



Chapter 1

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Chapter 1

Introduction

1.1 Overview

This thesis reports on research conducted to determine the issues relevant when developing a web site in order to fulfil the need of communication and to promote learning in general. (Distance learning and class room activities)

The proposed web site is a product of a two-sided research with different perspectives:

- 1) Education and internal communication (**F. van Zyl**) and,
- 2) Marketing and global communication (**M. Meter**)

All the shared information throughout this study will be indicated by the following symbol: [♣]

The ease, with which Internet communication can take place over distance, makes it an effective medium for a constructivist teaching style, combined with cooperative learning, in a distance learning environment.
(Cronje & Clarke, 1998)

Research by Gehlauf, Shatz & Frey (1991:20) generates a debate concerning the outcomes of the technology-advanced classroom. According to Russel (1999) no significant difference is visible in the results between the students in the traditional classroom and students in the electronic classroom. It is important however that the presentation of the content is adapted to the different settings in as far as design and technique are concerned. (Gehlauf, Shatz & Frey, 1991)

Cronje (1997) states that learner support is not related to distance. He further believes that learners form support groups irrespective of geographical boundaries. Factors such as professional and academic interests as well as shared tasks are more important

Clarke (1998) made the following assumption:

"To create the essential learning factors of personalized feedback and interaction, a course that makes exclusive use of the Web for learning should be supplemented by computer-mediated communication (CMC) that provides this."

"The medium of instruction will have no greater effect on the quality of learning than will a grocery truck on the nutritional value of the food it delivers."

(Cronje & Clarke, 1998)

Research done at the **University of Pretoria** by Cronje & Clarke, (1998) indicated however that students benefited from a course where WWW and CMC (computer mediated communication) were applied. The approach and methodology provoked their interest. Expectations of expanding their knowledge and capabilities around on-line learning were fulfilled.

The use of web in learning is thus an option to promote aspects of learning and education. Limitations with regards to social contact and interaction with fellow students are however something to keep in mind.

"Distance is dark"

(Cronjé & Clarke, 1998)

Quoting Cronjé and Clarke, imply that the instructor has not got the visible evidence of the students on course, which results in numerous problems (Cronjé 1997). This will be discussed in the literature review (Chapter 2).

The majority of learning institutes e.g. technikons, and universities make use of the WWW for communication and information resource.

The **Program in Interior Design** at the **University of Pretoria** has been in need of a web site for different reasons. Until now they have made use of communication through personal e-mailing between students and lecturers and vice versa. A more structured and focussed network of information and communication channels are essential.

1.2 Motivation for the study

1.2.1 The research problem

The **Program in Interior Design** experienced difficulty in communicating information between students and fellow students as well as between lecturers and students. The normal e-mail facility became inadequate. Especially students not in close range of the university, battle to return

assignments and projects completed to the lecturer in time. The following problems arose from there:

- ◆ The **Program in Interior Design** was repositioned, now being part of the Department of Architecture, Landscape Architecture and Interior Design. With the content and composition of the **Program** drastically changed, a more focussed and job-orientated course is advertised with the focus on communication, design and management.
- ◆ Postgraduate students with full-time employment have the minimum time to attend classes and most of these students have access to a computer and Internet connection. (Refer to Figure 3.4)
- ◆ With the rapidly growing technology, especially in the education today, no one should be left behind as far as opportunities are concerned. With students scattered all over the country and some just out of reach of a learning center such as a university (U.P), it is essential to look at possible ways and means. to accommodate those students. This need provides the possibilities for distance education.
(Travelling, distance, transport)
- ◆ The responsibility of financing studies, which has become a worry to a majority of students, results in taking up jobs before and during studies. This causes difficulty attending classes and a student with the necessary skills and talent does not have the opportunity to enroll for specific courses.
(Financial)
- ◆ The time saving factor is also high on the priority list when dealing with education nowadays. Quality learning in a condensed time period needs good management. It will therefore be of great value to minimize unnecessary travelling etc. and rather spend that time dealing with educational matters.
(Time saving)
- ◆ Education, like all other industries today, has to keep up with changing trends and developing technologies. This implicates contact with the most recent findings and methods/strategies.
(Technological development)

All the above factors indicate that the development and use of a multimedia product is necessary for effective learning of students in the different circumstances which arise from today's living.

1.2.2 Purpose and objectives of the study

The purpose of this research is to establish the facility to convey information and to develop comfortable communication channels for students and lectures.

The objectives to meet this purpose are the following:

- ◆ Integrate study guides for all subjects.
- ◆ Develop a 'toolbox' for research methodology.
- ◆ Build up a database for relevant literature.
- ◆ Add links with the industry.
- ◆ Combine links with other research programs e.g. European Design Institute, Design Research Bulletin.
- ◆ Create occupation-orientated activities and development e.g. DSA and DEF development.
- ◆ Facilitate Internet communication between students and the department.

1.3 Research questions

The question to be answered was:

What are the issues to consider when building a web site in order to achieve effective learning and comfortable, efficient communication within an educational institute?

In order to be able to answer the main question, the following sub questions (issues) had to be dealt with:

1.3.1 Research sub-questions

1. How will effective learning be achieved?
(Content)
2. How can comfortable and efficient communication channels be incorporated?
(Communication)
3. How should a web site be structured?
(Structure)

4. What will make a web site work (which design principles should be applied)?
(Design)

1.4 Value of the research

The value of the web site as a product of the research is:

- ◆ Increasing the communication between the different levels within the Program by means of elimination of time consuming, factors, e.g. travelling and class attendance.
- ◆ Keeping up with recent technological development and achieving this through computer-mediated communication and a web-based instruction.
- ◆ The availability of general information concerning course requirements and relevant material to all persons interested.
- ◆ Recommendations for the extension of telematic studies.

The value of the research study and the relevance thereof for other similar institutions is the following:

- ◆ Identifying the target population for a specific program.
- ◆ A literature survey with relevant content with regard to an effective educational instruction and development of an efficient communication facility.
- ◆ A comparison between this study and completed studies of the same nature.
- ◆ Developing workable educational tools through the research of existing systems.

1.5 Research methodology

1.5.1 Research design

This study was conducted through an evaluation research. Trochim (1999) describes the type of study as "the systematic acquisition and assessment of information to provide useful feedback about some object" and that this "object" refers to a program or activity.

1.5.2 Population and sample

The target population for the study was primarily students presently participating in the Program in Interior Design as well as potential students interested in the Program.

Lecturers involved in this discipline and field of study were asked to participate in the evaluation of the product.

Samples were selected from:

- ◆ Current students
- ◆ Potential students
- ◆ Lecturers
- ◆ Experts in the field of web design.

1.5.3 Data collection technique

Data was collected by means of the literature review.

1.5.4 Data collection methods

- ◆ Literature Review on the relevant issues
- ◆ Interviews with the lecturers involved in the Program in Interior Design.
- ◆ Questionnaires for students and those interested in the Program.
- ◆ Focus group

The research questions and the data collection methods are summarized in Table 1.1

4. What will make a web site work (which design principles should be applied)?
(Design)

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Table 1.1 Research Questions and data collection methods.

Topic addressed and questions	Literature review	Questionnaire	Interview	Focus group
WWW and the Internet How can the Internet be used in Education?	✓	✓		
Education What does the target population need to know? How will effective learning take place on the web based program? In what way will distance learning be combined with real class contact?	✓	✓	✓	✓
Communication What methods of communication are necessary to ensure an effective web site? What does the learner need, to have access to these communication channels? Who will be communicating through these channels?	✓	✓	✓	
Structural How should the web site be structured to ensure a logic and easy use for the target population?	✓	✓		
Design What will make the web site work? Which design principles should be applied to ensure an effective site?	✓	✓		✓

1.6 Output

1.6.1 Description of the product

The product has to fulfil the need of the client to as large an extent as is possible. Therefore it is anticipated to include the following elements and provide the proposed functions and facilities:

- ◆ A multimedia program with a combination of text and other building blocks to obtain a medium to be delivered on the WWW and if necessary on CD-ROM.
- ◆ The program should ensure the learner of effective learning and communication through a variety of channels.
- ◆ Learners will be able to obtain information on the subject and will have control of the navigation.
- ◆ Lecturers will be able to assess projects delivered by the learners.

1.6.2 Description of the project team

The project team consisted of the researcher and a fellow researcher who shared tasks regarding the design, development and the production of the project. Because of the fact that the researchers, **(F. van Zyl and M. Meter)** designed and developed one web site, it implicated that they had to work close together. The same questionnaires were applied for evaluation purposes and as a result, shared information appears throughout this study. [♣]

The distribution of tasks is set out in Table 1.2

Table 1.2 Task distribution of the project team [♣]

Phases	F. van Zyl	M. Meter	Comments
Analysis			
- Goal	-Promote effective learning -Create a communication facility for students and lecturers	-Secure an optimal market strategy -Create internal and global communication channels	Two perspectives : <ul style="list-style-type: none"> academic enhancement marketing the institution
- Target	-Enrolled students in different year groups -Lecturers	-Potential students -Individuals in the Design Industry -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.
Design			
-Objectives	-Effective internal communication facilities -Tools to stimulate and enhance learning.	-Marketable product -Functional communication tool for the industry	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)
Development			
-Program editor	- <i>Dreamweaver</i>	- <i>Dreamweaver</i>	The decision of both researchers.
-Delivery system	-WWW, Internet, CD	- WWW, Internet, CD	Decision of client together with 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 Table 5.1)

1.7 Overview of research report

Chapter 1: Introduction

This chapter provides the background to the development of the prototype web site. It gives an overview of the research problem and describes the motivation for the study. The distribution of tasks between the project team members is set out in this chapter and the value of the proposed prototype as well as the research study is described.

Chapter 2: Literature Review

This chapter provides relevant information on all aspects of building a multimedia product for the purpose of education and communication. The information gathered will support in answering to the research questions in 1.2.

Chapter 3: Design, Development and Production

The different stages of design and development are described in this chapter. All the changes that were made during the development are displayed and discussed in detail. The data collection methods used in this study are described as well as the samples used for the evaluation and testing of the site. All the data regarding the target population are displayed in this chapter and the needs, media, and content are analyzed.

The design principles applied to the program are tabulated in Table 3.10 and the derivation of these principles is also discussed in Tables 3.13 and 3.14. The researcher described the development phase step by step and screens of the different stages in the development are displayed throughout. The researcher gave a short discussion on the authoring tool used and general information on the proposed delivery system.

Chapter 4: Evaluation procedure

This chapter provides a definition of evaluation in general and describes the evaluation process according to the model of Trochim. Formative and summative evaluations are discussed and the different stages and activities involved in each evaluation are indicated. The researcher described the samples used for the evaluation and discussed the instruments in detail. The research questions, which had to be answered by the evaluation instruments in the summative evaluation, are mentioned in this chapter and the results on these answers are provided in Chapter 5.

Chapter 5: Findings

All the results of the data collected in the previous chapter are set out in Tables 5.2 to 5.5. The researcher discussed these results in terms of the research questions and the findings are set out in figures in order to display the differences and comparisons between aspects of the evaluated dimensions clearly. Comments and suggestions by the different respondents are included in this chapter to indicate the general impression of the evaluators.

Chapter 6: Conclusions and recommendations

The last chapter of this thesis discusses the findings with regard to the literature reviewed in Chapter 2. In this chapter the researcher indicates whether the main research question has been met by means of the sub questions. All the relevant evaluation instruments used to evaluate different aspects of the web site are discussed.

Limitations of the study and recommendations for further study or related research are also discussed in Chapter 6.