therefore a proper study of the nature and the needs of the general target population is imperative. The knowledge, background, expectations and needs of the potential users will vary from tentative novices to expert users and the aim of a successful site should be to accommodate a range of user skills and interests.

(Lynch & Horton, 1997)

Every project has a specific nature. Therefore specific questions are chosen to obtain the appropriate information needed. Table 2.16 displays a range of questions to choose from in compiling target population questionnaires.

After doing thorough market research on the group it will become clear where and how to advertise and how to segment the browsing sections.

Because marketing on the Web differs substantially from marketing by means of any other media, using the technique of segmenting as an organisational tool has its merits. In spite of its customer numbers, the strategy involves one-on-one promotion.

(Ellsworth & Ellsworth, 1995:269-270; Marketing on the Internet, 2000, Wilson, 2000a)

### 2.5.3 Promoting the site

Numerous factors have to be taken into account, when promoting a web site. To achieve success the site has to be carefully targeted and wisely designed. The point of departure is to have a clear purpose and targeted objectives.

### 2.5.3.1 Selection of a domain name

Preferably choose a name that is short, memorable, meaningful and related to the core of the business or business name. A domain name plays an important role in the visibility and exposure of the "company". Therefore it should be carefully selected to prevent confusion with other similar names.

(Sachs & Stair, 1997:138; Wilson, 1999d)

### 2.5.3.2 Advertisement

The accepted definition would state: "advertise: to announce publicly, especially by printed notice or a broadcast."

A web site is hidden; a web address or link from a search engine or another web page is necessary to get to the site. A great deal of promotion regarding a web site can be done for free, but it will also become necessary to do some outsourcing to upgrade the standard of the web promotion at some stage.

Following are different ways in which a web site can be advertised:

- Web search engines

It is not a difficult procedure to get a site listed on an engine, as a "submit a site" link appears on each search engine page. Search engines read a Web page and index all of the words from the page. Ensure to submit each page individually in order to have all the keywords from each page incorporated.

Once the site is registered on a search engine or every single engine available, the site is advertised. Users of the search engines can find the site by searching for keywords. (Brian, 2001c, Krause, 2000, Patterson, 1997:52; Wilson, 1998d)

- Branding by banner advertising

Branding deals with advertising industry buzz words such as "impressions" and "page views". Branding is one of the great goals for buying advertising on the web. This kind of advertising is expensive. A banner advertisement is sold on the basis of CPM (cost per thousand "impressions" or "page views".)

The advantages of a banner advertisement are that reinforcing takes place when surfers review it again and again. The ideal is obviously that the user clicks on the banner and goes to the site.

Display banner ads at the beginning of the site. It is important to give a professional impression and to develop recognition in the cyber world.

Many companies plan an advertising strategy of driving people to their web sites through carefully placed banner ads on appropriate high traffic sites.

(Brian, 2001c, Patterson, 1997:57; Wilson, 1998d)

- Click-through-rate and conversion rate

A goal for using advertising as a tool is to get visitors to the site to purchase the goods or services available. (Direct marketing). This is done by the CTR (click-through-rate), which indicates the percentage of people who sees the banner ad, clicks on it, and goes to the site.

Conversion rate is the percentage of visitors who go to the site, convert from shoppers to buyers and actually purchase an item or make use of the services available.

### 2.5.3.3 Niche league techniques

Most people revert to a niche league, because branding is too expensive. This is the most popular way of advertising and is seen as a proper promotional tool. The following strategies are relevant:

- Public relations

There are several inexpensive ways to send out news releases that will be picked up by both printed and online media. A positive mention of a new site in an article or news story would not cost anything, while such a mention could result in thousands of visitors overnight.

A new product, service, event or even a contest or a promotion may catch the attention of a potential visitor.

An alternative way of getting coverage from the press is to hire a public relations firm with enough contacts in the media and press world. They will assist in creating



newsworthy events as well as in the distribution thereof to the right people in the media industry. Outsourcing public relations will probably direct more traffic to the site at a relatively low cost per visitor. Professional people deliver a professional service and the site and business receive the benefits. (Creating a Web Presence, 2000; Patterson, 1997:47; Wilson, 1996d)

- Advertising in newsletters and newsgroups

A great deal of advertising arrives from advertisements in targeted e-mail newsletters. While reading through interesting material the reader casually glances at, or reads through the advertisement. URLs serve as clickable hyperlinks to enable readers to go directly to the site by clicking on the URL in the newsletter.

Publicise the new web site in appropriate newsgroups that are relevant to the business or product, after some homework on the accepted etiquette of the specific group or groups has been done. This is an excellent way of getting an idea of what others in the same industry are doing and it also provides the opportunity of keeping abreast of the trends in market and industry. (Creating a Web Presence, 2000; Patterson, 1997:47; Wilson, 1996d)

- Keyword purchase

Purchase keywords on the major search engines and directories. When a user enters a search phrase, which includes the specific phrase, a colourful animated banner pops up above all the search responses and immediately catches the eye. This kind of advertising is sold on a CPM basis and the cost is relatively high, because of its specific target hit.

- Search engine positioning

Finally, it might pay off to hire a company to do a search engine positioning. This include the use of Meta tags and HTML, which are discussed in 2.3 (Technological issues)

#### 2.5.3.4 Checklist for web site promotion

Promotion plays an extremely large role in the overall success of new and existing web sites. Table 2.17 displays important techniques regarding Web marketing as discussed by Ellsworth & Ellsworth (1995) and Wilson (1999e).

**Table 2.17 Important techniques in Web marketing**

| Wilson   | Ellsworth & Ellsworth  |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Request links on industry sites.</li> <li>▪ Include the URL on company stationary, cards and literature.</li> <li>▪ Promote by using traditional media.</li> <li>▪ Request reciprocal links from complementary web sites.</li> <li>▪ Issue news releases of newsworthy events to web periodicals and send news releases to print.</li> <li>▪ Publish an e-mail newsletter weekly, monthly or quarterly to keep in touch with the visitors.</li> <li>▪ Join a mail facility such as Yahoo, which is big and free.</li> <li>▪ Join a banner exchange program, which means that you agree to show a rotating banner on the site for one of the other link exchange members and they will do the same in return.</li> <li>▪ Request visitors to bookmark the site in order to revisit the site regularly.</li> <li>▪ Install a "signature" in the e-mail program</li> </ul> | <ul style="list-style-type: none"> <li>▪ Create a sense of curiosity about the site and what it has to offer.</li> <li>▪ Provide an item such as a "what's new" page that changes frequently.</li> <li>▪ Offer links to interesting related databases and site, Web guides, repository of images and other fields of interest.</li> <li>▪ Provide a facility where the user can interact, an " <b>ask the expert</b>" option. Answers via e-mail are essential.</li> <li>▪ Link with other companies offering link opportunities.</li> <li>▪ Register with different search engines to increase the location of the site.</li> <li>▪ Support Web activities such as discussion lists, news groups, e-mail to make the site visible.</li> <li>▪ Promote the site by means of traditional marketing media.</li> <li>▪ Place the URL on every piece of corporate literature, stationary etc.</li> </ul> |

(Ellsworth & Ellsworth, 1995:282-290; Wilson, 1999d)

#### 2.5.4 Links

Links from one web site are becoming increasingly important, because the search engines are flooded with millions of web pages, which increase daily. More and more people find web sites through printed references or by means of links from other sites

When the site links to other sites, which entertain, educate and serve the visitor, value is added to the visitor involved. It is sound practice to link to sites, which add value to the site.

Establishing a link page for the industry and keeping it up to date and as complete as possible, is a certain way of attracting visitors. These links add value to the site, results in visitors coming to the site from a link in another site and are of value to the visitors.

(Ellsworth & Ellsworth, 1995:277; Wilson, 1997b; Wilson, 1998a)

### Multiple doors of entry

To multiply web pages is an excellent and working strategy to increase the number of ways people enter into a web site. By increasing the number of web pages in a site the chance of being found is bound to increase. Each carefully planned web page becomes another door of entry to the web site. Ensure that there are active links to the other pages of the site.

The web site gets exposure by linking it to and from different sites in the industry as well as by creating a new web site supplying information and links regarding the industry and related fields. In other words one site could be designed into different sections and be advertised totally separately.

It is good marketing practice to provide tools and resources in the web site relating to the field of interest or the industry. Another strategy is to offer links to different data bases collections of Internet and web guides, searching tools or a repository of files and images relating to the business. Users, who find a rather complete collection of links to high quality links, are bound to add the web site to the favourites and return time and again. (Ellsworth & Ellsworth, 1995:271; Krause, 2000; Wilson, 1996c)

### **2.5.5 Attracting visitors and increasing traffic to the web site**

It is important to induce visitors to revisit a web site and there are multiple ways to accomplish a potential revisit. Following are a number of examples:

- Remind visitors via e-mail after they have subscribed to the free e-mail newsletter.
- Request and remind visitors to bookmark and add the site to their "**favourites**" list.
- Focus on the curiosity of the user. A large, but interesting and well-navigated site will cause a user to return for more information and to satisfy curiosity.
- Provide a "**nice to have**" or "**what's on**" feature providing interesting, fresh and useful information.
- Supply impressive content of tremendous value and aim to have the site mentioned in the media.
- The content of a web site should consist of the some of the following features:
  1. Information, consisting of articles, reviews or links to other sites in the field.
  2. Free software downloads, if applicable.
  3. Entertainment such as games, music, photographs, videos etc.



4. Online services such as calculators, submitters and site monitors.
  5. It should provide a niche and build the offerings of the site with such excellence that people are attracted to the product that has been created.
  6. It should offer something free, host a contest with worthwhile prizes and make sure the visitors know that the answers to the questions can be found in the web site.
  7. The information should be presented in digestible chunks and easy to follow instructions regarding the navigation should be provided, if necessary.
- (Wilson, 1999e; Ellsworth & Ellsworth, 1995:270; 271)

## **2.5.6 Search engines, directories and portals**

### **2.5.6.1 Search engines**

Internet search engines are sites specially designed to assist users in finding information stored on other sites on the WWW. Search engines work in different ways, but they perform three basic tasks:

- They use important words and search the Web or selections thereof.
- They list the words in an index as well as the location thereof.
- They allow users to look for words or combination of words found in the index.

Search engines employ software tools called "spiders" to build lists of the words found on the Web. The process is called "web crawling".

The owner of a site uses Meta tags to specify key words and concepts under which the page will be indexed.

According to Wilson (1997a; 1998a) it is important to develop an engaging title page for each page in the web site. The more key words and the longer the title, the better.

Following are important steps for the preparation of web pages for optimal indexing on the search engines:

- Write a descriptive title page of five to eight words for each page. Use descriptive key words along with the business name on the home page. Brainstorm and list more or less 20 well thought through keywords that visitors would probably search for

when trying to find the business. Place them in a Meta tag at the top of the page between the <header><header/header>tags.

Place the words at the top of the page in the following way:

**<header> <title> programme in design</title></header>**

- Write a page description of 200 to 250 characters, by selecting the most important keywords and place this at the top of the page in the same format as described above.
- Submit the page/s to the important web search engines and directories.
- Gateway pages

With search engines indexing 50 to 100 million web pages, it is necessary to write the content to suit the search engine for a high ranking on a search. Web pages that are written to suit the search engine are called "gateways" or "doorways" or "bridge pages". They provide a gateway to the rest of the site for people coming from a particular search engine. Because the different search engines have different specifications a gateway page for each major search engine is compulsory.

The following characteristics are found with regards to a gateway page:

1. The page appears high in the searches.
2. Nearly all the links go to another domain name.
3. A particular word or phrase seems to be repeated in the title using different capitalisation.
4. A word or phrase pops up again and again in the text of the page.
5. A page with few words says something like "to learn more about ... click here."

The following questions need to be answered when making the gateway page:

1. How do you want to introduce a visitor to the site?
2. What message or feeling do you want to convey?
3. What keyword or key phrase do you want to emphasise?

After the questions have been dealt with, the pages have to be prepared in HTML as defined above and then submitted to the nominated search engines.

(Franklin, 2001; Krause, 2000a; Marketing on the Internet, 2000; Webopedia, 2001; Wilson, 1997a; Wilson, 1998a; Wilson, 1999a)

#### 2.5.6.2 Directories

Internet directories have developed into popular search tools. A directory is a kind of file that is used to organise sites / files into a hierarchical structure. Human editors use manual submissions to create a directory, therefore redundancies caused by automatic software submissions are eliminated. Directory listings are valuable, because they power many indices and portals and they attract major traffic.

The editors of the directories decide on the title and description of the site submitted. A sound strategy is to include a concise, accurate and clear meta-description on each page. Then submit to the most appropriate category.

Open Directory Project (ODP) is a directory, which powers numerous other databases such as Netscape, AOL, Google and Lycos. It needs mentioning, because numerous search engines, directories and portals use this database as part of their operation. This is in actual fact a volunteer index of site listings.

The directory is a combination of a reference library and yellow pages and volunteers are in charge of the different categories. They edit the sites submitted to the specific category. (Bruemmer, 2000; Directory, 2001)

#### 2.5.6.3 Portals

A portal is a web site that offers numerous resources and services such as on-line shopping malls, search engines, e-mail and forums. Initially portals were online services that provided access to the Web, but most of the search engines have transformed themselves into portals, because portals attract a larger visitor group and keep the attention of the visitors to a much larger extent.

(Lynch, 1998)



Following are three definitions of a portal:

- "A 'gateway' or site that offers hundreds of links to new and exciting sites on the Internet. Portals developed as a service to people requiring assistance in getting to their destination sites. Portals are meant to be transition pages that help web surfers find what they are looking for. Portals typically function as in-and-out sites, not destinations. " (Dove, 2000)
- "A portal is any site that attempts to organise and streamline the on-line universe for anyone who chooses to (virtually) enter through that particular door." (Crawford, 2000)
- "The portal principles described as a web site with a wealth of content, providing a variety of services, which includes search engines, directories, on-line shopping, news, chat-rooms and e-mail. The purpose of a portal proves to be one integrated system to simplify the collection and updating of information and present it to the user in an integrated front-end interface."(Meltzer, 1999)

Sutherland, cited by Dove, (2000) states that portals must offer other features and essential services to ensure that visitors return to the site, otherwise they can go directly to the other site once they know the way on the web. Services such as e-mail personalisation and favourites are essential for revisiting purposes.

The following criteria determine the visitor's choices:

- Ease of use.
- Services offered.
- Performance.

Even though a site should have a pleasing "look and feel" (aesthetically pleasing) the most important factor remains the relevance of the content and the ease with which the information and the links can be accessed.

**Focused** portals are valuable for specific surfers who are looking for information in a specific field or industry. These focused portals provide more depth and value to an interested visitor. The important fact here seems to be the development of content portals that serve specific niches. The bigger and the broader the portals become, the less depth they have and the more difficult the searches become.

A typical **content** portal would be one that provides communication services (free e-mail and chat facilities), delivers news and relevant information on different countries and territories, serves users who want to use the web rather than just read content.

(Dove, 2000)

The site developer needs to decide whether the site should be a portal with some news and services or a destination with a few links. The site cannot be both. Real content portals deliver services required by the visitor, as well as knowledge in context where the content is valid and functional.

AltaVista.com is an excellent example of a truly functional content portal, which brought together content from some of the world's biggest and most respected news and information sources. The result of a portal such as the above is a significant step forward for personal empowerment through information.

Users of such a portal can customise the content according to their interests and preferences, they can enjoy live news, real-time stock quotes, exciting entertainment, live sports scores and a host of other live content that refreshes instantaneously and is available 24 hours a day.

(Dove, 2000; Melzer, 1999)

Search engines can transform into directories or portals if the need arises. A search engine can fall in the category of a directory, but still work as a search engine. Table 2.18 displays a number of search engines as they appear as directories, portals or search engines. The preference could change at any time.

**Table 2.18 Significant search engines, directories and portals**

| Search engines | Directories            | Portals   |
|----------------|------------------------|-----------|
| Google         | Open Directory Project | Lycos     |
| Northern Light | LookSmart              | AltaVista |
| Infoseek       | Yahoo                  | AOL       |
| Excite         |                        |           |

## 2.5.7 E-mail

Effective e-mail can be one of the most important tools in marketing a business on the Web. By means of this tool the potential visitor can be reached and information can be retrieved from him.

### 2.5.7.1 Aliases

An alias is an extra e-mail address for a person, for instance an alias, which contains all the e-mail addresses of the subscribers. It is important to put the addresses in the bcc: field (blind carbon copy) to ensure that all the e-mail addresses are not visible to the subscribers.

It is possible to have multiple aliases, each for a different purpose. A business might use info@domainname.com, as well as education@, design@, students@, and dozens of others. Each alias can be forwarded to a different local e-mail address or all to the same address. In this way a single e-mail can be distributed to different individuals at one company.

(Brian, 2001c; Wilson, 1996a; Wilson, 1997a)

### 2.5.7.2 Filters

Filters help organise the e-mail from a web site when the load of mail becomes too much to handle individually. The filter can look for a key word on the subject line, or for one of the aliases, and put all mail with the specific name into a separate folder.

### 2.5.7.3 Databases

E-mail to database programs are becoming more and more popular. When collecting information from a survey, or names and addresses of visitors, a program can be set up which automatically enters this information into a database on the web site. The data can occasionally be downloaded for merging into a desktop database. Once in a database one can study the responses from many different angles, and learn a lot about the web visitors.



#### 2.5.7.4 Autoresponders

There are several ways of distributing information automatically, which can save a tremendous amount of time.

An autoresponder or autobot is a kind of program, which automatically sends a specified text via e-mail whenever it receives an e-mail message. The more sophisticated programs will send different messages depending upon the word placed in the subject field. The Internet Service Provider is able to set up this kind of service.

A second method involves using a "forms-to-email" cgi program such as cgiemail. The information to be distributed has to be placed into a text file on the web server.

Whenever a visitor places his e-mail address into a form on the web page and presses the "submit" button, the text is automatically sent to the visitor.

#### 2.5.7.5 Forms-to-email

By using forms, various kinds of contact information such as name, address, telephone number and answers to multiple-choice questions with regard to the seriousness of the prospect can be obtained.

With mere e-mail response links on a page, people tend to forget some of the vital information. The response form is powered by a cgi program, which resides on the computer of the Internet Service Provider. The program takes information from the form and instantly sends it to the receiver in a nicely formatted e-mail message.

By means of specific programs and the use of filters the "stationery" feature, responses can automatically be sent out from a desktop computer whenever a certain word or phrase appears in an e-mail message.

#### 2.5.7.6 Subscriptions

A powerful way to extend a web site marketing strategy is to allow people visiting the web site to subscribe to an e-mail newsletter. Provide a form box on different pages in the site where visitors can place their e-mail address and additional information if necessary.

By means of a specific program, such as cgiemail forms-to -email in conjunction with a mailing list manager program, such as Majordomo, these subscriptions can also automatically be done. Cgiemail as well as Majordomo are freeware programs that work well for the specific purposes and are therefore mentioned and generally used.

It is necessary to provide clear instructions on how visitors can unsubscribe themselves in each newsletter. This is good netiquette and will minimise the "unsubscriptions" that have to be processed by hand.

E-mail is one of the most significant elements of marketing and should be incorporated in the market strategy of every business.

(Alessi & Trollip, 2001:375; Brian, 2001c; Ellsworth & Ellsworth, 1995:267; Hippleheuser, 1999; Marketing on the Internet, 2000; Wilson, 1996d; Wilson, 1998b)

## 2.6 Communication issues

"The web is an increasingly powerful global interactive and dynamic medium for sharing information " (Kahn, 1997:5)

The web should be used in any of the following ways:

- As a medium of collaboration, discussions, exchange and communication of ideas.
- As an international platform for the expression and contribution of artistic and cognitive understanding and meanings.
- As a resource for the identification, evaluation and integration of a variety of information.
- As a medium for the participation in simulated experiences, apprenticeships and cognitive partnerships. (Kahn, 1997:43)

The Web has become a primary means of communication among people, because any form of file and/or information can be moved from one computer to another.

Communication on the Web may be from one individual to another, one individual to many others or many individuals to each other.

Computer mediated communication (CMC) can be divided into two different categories:

- **Synchronous.** - Parties communicate both ways at the same time, thus real time communication.
- **Asynchronous.** - A time lag among the parties involved; transmitting and receiving messages at different times, like an answering service.

Table 2.19 displays the different synchronous and asynchronous techniques.

**Table 2.19 Synchronous and asynchronous techniques**

| Synchronous techniques | Asynchronous techniques |
|------------------------|-------------------------|
| Chat rooms             | E-mail                  |
| Audio teleconferencing | Listservs               |
| Video teleconferencing | Discussion groups       |
| Web phones             | Bulletin boards         |

(Clarke, 1998; Alessi & Trollip, 2001)

### 2.6.1 E-mail

Different ways of communicating exist in cyberspace and e-mail seems to be one of the most significant ways to communicate. The visitor can easily be reached online by means of e-mail.

E-mail is an asynchronous communication technique, because the mail waits in the recipients' electronic mailbox until they read it. There are time delays in the communication process.

(Alessi & Trollip, 2001; 375; Clarke, 1998; Shneiderman, 1998:483; Wilson; 1996d)

### 2.6.2 Discussion groups

Both **mailing lists** and **newsgroups** are on-line discussion groups (asynchronous techniques) and are highly targeted, because they focus on very specific topics.



Research has indicated that there can be as many as 10 000 readers with a special interest in a topic. It will be a clever strategy to establish the profile of potential customers, find out where they congregate and join the discussion group wherever it would add value to the site.

(Ellsworth & Ellsworth, 1995:50, 283; Shneiderman, 1998:485; Wilson, 1996d)

- Newsgroups

Newsgroup discussions on a specific topic are found on the computer of the Internet Provider. A visitor looks at the comments and can add their own. This way a lengthy discussion can develop.

If there is a message to be conveyed, do it subtly by including your ""signature"" at the end of the e-mail message. This is a miniature advertisement for your business and could include valuable information to communicate to interested parties. A well-designed "signature" will definitely produce hits on the web page, because the people are interested in the topic. (Ellsworth & Ellsworth, 1995:49-50, 283; Shneiderman, 1998:485; Wilson, 1996d)

- Mailing list

With a mailing list the tendency of a more serious discussion involvement has been pinpointed and the comments from the discussion group accumulate in the e-mail box or in a daily digest form. This kind of approach works well when directed to a specific group. (Niche)

Hosting a mailing list of customers or users proves to be great customer support and also sparks revisits. When hosting such a list, one has to take into account that the maintenance of keeping the address list clean and moderating the discussions could take up some time. This could be an asset to the web site, especially if it could be put to good use to promote the business.

### **2.6.3 Bulletin boards**

In contrast to the virtual world of the Web, a bulletin board in actual life is a device where to people can pin pictures, announcements, advertisements etc. A virtual bulletin board is a Web site to which users can connect and access or post items. These items can be in the form of multimedia programs, text messages, images or photographs.

A bulletin board may be restricted to a specific group who have to produce a password to access or it could be open to the public. Bulletin boards are asynchronous because users access the site at their own convenience. Information is not delivered to the computer, as is the case with e-mail. Users have to visit the site and browse through the contents.

(Alessi & Trollip, 2001:376; Ellsworth & Ellsworth, 1995:47-50,283-288; Shneiderman, 1998:148; Tips for writing..., 2000; Tyson, 2001; Wilson, 1998b)

#### **2.6.4 Listservs (Mailing list server)**

A listserv is a mailing address that contains a list of other mail addresses. Any member sending a mail message to the listserv actually sends this message to all the addresses on the list.

The list owner, who administrates the listserv, sets up a listserv. The person enters the names and e-mail addresses of the members of that specific group. Members then automatically send mail to the whole group.

Different versions of listservs exist. Some have open subscriptions and some of them are closed, which implies that entries have to be made by the list owner.

Listserv is a special kind of e-mail, thus also an asynchronous technique.

(Alessi & Trollip, 2001:375; Tips for writing...,2000; Wilson, 1995)

#### **2.6.5 Chat rooms**

Chat rooms are a form of synchronous communication. It is a web site to which users can connect. A user can send a message to the site and it is immediately visible on the screens of all the users connected to the site. Communication by means of a chat room takes place in real time, like a telephone conversation, except that the conversation is in writing.

Chat rooms may be public or private. Specific groups of users e.g. members in the design industry working on a specific project may have access to the chat room.

(Alessi & Trollip, 2001; 376; Tyson, 2001)

### **2.6.6 Audio teleconferencing**

Audio teleconferencing is similar to chat rooms and is also an example of synchronous communication. Two or more users have to connect to a Web site, which has to support audio conferencing. Plug-ins and additional software are available for Web browsers that do not support this technique.

All the users participating in the teleconference have to arrange a specific time. The users have to be in possession of microphones and speakers. Some teleconferencing software allows users to see the information on the other user's screen. This feature allows the users to discuss data that they can all view on their computer screens. (Alessi & Trollip, 2001; Patterson, 1997:99)

### **2.6.7 Video teleconferencing**

Video teleconferencing is also a synchronous technique and very similar to audio teleconferencing. Computers connected to the Web site have to be equipped with microphones, speakers, video cameras and special software e.g. Microsoft NetMeeting. The principles of operation are exactly the same as that of the audio teleconferencing. (Alessi & Trollip, 2001; Patterson, 1997:101; Shneiderman, 1998:491)

### **2.6.8 Business opportunities through information and communication**

Cyberspace is a business communication vehicle and not a selling tool and the companies and industries that realise that, have booming businesses. According to research strategists from successful marketing, communication is first and foremost and mindset is crucial in order to develop the right focus. This is a total paradigm shift, as this differs completely from the traditional way of thought.

The cyber surfer wants different kinds of information such as information that will assist them in:

- investing more wisely,
- their jobs,
- planning vacations,
- learning more about things that interest them,
- researching more effectively,
- buying online; and



- Customer support

The web has the ability to provide the very best in customer support. People want to communicate; they want to be heard and they want to feel special. This is easy with the different possibilities available with regard to e-mail.

Frequently asked questions (FAQ) or a troubleshooting decision tree, are great ways to assist customers with queries. The greater the wealth of information, the more valuable a searchable database becomes. This is done by putting the customer service and support operations online and posting the answer to a frequently asked question online by means of the autoresponder e-mail program.

Another advantage of substantial communication regarding customer support on the web is that enquiries by phone can be referred to the site for detailed and complete information. This is bound to lessen the amount of phone calls and will ensure satisfied customers.

Wilson (1998b)

## **2.7 Summary of literature review**

This review encompasses all the research done to answer or partially answer the issues regarding the main research question and the sub research questions.

The research also covers the important issues regarding the design and development of a successful and functional product; a web site for the Program in Interior Design

During the course of the research the focus is placed on:

- The functionality of a Web site as a marketing tool.
- The importance of communication within the global marketing environment.