CHAPTER ONE

1.1 BACKGROUND OF THE STUDY

Digital museums appeared in the Internet many years ago. First digital museums have emerged since 1991. However, despite the identity and quality of exhibitions their exhibits are comparable with traditional art museum publications albums, catalogues and books, while the Internet can create a qualitatively new displays, where previously impossible or inconsistent methods of display historical and artistic heritage have been set up. What is the identity of the museum, in which you enter? The main feature is that here are collections, which actually stored in different museums in different countries or even on different continents or does not exist at all.

1.2 What is a digital museum?

The first definition of what a digital museum is, was simply the website of a physical museum. A concept of a museum "without walls" had, however, been introduced as early as 1953 by Malraux, who imagined it being an environment for the presentation of mainly photography and art. The term *Digital museum* was first coined by Tsichritzis and Gibbs in their article *Digital museums and digital realities* referring to a museum constructed for a digital landscape and functioning as a service rather then a location.

Another early idea of the digital museum was the VR digital museum that was a copy of the physical museum in its architecture, and it generally contained 2D and 3D images of items from the museum's collections. The digital museum later evolved to refer to web sites of museums that contained different types of media (multimedia) to present information, such as images, text, sound etc.22 This is still partly the case, but a digital museum is today considered to hold a larger complexity then just different types of media-presented information on a site. The digital museums have become a matter of not just basic information, but also of how the information is being presented to the users.

1.3 Definitions of a digital museum

The definition and idea of the digital museum is still under construction. Just as with the technology, the idea and definition is under constant change, and what once might have qualified as a digital museum in its encyclopedic definition, may not do so today.

Today the definition of the digital museum is coming closer to that of what a physical museum is. It is no longer only a website with information presented.

1.4 STATEMENTS OF THE PROBLEM

Museums are physical locations which cannot be accessed without a visit to these physical locations. Museums contain artefacts of cultural heritage and history which people need to have access to reinforce a sense of history and cultural identity. People cannot have access to museum that is hundred

of kilometres from them. Existing physical museum even when they are close, are normally so fully booked that people cannot have access to them unless they book months in advance. This study is focused on finding a solution to these problems where people can have access to the museum even when the physical artefacts are far away.

1.5 PURPOSE OF STUDY

The purpose of this study is to thoroughly check the viability of the idea of the digital museum. And to see to what extent that a physical museum can be represented by a digital museum which is accessible online

1.6 SIGNIFICANCE OF THE STUDY

The internet and the World Wide Web have brought huge advances in how the world interconnects with one another. This digital museum is going to help us in our interactions with each other and one another. People from distant countries will be able to visit the digital museum to learn more about Nigeria.

1.7 OBJECTIVE OF THE STUDY

This project has the following objectives

1. To make artefacts of cultural and colonial history available to all thorough the internet and world wide web as a medium
2. To increase historical and cultural awareness in the general populace.
3. To make remote and distant museum contents accessible to all.

4. To reduce the cost of preservation of historical heritage by adopting online archiving and story of historical detail

1.8 SCOPE OF THE STUDY

This work is limited to the concept of the digital museums of Nigeria as it related to the general colonial history of Nigeria. The digital museum is not of the specialist kind like the war museum. Its scope is Nigerian history particularly its colonial history. It does not cover every city in Nigeria it is limited to the a few major cities like Lagos and Enugu.

1.9 LIMITATIONS OF THE STUDY

This research work was faced with a lot of difficulties. Time constraint was one of the limiting factors in carrying out this study.

Financial constraint also constituted in carrying out an in depth study of this project. Limitations to the extent in which data could be collected also constituted a problem. Irregularities in power supply also dealt harshly with the researcher. Collection of photographs from the archives was particularly difficult as seeing the chief archivist in the museums visited was almost close to impossible. This resulted to huge dependence on internet images which is notoriously known to be doctored and unreliable.

In spite of the above mentioned difficulties, some data was collected which will be analysed later.

1.10 ASSUMPTION OF THE STUDY

While researching on this work, i came up with a couple of assumptions which include:

1. I would be able to finish this work before deadline
2. In the long run, this research work would be accessed globally.

1.11 DEFINITION OF TERMS/ VARIABLE

DHTML – Dynamic Hypertext Mark-up Language. it is a combination of HTML, Cascading Style Sheets, JavaScript and Macromedia Flash Mx used to create animated and interactive websites.

HTML – Hypertext Mark-up Language is a client-side scripting language for Website design.

PHP – (Archaic: Personal Home page) Hypertext Preprocessor. These languages work closely with the Web server to interpret the requests made from the World Wide Web, process these requests, interact with other programs on the server to fulfil the requests, and then indicate to the Web server exactly what to serve to the client's browser.

SQL – Structured Query Language, basically used in querying the databases to retrieve, updates, and review database

CSS – Cascading Style Sheet. A client-side scripting language, used in styling the webpages for a greater user-experience.

ASP – Active Server Pages. A server-side scripting language like the PHP. These languages work closely with the Web server to interpret the requests made from the World Wide Web, process these requests, interact with other programs on the server to fulfil the requests, and then indicate to the Web server exactly what to serve to the client's browser.

SERVER – A specific application, called a Web server, will be responsible for communicating with the browser.

PHOTOSHOP – Graphics applications

WEBSITE – A website is a collection of information about a particular topic or subject

APACHE – A server technology, designed to assist the webmaster in utilizing database and Server technology.

UNIX- an operating system

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Libraries and museums are both storehouses of information and therefore important resources for lifelong learning. In his manual of museology Friedrich Waidacher (1993, p. 286), a respected Austrian museologist, compares libraries and museums and reaches the following conclusion: libraries collect documents as information whereas museums collect authentic and original objects. The difference between mentefacts and artefacts, as Waidacher calls it, describes the differences between libraries and museums. For libraries the ideas and the knowledge stored in the media are important whereas for museums objects are the essence and the source of museum education (p. 283). These differences lead to different attitudes towards the use of information technology in these institutions. In order to understand the problems museums meet when using information technology for lifelong learning, especially when establishing an educational presence on the Internet, it is useful to take a look at the development of digital libraries.

The rapid development of information technology in the last two decades was likely to

influence both institutions. Whereas libraries adapted to the process of change, museums seemed to lack behind almost a decade. For more than 20 years visions of electronic libraries are presented (Binder 1996, p. 215) and libraries

have embraced information technology in order to make that visions reality. With the advent of the Internet, especially the World Wide Web, a new type of library has developed: the digital library, also know as digital or electronic library. Binder (1996, pp. 215f) points out that the content for digital libraries is available on the Internet and, what is more, often free of charge. The Internet offers up-to-date and relevant publications of experts, researchers, as well as private, scientific and governmental institutions and publishers. The advantages of the digital library are, according to Binder (1996, p. 216), that information is available immediately; that high-quality forms of browsing and retrieval are possible; that new forms of interactivity and linking of information are available. These advantages make the digital library an ideal setting for seeking information and for noninstitutionalized lifelong learning.

For museums the situation is different, they procrastinate to open up towards information technology. In his 1997 article *The Transformation of the Museum and The Way It's Perceived* Harold Besser, a professor of information science and museum informatics, compares the use of information technology in libraries and museums and comes to the conclusion that museums are a decade behind libraries (p. 154). But Besser states that museums are on the way; the process has started with collection management systems and is now heading towards interactive multimedia exhibition systems and the World Wide Web (pp. 163f). Ten years earlier, in his article *The Changing Museum* Besser (1987, p. 14) speculated how technology will change the role of

museums in our society and suggested that the “museum will change from a static repository of information (akin to an archive) to a more dynamic, interactive information source (more like a library)”, an idea that may come true in the future.

Deirdre C. Stam (1996, pp. 375-377) describes four basic inhibiting factors for the delayed adoption of information technologies in museums. These factors are professional issues like proprietary attitudes toward museum information and the desire to retain control; economic factors like funding for investment in computer infrastructure, equipment and personnel; technical issues like resistance to new technologies on the part of largely humanistically-trained staff and the primitive nature of early technologies that could not meet the highly visual needs of museums; and administrative issues like unfamiliarity with advances in allied fields and inadequate understanding on the part of administration and trustees. Another reason why the process of change in museums is taking so long lies in the traditional preoccupation of museums with material remains which is still strong. As Pearce (1986, p. 198) points out, the four decades of post-war curatorship concentrated on documentation and storage. In the 1980s there was a change towards studying objects more seriously. Related to this has been a shift of paradigms in museology that still goes on: the importance of objects was questioned in favor of the importance of context and information (Pearce 1986, pp. 199f). Museum experts like Wilcomb E. Washburn suggested that the emphasis of museum work should be put on

information rather than on objects (1984, pp. 14f). This opinion was supported by otherslike George MacDonald and Stephan Alsford (MacDonald/Alsford 1991, Alsford 1991) who described the museum as an information utility going as far as stating that museums

need to think of information, rather than of material objects, as their basic resource (Alsford 1991, p.8). Finally this idea found more and more supporters and museums were no longer thought of as repositories of objects only but as "storehouses of knowledge as well as storehouses of objects" (Cannon-Brookes 1992, p. 501; Hooper-Greenhill 1992, pp. 3-4).

But in a lot of museums objects still hold centerstage. Therefore MacDonald and Alsford (1991, p. 305) criticize that a lot of museums are still object-oriented and consider artifacts as the raison d'être of museums, rather than a tool through which the audience learns. This traditionalist approach of defining the museum solely by the object contributes to the popular image of museums as "musty storehouses of the relics of a dead past, amenable only to the intellectually or aesthetic elite." The underlying problem is that museums have done well in building collections of information but not in

managing those resources or disseminating the information amassed, as MacDonald and Alsford (1991, p. 308) state, but the marriage of computers and telecommunications could allow museums to become information utilities. According to Alsford (1991, pp. 9- 11), museums and hypermedia are

compatible because they are both information systems since both are information-intensive environments that contain more data than the user can experience, target a number of senses, and layer information to prevent information overload. Interactive hypermedia programs can help visitors to communicate with the exhibitions on an individual level and at an individual pace.

The role as information utility combined with the use of telecommunications technologies will provide easy access to museum collections through computer networks, as Maxwell L. Anderson (1997, p. 27) predicts in his introduction to the book *The Wired Museum*. Digital technologies offer a large scale of possibilities for the dissemination of knowledge and will transform museums. In addition to the physical dimension of material objects, this transformation will give the museum another dimension, a digital one, as MacDonald and Alsford (1997a, pp. 267f) deduce in the conclusion of the same book. This digital dimension will lead to a new form of museum that enriches the objects with information: the meta-museum as it is called by MacDonald and Alsford (1997a, p. 268; 1997b, WWW). This meta-museum will consist of a physical museum and a digital dimension:

The opportunities of digital technologies for dissemination of knowledge on a scale never before possible, and the pressures to conform to audience expectations, will be key factors in transforming museums. That transformation won't mean that we lose what museums are, and have to offer, today as physical

sites conveying knowledge of heritage through the medium of material objects. It means that we will construct another dimension to the museum world - a digital dimension. (MacDonald/Alsford 1997b, WWW)

While this new type of museum is developing, the presence of museums on the World Wide Web gives some impressions on how this digital dimension of a museum could be like.

2.1 **How Museums use the World Wide Web**

There is only little research available on how museums use the World Wide Web. Some examples are the reports of Lynne Teather (1998) and Christopher Dolgos (1996) for the North America and of Gernot Wersig and Petra Schuck-Wersig (1997) for Germany.

Teather (1998) distinguishes three types of museums on Web pages, referring to a MA research paper of Maria Piacente, one of her museum studies students. Piacente has set up a typology based on an evaluation of existing museum Web pages. According to Piacente the types are: “Electronic Brochure”, “The Museum in the Digital World”, and

“The True Interactives”. The “Electronic Brochure” is “essentially an advertising sheet

format like the brochure or handout used at sites or to get visitors to come to the sites” (Teather 1998, p. 27). The second category is “The Museum in the Digital World” and means that “the actual museum was projected onto the web by means of maps, floorplans, images, online collections or exhibits, both real and

digital. Here, the real-life museum is recreated online." (p. 27). The types can vary considerably, some museums use the Web as an archive for former exhibitions, others establish searchable databases for collections information access (p. 28). The third type are "The True Interactives" where "the pages may have some relation to real museum [sic!] but they also add or reinvent the museum and even invite the audience to do so" (p. 28). Whereas Piacente suggests three types of Web museums, Dolgos (1996, p. 3f) distinguishs between two types of museum Web pages. The first type is the online brochure which provides information about the museum, opening hours, collections and sometimes floor plans.

The second type is a Web museum that brings up a selection of the physical museum on the Web and "relies on providing information about a topic as it related to the institution's mission, whether it be a science-based exploration, and art history lesson, or a 'digital' exhibit" (Dolgos 1996, p. 3f).

The findings of Dolgos and Teather respectively Piacente correspond roughly with the findings of an explorative study by Wersig and Schuck-Wersig (1997, WWW). This study classifies museum Web pages in four categories: a minimal Web presence which consists of name, address and opening hours of the museum as basic information only; a basic Web presence which includes the basic information and a short description of the museum and its collections; a basic Web presence with additional information that adds information on permanent and special exhibitions to the basic information; and finally an

extended Web presence with a home page of its own that contains information on the museum's organization and collections including marketing and interactives.

These classifications describe how museums use the Web at the moment. They indicate that currently the use of Web pages is more focused on the use for advertising and marketing purposes than on educational purposes. But there is a trend towards educational use as the survey of Stephanie James (1997, WWW) shows. James has done a survey including 33 museums around the world. For 30 percent of these museums the original rationale behind the creation of the Web site was promotion/marketing, for 19 percent to have a presence on the Web, and for 11 percent it was educational reasons.

Over times the purpose has evolved with 73 percent of the participating museums and shifted away from the promotion/marketing emphasis. Now for 38 percent of the museums the emphasis is now on greater access to collections, for 23 percent on greater educational focus, for 15 percent on increasing interactivity. The results of this survey can only indicate a trend but it offers an interesting perspective towards the use of the Web for educational purposes and learning.

2.2 The Learning Museum on the World Wide Web

From the early days of museum computerization onwards, the use of computers in museums was seen in the context of lifelong learning. As early as 1968, Robert S. Lee (1968, p. 367) saw the future role of the museum as an

educational one that can developed the museum into a powerful center of popular learning by exploiting the computer. As Lee emphasizes, “the museum visit as a learning experience is much closer to the learning-from-the-environment situation than it is to the formal teaching-learning-process in schools. The learner is in a free/access voluntaristic situation. The visitor comes to museums for reasons of his own; he explores the environment at his own pace and is his own terms. His motivation is intrinsic, he is interested in self-development in a way that is enjoyable to him. The goal of the museum is to awaken interest, to broaden perspective, to induce deeper understanding, to enrich aesthetic sensitivities”. (Lee 1968, pp. 373f)

This statement of Lee describes museum visits as learning experiences. The research of John Falk and Lynn Dierking (1992, p. 79f) shows that visitors need museum literacy, i.e. knowledge of the exhibition content and knowledge of how to use a museum, in order to be able to have a successful museum experience. This is because museums differ in one important way from all other learning settings, as Falk and Dierking state (1992, p. 77f): museums are collections of things, some intrinsically valuable, others not, but overall, objects are the essence of the museum and visitors have to connect to them with

their senses and imagination. In this context, previous knowledge plays an important role because it helps museum visitors to learn about the objects they see:

"Museum visitors must somehow perceive information before they can store it in memory. Under normal conditions, people pay attention to things that interest them. Their interests are determined by experiences, knowledge, and feelings. This is a classic feedbackloop: People learn best those things they already know about and that interest them, and people are interested in those things they learn best." (Falk/Dierking 1992, p. 100)

In order to make learning in museums visitor friendly and effective one has to consider that museum learning is different from learning in formal settings like schools or universities. In comparison to these institutions the motivation is even more important because museum visitors visit the museum of their own volition and learning is freechoice learning depending on the visitors' intrinsic motivation. Therefore Falk and Dierking define learning in museum as follows:

"Museum visitors do not catalogue visual memories of objects and labels in academic, conceptual schemes, but assimilate events and observations in mental categories of personal significance and character, determined by events in their lives before and after the museum visit." (Falk/Dierking 1992, p. 123)

As learning in museums is related to personal significance and everyday experiences, it is important for the museum to reach out to its prospective visitors and inform them about what they can find in the museum. According to Falk and Dierking (1992, p. 37) this is especially important because visitors have prior expectations about their future museum visit which influence the

museum experience. Therefore it is crucial to bring the expectations and the actual visit to a close fit in order to achieve a positive museum experience.

A good means to achieve this is to use the World Wide Web as a communication tool to reach the audience before they visit the museum. As Teather (1998, p. 15) shows, museums try for decades to extend the physical reach of the museum by means of outreach programs. Now the World Wide Web offers new opportunities to open up the walls of the museum, an opinion shared by a lot of researchers in the field (Dolgos 1996;

Falk/Dierking 1998; Jackson et al 1998; McKenzie 1997). A reason for this is that there are some parallels between museum going and visiting museum Web sites, as the research of Falk and Dierking (1998) and Dave Barr (1997) suggests. Falk and Dierking (1998, p. 8f) draw parallels between frequenting museums and museum Web sites and suggest that creating a Web experience is as complex a behavior for digital visitors as museum going because both are centered on free choice learning. Barr (1997, WWW) did some research focused on the question how museums can best use the web to extend their mandate for lifelong learning. The investigation of adult learning is a field that has been relatively neglected in museum education studies. But from what is know, the

special characteristics of adult lifelong learning are remarkably similar to interactions with museum Web sites because in both contexts adult learning is volitional (Barr 1997, p. 1f). The motivational aspects of museum visits and Web site visits are very similar, because there is a large range of different a

priori expectations of the museum experience, complete freedom to bypass or view elements for any length of time or to cut short a visit; additionally the Web adds its own special set of interface conditions that still have to be examined (p. 2). In his survey Barr investigates twelve Web sites with strong adult learning resource components, nine being museum or museum related sites
and three being learning resource sites with no museum affiliation (p. 3). The outcome is some results gained by quantitative evaluation using a Web analyzing software tool and by qualitative evaluation through direct observation. Barr (p. 3) identified six measurement keys to adult learning resources: information content, communication properties, accessibility, interactivity, feedback/community and visitor services and three qualities of Web sites: structure, complexity, and dynamics. The results of the Web site analysis can be summarized as follows:

· The typical file distribution profile found is an hierarchical series created by hyperlinking architecture. Most of the sites had four or five levels. The number of levels is less important for adult learners than the distribution of files among levels which often is of confusion proliferation at some levels (p. 4).

· In addition to the density of hyperlinks, the pattern of access they offer is important.

There are two extreme patterns: the rigid linear path and the complete random access.

The first is typically used in tutorials, the second in encyclopedias. Different adult learners are comfortable with different access patterns. Most Web sites offer a combination of these two patterns. (p. 4)

· The dynamics of adding new materials are important in creating an attractive learning environment. Web sites that change continually are more likely to attract visitors than the ones that remain largely constant over time because re-visiting patterns depend on motivational aspects like novelty and freshness. (p. 5)

· Topic search features are one of the most effective means for attracting repeated visits of adult learners. It is part of the "cyberambience", the art of creating an attractive and engaging learning environment through metaphor or visual appearance.

The precise impact of "cyberambiance" is difficult to measure. (p. 5)

Barr's conclusions are that for museums "such sites may represent one of the few effective vehicles for extending the museum's lifelong learning mandate beyond the museum walls and beyond the duration of the individual museum visit" (p. 6). Jamie McKenzie (1997, WWW) describes an interesting example for what she calls Learning Museums at Bellingham (Washington) public schools. McKenzie (1997,

WWW) defines Learning Museums as "Web sites which offer substantial online learning resources which invite many repeat visits and enable substantial investigations and exploration". The concept of the Learning Museum offers

"promising ways for museums to partner with schools for the sake of expanding the reach of the museum into the community in support of continuing education" that can lead to lifelong learning. This is – according to McKenzie (1998, WWW) because digital museums provide persistent change and activity so that the collection process is never ending and students may continue their work over several years and get deeply involved with it. Eventually this may lead to strong ties between students and both real and digital museum that can lead to lifelong learning. While the Bellingham public school project is a local experiment but there are other nationwide educational initiatives going on in the United States and Canada.

2.3 Educational New Media Initiatives on the World Wide Web

Museums, schools and universities combine their ideas and efforts to create a new kind of learning museums on the World Wide Web. Important initiatives are the *Museum Educational Site Licensing Project* and the *Art Museum Image Consortium*. Both projects present museum related images and information on the Web.

The *Museum Educational Site Licensing Project* (MESL, URL = http://www.ahip.getty.edu/mesl/home.html) was a project that was running January 1, 1995 through June 30, 1997. The project was jointly launched by the Getty Art History Information Program and MUSE Educational Media supported by the Association of Art Museum Directors, the American Association of Museums,

and the Coalition for Networked Information. The goals of the project were to offer museum images and related information delivered over computer networks for educational use and to demonstrate the value of digital media in the study of art and culture. Project participants thought that the lack of digital information which is available in the humanities is the reason why there are no on-line classrooms in the arts and hope that the MESL Project would be the first step to link up schools, universities, and libraries to museum collections. The basic idea of the site licensing model was, according to Jennifer Trant (1996, WWW), to offer educational institutions a wide body of quality electronic information about museum collections through an annual subscription fee that enables museums to bring up the costs for assembling collections of electronic resources. The problem was that a critical mass of digital information must exist and that it must be available in standard formats and good quality. Another inhibiting factor was intellectual property rights. The participating institutions were six museums and seven universities in the United States. The museums made available over 4,000 images and accompanying textual documentation to the museums which used the materials for classes from fall term of the 1995 academic year to summer of the 1997 academic year. The color images were offered in 24-bit files at resolutions ranging from 758 x 512 pixels to 1536 x 1024 pixels in different format from lossy to lossless compression. The related text was provided in two forms: structured and unstructured text. Structured text, taken from database fields of collection

management systems, provided general information like object identification and description; pointers to text and image files; etc. Unstructured texts included such information as conservation, exhibition and publication history; curatorial notes; bibliography; published and unpublished texts. A MESL Data Dictionary included examples and guidelines for the presentation of the data.

The second important initiative is the *Art Museum Image Consortium* (AMICO, URL =

http://www.amn.org/AMICO/). AMICO is a consortium of 23 North American art museums that was founded in October 1997. The consortium currently develops the so called Art Museum Image Consortium Library with over 20,000 works and related documentation of artworks. The 1998 AMICO Library consists of approximately 9000 works from Europe, including ancient Greece and Rome; 8000 works from North America including Pre-Columbian art; 2000 works from Asia including ancient Asia Minor; 400 works from Africa including ancient Egypt and several others. The size of the digital collection is planed to be doubled in 1999. The AMICO Library consists of multimedia documentation of works of art, including digital images, collection data, curatorial records, scholarly research and educational material. Each work in the AMICO

Library is documented by a catalog record; associated multimedia files, including at least one image file, and any other number of other files; and a meta data record documenting

each associated multimedia file. The AMICO catalog records will contain data like object title, creator, style and period descriptions, subject matter, physical description, measurements, material and technique descriptions, context descriptions, etc. The majority of images will be high resolution color pictures in 24-bit files with a resolution of 1024 x 768 pixels, some images will be available in resolution up to twenty times this resolution, allowing a zooming function for detailed investigation. Sample records are available on the AMICO Web site, also a simple and advanced search in a thumbnail catalog. Similar to the MESL site licensing model, the AMICO Library will be licensed to educational institutions (schools, universities, museums, and public libraries) for a fee that is used to enlarge the AMICO Library's digital collection step by step over the years.

2.4 Conclusion

Museums are changing to institutions involved in lifelong learning, using information technology to reach out to the public. Currently there are problems like financial limitations (e.g. for collection management systems and digitization), technical restrictions (e.g. bandwith and image resolution) and concerns about intellectual property rights. As soon as these problems are solved museum will be able to open up their digitized collections to the public and start educational projects that will provide value-added cultural information for lifelong learning.

CHAPTER THREE

METHODOLOGY, SYSTEM ANALYSIS AND DESIGN

3.1 GENERAL DESCRIPTION

This is a basic research and will employ a survey of design of “data collection” and “investigation”.

An extensive survey of national museum was conducted to study the effectiveness of the organization being accessible globally through the internet.

At this juncture, it becomes important to state that this research work is mainly concerned with data collected.

3.2 Fact Finding Method Used

The data used in this study were collected from two sources of data collection, the primary and secondary source.

3.2.1 Primary Data Source

The primary source came mainly from direct observation of events, thus carrying out personal or online interviews and through questionnaire.

3.2.2 Interview

The researcher made use of interview method of data collection. This is an online conversation between the researcher and the respondent on the topic.

3.2.3 Questionnaire

The researcher made use of questionnaire method of data collection which includes:

a) Structured Questionnaire
b) Unstructured Questionnaire

Structured Questionnaire is the type of questionnaire which restricts the respondent from the answers provided for him for the questions. They are normally “yes or no”, “true or false” answers.

Unstructured Questionnaire is the reverse of the structured questionnaire. The respondent is not restricted to the answers provided. No answers are in fact provided. He answers what he feels.

3.2.4 Secondary Data Source

This constitutes the existing literature on the subject matter of this research such as:

a) Textbooks
b) Periodic journals
c) Articles
d) National museum Network (overview data)

3.3 ORGANIZATIONAL CHART

The organization activities are carried out by its Founder, Board of Trustees, members, lecturers, and the people at the administrative Unit.

CHAPTER FOUR

DESIGN OF THE NEW SYSTEM

4.1 DESIGN STANDARD

In order to achieve a dynamic web development, the programmer made use of **Dynamic Hyper Text Markup Language** (**DHTML**) for client-side scripting and (**PHP**) for the server-side scripting. A **DHTML** contains tags such as <head><body><tr>, while **PHP** contains tags such as <PHP? <echoe etc. Which tell the browser about the format of the web page. A **DHTML** file has an **.html** filename extension, so as PHP has a **.php** filename extension. PHP and DHTML tags can be created on a text editor such as "Notepad".

Both DHTML and PHP can be employed in the creation of a dynamic web page and that gives it a unique feature.

Also a server technology APACHE was effectively utilized to hold the database and communicate with the web page effectively. The latest version of apache as built by Wamp Server Technology was used and Structured Query Language (SQL) was used for the databases.

4.1.2 DHTML

DHTML stands for Dynamic Hypertext Markup Language. DHML is not a technology in itself; it is a combination of HTML, Cascading Style Sheets, JavaScript and Macromedia Flash Mx used to create animated and interactive

websites. The main drawback of DHTML is that it is very difficult to develop and debug.

During program implementation, the researcher incorporated DHTML in the form of style and web interaction.

4.1.3 PHP

PHP belongs to a class of languages known as middleware. These languages work closely with the Web server to interpret the requests made from the World Wide Web, process these requests, interact with other programs on the server to fulfil the requests, and then indicate to the Web server exactly what to serve to the client's browser.

The middleware is where you'll be doing the vast majority of your work. With a little luck, you can have your Web server up and running without a whole lot of effort. And once it is up and running, you won't need to fool with it a whole lot.

But as you are developing your applications, you'll spend a lot of time writing code that makes your applications work. In addition to PHP, there are several languages that perform similar functions. Some of the more popular choices are ASP, Perl, and ColdFusion.

4.1.4 Server

Almost all of the work of Web applications takes place on the server. A specific application, called a Web server, will be responsible for communicating with the browser.

A relational database server stores whatever information the application requires. Finally, you need a language to broker requests between the Web server and the database server; it will also be used to perform programmatic tasks on the information that comes to and from the Web server.

But of course none of this is possible without an operating system. The Webserver, programming language, and database server you use must work well with your operating system.

4.1.4.1 Apache

The Apache Web server is the most popular Web server there is. It, like Linux, PHP, and MySQL, is an open-source project. Not surprisingly, Apache works best in UNIX environments, but also runs just fine under Windows.

Apache makes use of third-party modules. Because it is open source, anyone with the skill can write code that extends the functionality of Apache. PHP will most often run as an Apache extension, known as an Apache module.

Apache is a great Web server. It is extremely quick and amazingly stable. The most frequently stated complaint about Apache is that, like many pieces of Unix

software, there are limited graphical tools with which you can manipulate the application. You alter Apache by specifying options on the command line or by altering text files. When you come to Apache for the first time, all this can be a bit opaque.

Though Apache works best on UNIX systems, there are also versions that run on Windows operating systems. Nobody, not even the Apache developers, recommends that Apache be run on a busy server under Windows. If you have decided to use the Windows platform for serving Web pages, you're better off using IIS.

But there are conditions under which you'll be glad Apache does run under Windows. You can run Apache, PHP, and MySQL on a Windows 98 machine and then transfer those applications to Linux with practically no changes to the scripts.

This is the easiest way to go if you need to develop locally on Windows but to serve off a Unix/Apache server.

4.2 **PROCEDURE CHART**

4.3 SYSTEM PREVIEW

The system being designed can be previewed to get a glimpse of the final output. It can aesthetically guide us towards a proper understanding of the final output and perceive what it like. See Appendix 11 and 111

4.4 SYSTEM REQUIREMENTS

The system requirements are the software and hardware requirements. The software requires a set of instructions that controls a computer's action. It is a computer program that accomplishes some specific applications or tasks. This software can be purchased or a user can develop the software from software developers.

The hardware requirements unlike the software refer to the physical components of the computer i.e. the peripherals in this design. The hardware and software requirements for this system are listed below.

4.4.1 Software Requirements

1. Dreamweaver CSS4
2. Mozilla Fire Fox browser
3. A graphic application (Adobe Photoshop 7.0, CorelDraw etc.)

4.4.2 Hardware Requirement

1. Pentium processor (4 or above)
2. RAM (256MB-2GB)
3. Standard keyboard
4. Hard disk (40 or above)
5. A 1500v Uninterruptible Power Supply (UPS)

4.5 PROGRAM DESIGN

Server-side scripting using PHP and client-side scripting using DHTML which is a mark-up language. For every task, navigation links are created to help the task, be it downloading forms, printing forms or making comment on website.

Furthermore, the program i.e. well-structured with use of navigation links as well as sub menus such as:

- Index
- Home Page
- Members
- About
- Publications
- E-Study
- Board and Staff
- Training and Research

- FAQ (frequently asked question)

Whenever the user clicks on a particular navigation menu, it automatically links to the page requested by the user.

In its organization, search Engine giant, Google was incorporated in all the web pages for easy connection or log on to other websites all over the globe.

4.6 PROGRAM TESTING

The aim here is to ensure that this program meets its requirements. A user can know digitally all aspects of digital museum in just a matter of clicks. This program can link the user to parts of the globe within a few seconds.

At this stage of the work every eventuality has been subjected to the most vigorous examination as envisage on the specification.

4.7 PROGRAM IMPLEMENTATION

Since the program is made of mark-up tags i.e. mark-up languages, the following steps must be adhered to before the program can run:

1. Boot the computer and make sure that Windows Operating System is installed in the system
2. Click the start button, click on all programs, scroll and click on accessories and click on Notepad.

3. Write all the required codes or programs on the Notepad and save with a filename and a filename extension of .dhtml or .php. at this juncture the TEXT editor automatically compiles into a HTML/web document.
4. Queue in data into the database with WAMP SERVER'S SQL and link to the websites.
5. Open the web browser; go to localhost as provided by the SERVER technology. E.g. localhost/ww.glpn.org

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

Every organization has one thing in mind; have we fared well without a website so far, why would we need one now? The answer is simple, for advertising and wider broadcasting of information. Advertising is the chief success tool of every organization; your target audience needs to know that you are out there.

A website has become an effective tool of running obtaining information. Internet today is used 24/7 and is accessible from anybody anywhere. People these days depend on the internet for everything, including pin or paper. Today you can obtain anything just by the click of a mouse button.

The question is, are you willing to foot the bills of obtaining one for your organization? The answer will take you a long way, if yes then you are ready to operate globally.

With a website for your organization, members all over the world can effectively communicate together at a low cost. Newsletter can also be periodically posted on their e-mail box to remind them of an important date or event.

Also a news section will go a long way in keeping members abreast of recent happenings within and outside the organization.

Finally web development is expanding and changing in style, requiring the webmaster to periodically update.

5.2 CONCLUSION

Based on the result of the survey, it is pertinent to make the following conclusions.

1. Far more cheaper than print Advertising

The internet is extremely different from print advertising in that space is cheap, your advertisement is accessible for a longer period of time, the content can be changed without having to ask someone to do it for you (if you use a content management system), you can reach a wider audience.

2. 24 Hours a Day, 7 Days a Week, 365 days a Year

The information included in the site will be available anytime, anyplace. No power failure, no hook. The internet is there to serve you every time. Even on public holidays or any other day of obligation, the internet is there to serve. No transmission failure.

Growth/Opportunity

Internet can help the organization to grow stronger and increase its members faster; also opportunities provided by organizations can be savoured by the intended audience.

5.3 RECOMMENDATIONS

In order to remedy problems encountered in server-side scripting, web masters should incorporate server-side scripting technologies such as PHP Hypertext Preprocessor (PHP), Active Server Pages (ASP.NET). This new innovation would help create login controls, member's portal where members and officials can create and modify their account.

However, this log in controls and student portals would enable online registration for both students and staff; thereby eliminating the rigors of manual or paper registration.

Search Engine Optimization (SEO) should be employed in Webpages. With Search Engine Optimization (SEO), keywords or digitally every word could be searched or accessed or sought after in the Webpages. For instance webmasters should incorporate access to search engines such as Google, Yahoo, Mama, and MSN etc.

Webmasters should learn to control a page with CSS (Cascading Style Sheet) as it is the ultimate styling sheet and occupies less space.

References

Ballas, J. A. (1994). *Delivery of Information through Sound.* Belmont, Califonia: Thomson Wadsworth.

Britton, D. R., & Arthur, A. R. (2004). *Discovering Usability Improvements for Mosaic: Application of the Contextual Inquiry Technique with an Expert User*. Boston: Pearson Allyn & Bacon.

Bronette, A. A., & Sarah, W. C. (2002). *Usability Expertise Centre, Digital Equipment Corp. Listening to Users about Internet Browsers: A Usability Study.* New York: Prentice Hall.

Cannon-Brookes, P. (1992). *The Nature of Museum Collections: Manual of Curatorship,* (2nd Ed.). London: Butterworth Press.

Falk, J., Dierking, H., & Lynn, D. (1992). *The Museum Experience.* Washington, D.C: Whalesback Books.

James, S. (1997). *Museum Web Page Survey Results. Internet* URL =http://www.chass.utoronto.ca/~sjames/museum/survey.htm.

Jerry, H. A. (2000). *Benefits and Barriers: People with Disabilities and the National Information Infrastructure.* Boston: Little, Brown and Company.

Kramer, G. E. (1994). *An Introduction to Auditory Display.* Boston: Pearson Allyn & Bacon.

MacDonald, G., & Alsford, S. (1997). *Toward the Meta-Museum: The Wired Museum*. London: Emerging Technology and Changing Paradigms.

O'Connell, J. F., & Perkins, G. M. (2003). Microsoft Windows Guidelines for Accessible Software Design. *White Paper,* 76(3), 499-514.

Pearce, S. M. (1986). Thinking about Things: Approaches to the Study of Artefacts. *Museum Journal,* Vol 2, Pg 23-24.

Rivanus, O. O. (2001). *Review of Usability Study Information Collected at 1999 CSUN*. Boston: Pearson Allyn & Bacon.

Shumila, D. S. (1999). *Suggested Blind Access Features.* Wilmington, M.A: Great Source Education Group.

Stam, D. C. (1996). *Spiders across the Stars,* A Web-based Model for Providing Access to Multi-institutional Museum Information. *Archives and Museum Informatics*, p-p-2, 3.

Appendix

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!--

Design by Free CSS Templates

http://www.freecsstemplates.org

Released for free under a Creative Commons Attribution 2.5 License

Name : Modelling

Description: A two-column, fixed-width design with dark color scheme.

Version : 1.0

Released : 20120617

-->

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta name="keywords" content="" />

```
<meta name="description" content="" />

<meta http-equiv="content-type" content="text/html; charset=utf-8" />

<title>Digital Museum by Patrick Ukute</title>

<link href="http://fonts.googleapis.com/css?family=Abel" rel="stylesheet"
type="text/css" />

<link href="style.css" rel="stylesheet" type="text/css" media="screen" />

</head>      <li                                class="current_page_item"><a
href="#">Homepage</a></li>

                                        <li><a href="enugu.html">Enugu</a></li>

                                        <li><a href="lagos.html">Lagos</a></li>

                                        <li><a href="others.html">Others</a></li>

                                        <li><a href="#">Contact</a></li>

<body>

<div id="wrapper">

        <div id="wrapper2">

                <div id="header" class="container">

                        <div id="logo">
```

```
                <h1><a href="#">Digital Museum </a></h1>
                <p>Design by <a href="">UKute Patrick</a></p>
            </div>
            <div id="menu">
                <ul>
                                <li class="index.html"><a href="#">Homepage</a></li>
                    <li><a href="enugu.html">Enugu</a></li>
                    <li><a href="lagos.html">Lagos</a></li>
                    <li><a href="others.html">Others</a></li>
                    <li><a href="#">Contact</a></li>
                </ul>
            </div>
        </div>
```

```
<!-- end #header -->

<div id="banner-wrapper"></div>

<div id="page">

        <div id="content">

                <div class="post">



                        </div>

                </div>

        </div>

        <!-- end #content -->

        <div id="sidebar">

                <ul>

                        <li>

                                <h2>Blogroll</h2>



        </ul>

</div>
```

```
        </div>
</div>
<div id="footer">
        <p>Copyright (c) 2012 Sitename.com. All rights reserved. Design by
<a href="">Ukute Patrick</a>.</p>
</div>
<!-- end #footer -->
</body>
</html>
```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!--

Released for free under a Creative Commons Attribution 2.5 License

Name : Modelling

Description: A two-column, fixed-width design with dark color scheme.

Version : 1.0

Released : 20120617

-->

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta name="keywords" content="" />

<meta name="description" content="" />

<meta http-equiv="content-type" content="text/html; charset=utf-8" />

<title>Digital Museum by Patrick Ukute</title>

<link href="http://fonts.googleapis.com/css?family=Abel" rel="stylesheet" type="text/css" />

<link href="style.css" rel="stylesheet" type="text/css" media="screen" />

<script type="text/javascript" src="http://ajax.googleapis.com/ajax/libs/jquery/1.4.2/jquery.min.js"></script>

<script type="text/javascript" src="thumbnailviewer2.js">

/*

* Image Thumbnail Viewer II script- © Dynamic Drive DHTML code library (www.dynamicdrive.com)**

*** Visit http://www.dynamicDrive.com for hundreds of DHTML scripts**

*** This notice must stay intact for legal use**

***/**

```
</script>



</head>

<body>

<div id="wrapper">

        <div id="wrapper2">

                <div id="header" class="container">

                        <div id="logo">

                                <h1><a href="#">Digital Museum </a></h1>

                                <p>Design by <a href="">UKute Patrick</a></p>

                        </div>

                        <div id="menu">

                                <ul>

                                        <li                        class="index.html"><a
href="#">Homepage</a></li>

                                        <li><a href="enugu.html">Enugu</a></li>

                                        <li><a href="lagos.html">Lagos</a></li>
```

```
                    <li><a href="others.html">Others</a></li>

                    <li><a href="#">Contact</a></li>

                </ul>

            </div>

        </div>



        <a

href="images/EnuguAssembly.gif"

 rel="enlargeimage" rev="targetdiv:loadarea" title="Enugu has very rich history">Enugu House OF Assembly</a><br />

<a

href="images/colliery_shooting.jpg"

 rel="enlargeimage"

rev="targetdiv:loadarea,link:images/street.gif"> The massacre of I922</a><br />
```

```
<div id="loadarea" style="width: 600px"></div>


<br /><br />


<a
href="images/hoa.jpg"
 rel="enlargeimage"
rev="targetdiv:loadarea2,trigger:click,preload:none,fx:reveal">House Of
Assembly</a><br />
<a
href="images/images.jpg"
 rel="enlargeimage"
rev="targetdiv:loadarea2,trigger:click,preload:none,fx:none">
Enugu</a><br />
```

```
<div id="loadarea2"></div>


            <!-- end #header -->
            <div id="banner-wrapper"></div>
            <div id="page">
                <div id="content">
                    <div class="post">


                        </div>
                    </div>
                </div>
                <!-- end #content -->
                <div id="sidebar">
                    <ul>
                        <li>
                            <h2>Blogroll</h2>
```

```
                    </ul>

                </div>

            </div>

</div>

<div id="footer">

        <p>Copyright (c) 2012 Sitename.com. All rights reserved. Design by
<a href="">Ukute Patrick</a>.</p>

</div>

<!-- end #footer -->

</body>

</html>
```