A usability study of the SAMAP web site

Lesiba Kutumela

Student Number: 201508103

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Declaration

Submitted in partial fulfilment of the requirements for the degree of Master of Arts (Digital Media), in the Graduate Programme in Culture and Media Studies, University of KwaZulu-Natal, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. I confirm that an external editor was used and that my Supervisor was advised accordingly. The dissertation is being submitted for the degree of Master of Arts in the Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal, South Africa. None of the present work has been submitted previously for any degree or examination in this or any other University.

Lesiba Kutumela

21 February 2011

Catherine Dubbeld
(editor)

Dedication

I would like to dedicate this document to my parents Jan and Rebecca Kutumela, I will be forever grateful for their unconditional support throughout my studies. In addition, I acknowledge my siblings Jan, Sello, Lethabo, Sinah, Koko, and Mmamokete, and my nephew Maseka for their familial support.

Acknowledgements

Abstract

The goal of this research was to conduct a usability study on Digital Innovation's (DISA) South African Music Archive Project (SAMAP) website. In order to achieve this goal, it was very important to first (1) understand more fully the expectations of potential users and then (2) to identify any mismatches between the proposed Dublin Core system and users' search techniques. Many researchers have pointed out that a system that is not easy to use, does not match user requirements, and ignores usability studies is likely to fail (Pearrow, 2000; del Galdo & Nielsen, 1996; Shneiderman & Plaisant, 2005; Kuniavsky, 2003).

This study was conducted at the University of KwaZulu-Natal's Howard College Campus in Durban, South Africa. A qualitative research method was chosen for this study within an eclectic-mixed methods-pragmatic paradigm which favours multiple data collection research instruments to collect data. Data collected was mostly of a qualitative nature and has been interrogated using NVivo™. The patterns that emerged out of this study will establish a better understanding of multi-disciplinary online music archives and website designs. A discussion of the findings and recommendations are presented in the final chapter of this dissertation, but essentially the study demonstrates the need to more fully understand user requirements before development takes place.

List of acronyms

DISA   Digital Innovation South Africa

HCI   Human Computer Interface as well as Human Computer Interaction.

HYMAP   Hidden Years Music Archive Project

ILAM   International Library of African Music

IP   Internet Protocol; when used with an address this refers to the unique
            number assigned to a computer that is linked to the internet.

SAMAP   South African Music Archive Project

UKZN   University of KwaZulu-Natal

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Chapter One: Introduction

1.1 Introduction

Digital Innovation South Africa (DISA) has undertaken an ambitious task: to digitally archive historically important material making it available online world-wide to the general public and researchers. Due to poor infrastructure and lack of resources, independent music archives could not keep up with changing technology and skills required to preserve such materials (DISA, 2011). Having gained considerable experience in print media, DISA turned its attention to audio recordings under the banner of the South African Music Archive Project (SAMAP), digitising a range of audio recordings from the Christopher Ballantine collection, the Jurgen Brauninger Collection, the Hidden Years Music Archive Project (HYMAP), the International Library of African Music (ILAM), the University of KwaZulu-Natal (UKZN) Music Library, Shifty Records, and the Trauneck Project which consisted of Pamela Tancsik's postdoctoral research paper on Joseph Trauneck, and Talking Drum.

The stated purpose of the SAMAP archive is to make audio materials of historical significance such as those that were recorded during the apartheid era available online as a way of "promoting multi-disciplinary research in the field of popular music and culture[1]." Most of the recordings made available on this website were considered politically sensitive therefore were either banned or never commercially released.

1.2 Rationale for the study

Many researchers have pointed out that a system that is not easy to use, does not match user requirements and ignores usability studies is likely to fail (Pearrow, 2000; del Galdo & Nielsen, 1996; Shneiderman & Plaisant, 2005; Kuniavsky, 2003). Although the SAMAP website is an exciting one and its intention to bring a number of historically significant resources into the public and academic domain is long overdue, it could fail simply because of overlooking the Human Computer Interface (HCI) and usability studies.

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[1] http://www.disa.ukzn.ac.za/samap/ – over the period of this research the stated objectives have been modified, earlier version included the objective of making the resources available to the researchers and "the general public."

The usability study described in this work is deeply rooted in the premise that people perceive and understand things differently (Lagoze, 2001) and it was considered necessary to develop a broader understanding of these different perceptions particularly in the light of the differing views of the library archivists, as system developers, and potential website users with varied experiences of library-type resources.

Shapiro and Gerkes cited in Vygotsky (1978) argue that the social and cultural environment one experiences determines one's choice of tools to perform a specific task. Vygotsky (1986) moves further to conceptualize such tools as things that enable people to perform tasks successfully, and divides these tools into two interdependent parts – psychological tools (thoughts) and technical tools (language). The SAMAP website, in these terms, is a tool or instrument which is intended to support and "promote multi-disciplinary research" (DISA, undated).

Echoing Shapiro and Gerkes in Vygotsky (1978); Vygotsky (1986), del Galdo and Nielsen (1986); Pearrow, (2000); Kuniavsky, (2003); Shneiderman and Plaisant, (2005); a tool (systems and website), which is not easy to use, that undermines or fails to match user requirements and ignores usability studies, is likely to fail. Conner (2005) outlines steps that are to be followed if one is striving to ensure a user-centred website including: (1) specify the context of use by identifying the people who will use the system/website, what they will use it for and under what conditions; (2) Identify the user goal that must be met for the product to be successful; (3) Build the system from rough to complete; (4) Evaluate the design, ideally through testing with actual users.

Wager (1997) emphasizes that it is important to consider how and where information processing fits into the design of a system as "knowledge occurs when new knowledge is integrated into long term memory along with retrieval cues", while Skaalid (1999) puts more emphasis on the need for the system's designer to recognize diversity (culture, language, disabilities), considering issues such as who will use the system. Supporting Wager's view, Mandel (1997, p. 69) cited in Blackwell (2006) advises that already existing knowledge of the world in user's memory can improve the system's learning ability.

According to Kuniavsky (2003), integrating usability and Human Computer Interface studies early in the design stage of a system can help developers avoid costly

mistakes. In South Africa it is particularly important that developers do not presume to know the needs and methodologies used by intended audiences as it is a complex multi-cultural and multi-lingual society (Murrell, 1998).

1.3   Objectives of the study

The original intention of this study was to conduct an HCI evaluation of the website and to make recommendations to the SAMAP developers on issues that potential users might find problematic. However, development went ahead without formal feedback from the usability study and thus the objectives of this had to be modified. Whilst still retaining the original concept of a usability study and associated recommendations this study takes the form of a case study which highlights some of the fundamental issues which should be considered before undertaking a development of this nature.

The objective of the study was to conduct a usability study on the SAMAP website with reference from constructivist theory which to some extent informs the Human Computer Interface principles by which this research is guided and on which it is based. In order to achieve the research goal, it was important:

- To understand more fully the expectations of potential users and advise SAMAP developers of those.
- To advise SAMAP developers of the search techniques employed by potential users.
- To identify any mismatches between the proposed Dublin Core system and users' search techniques.

This was done through interrogating the needs and searching techniques of general users. Additional information was gathered by interrogating music researchers and eliciting feedback from HCI and web developer experts.

1.4   Limitations of the study

As mentioned earlier this research was originally envisaged as part of the development process of the SAMAP website. However, due to time constraints, development went ahead of the usability study. Certain elements of this research reflect an earlier version of the site, and some problems identified have subsequently been resolved. However, there remain a number of issues of concern which are

considered significant and can be used for both the SAMAP site and to provide advice on any other developments of this nature.

Although the participants of the study were drawn from a small sample of Howard College students and staff, the lessons learnt are of a general nature and can be applied to a wider sample.

1.5   Terminology

In the literature reviewed in Chapter 2, the acronym HCI is used for both Human Computer Interface and Human Computer Interaction, sometimes interchangeably. Usually the latter term focuses specifically on the interactions between the computer user and the system's responses, while the former term focuses on layout and aesthetic issues. In this dissertation HCI is used for both meanings.

1.6   Structure of the study

This dissertation is structured as follows:

Chapter One provides the background of the study with a focus on the objectives and the rationale for the study.

Chapter Two explains the theoretical framework and reviews the literature that applies to different elements of the SAMAP site.

Chapter Three discusses a variety of research paradigms, and describes the research methodology and data collection instruments chosen for this research.

Chapter Four presents the data collected with different instruments.

Chapter Five offers further discussion on the results of the research and makes recommendations for the SAMAP site.

1.7   Conclusion

Having introduced the background of the SAMAP site and highlighted the broad areas of concern in this chapter, Chapter Two will position the research in a theoretical context.

Chapter Two: Review of the literature

2.1   Introduction

A number of theories are applicable to the usability of a system. These are broadly divided into three categories in this review; firstly the concept of how we incorporate new knowledge into our existing experience of the world as outlined by constructivist learning theory and secondly Human Computer Interface design principles. Finally, also relevant to this research is the concept of bibliographic electronic storage and retrieval. These three main concepts are discussed in relation to this research in the sections below. Additional mention is made of the issue of copyright, but this is more in terms of a concern and does not reflect a legal representation of an issue which merits a research project of its own.

2.2   Constructivism as it relates to interface design and investigation

Taking into consideration that people perceive and understand things differently (Lagoze, 2001), it is necessary to get a broader understanding of methods that can bring together the views of the library archivists and the potential users of the system. In particular it is necessary to look at "joint performance of tasks between human and system, its focus on the structure of communication between humans and system, and emphasis on human capability to use the system or interface" (ACM SIGCHI, 1996: p 5).

According to Shapiro and Gerkes cited in Vygotsky (1978), the social and cultural environment one experiences has an immense influence on one's choice of tools and the way in which one uses tools. It is this representation of tools that can be extrapolated to computer systems. Vygotsky (1986) conceptualises "tools" as those things that enable people to perform tasks successfully and divides these into two interdependent types: the first type being "psychological tools" (thoughts, the mind), and "technical tools" (language, signs) being the second. At a psychological level, thought is used to facilitate reasoning and "organize conscious content" (Vygotsky, 1986, p 3) while at the technical level language and signs are used as a medium to communicate these thoughts. In essence, Vygotsky's point highlights a strong bond, inter-relationship or inter-dependence that exists between the way we think of things and the way we describe them.

If one relates this point to the SAMAP usability study, it will follow that users' familiarity with the system's environment, the organization of content and the language and symbols used to describe it will have an effect on how it is perceived and could ultimately determine who uses it. If the system's environment and representation is not familiar to the users, they may loose interest due to a feeling of alienation. For the SAMAP website to be successful in terms of use, users' language (vocabulary) and prior experience must be adequately accommodated. For example, users who are less familiar with library search engines (but who are more comfortable with Google search) may find the system intimidating if it relies solely on library search engines techniques in terms of user interaction. However, scholars and researchers who wish to perform a more detailed and narrow search may find the system too vague if it does not provide features that are found on library search engines. HCI experts warn that due consideration should be given to the users' high reliance of mental process on tools in order to accomplish a given task (ACM SIGCHI, 1996).

The SAMAP website usability study therefore focuses on potential users' expectations, their experiences, and the level of consistency in terminology, attempting to forge a balance between the two. This philosophical approach linked with HCI theory should allow for collaboration and co-construction between the developers, researchers, and potential users of the system.

2.3   Bibliographic technology

This study is informed by the technological strengths and weaknesses of the bibliographic system used to identify the stored audio files. The enormous growth in material stored on the web has had to be supported by more sophisticated searching techniques. Online search engines such as Google and Yahoo use free-text searching and in different ways they trawl the web looking for information sources. Online library and archival systems use different technologies, usually adaptations of traditional library systems. The bibliographic method chosen for SAMAP is the Dublin Core method with adaptations to ensure a fit with musical archives.

The match between the bibliographic models, musical archives and user search techniques needs to be studied so a "best fit" scenario can be developed.

2.3.1   Metadata used by Digital Imaging South Africa

Digital Innovation South Africa (DISA) uses Dublin Core metadata format on Music Archive Projects as a metadata set that is used to identify, manage search and retrieve digital objects from their repository. Metadata can be viewed as "multiple views that can be projected from a single information object" (Lagoze, 2001). A qualified Dublin Core metadata has fifteen elements. However, for projects such as SAMAP, this has become a challenge as metadata format (qualified Dublin Core) better suits books, journals and other form of publications, SAMAP involves audio and visuals files that have multiple or different types of copyright managements as compared to publications. For example, a book has one publisher whereas a piece of recorded music can have a musician owning the performing rights and a publisher owning mechanical rights of the same song.

Furthermore, the source element on qualified Dublin Core only provides one field and this is another cataloguing challenge as recorded songs from LP, rpm and posters had to be linked to and with the album/s that they are related to and that is not possible with qualified Dublin Core. DISA had to customize a qualified Dublin Core so as to accommodate their unique collections by expanding from fifteen standard elements, adding additional elements where possible.

2.3.2   DISA's digital library software

For SAMAP, DISA uses Greenstone (version 2) digital library software to:
- create metadata records and files, and
- do a search in the collection stored in the repository.

Greenstone is an open source software suite used for the construction and distribution of digital library collections (Greenstone, 2010) and it is compatible with the following digital technologies:
- all Windows operating systems,
- Apple Macintosh from version ten, and
- Linux operating systems.

DISA chose Greenstone because it is customisable and complements the technologies that they are currently using; for example, DISA uses Fedora™ which works on Dublin Core, and Green stone is also compatible with Dublin Core

metadata format. Thus, digital objects created using Greenstone can be used on other DISA technologies.

2.3.3 Other digital library software suites

Other software suites that exist which offer more features and flexibility than Greenstone, but due to their high licensing fees DISA was compelled to choose Greenstone.

They are:

- Encompass: www.endinfosys.com
- Digitool: www.exlibris-usa.com
- Visual MIS: www.vts.com
- TEAMS: www.artesia.com
- Insight: www.luna-imaging.com
- Muse search: www.museglobal.com
- Dspace: www.dspace.org

2.3.4 Bibliographic software conclusion

Pragmatic choices have had to be made in the selection of software to follow the bibliographic model of data storage and retrieval. While there is some trade off in functionality the basic premise of catering for the bibliographic storage and retrieval model appears to have followed most library and archival standards.

2.4 Copyright

Technological developments in the field of Information technology have contributed to an ever-increasing demand for information in many fields including the arts, academia and the commercial sector. Digitization of these items seems to be a reliable method of preserving these materials while making their management, distribution and accessibility cheaper and quicker. However the distribution of these virtual artefacts raises new copyright concerns that are not fully articulated or understood by digital archivists. The paragraphs below attempt to highlight a challenge that is, or may be, faced by multimedia archives such as SAMAP when it comes to copyright law but should in no way be read as a legal summation of the field, which is extremely complex.

According to Copeling (1969), in South Africa, copyright is defined as the right that rests in the hands of the author or the creator of the work which enables him/her to prevent reproduction of this work by others unless permission is specifically granted. Similarly the United States "extends the copyright protection to original works of authorship that is fixed in any tangible medium of expression" (Einhorn 2004, p 1), such works include musical, dramatic, choreographic, pictorial, sculpture, audiovisual, sound recordings documents of an or architectural nature (ibid).

However, the right makes an exception for academic institutions and libraries for the purpose of teaching through the provision of the "fair use" doctrine (Critical Commons, 2009). This doctrine allows for limited copying and distribution of material. What constitutes "fair use" is not clear, however, reproducing works on a publicly available site without express permission of the copyright holders would be a clear breach of the spirit of "fair use" policies.

McGrail and McGrail (2009) argue that technological developments have reduced copyright law to nothing but a "legal fiction", as emails and other Internet technologies enable users to send high quality copies to a large number of recipients, with each copy usually indistinguishable from the original copy. This appears to be common practice and many people consider it permissible, which could put educational institutions in breach of copyright laws.

This ease of copying and distribution of digital material is further complicated when looking at multi-media or sound recordings in comparison to text documents. In many instances, print media articles would have a single copyright owner, either the author or the publisher. A music recording, however, could have more than one writer, composer, singer, band member and producer, all of whom would usually jointly own that work's copyright. Permission to hold this material in a digital archive would have to be sourced from all contributors, and in the case of historical music, those contributors are not always easily identified or located. This can limit what can be made available, the way it is distributed, and the people who can access it. It is possibly easier to imagine if one draws a comparison between a library holding of a physical recording such as a vinyl record or a CD and a digital Internet-delivered resource. A library member can go to a physical library and take out a physical recording, listen to it, read the dust jacket and make notes. This single use of a single recording would be considered "fair use." However, the same recording in a virtual environment can, theoretically, be downloaded by many people all over the

world, reproduced and sent to many more, clearly breaking the spirit of "fair use." Thus the material in a digital archive needs more careful copyright scrutiny than physical material shelved in the same library.

There are several ways of dealing with this issue. For instance, the British Library has made recordings available to people using the library's computers, relying on Internet Protocol (IP) addresses to identify legitimate visitors. There is also some software that allows people to listen to recordings but prevents downloads. The SAMAP project has chosen another route that consists of making short clips available: interested parties can then email a request to purchase the full recording. This has severely limited what can be made available via the web site: users cannot listen to the full recording nor can they access sheet music and lyrics.

According to Critical Commons (2009) these issues have forced libraries and other institutions to adopt overly cautious and conservative copyright policies, which in their view diminish the educational experience and have impeded the development of digital media archives.

2.5   The human-computer interface

Researchers have clearly pointed out that a system that is not easy to use, that does not match user requirements and ignores usability studies, is likely to fail (Pearrow, 2000; del Galdo & Nielsen, 1996; Shneiderman & Plaisant, 2005; Kuniavsky, 2003). In this era, information and communication technology plays a vital role in each and every sphere of our lives; however the way these systems are presented to the end user can greatly affect their success or failure. Usability studies have informed the development of Human Computer Interface principles. If used and tested during the development process these theories of usability can serve as one of the principal guidelines in achieving a successful and effective system.

Human computer interaction (HCI) is a discipline that is concerned with interaction or communication between humans and computers (Dix, Finlay, Abowd & Beale, 1998). In this discipline system design, evaluation and interaction of humans with computing systems are areas of focus. HCI studies both the computer mechanisms (the system's ability to fulfil the user's needs and expectations) and the human aspects (usability, user's challenges, aesthetics, language, navigation and cultural influences).

For the purpose of the SAMAP site, HCI theory and investigatory techniques are employed to guide the research, as it is felt that this will best inform the development of the SAMAP interface.

2.5.1 User-centred design

User-centred design is an approach that is used to design a system based on information about the user. Its main focus is the user through planning, designing and development (Conner, 2005). As users with varying skills and experience will use the SAMAP web site, this approach best suits the project. Conner (ibid) outlines steps that are to be followed if one is striving for a user-centred system. They are as follows:

- Specify the context of use by identifying the people who will use the system, what they will use it for and under what conditions.
- Identify the user's goals that must be met for the product to be successful.
- Build the system from rough concept to complete.
- Evaluate the design ideally through usability testing with actual users.

These steps are informed and grounded within the principles of HCI, which are discussed further below.

2.5.2 Usability

While user-centred design ensures a product's usability, the term usability has many definitions varying by fields (Manzari & Trinidad-Christensen, 2006). According to Nielsen (2003, 1) the term usability refers to the study that looks at how easy the interfaces are to the user. In the field of industrial engineering, product research and development, computer systems and library science all share the similar definition, and, therefore, this study adopts the same definition. Echoing Nielsen and other usability engineers, Dumas and Reddish (cited in Manzari & Trinidad-Christensen, 2006) argue that usability simply means the product's simplicity which ensures quick and easy accomplishment of the user's own tasks (ibid). This term encompasses methods used to achieve ease-of-use during the design phase (ibid). The concept is applied broadly in varied fields but here the focus is on features that make a web site user-friendly (Conner, 2005). Nielsen (2003) and Conner (2005) further maintain that interfaces that are able to achieve a high usability standard, are the ones that are

easy to learn and remember, efficient, visually pleasing and fun to use and quick to recover from errors.

Nielsen (2003) reiterates the idea of incorporating user evaluation during the system's design processes through heuristic evaluation and then usability testing with redesigning after every phase of product's evaluation. For Manzari and Trinidad-Christensen (2006), heuristic evaluation should assist the study in uncovering minor systems problems while usability testing assists in uncovering a system's major global problems. It is therefore recommended that both methods be applied complementarily as they uncover different problems at different levels.

There are five quality components that can help in ensuring a usable interface (Nielsen, 2003).

- Learnability: how easy is it for users to accomplish basic tasks the first time they encounter the design?
- Efficiency: once users have learned the design, how quickly can they perform tasks?
- Memorability: when users return to the design after a period of not using it, how easily can they re-establish proficiency?
- Errors: How many errors do users make, how severe are these errors, and how easily can they recover from them?
- Satisfaction: how pleasant is it to use the design?

These components could be used to improve interface usability quality on the SAMAP web site. However there are other qualitative attributes that Nielsen (2003) did not list among the top five components but which are, in my view, as important: quality attributes such as utility, which focuses on the interface functionality (ibid). This attribute attempts to provide answers to questions such as: Does the interface do what the user need?

2.5.3   Human Computer Interface heuristics

"If all components of design are not carefully planned and considered, the success of the technology is at risk."

(Baecker & Buxton, 1987)

"People using a computer system should come first."

(Danino, 2001),

Principles of HCI contribute to achieving a usable system that accommodates and supports the user's abilities and needs.

Know the user

SAMAP's website will be used by different users for a variety of reasons. For example: music researchers (scholars), historians, sociologists and the general public. Therefore their diverse needs and prior experiences have to be taken in to account.

It is crucial for the system developer to consider the fact that user experience varies, ranging from novice through knowledgeable to expert users (Shneiderman, 1998 cited in Skaalid, 1999). Specific users have specific expectations. For example, novice users may need extensive help while expert users want to get where they want to go as quickly as possible (ibid). Identifying the user's needs and expectations can improve the systems usability.

Prior experience

It is very important to take users experience in to account when designing a system (the technology that they have already been exposed to and the one they are comfortable with). Like for SAMAP, potential users have been exposed to web technology already (search engines such as Google and library systems like Primo, Opac and Unicorn's ilink/WorkFlows). It is, therefore, imperative for designers to utilize the knowledge and experience users possess. For example "users who have only had experience in the Windows environment are unlikely to benefit from a DOS look and feel, even if the program is functionally adequate for all programming needs" (Murrell, 2001). Echoing Danino's (2001) emphasis on the importance of appreciating how the user's sensory system interprets information and the need to

identify or realize the user's expectation, it is equally important to understand how the user processes information.

User's mental model

According to Wager (1997), attention given to the information-processing model by designers and information paradigms seems to have been abandoned in constructivists' paradigms of which this SAMAP usability study is informed. I raise this point because SAMAP's web site is a system that users will have to learn to use at some stage. Therefore it can have significant impact if we establish an understanding on how the information is processed. This will inform us how the information is arranged and displayed information in a manner that will enhance its use.

The attitudes that users display are learned unconsciously and are heavily influenced by the environment (ibid). In the context of a web site, the design of an environment (including, but not limited to, screen layout, navigation, use of colour, and language) that encourages exploration is important not only for cognitive recognition but also for users' attitudes towards the system. For Wager (1997) it is imperative to consider "how and where information processing fits into" the design of the system. "Learning occurs when new knowledge is integrated into long-term memory along with retrieval cues" (ibid). Grounding the interface in a metaphor similar to existing user experiences and world views should ensure it acts as a retrieval cue for knowledge and thus makes it easy to learn and hold in long term memory.

Dokeos (2006) designers argue that by the time the user tries-out your website or system, he or she already has a mental model that "describes the tasks the system is enabling." Such a model may arise from "a combination of real-world experiences, experience gained from other software applications (hour glass, folder or printer icons on windows application) and with computers in general" (ibid). Before starting to develop a system, the developer should investigate the users' mental models of tasks to be undertaken (Dokeos, 2006). Raskin (2000) supports this, arguing that the interface should make use of legitimate familiar paradigms introducing new metaphors that are not commonly used in other applications only when it is necessary to make major changes.

The use of metaphor

Use both knowledge in the world and knowledge in the head

(Norman, 1988 cited in Skaalid, 1999)

It can make a positive contribution for the design of a system if the designer uses the user's existing knowledge and mental model of the world to map the interactions on the system. Utilizing the already existing user knowledge of the world can enhance the learning ability of the system (Dokeos, 2006). The use of metaphor on the system can allow the user to predict the outcome of the action he or she just performed (Murrell, 2001). A metaphor that allows complete intuitive interaction also enables both the computer and the software to fade in to the background (Dokeos, 2006) allowing the user to concentrate on the task at hand.

Well considered metaphors enable the designer or developer "to work with a model which will guide the development in a consistency of interactions and representations" (ibid). Skaalid (1999) warns us that we shouldn't design something, which will change what users are familiar with; instead, we should make "use of conventions already established for web." Obvious metaphors that are commonly used are those of the "desktop" for office automation software, and the "eraser and paint brush" for graphic packages (Murrell, 2001). The use of such metaphors can contribute by reducing the number of things to remember on the user's short-term memory. The user will understand how to perform an action without having to "learn or do anything special" (Dokeos, 2006). Furthermore, if used effectively, "the interface can be said to be intuitive" (ibid).

Recognize diversity

In order to recognize diversity, the designer must take into consideration the type of users who will be frequenting the web site (Skaalid, 1999), ranging from novice, through knowledgeable to expert frequent users. Making provisions on interface design will contribute to its success, as users expect the interface to accommodate their needs and desires (ibid). According to Skaalid, accommodating all these users can be a challenge, which can be addressed by offering both "menu and icon choice as well as commands" (ibid). For example "ctrl + P" for printing and "ctrl + S" for save.

Cultural issues

All these users have or share different cultures (contributing to the way they conceptualise and interpret things) and traditions (beliefs), therefore it is important to reduce possibilities of exposing them (users) to a system that is culture-intolerant, or "offending [users] on the basis of gender or sexual orientation" (Murrell, 2001).

People from different cultures perceive and interpret meanings differently. Certain images, graphics, gestures and language (slang or vulgar) may be accepted within one group of users while being offensive to the other (ibid). "Avoiding slang, misplaced humour and potentially offensive insinuations" can be a way of showing respect and acknowledgement of diversity and cultural tolerance (Murrell, 2001). The user interface should not force users to change their way of using system in order to fit in with it. Instead, the "system should be designed to match their requirements" (Donino, 2001). Therefore the sequence of actions should be user-centred (Shneiderman, 1998 cited in Skaalid, 1999).

Culture has a great impact on how the interface is received and perceived. Over-sight on such aspects can affect how users interact with or use the system. Potential SAMAP web site users come from different background and these include users who use the computer often and those who use it once in a while.

This issue must be taken into account as failing to do so may result in the website and resources offered being inaccessible to certain users. For example considering that this web site is intended to be used by students, researchers and the general public, Grayson's (1997, cited in Amory, Naicker, Vincent & Adams, 1999) concern that "students from disadvantaged backgrounds lack cognitive, practical and psycho-social skills" in a computer gaming environment could also apply. Extensive help menus should be developed to accommodate such users. This correlates with Vygotsky's (1987, pp 78-79) views that people's reaction to the world around them and their use of tools is largely influenced by their culture and prior experience.

Thus it is argued that the way in which the user will interpret metaphors (icons), screen layout (colour and logic making on material organization), and navigation tools (menu bars, arrows and buttons) is determined by their prior experience, which is rooted in their culture. According to Cole and Wertsch (1996) "psychological functions begin, and to a large extend remain, culturally and institutionally situated

and context-specific." For Vygotsky (1987, pp 78-79) culture plays a vital role both in the use of language (speech) and the tools we use to communicate (including gestures, metaphors and directional signs). In South Africa, we have eleven official languages within which meanings are attached to different objects (colour, animals, gestures and signs).

Language

Language usage and presentation can also contribute to a system's failure if not carefully dealt with. "Translating text is a sophisticated and delicate task" (Dokeos, 2006) especially when the interface is intended for multicultural users. In South Africa some many users are English second language speakers, therefore "words used for menu commands, dialogs and help text should be carefully selected" (ibid). The use of ambiguous terms and non-standard syntax should be avoided (Dokeos, 2006). Some users may find the use of "American jargon … inaccessible and occasionally offensive" (Murrell, 1998). Shneiderman (1980) advises that terms such as "Fatal error, illegal procedure and terminate the program" often used in alert and feedback messages may be offensive to certain users and should be avoided. Furthermore, Murrell (1998) warns that for second language and novice developer's ambiguity is common, so terms used on the interface should be carefully selected and tested for ambiguity.

Accessibility for differently abled users

Accessibility is one of the main concerns in the HCI studies. Apart from the concerns on providing users (novice and expert) with multiple options in exploring and accessing information, there is a moral, and in some cases, legal requirement to provide access for users who have a disability or special need (Dokeos, 2006). Computers and the internet should be as accessible to users with special needs as they are to "abled" users giving them equal access to these resources (ibid). Blind users can access the information through screen reads such as Jaws®. Partially sighted users can adjust font size and colour contrast to their preference. Furthermore, people with partial use of limbs may find keyboard alternatives easier to use than mouse clicks. The system should be developed to be compatible to such adaptive technologies and allow flexibility in use.

Colour

Murrell (2001) suggests that a maximum of four colours or less be used, which should be selected and used with great care to accommodate users with colour discrimination deficiency; however in dense screens colour can play a vital role through enabling the user to identify grouped materials. It can also be used to indicate places that the user has already visited in the web site, for example colour change on visited links. Fowler and Stanwick (1995) outline four different conditions of colour blindness.

- Green blindness: users who confuse green, yellow and red colour (6.39%).
- Red blindness: users who confuse various shades of red (2.04%).
- Blue blindness: users who confuse (0.0003%).
- Total colour blindness: users who are completely colour blind (0.005%).

In most cases users who suffer from colour discrimination deficiency are not considered disabled (Murrell, 1998).

Navigation

Navigation is one of the factors that determine whether the user will continue using the site or not. In order to prevent users from committing errors, the designer can provide a site map that guides users towards the information they wish to access (Sheiderman 1988, p 188). This will ensure that users' actions correspond with the resulting effect and will further enable them to create their own mental map of how the interface works (ibid). Waiting for the results of an action can be extremely frustrating. Therefore "navigation area must be fast loading especially for repeat users" (Skaalid, 1999). As with the SAMAP web site, users are only interested in accessing data records, not in how the system works (ibid). It is imperative that the interface navigational tools and design are simple and intuitive enough so as to allow the user to anticipate what will happen next (Skaalid, 1999).

Menus and selection objects

Basic navigational tools such as buttons, icons, and menu items for help; escaping and exiting; moving forward; moving back to a previous screen or other relevant material should be readily available for the user (ibid). This is because such tools are

commonly used in most web sites and that can reduce the amount of time users spend learning how the interface works. Such tools should be found in the same place and work the same way throughout the program (Dokeos, 2006). As SAMAP targets a variety of users, the menu, buttons and graphical icons may not carry the same meaning universally. Murrell (2001) outlines seven guidelines for navigational tools which are as follows:

- All graphic representation should have textual descriptions
- Consistency of terminology should apply to all options throughout the system
- Avoid the use of jargon and keep phrasing concise
- Keywords should be scanned by the user first
- Group similar items in a menu map, or if this is not possible use other instinctive alternatives such as alphabetic order
- Avoid multiple screen transversal for selection purpose
- Avoid ambiguity

Forgiveness

Most novice users can easily make mistakes, therefore when dealing with navigation, the developer should make sure that the system never takes the user to a "dead-end" (ibid). By allowing the user to "undo" or back track the system is considered forgiving and thereby minimizes a fear of failure on the user. The system should provide the user with information (feedback) that informs him or her about where they are and what action they have just performed (Shneiderman, 1980). In turn this will encourage the user to explore the system without fear of losing information or damaging the application (Dokeos, 2006).

Aesthetics

The aesthetic components of design include appearance in terms of colour, grouping and spacing of information, but also in aesthetic integrity in terms of consistency of design.

According to Murrell (2001) screen layout is a controversial issue in the sense that what one user finds aesthetically appealing others may find boring. It is important to group similar types of information together, so that the system can be consistent.

Furthermore, the consistent use of white space consistently can guarantee a logical grouping of information (ibid).

The term "aesthetic integrity" is used to refer to a well-organized and consistent display of information guided by the principles of good visual design (Dokeos, 2006). Apple outlines several points that are to be taken into consideration when implementing an interface:

- All icons should be rendered at the highest quality.
- All text should be anti-aliased, which is automatic when you use the standard system.
- Font size and type should be consistent within windows.
- The control size should be consistent.

This guideline also advises one to match a graphic with a user's likely expectations of its behaviour. For example:

- Use push buttons for immediate commands such as "open."
- Avoid using push buttons to display pop-up menus or serve as tabs.
- Avoid using bevel buttons as tabs.

Shneiderman (1980) warns us that "user satisfaction is separate from the effectiveness" of the system, therefore a system can be aesthetically appealing to both the user and the developer but fail to fulfil its promises or the task it was designed for, while, for example, a "bibliographic retrieval system may provide desired search results but be difficult to use" (ibid). Shneiderman suggests that both aspects of the system should be accorded the greatest attention so as to achieve the highest level of consistency and performance.

Consistency between applications

"Simple system are easy to learn, easy to remember and easy to use by the vast majority" (Shneiderman, 1980). Most people are afraid of change or feel uncomfortable when getting into an unfamiliar environment. A consistent system allows user to transfer their knowledge and skills from one application to the other (Dokeos, 2006).

Learnability

As a system is considered a tool alongside others (Danino, 2001) it should not require too much time for the user to learn how to use it. According to Baecker and Buxton (1987:48) "any system that can not be well taught to a layman in ten minutes, by a tutor in the presence of a responding set-up, is too complicated." There are many factors that can contribute to shortening the learning time, such as the use of metaphors to improve familiarity, predictability and consistency (Murrell, 2001).

For the SAMAP website, metaphors and menu commands that are commonly used by library systems, search engines (Google) and commercial websites may be useful.

2.5.4 Human Computer Interface conclusion

Usability testing practice has made a valuable contribution to the Human Computer interaction discipline, while Human-Computer interaction has become a cornerstone in the field of Information and Communication Technology especially in teaching and learning. On the above discussion, Nielsen (2003) and Conner (2005) clearly highlighted a strong relationship between HCI, user-centred design and constructivists' theoretical perspectives. Furthermore, the authors placed more emphasis on continuous incorporation of user evaluation through heuristic evaluation during the system's developmental stages (Nielsen cited in Manziri & Trinidad-Christensen, 2009). Using these methods complementarily will in turn ensure that SAMAP website meets the Human-Computer interaction's requirements and the developer's desired results through uncovering different problems at different developmental stages (ibid).

2.6 Literature review conclusion

In undertaking this study it is important to understand that there has to be a balance between the needs of the users and the archival mechanisms advocated by library sciences, as the two aspects are equally important to achieve the desired results. This study will also need to investigate and identify the strengths and weaknesses of the chosen bibliographic system used to identify and retrieve stored audio files.

In addition, the study will have to focus on the system's usability aspects as stressed by proponents of HCI such as Nielsen (2003, 1). In order to achieve a user-centred design the recommendations of Conner (2005) should be visited, and interrogated through instituting heuristic evaluation as suggested by Manzari and Trinidad-Christensen (2009). This move will ensure that the system is learnable as developers need to recognise the point made by Wager (1997) that learning occurs when new knowledge is integrated into long-term memory along with retrieval cues. For that reason, at the beginning of this chapter a variety of theories were examined which are applicable in this study. These theories fall into two groups – constructivist's theories and Human Computer interface design theories.

While all of these elements are important, in this study it is critical to identify the target users and their expectations as well as the expected functionality of the program. Focusing on these three key areas of "joint performance" between users and the system, and placing ease of system use at the core of the development approach should ensure a usable product. Developers need to identify users' preferred tools in terms of Vygotsky's (1985) concepts of "psychological tools" represented by their thoughts and "technical tools" represented by their use of language and symbols. Therefore, it is imperative also to investigate prior user experience of music websites and search engines as such factors play a vital role in terms of users mental processes required to accomplish tasks. However, Skaalid (1999) cautioned that even though it is necessary to strike a balance between users' experience and their expectations based on traditional library practices (as is the goal in this study), it is challenging to accommodate all these aspects. Sheiderman (1980) also cautioned that user satisfaction and system effectiveness should be dealt with as separate issue and that one should not place greater emphasis on one aspect of the system ignoring others as that could lead to the system's failure or avoidable flaws.

Chapter Three: Research methodology

3.1 Introduction

This research is motivated by development goals and draws heavily on Reeves and Hedberg's (2003) Eclectic-Mixed Methods-Pragmatic Paradigm and general usability study methodologies. This chapter discusses the research paradigm, methodology and methods that influenced this study.

3.2 The research paradigms

For the last decade there has been a heated controversy over evaluation in the field of educational research and in particular educational technology research, for example Reeves and Hedberg (2003) state that evaluation in this context "is hardly well established or clearly delineated." Furthermore, it is "replete with alternative, some would say incompatible paradigms and diverse models" (ibid: p 29).

Reeves and Hedberg (2003: p 29) outline four major paradigms that are influential within the area of interactive learning technology evaluation, namely the:
• Analytic-Empirical-Positivist-Quantitative Paradigm,
• Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm,
• Critical Theory-Neomarxist-Postmodern-Praxis Paradigm, and the
• Eclectic-Mixed Methods-Pragmatic Paradigm.

The "Analytic-Empirical-Positivist-Quantitative Paradigm" is regarded as being the most established paradigm guiding evaluation in education and social science. It holds that "parts can be separated from wholes and cause and effect relationship among parts can be revealed" (ibid: p 30). The goal of this type of inquiry is "definition, prediction, control, and explanation of physical phenomena as revealed through experience (induction) and experiments (deduction)" (ibid: p 30). Here, mathematical analysis and statistical significance are held in the highest priority (ibid: p 30). According to Reeves and Hedberg (2003), this paradigm is widely used due to practitioners' "desire to determine the comparative effectiveness of the one program over another" (ibid: p 30).

In contrast to the "Analytic-Empirical-Positivist-Quantitative Paradigm", the "Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm", outlined by Reeves

and Hedberg (2003: p 31), shows less interest in mathematical modelling of phenomena, by placing the emphasis of the research on the human being as the primary evaluation instrument. Thus observation is seen as a valid evaluation strategy, which is especially relevant to evaluations of interactive learning environments (Reeves & Hedberg, 2003) and Human Computer Interface studies.

Reeves and Hedberg (2003: p 33) use the term "Critical Theory-Neomarxist-Postmodern-Praxis Paradigm" to represent a postmodern investigation. A person using this paradigm in information communication technology research would focus in particular on the way in which technology entrenches the status quo and establishes power relations between those that have access to the technology and those that do not. This paradigm would apply to political, philosophical and sociological studies of the use of information communication technology, but is not relevant to the practicalities addressed here.

All three of the paradigms discussed above have particular limitations (for example, there can be too much reliance on only quantitative or qualitative methodologies) and cannot successfully guide the research towards fully informed results or outcomes. As Thomas Kuhn (1962, cited in Reeves & Hedberg, 2003: p 29) warns, researchers who limit themselves to a single paradigm eventually come to realize its limitations and find they need to explore other paradigms in conjunction with that they used. Heeding this warning, this study will adopt the "Eclectic-Mixed Methods-Pragmatic Paradigm" recommended by Reeves and Hedberg (ibid).

The Eclectic-Mixed Methods Pragmatic Paradigm takes cognisance of the argument raised by Kuhn and recommends a combination of choices. Eclectic-Mixed Methods aims at integrating different methods as "the status of evaluation within the context of interactive learning is hardly well established" (Reeves & Hedberg, 2003: p 29). The Eclectic aspect of this method refers to its openness in allowing the researcher to integrate other methods from the three paradigms discussed above (ibid). This paradigm encourages researchers to utilize and select methods based on the subject in question and not to limit themselves or set restrictions due to the initial method they have chosen. According to Casti, 1994; Pascale, Millerman, and Gioja, 2000, Sedgwick, 1993 (cited by Reeves & Hedberg, 2003: p 34). This paradigm is suitable for studies such as that to be conducted in SAMAP because of its capability to handle complexities that are found in contemporary society, technology and integrated communities with diverse culture and traditions as in South Africa. It is

imperative that this concept of complexity is rigorously studied as "the comfort of a good fit between man and machine is largely absent from the technology of the information age" (Sedgwick, 1993 cited by Reeves & Hedberg, 2003: p 34). This paradigm is concerned with solving practical problems and thus it adopts significant elements from formative and summative approaches which are crucial within development goal-oriented studies. Furthermore, proponents of this paradigm "view modes of inquiry as tools to better understanding and more effective problem solving, and they do not value one tool over the other" but acknowledge that a tool is only meaningful within the context which it is to be used (Reeves & Hedberg, 2003: p 35).

3.3   Research methodology

Initially this research study was designed as a part of the development of the SAMAP archive to ensure usability amongst all targeted users. Unfortunately the review took longer than expected and the developers went ahead without waiting for the findings. This has severely impacted on both the research goals and research methodology applicable to this dissertation.

3.3.1   The research goal

Reeves and Hedberg (2003) highlight the importance of identifying a research goal before selecting a research method. They divide such goals into six broad categories namely theoretical, predictive, interpretivist, postmodern, development, and action. Although there is certainly place for postmodern and interpretivist studies of the use of the internet to disseminate historical records, this research study focuses on the usability aspects of the SAMAP website, thus placing it as a development goal as outlined by Reeves and Hedberg (ibid).

Studies that have developmental goals are mainly focused on the "dual objectives of developing creative approaches to solve human teaching, learning and performance problems", and are "aimed at solving problems that confront an individual, a group, or society at large" with "direct and clear implications for practice" (Reeves & Hedberg 2003: p 271). This study intends to identify potential problems in the design of the interface of the SAMAP web site and advise the project of the best methods to address them. Thus it is aimed at solving a problem with direct implications for practice in a specific setting.

Further, Reeves and Hedberg (2003) illustrate a close relationship between development method and constructivist theory. This is characterized by

- "addressing complex problems in real contexts in collaboration with practitioners,
- integrating known and hypothetical design principles with technological affordance to render plausible solutions to these complex problems, and
- conducting rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles."

> (Brown, 1992; Collins, 1992 cited by Reeves & Hedberg, 2003: p 273 - 274.)

These characteristics show a close alignment of development method with constructivist theory. It is due to the former's flexibility and collaborative nature that it becomes rooted in constructivism.

The diagram below (Reeves & Hedberg, 2003: p 275) shows the research process usually undertaken in development research:

Figure 3.1:   Development research
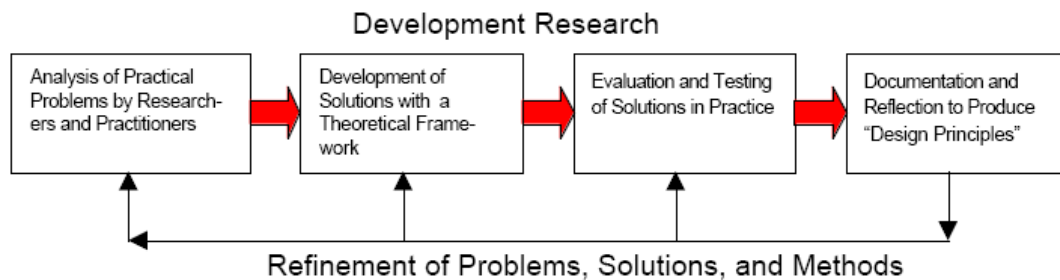
This diagram was initially used to guide the research study in the following manner:

1. "Analysis of Practical Problems": — identify the practical problems in developing an archival music website for a mixed audience such as those identified as potential users by the SAMAP developers, as well as analysing potential user expectations through the initial usability studies.

2. It is not the place of this research study to develop a solution, but rather, through utilizing theories identified in the literature review of the field of Library Science and Human Computer Interaction, make recommendations to the SAMAP developers regarding anomalies in their design.

3. "Evaluation and testing": — are not possible within the confines of this research study, as development has gone ahead without cognisance of the findings.

4. "Documentation and reflection": — the writing of the thesis and submission of recommendations to the SAMAP project.

This study is deeply rooted in the constructivist view of the world whose proponents place high emphasis on collaboration and co-construction of knowledge between potential users and the researcher, for instance Hein (1991) and Hein (1995) discuss examples of constructivist educational theory applicable to museums and archives. As advised by Mahomva (2003: p 19) "[a] variety of research approaches" will be employed so as to enable the researcher to identify users' needs and expectations, as well as any inconsistency and ambiguity within the system, as the study is user-focused and driven.

3.3.2   Case study methodology

Development outpaced the gathering of data and writing up of the findings in this research, as a result, a case study methodology has also been applied to this project. This methodology was chosen due to its ability to draw the researcher closer to understanding complex issues, while expanding knowledge and experience of phenomena already known (Soy, 1996). Of particular interest is its "emphasis on detailed contextual analysis of limited number of events or conditions and their relationships" (ibid).

Gerring (2007) states that a case study can take the form of an intensive study of a single case, which has as its primary objective the establishment of a broader understanding that can be applied and verified in a larger class of cases. Yin (2003) cited in Mokiwa (2009), coined this methodology as a "pragmatic inquiry" that explores contemporary phenomena like the SAMAP website (online archive) developed by Digital Innovations South Africa.

Gerring (2007) draws a comparison between two case-study approaches in social research. The first approach is the collection of data through observing many of cases (more than one participant) "superficially", while the second is the observation of a very small number of participants but intensively. In both cases, method will achieve data, in the first, data with superficial elements and in the second with in-depth, rich elements. In essence, Gerring advises that, an "in-depth knowledge of an individual is more helpful than a knowledge of a larger groups" (Gerring, 2007, p 1).

This author argues that by focusing more on an individual or a smaller group of participants, the researcher gains a better understanding of the issues. However, opponents of this method argue that due to the smaller number of participants, case studies cannot claim reliability and generality of their findings (Soy, 1996). The method's focus on a single broad phenomenon can lead to a perception that it is an informal and undisciplined research design with a weak empirical leverage and subjective conclusions (Gerring, 2007).

Nevertheless, the SAMAP HCI investigation used the case study methodology as it is suitable for a small contained entity, but it also used development research methods in line with the Eclectic-Mixed Method recommended by Reeves and Hedberg (2003).

3.3.3   Theoretical underpinnings

The theoretical underpinnings of this research are covered in the literature review and include the heuristic issues related to usability studies as well as the library science methodologies for storage of archival information.

3.3.4   Usability study methodologies

Following the advise of usability experts to 'know the users' (Shneiderman & Plaisant, 2005) this study identified two key levels of users as per the SAMAP mission statement namely the general public and expert researchers. A combination of methods were used including questionnaires to understand the users better, interviews and participation observations. These instruments are discussed more fully below.

3.3.5   Data collection instruments

Data collection instruments remain the integral part of most research studies and play a major role in determining the value and outcome of any research. Research studies may differ in many respects but all shares at least one thing, "the need to collect data" (Kajornboon, 2005, p 1). Data collection can be achieved through the use of several instruments including interviews (structured interviews, unstructured interviews, and semi-structured interviews), focus groups, surveys, field notes, questionnaires and recorded conversations (ibid).

However, the data collection exercise can be very taxing, in that it requires the researcher to carefully select an appropriate instrument to be used for the inquiry and this process can be very tricky especially when a research study is over-loaded with too many options to choose from. In O'Leary's view (2004), cited in Kajornboon (2005), one instrument for data collection is not inherently better than another. The suitability of a data collection instrument is largely determined by the research goal (ibid). In the following section of this chapter, data collection instruments will be discussed, with special attention to their use, advantages and disadvantages.

This research will be taking a form of qualitative study entrenched within the lines of developmental model outlined by Reeves and Hedberg (2003). Due to the nature of this inquiry, Eclectic-Mixed methods are employed so that for each phase, or problem, a suitable data-collection instrument is employed.

3.3.6   Questionnaires

According to Oppenheim (1992), the questionnaire is one of the important data collection instruments in the field of research and it is relatively cheaper to administer as compared to other instruments. However, the author warns that this instrument may cause respondents or their responses to be constrained due to the questionnaire's layout or the manner in which they are expected to be answered. In Oppenheim's (ibid) view, the questionnaire can be used for measurement, for example in SAMAP (to measure the knowledge gap between users, terminology, and even their perception/conceptual model). A questionnaire can be used to uncover the extent to which SAMAP potential users are familiar with online music archives, while providing the study with additional information, which may be needed for usability testing.

Oppenheim (1992) warns that adequate time must be allocated for the preparation of questionnaires as the lack of which will result in loss of important information thereby resulting in depleted quality of the study. Once questionnaires have been designed, it is very important to pilot them several times with participants similar to the ones in the sample (ibid). According to Oppenheim (ibid), the exercise will assist in uncovering ambiguous wording, layout and also the flow of questioning. As in the SAMAP website where users will be using keywords and other searching options when performing their search, the author advises that, if multiple choice questions

are going to be used, open-ended questions should be the starting point. This is to allow the pilot participants to give answers in their own words (colloquial wording), which later can be used or be added in a list of possible answers that the sample participants can choose from during the actual administration of the questionnaire.

In terms of questionnaire layout, it is imperative that clear instructions on how to indicate or choose an answer are provided as in some questionnaires, users become confused as to whether they must underscore or scratch the undesired answers, while some close-ended questions become confusing especially when it is not clear as to whether the 'yes' signal agrees with the statement or disagrees (ibid). Therefore if these issues are not afforded adequate attention, participants' interests may dissipate leading to an undesired high number of incomplete questionnaires with data of lower value.

3.3.7 Expert review

In this exercise, a usability expert performs usability tests on the system guided by human computer interface principles. This is to ensure that the systems flaws are uncovered long before it can be used by the general public. According to Design Technologies (2009), the purpose of this exercise is to "evaluate if aspects of a given product or website follow established usability principles and known heuristics" (ibid). Like any other data collection instruments used for this study, expert review can also be used in conjunction with other data collection instruments and is best conducted by someone with in-depth knowledge and understanding of the usability principles (Design Technologies, 2009). In the case of this study, Human Computer Interface Practitioners and Music Researchers are used to perform this exercise.

3.3.8 Interviews

Interviews can be used to gather in depth knowledge from individuals or small groups of participants. They are normally recorded and then analysed from a qualitative perspective. There are a number of different types of interviews.

Structured interviews
Structured or standardized interviews are a process of data collection through the use of a set of questions that are structured. This is a process involving "one person (interviewer) asking another person (participant) a list of predetermined questions

about a carefully selected topic" (Sociological Research Skills, undated). For this instrument, all participants are asked the same questions in the same way with the same wording and tone (Kajornboon, 2005). This is to ensure that all participants are given an equal opportunity to respond to specific question with a very limited amount of assistance.

However, Corbetta (2003) cited in Kajornboon (2005) warns that structured interviews may lead to rigidity in the study in that, at times, as in SAMAP research, some participants may be second language speakers and may experience difficulties in understanding certain questions; therefore structured interviews may prohibit probing. The advantage of structured interviews is that, they provide the researcher with full control over the topic to be discussed and because of their rigidity; their coding and analysis is much easier as compared to other instruments (ibid).

Semi-structured interviews
The semi-structured interview is one of the most useful data collection instrument used in qualitative research (Zorn, undated). "It is more flexible than standardized methods such as structured interviews or surveys" (ESDS Qualidata, 2010).

In Zorn's (undated) view, this method unlike that of structured interviews is very flexible in that it allows the interviewer to rephrase the questions in order to elicit 'ideas and opinions' from a participant, encouraging "exploration of emerging themes and ideas" rather than fully relying on themes and questions which were prepared in advance (ESDS Qualidata, 2010). As in the SAMAP study, where some participants are second and third English language speakers, this type of interview can be very effective and fruitful.

A researcher using a semi-structured interview can make use of themes and open-ended questions rather than testing a specific hypothesis (David & Sutton, 2004, cited in Kajornboon, 2005).This is one of the tools that best suit the SAMAP's usability study as it is formative in nature and allows for participants to voice their impressions rather than leading them towards "preconceived choices" or answers (Zorn, undated). However, the author stresses two underlying principles to be born in mind when one is conducting a semi-structured interviews, that
- the interviewer must strive to avoid leading question in the interview or imposing meanings, and
- must also strive to create a relaxed, comfortable conversation

Sociological Research Skills (undated) argues that this method may not be reliable (due to high possibilities of inconsistencies), in that, it is difficult for an interviewer to give the very same kind of interview to the next participant, and also that the questions might not be exactly the same. This in turn may hinder the participant's understanding of the question thereby leading to unintended answers or meanings (ibid).

In the case of the SAMAP study, as a way of minimizing the disadvantages highlighted by Sociological Research Skills above, three elementary forms of human activity identified by Gorden (1980) will be adopted. Gorden (1980) advises that when conducting an interview, especially one of a qualitative nature, the researcher should employ empathy, participation, and observation. In terms of empathy the author refers to "feeling with another person or understanding how they feel about something", while participation refers to "doing something with the participant in their regular ongoing activity", and observation covering "any sensory perception and not limited to visual or external cues" (Gorden, 1980: p 5). Gorden's elementary forms go beyond the interviewing method and are in line with Reeves and Hedberg's Eclectic-mixed Methods pragmatic paradigm, which is a method of choice for this study. As an array of data collection instruments will be used, semi-structured interviews may not pose any risks with regard to the quality of data collected.

Unstructured interviews
This is a flexible method of collecting data. In unstructured interviews, each and every interview is different, in that the interview data is collected or generated through encouraging participants to speak openly (Kajornboon, 2005). This method is mostly used when "little or no knowledge exists about a topic" (ibid). In Kajornboon's view, unstructured interviews have higher risks of generating unreliable data in that the interviewer may be biased and asking questions that are inappropriate and furthermore, participants may pursue topics that are irrelevant to the study. Unstructured interviews may be very difficult to control and can be time-consuming with minimal desired results.

Focused interviews
According to Sociological Research Skills (undated), focused interviews are mainly used in qualitative research. In this method, a set of open-ended questions is utilized in order to direct the study's focus towards providing participants with a platform to

articulate their point of view on a particular subject rather than generalisation (ibid). The success of focused interviews depends on the interviewer's skills and can be time-consuming. Unlike structured and semi-structured interviews, focused interviews allow for the interviewer to clarify complex concepts and questions if not understood by participants thereby building a positive rapport (Sociological Research Skills, undated). However, it is not possible for the researcher to know if participants are distorting responses or are being completely dishonest about their answers (ibid).

Focus group interviews

The focus group interview is another type of data collection instrument that is used mostly in qualitative research (Kitzinger, 1995), as qualitative research pays more attention to user's responses, and how they articulate such responses, and further applies observations in an attempt to conceptualise user's reality and their natural situations (Lewis, 2000).

According to Kitzinger (1995), this research instrument affords the researcher an opportunity to pay more attention to the research participants than any other instruments in qualitative research. Echoing Kitzinger, Lederman (cited in Rabiee, 2004: p 1) defines a focus group as "a technique involving the use of in-depth group interviews in which participants are selected because they are a purposive, although not necessarily representative, sampling of a specific population, this group being 'focused' on a given topic." It is a controlled discussion in which the moderator determines direction through the use of a prepared set of questions (Usability Professionals' Association, 2010). This data collection instrument is most useful during the early stages of systems development such as that of the SAMAP website (ibid).

Focus group interviews encourage participants to talk to one another and comment on each other's experiences and comments, therefore this method is relevant to the SAMAP usability study as it "explores people's knowledge and experiences" (Kitzinger, 1995) and also provides an opportunity to discover what their perceptions of a particular issue are, and why.

This instrument can assist the researcher in experiencing and perceiving the system under study through the participant's eyes and also generate a much deeper and richer data for the study (Rabiee, 2004). However, The Usability Professionals' Association (2010) warns that the focused group interviews can be very challenging and can become unfruitful especially when its success is fully resting on the

moderator's experience and skills. Furthermore, dominant participants can influence the views of other participants or even over shadow their true character and contribution to the exercise (ibid). The author advises that, if the moderator lacks experience, training prior to the exercise might be crucial, so as to avert possible conflicts that may lead to poor data collection.

3.3.9 Participants' observations

 "What people say they believe and say that they do is often contradicted by their behaviour"

(Family Health International, 2005, p 2).

According to Family Health International (2005) the participant's observation method can be used as an effective instrument to validate what people report about themselves during an interview or focus group. Such reports may include experiences, feelings and perceptions. Participants' observation is qualitative in nature and is deeply rooted in ethnographic research (ibid).

During qualitative research, the researcher can use observation alone or in conjunction with participation. In Family Health International's (ibid) view, this method is distinctive as compared to other methods in that it allows the researcher to carry out observation within the participants' own environment as compared to other methods in which participants must go to the researcher's selected location. The disadvantage of participants' observation is that it is time consuming therefore it is not a practical and viable instrument especially in applied research which requires a shorter data collection period (Family Heath International, undated)

3.4   Population sample and size

It is generally accepted that the greater the number of participants the more accurate the research. However, it is also possible to use purposeful sampling to ensure adequate representation of different target audiences in a study of this nature.

In this study it was not feasible to investigate a truly international audience but participants included exchange students and international students. In addition students of music, history and sociology, and some members of the general public

were targeted to get perspectives from different disciplines. Attempts were also made to ensure that participants had diverse home languages backgrounds.

From an "expert" review perspective, information was sought from people who are involved in similar types of work, especially librarians, archivists, web developers and HCI practitioners. The data drawn from these people made up the "expert reviews" described by Shneiderman and Plaisant (2005).

3.5   Data management and analysis

From the outset a data management plan was devised. Data collected for this study was stored in the ICT Student Research LAN at the University of KwaZulu-Natal, Howard College Campus, which was protected by security access, passwords and lockable storage areas. All paper questionnaires were kept in a locked drawer. During the analysis phase all materials were used in that secure environment and the results coded so that participants' identities would be protected. All materials used for the study will be stored by the department in a secure environment for the required legal time and will eventually be shredded.

Data collected is mostly of a qualitative nature and the data has been interrogated using NVivo™, a software application developed to help manage qualitative research. Common as well as unexpected themes that emerge from the data are noted and presented in the data analysis section of this dissertation.

3.6   Validity and reliability concerns

A range of data collection methods have been used and triangulation of these is intended to ensure some validity and reliability. The idea behind triangulation of these data is that the convergence or agreement between two methods can assist in ensuring that the research findings are reliable (Jick, 1979). Most researchers who choose to use qualitative research methods put more emphasis on validity rather than reliability (Ratcliff, undated). This is due to the fact that qualitative research involves some human elements in which bias can not fully or be eliminated completely.

Zorn (undated) warns that it is crucial for a researcher to consider reliability and validity during the research design phase to formulate an approach which can ensure

the validity and reliability concerns on the research findings. In Zorn's view, to succeed in this challenge, the researcher needs to be able to select an appropriate research tool for interrogating a specific research question (including how they are worded and phrased). Zorn's concern echoes that of Reeves and Hedberg (2003) concerning the need to apply caution when dealing with data collecting instruments, in which for this study, the mixed eclectic research method was chosen.

However, as the sample sizes will of necessity be rather small, only trends and concerns will be able to be drawn from the data as other groups of users may have different problems, this research only should be seen as part of ongoing developmental research.

3.7 Anticipated limitations of the study

Logistical problems such as the stage of development of the site have already been discussed, but additionally it was anticipated that it could be difficult to find representative participants from all language groups and cultural backgrounds in South Africa. The motivation of participants was also an area of concern due to research participation fatigue as there are many studies carried out within the environment in which the SAMAP study will be conducted.

Therefore this study can only raise concerns identified by the participants, and can advise from expert reviews. There may be other unpredicted problems as the site is developed further and more users access it.

3.8 Ethical considerations

As this research study involves human subjects the medical maximum of "first do no harm" (Wikipedia, 2011) has been applied but as it does not involve any potential physical or psychological damage to the subjects this should not pose a problem.

Participants in the research study have been asked to sign a consent form which indicates that they agree to participate and are free to withdraw from such participation at any time. Responses will be kept confidential and information gathered will be stored and coded electronically which will make it impossible for individuals to be identified. Once the study is complete and the legal time requirements have expired, source data will be deleted.

Participants will not be offered any financial or other inducement for their participation, but in line with perceived benefits of participation it is intended that their contribution will inform the design of a user friendly, useful resource that they will be able to access at any time.

The findings of this research will be published by means of a dissertation and made available to any interested parties through the University's library system.

3.9   Conclusion

The research reported in this document has, of necessity, taken a particularly pragmatic view. Every effort has been made to use a variety of tools to interrogate the SAMAP development from the stated users' perspectives and should highlight issues that need to be addressed in similar developments.

Chapter Four: Data collection and analysis

4.1   Introduction

The purpose of this chapter is to give a detailed description of the data collected in this study through the different data collection instruments used. The main sections are grouped by types of respondents, namely general users and expert reviews.

4.2   Researcher's background

A predominantly qualitative study can be biased by the researcher's background, thus it is useful for the reader to know a little of the researcher's biography so findings can be placed in perspective. I am a former music department student at the University of KwaZulu-Natal's Howard College campus, and have graduated with a BA degree and honours, majoring in popular music studies and music technology. While studying music, I served as a research assistant for Professor Christopher Ballantine who is one of the contributors to the SAMAP website collection. I also completed my internship for this masters course by working for Digital Innovation South Africa. I am currently working as a senior information officer within the University of KwaZulu-Natal's library services.

4.3   General users

For practical purposes potential general users were identified as different student groups on the Howard College Campus and in the University residences. Initial interrogation of these potential users was by means of a questionnaire, and follow-up usability studies were done with smaller groups of volunteers.

4.3.1   Questionnaires

The questionnaire was pre-tested prior to the final administration in order to reveal any possibly ambiguous questions and questions that user's may have perceived as difficult or unclear. The questionnaires which were distributed during the pre-testing exercise most test respondents that stated that they did not find ambiguous or unclear; instead they were much easier than anticipated. However, some respondents commented on the length of the questionnaire; they felt that a three-page questionnaire was too long.

4.3.2   Questionnaire challenges

The administration of the final questionnaires took place on the University of KwaZulu-Natal's Howard College campus. Specific departments were systematically targeted including Social Sciences, Politics, History and Music , however response rates were disappointing. An initial fifty questionnaires were handed out to potential users, but only ten of those questionnaires were returned while the balance were either not filled in or were thrown away.

To remedy this problem, the researcher then decided to approach potential users, ask them if they were willing and had few minutes to complete the questionnaires. Once they indicated that they would participate, the researcher handed them questionnaires to complete and waited to collect them.

In the final tally of the 90 questionnaires that were handed out 43 were returned.

4.3.3   Demographics of questionnaire respondents

The Howard College campus caters for the Faculty of Engineering and the Faculty of Humanities, Social Sciences and Development Studies. Returns by women (n=29) far outnumbered those by men (n=14) but the reasons for this were not immediately clear as questionnaires were handed to both groups randomly.

Ethnicity

As it was important to ensure inclusion of as many cultural and race groups as possible respondents were asked to indicate their ethnicity. Of the 43 responses 28 stated they were Black African, 7 White, 8 of Indian extraction and 1 was Coloured.

Figure 4.1:   Ethnicity of respondents
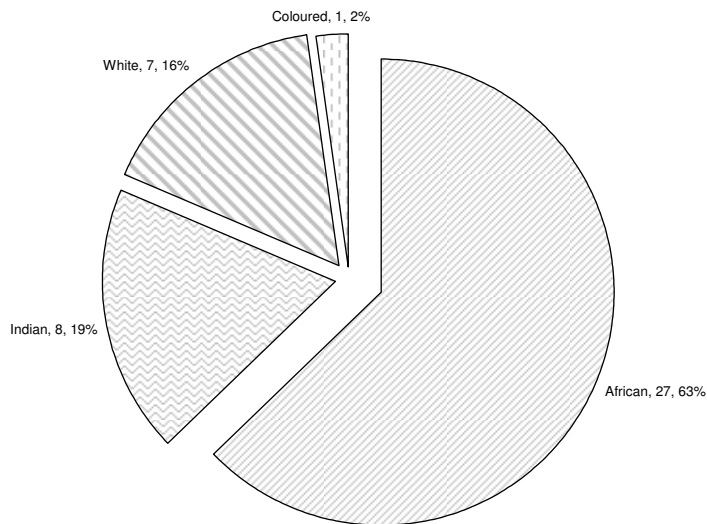
Validity of sample size by ethnicity

Although the number of respondents was disappointing, the ratio of ethnic groups represented here are not too dissimilar from the University statistics for Howard College registrations in 2008 and are therefore considered a valid cross-cultural representation.

Table 4.1:   Ratio of respondents to student enrolment

	African	Indian	White	Coloured	Other	Total
Questionnaire respondents	63%	19%	16%	2%	0	100
Howard College Student enrolment 2008	52%	30%	15%	3%	0	100
Difference	+11%	-11%	+1%	-1%	0	

Nationality

It was also considered desirable to have some international representation amongst respondents. The responses to the questionnaires revealed that 36 respondents

were South African, 3 American, 4 were from other African countries with 3 from Lesotho and 1 from Zambia.

Table 4.2:   Countries of origin of respondents

South African	American	Other African Countries	Total
36	3	4	43

There was a broad range of home languages but mainly dominated by Zulu (17) and English (14).

Table 4.3:   Home languages

Zulu	Xhosa	Sesotho	English	Afrikaans	Other African Language	Total
17	1	7	14	2	2	43

Home areas

Given the possibility that people from rural areas were less likely to have easy internet access, respondents were asked to indicate their home area. These were then categorized by urban (suburban), semi-urban (historically disadvantaged areas such as 'townships'), and rural. The majority of respondents came from urban areas (28) and only 14 fall outside this category. One person did not respond to this question.

Table 4.4:   Home areas

Urban	Semi-Urban	Rural	No response	Total
28	5	9	1	43

Field of study

Although SAMAP is a site for historically important musical archives part of the function of the site, identified in the project specification, is to have a general interest appeal. However, when handing out the questionnaires many people from fields such as engineering glanced at the paper and said "*not my field*" and handed it back.

This could account for the inequality of gender representation as registration in Engineering is skewed in favour of men and registration in the Humanities, Social Sciences and Development studies is skewed in favour of women.

Table 4.5:   Gender ratio of total registration in each discipline

	Male		Female		
	Number	(% of field of study)	Number	(% of field of study)	Total number
2008 Engineering registration	2032	(76.05%)	640	(23.95%)	2672
2008 HSSD registration	2778	(36.12%)	4914	(63.88%)	7692
Respondents	14	(32.56%)	29	(67.44%)	43

Unfortunately, it is not possible to correlate this directly with the questionnaires as respondents sometimes misunderstood the question "area of study" and stated the physical location such as "Howard College", or "Durban." Of the 22 respondents who responded with useful information the break down by faculty or school shows that most of them were from the Faculty of Humanities, Social Sciences and Development studies.

Table 4.6:   Respondents' discipline of study

HSSD	Health	Economics	Engineering	Total
17	1	1	3	22

4.3.4   Internet access

Respondents were asked if they had connectivity at home, and if not, where they gained access.

Table 4.7:   Internet access from home

Home Access	No access from Home	Total
16 (37%)	27 (63%)	43

Only 16 (37%) of the 43 respondents indicated they had internet access from home, the other 27 (63%) were then asked to indicate where they gained access. One

[p24] of the respondents who had access at home also indicated that they use other facilities so the total number of respondents who answered the question related to other access points is 28. All of these 28 respondents indicated they used the University's student facilities, with most of this group using internet cafes. Two respondents indicated that they used their cell phones.

Table 4.8:   Alternative internet access points

Work	Parents' place of work	Friends house	Internet Café	Other
3	3	4	14	2

The following bar chart clearly shows that the majority of respondents use the University's infrastructure to access internet resources.

Figure 4.2:   Bar chart showing internet access points.
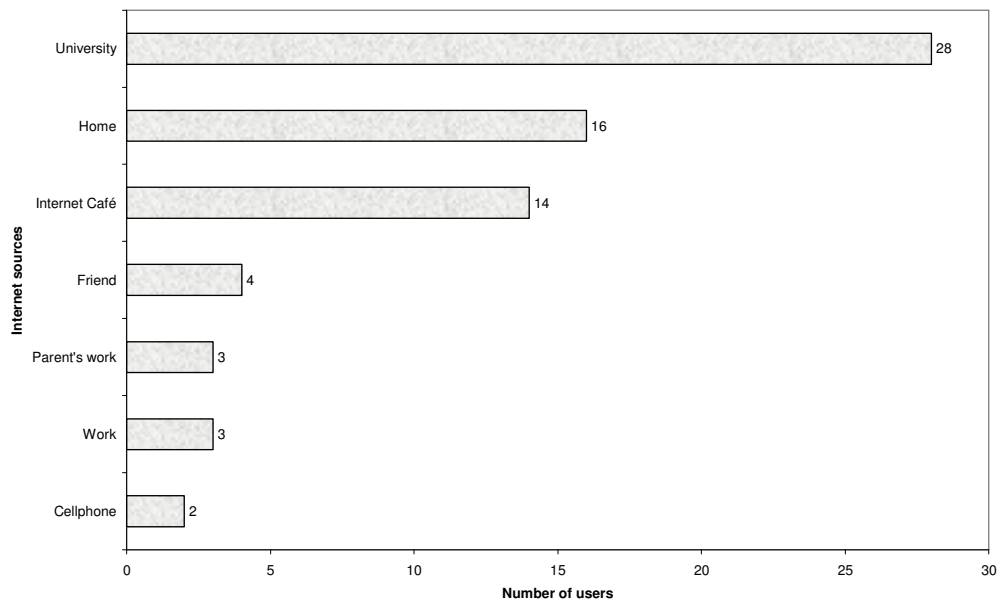
As initially suspected none of the respondents from rural areas had access from home, and only 1 of the respondents from an area designated "semi-urban" had home access. However, of particular interest are the 12 respondents who only access the internet from University facilities as it is possible that the University rules, based on the principle of "academic work" as priority, influence their internet activities. Visiting music, MSM and social networking sites is frowned upon and access is either banned or restricted to certain times of the day.

4.3.5   Frequency of visits to specified types of sites

Respondents were asked to indicate how often they visited academic web sites, online journals, online books, and prescribed websites. Of the 43 respondents 1 did not answer this question at all and one other indicated visits to music sites only. The figure below shows that most respondents indicated they visited Lecturer prescribed and academic sites; it is interesting to note that music sites were the sites mostly likely to be visited daily.

Figure 4.3:   Stacked Bar chart showing frequency of visits to various types of sites
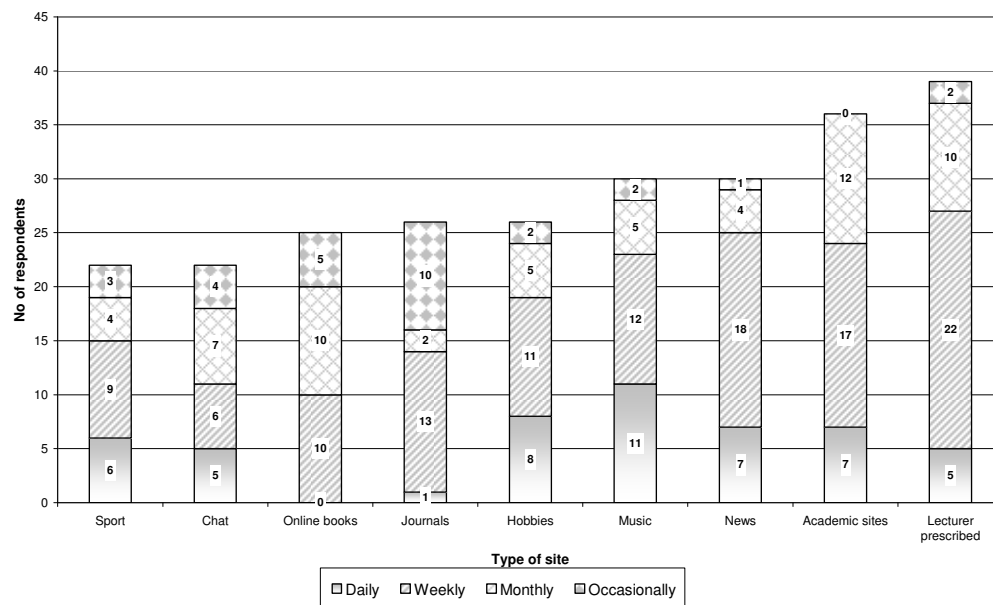
Another reason for making these choices available in the questionnaire was to understand how many of the respondents were familiar with library bibliographic sites. At first glance the access to bibliographic sites (online books and journals) appears reasonable, however, on closer inspection it is noted that both the sites are used by less than 50% of the respondents and then infrequently. It is important to note that these figures simply give an indication of site usage, not expertise in their use.

Of sites that respondents felt did not fit into these categories, 3 respondents, all of whom have internet access from home, stated they visited social networking sites such as "myspace" and "facebook", while others indicated sites of general interest including "movies", "gossip", "medical health", "TV guides" and "mobile software."

4.3.6   Searching methods

In an effort to establish how respondents found information on the internet a question was posed allowing them to select one or several of the options.

Figure 4.4:   Bar chart showing information sources
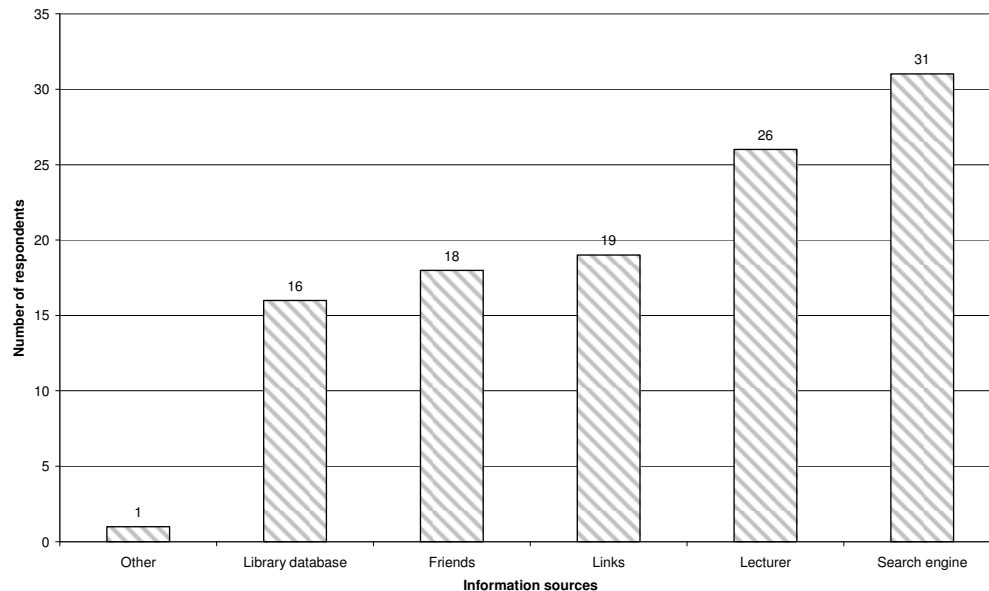
The vast majority of the respondents stated they used a search engine, the most common of which was "Google", but only 16 stated they used library databases. Thus, the presumption is that the majority of respondents can be expected to be familiar with the free text searching available in Google with only a few having experience of using a more structured bibliographic database systems. However, of particular interest are the 12 who did not indicate they used a search engine at all. Ten of these non search engine users stated they used library databases, but 3 of them had not indicated they used online books and journals. It is possible that these respondents consider the library catalogue (available online) a library database and therefore use it to find paper-based material rather than searching for online material. The relevance however is not invalidated as they would be familiar with searching for information according to bibliographic categories. The only person to respond with "other" stated this was "self research" but the meaning of this is not clear in the light of the other categories.

Another curious unexplained anomaly is that 39 respondents indicated they went to sites prescribed by their lecturer, but only 26 of these indicated that they found relevant information.

4.3.7 Music websites

Respondents were asked to indicate reasons for visiting websites and were given the following options with an "other" section if there were reasons not covered. Only 36 respondents answered the question and no respondent indicated an additional reason. However, of those that responded all but 1 gave personal reasons as one of their reasons.

Table 4.9:   Participants' motivation for visiting music sites

Personal Reasons	Music Studies	Development e.g. of own band	Sociology studies
35	4	6	2

Most of the respondents who indicated they visited music sites for their formal music studies also indicated they would visit such sites for development purposes as well, however not all those that visited these sites for development indicated they visited them for formal music studies, as would be the case of students who are members of a band but do not study music formally.

In addition respondents were asked to indicate if they agreed with various statements about what they expect to find and what they do find when visiting music web sites. Not all respondents answered each question.

Table 4.10:   Expectations when visiting music sites

	Strongly agree	Agree	Un-committed	Disagree	Strongly disagree	Total
I go to music related websites to find out more about the artists	9	15	9	2	2	37
I like to download music to play on my own equipment	10	11	4	5	5	35
I like to get music scores from web sites	2	6	10	10	6	34
I like to get a copy of the lyrics	10	12	8	3	2	35
I expect a music web site to list their music according to genre/style	17	11	2	2	2	34
I would go to good sites for academic purposes	13	10	4	3	5	35

The bar chart below shows clearly that from a personal perspective, most respondents agreed, or strongly agreed, that they would visit sites to find out more about the artists, download music and obtain copies of the lyrics. This is of particular importance to the SAMAP site in terms of the information provided.

Figure 4.5:   Bar chart indicating expectations when visiting music web sites
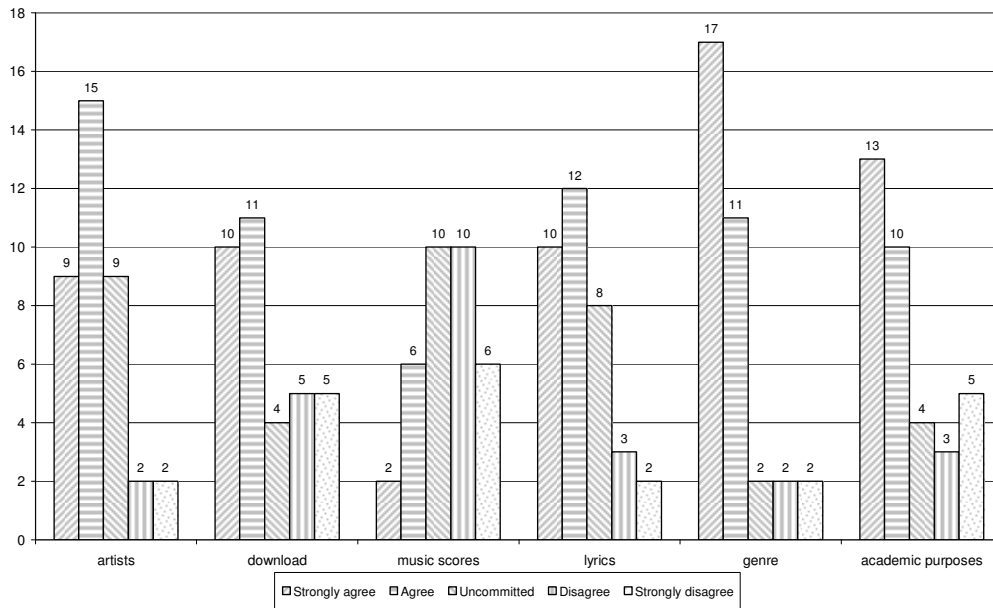
From the questionnaire results, it was clear that there was likely to be a mismatch between general user searching methods, expectations and the information freely available to them from the SAMAP site. However further investigation was undertaken to find out if those who visited the site were able to use it effectively.

4.3.8   Website usability test and participant's interviews

Usability observations were conducted following the administration of the questionnaire. Ten people volunteered for the process and a screen capture utility was used to record the participants' movements across the screen, and as the researcher I made observation notes during the process. Unfortunately two of the screen capture videos were unusable but the observations were noted and the other eight screen captures proved to validate much of what was learnt from the questionnaires.

The volunteers were drawn from a diverse student group including postgraduate and undergraduate students. Of the two masters students, one was a student of music and the other a student of public policy. There was one honours student who was studying English. The rest were undergraduate students drawn from Social Sciences, Engineering, Philosophy and Social Work. The cross cultural issues were addressed by including 3 undergraduate international students (a Canadian, an American and a Zimbabwean) and a Tanzanian masters student. These participants also represented a mixture of race groups which included White, Indian and black African students.

The SAMAP website usability test was conducted at the University of KwaZulu-Natal Howard College campus.

This exercise was divided in to three stages:
- Exercise one: Participants were given the name of a music band and asked to find information about it on the internet. Information and recordings from the band are available on general websites as well as on the SAMAP site. This exercise was used to solicit information about the participant's preferred method of internet information searching.
- Exercise two: Participants were then given the SAMAP URL to search for similar materials within the SAMAP website to find out if they were able to navigate the SAMAP site in particular.
- Exercise three: Participants were then interviewed to gather information about their experience of the SAMAP website.

The first exercise was to gather information about a particular band known as the Manhattan Brothers Musical group, a local South African band from the 1950s. The participants were encouraged to use their usual preferred searching techniques and it was noted that most participants preferred to start with the Google search engine and then progress to Wikipedia. A few then tried to use Yahoo.

Most participants found the band's images, band member's names, and titles of albums the band released during its existence. However, none of the participants could locate the any of the band's recording clips or audio samples. At the end of the exercise most participants could give a brief history of the group and were convinced that there was more information, contained in the website about the band; that they could still find on the internet. It was interesting to note that Google did list links to the

"Third EAR" and "DISA" websites but only three participants followed the link, moving out of it fairly quickly.

As a follow up to the first exercise, participants were asked to explain and give reasons for their preferred surfing method. Most participants indicated that they thought Google was faster than other search engines and in their view it was considered mostly reliable. They hinted that they could not afford to waste time. Those who were enrolled for postgraduate programs also opted for Google Scholar. Some of the other participants preferred Wikipedia as a starting point, even though they expressed scepticism about it, explaining that it was discouraged by their lecturers as it was perceived not to be reliable. In most instances they would use Wikipedia and later compare the information they found on it with what they have found on other websites. When asked for reasons they said they were just confirming the facts presented by Wikipedia.

At the end of this first phase, most participants were very confident that their search was successful. Those that expressed dissatisfaction said they thought there was not enough information because the band was composed of black musicians. Other participants felt that Mariam Makeba, a member of the band, was over-shadowing the entire group and there was more information about her than about any other members.

The second exercise was to download a recording clip from the SAMAP site. Only half of the participants could do this without any assistance or guidance. The others had to be continuously guided to click on the "Hosted project" links on DISA website and then reminded to select from the links to different collections databases.

Most participants appeared frustrated especially when they were unable to locate materials that they were asked to locate with one of the participants asking why he was being "setup to look stupid." Some participants asked if they could move from the DISA site to use Google instead.

As a music archival site it was considered important to verify that users could listen to or use the audio clips. Seventy percent of participants could not listen to the audio clips, some complaining that they could not even locate it. The difficulty was mainly due to participants' unfamiliarity with the audio file icon which was fairly visible but could not be recognised as an audio file.

of those who found the material that they were searching for could not identify the file format as the format was not "wma" (Windows media audio) which they were accustomed to. Those who could manage to download and play the clip indicated that they were not happy with the audio quality, stating that it would be difficult to analyse the piece as the words were not clear, and they would then be unsure if it was worth purchasing the entire recording.

When asked if they found the information on the website useful or not, most participants indicated that it could be useful, but there was a perceived need learn how to use the website before the search could be effective and fruitful. However, they all expressed some concern about records that did not provide enough information (Metadata) or had no relevant information at all.

Responding to questions concerning possible further use, some users were very discouraged and frustrated by the experience, while other users, especially the South African users, felt that there were interesting elements and they would possibly revisit the site.

Most participants raised concerns with regard to the website's lay-out and navigation tools. They mentioned that "the site does not give clear directions", as they felt that they sometimes ended up with unwanted results and in many instances they felt the searching took too long as they had to circumnavigate the unfamiliar searching techniques.

4.3.9   Discussion on general users' perspectives

From the general users' perspective the key questions of this research were found to be as follows:

To what extent does the site meet Human Computer Interface requirements to make it accessible to a multi-cultural and multi-disciplinary user base, as well as take in to consideration those users with special needs e.g. the blind?

The site leans more towards the traditional library database system which does not cater for the general public who are more familiar with the Google orientated text

searches. In essence, it caters more for scholars and researchers, while offering less or no options for novice users in terms of general searching techniques.

During the testing and later interviews, most users placed emphasis on the need for one to learn how to use the system before they could find it resourceful and usable. This point implies that the site fell short when it comes to meeting Human Computer Interface requirements of ease of use. The design and lay-out of the site fails to utilize users' mental, model requiring the intervention of a more experienced user instructing novices on its use. As most participants were accustomed to search engines such as Google, the SAMAP web site did not exploit users' prior knowledge and experience of surfing the internet and in some cases appeared to act in a contradictory manner, turning the use of the system into a frustrating experience. A number of users felt intimidated at first, before they developed a clear idea of how the system works. One participant remarked "*ahh, I am useless when it comes to computers*" indicating a level of alienation that could result in the person choosing to explore other avenues of information gathering.

The application of iconic metaphors not deeply rooted in the users' culture created some navigation difficulties for most users. For example, most users were familiar with Microsoft software packages, in which "wma" represents an audio file whereas on SAMAP web site, an mp3 icon represent a clip or audio file which users can download and play. This contrast in file format created confusion during the website usability testing to such an extent that users, when not guided, concluded that the site did not have the audio samples which they were asked to retrieve.

When it comes to compatibility with users with special needs like the blind, it was heartening to find out that the SAMAP website can be used by blind users who use software packages such as Jaws version 7.0. When surfing during the test, a blind user who was using Jaws did not experience any major difficulties, except the same navigation issues experienced by sighted users. Alt text for navigation icons could have been used to alleviate this problem.

To what extent does the cataloguing system match the needs of potential users, i.e. do they find the relevant material quickly and easily.

Most users were used to free-text search, while the SAMAP website makes use of the library search techniques dividing the information into separate fields. The

mismatch of searching techniques led to participants failing to locate the required material. On many occasions, they resorted to using the Google search engine. Failure to consolidate archived materials into one database made searching cumbersome. Most users did not realize that they had to search all the five databases separately[2]. Instead, if their first search failed they felt that the item was not included in the SAMAP collections. This led to longer search times which frustrated users. Most users would search through the first two databases, and then conclude that the SAMAP web site did not have the information for which they were searching.

It is difficult for first time users to work out what they need to do to access the information. Firstly the link from the DISA website to SAMAP is not easily identifiable (one has to be aware that the information is stored under the heading "hosted projects") and once in the SAMAP site the users still need to discover how the collections are arranged and information can be found.

Search features differ from one collection to the next. In some collections, one can narrow down the search, becoming more direct while in others, there are limitations as to how far one can specify one's needs.

Is the terminology in the indexing consistently applied and to what extent does it match the mental models of the potential user?

As has been pointed out, one participant stated that "*the catalogue can work better if you were taught on how to use it.*" Users' existing mental models drawn from the ubiquitous Google search techniques have little role to play here, and users unfamiliar with electronic library catalogue systems find the system particularly difficult to use. Only researchers with extensive familiarity with library catalogue search techniques would navigate the site easily.

The terminology has been applied consistently through out in the indexing; however, information provided on some of the archived materials or files is inadequate. Some files have crucial information missing, such as the song titles. This caused the

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[2] This problem has been addressed in the latest version of the SAMAP site and now a single search is carried out across fields and all databases.

participants to question the quality of the material and the credibility of the site as a research resource.

4.4 Expert reviews

It is important to note that the site layout had changed in the time between the user reviews were done and the experts were asked to give their opinions. Of most significance was the consolidation of the collection databases, but generally the cataloguing and information found remained the same.

The expert review questionnaire was given to music researchers, a website developer, and a person with expertise in HCI issues. The discussion below separates the library sciences and music researchers from those with website development and HCI expertise. In order to avoid researcher bias the questions were very general with the intention that the respondents could add comments on specifics. In retrospect this was probably a poor decision but time constraints prevented a revisiting of the questionnaire.

4.4.1 Web developer and HCI respondents

One web developer expert and one HCI expert response were received. The HCI expert felt that the questions were too broad and should have been much more specific.

Functionality
The HCI expert felt that some of the intended functions may have been fulfilled, but others had not and would have liked this question to be more specific, while the web developer felt that the "site seems to do this very well."

Web standards
The website developer could not answer the question relating to World Wide Web Consortium requirements stating that he was "not 100% aware/informed of these requirements." The HCI expert on the other hand would once again have preferred the question to be more specific stating "some are met and others not", pointing out, for example that the alternate text for icons was missing.

Feedback

The HCI expert also felt that the site did not give clear feedback to the users. "When the collection link is clicked nothing happens so the user is left [asking] why is the collection not linked?" The web developer thought the feedback was clear and the site "quite intuitive" which is contrary to the users' reported experience.

Consistency

The web developer stated that in his view, the indexing terminology was consistent and the HCI expert did not comment. This was also applicable to consistency of navigation operations, screen displays, keyword coding and colour. Neither reviewer answered the question related to the catalogue-like retrieval system.

Navigation

Navigation proved to be problematic for both reviewers. The web developer said that "initially [I] could not easily see the actual SAMAP project link and also being able to browse through the audio collection available" but on the whole he found it acceptable. The HCI expert stated that it was not easy and "once I clicked on the title link to go back but the site did not offer a back link – the only way back is the [browser's] back button." In addition, it is important to allow users some control – when a music clip is playing there are no controls given to the user to pause, replay or stop.

Error messages

The web developer strongly disagreed that the error messages could be considered offensive, and agreed that they were helpful. The HCI reviewer however pointed out that there were times when no error messages were encountered, stating for instance, "if the sound is off no error message is displayed, nothing happens."

Forgiveness

The HCI expert refrained from answering any more questions, while in the web developer's view the site was generally forgiving as one could use the browsers back button to go back to a previous display. He did however comment that links are "quite small."

Use of colour

Here it was felt that the use of colour was appropriate but the excessive use of white may make the screen too bright for some users.

Screen layout

The web developer thought that the screens were consistent and the screen layout reduce user's cognitive load but he stated that "it is not immediately obvious that you could play and listen to audio clips. Perhaps that information should be mentioned at the top of the list."

Operation of the search engine

Here the HCI reviewer felt that the question was not useful and should rather have focused on the user's ability to find useful and expected information. The web developer did not answer this question stating he did not know nor have access to all the records stored on the databases.

4.4.2   Music researchers

Two researchers within the field of music were asked to conduct a review on the usability aspects of the SAMAP website. One **(expert: A)** researcher had a background of ethnomusicology and also worked as a lecturer in a foreign university, while the other **(expert: B)** had a background in music culture and history. In order to complete the questionnaire the two researchers were asked to use the SAMAP website within the context of their specific fields of interest, so that that they would engage with the website in a manner similar to one they would use when conducting their own research. To enable them to conduct the review, they were given a number of song titles to guide their search while using the SAMAP website and answering the questionnaire.

Functionality

Expert "A" felt that the website fulfilled (strongly agree) its intended use while expert "B" felt that the site was fulfilling (agree) its intended use but also highlighted some dissatisfaction. This expert emphasised that "There [were] no instructions on how to access full records for some songs and recorded clips are short. That metadata could include brief description of a song and its significance." Expert "B" felt that the site did not comprehensively respond to the researcher's needs and expectations.

Standards

Unsurprisingly both experts neither agreed nor disagreed with this question as this is not their area of expertise.

Feedback

Both experts felt that feedback was clear, but neither commented any further.

Consistency

Non committal responses of "neither agree/nor disagree" were given for more technical consistency questions related to indexing terminology and keyword coding. However, both agreed that navigational options, screen displays and the use of colour were consistent.

Error messages

Neither expert found error messages offensive, but expert A found error messages helpful and expert B left the provided space blank.

Forgiveness

Expert A agreed that the site was forgiving while expert B strongly agreed but added that "it could assist for the site to suggest closely linked words e.g. it could ask questions like "did you mean...? Like on Google search results."

Use of colour

Both experts A and B strongly agreed that colour was appropriately used. Expert B added that the use of colour in this website "aids in navigation of a page and concentration."

Screen layout

Only expert B strongly agreed that the screen layout assists the user to deal with cognitive load.

Operation of the search engine

Both experts felt the search engines worked flawlessly, however as seen under the heading forgiveness this does not necessarily indicate the users found them easy to use or that the searching techniques suited their needs.

4.4.3   Expert reviews summary

Of all the reviewers the HCI expert was the most scathing about the site. Other experts seemed to think that there was room for improvement but what was of most concern overall I was the music researcher's (expert B) criticism of the lack of additional content, which is also reflected by general users when they state they

usually go to a site to find out about artists, get a print out of the lyrics and download music.

4.5   Copyright

At the time of review the site had a Creative Commons share and share alike copyright symbol. As a musician I am aware of the complexity of music copyright laws but in no way claim to have any legal expertise. As a result I spent some time with the SAMAP site developer checking if this was indeed valid and I was assured that it was. However, a final look at the site before submitting this dissertation shows that the Creative Commons license announcement has been removed and replaced with a disclaimer that states:

> SAMAP disclaimer
>
> The use of the audio recordings in the SAMAP archive is intended solely for personal, research and non-commercial purposes only. Commercial use, including unauthorised reproduction, retransmission or editing or other exploitation, is prohibited.
>
> Copyright of music provided on this website remains vested with the original artistes, producers and recording houses. SAMAP is in no way claiming any ownership or credit. The SAMAP archive is made available on an "as is" basis, and without warranties of any kind, express or implied.
>
> http://www.disa.ukzn.ac.za/samap/

In my view this is a more credible license arrangement than the one originally stated but this should be legally verified. It is possible that a legal argument could be made that SAMAP does not hold any copyright and the whole site is in contravention of these laws.

4.6   Conclusion

All groups of participants identified areas of concern that impact on their perceived usability of the product. These are discussed more fully in the next chapter and where possible recommendations are made to address the short comings.

Chapter Five: Discussion and conclusion

5.1 Introduction

Baecker and Buxton (1987) highlight how essential it is to understand the user of any computer application. They claim that no matter how functional or advanced the system is, if it does not provide the tools required by the users in a manner that is easy and intuitive for them, then it is unlikely to be used. It is from this perspective that this usability study has been undertaken and it is from this perspective that most of the criticism is levelled.

5.2 Intended functionality

The SAMAP system is an ambitious undertaking intending to archive historically important music for the expressed purpose of making the resources accessible to the general public, academic researchers and (a more recently the emphasis) "multi-disciplinary researchers." The archival processes are to a large extent complete, but there remain some data records that have missing information. These must be completed in full to be able to claim that the archival functionality is successful.

In terms of making the resources available to researchers and the general public, the system falls short of expectations. The researchers interviewed in this study claim there is insufficient information available to them. The short clips that they can listen to are not enough to allow them to make a decision on the validity of including that score in their research, and there is no information about the songs, their historical context or additional information about the compositions in general. Members of the general public who state that they would be interested in such a site, find the site difficult to navigate and once again the information available is insufficient for them to make an informed decision to purchase a title. The only people who appear to benefit from the archive are the original collection holders who are familiar with each musical composition.

The newer additional emphasis on "multi-disciplinary researchers" should be explored in further research. The lack of broader information for the general public is also likely to limit these researchers who would want to see sociological and historical information for each of the records. Certainly the expectations of potential users as identified at the outset of this research have not been met, but changing the

emphasis at this stage without addressing these shortcomings is unlikely to add validity to the system.

Recommendation:

To address this shortcoming it is recommended that the developers revisit the stated purpose of the archives. Should they wish to keep to the stated aim of making the information accessible to researchers and the general public they will need to add a considerable amount of additional information on genre, artists, historical significance as well as the lyrics and where possible the musical score. This research could be conducted as an honours or masters project.

5.3 Hidden functionality

The audio clips are short and full versions are only available once a person has purchased the rights. There is no clear indication on the site that this option is available or the procedures for doing so. Usually sites that sell items include a shopping basket where items can be added and at the end of a session the user would submit the collated basket to the seller. These easy and familiar purchasing options are not available and, more disturbingly the reviewers did not realise that purchasing was an option.

Recommendation:

The SAMAP developers should employ someone well versed in internet transactions to assist them in developing a truly online point of sales.

5.4 Searching techniques used by potential users

The problem of separate databases and the need for multiple searches that was problematic in the original site, as used by general users during this study, has been addressed. Most users reported that they predominantly use Google to search for information, and although Google does identify some of the records stored in the SAMAP system these records are not high on the Google results list.

While the single search option at the top of the screen caters for the general public, researchers are limited thereafter. For instance one data record advises the user

that "[f]urther details refer field card (C5B5)", but there is no way of accessing the field card.

On certain screens a more "advanced" search option is given, but the appearance of this option seems to be unpredictable. Serious researchers will be frustrated by the unpredictability of the system and the limited access to advertised additional information.

Recommendation:
It should be relatively easy to add a link to advanced search options next to the general search box and keep that as a standard option on all screens.

5.5   Accessibility and navigation

Generally the appearance of the site was found to be acceptable by the reviewers, and the one blind reviewer was able to use the Jaws program to navigate the site. There is a possibility of colour-blind people having difficulty in discriminating between clickable links and normal text, but this was not identified as a problem by the research participants.

The HCI reviewer identified a number of links that lead nowhere. Dead links are a perennial problem with websites, but dead links within one's own site are a cause for great concern. Relying on the browser's back option is an indication of poor design.

Recommendation:
All images, including the icon for playing music, should have alternate text, most importantly for blind users, but it would also assist users not familiar with this iconic representation. Dead links should be revived or removed, and the developers could consider a series of "breadcrumbs" that follow the user's path through the system allowing them quick and easy landmarks for retracing their steps.

5.6   Library cataloguing system

The SAMAP site can be thought of as a digital catalogue, which simply lists items stored within its database. The developers have misjudged the advances in online resources where it is now common that not only the catalogued item is displayed but additional information and links are collated together and delivered to the user's

computer. For instance the records in the SAMAP site that refer to the Shifty records collection could also include the information from Shifty without the user having to do further searches.

5.7   Copyright

It is my personal view that SAMAP should retain the advice of an Intellectual Property Rights lawyer, to verify their legal right to the material stored in, and distributed from, this site.

5.8   Conclusion

There is no doubt that there is a dire need to ensure a sustainable archive of music such as that stored on the SAMAP site. However, any developments of this nature must be clear, not only about the archival purpose, but also about the way in which it would be accessed by potential users, otherwise real dusty archives simply become virtual dusty archives.

From an HCI perspective, this site needs to reconsider its purpose from the original development brief as well as add considerable functionality and resources. From a case-study perspective, this study once again reiterates the need to know the users, their requirements and their prior experience, and to explore these fully before development begins.

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      Interviewguidelines.pdf.

Appendices

Appendix A: Participants' consent form

INFORMATION TECHNOLOGY IN HIGHER EDUCATION
(ITEd), FACULTY OF HUMANITIES
UNIVERSITY OF KWAZULU-NATAL,
DURBAN

Organizer: Lesiba Kutumela
              Master of Arts in Digital Media candidate
              Center for IT in Higher Education
              Contact no: 083 336 7796
              Email: 201508103@ukzn.ac.za

Supervisor: Kathy Murrell
              Tel: (031) 260 2478
              Email: murrell@ukzn.ac.za

SOUTH AFRICAN MUSIC ARCHIVE PROJECT WEBSITE EVALUATION
RESEARCH CONSENT FORM

To the Participant

Technological advancement is rapid and yet becoming complex and difficult to use and understand. The South African Music Archive Project (SAMAP) is one of South Africa's online digital archives that houses digital objects (audio files, images and publications)of historical significance. As we are living in a multicultural society, it is imperative to ensure that the SAMAP website is usable for a vast majority of potential users with diverse skills, cultural and technological experience.

This study seeks to identify common vocabulary including keywords that are used by potential users while reducing ambiguity within the interface and improve navigation. This will ensure that the SAMAP website is more user friendly thus eliminating possibilities of alienating other users. You are therefore requested to participate in our usability study through which the outcome will inform further improvement and development of the SAMAP website.

The results of the study will be made available for others to view, comment on, or even implement.

In the final report or any other published document, participants' names will be codified so that their identities will remain anonymous. To confirm your understanding of the information given above and your agreement to participate, please sign the consent form below and return it to the organizer.

Participant's declaration

I.. (Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

_____   _____

SIGNATURE OF PARTICIPANT   DATE

Appendix B: Expert review questionnaire

South African Music Archive Project (SAMAP)
Expert Review

Background to the study:
This research serves two purposes. firstly to advise Digital Imaging South Africa (DISA) and SAMAP of any potential usability problems faced by users of their SAMAP web site; secondly, it forms part of the research component for a masters degree in Digital Media. The results of this research will be reported to DISA, form part of the dissertation stored in the University library and may be published in a peer reviewed journal if the results are of significant value to other developments.

The research is carried out within the Department of ITEd at the University of KwaZulu-Natal, Howard College campus.

Researcher: Lesiba Kutumela (201508103)   email: 201508103@ukzn.ac.za

Supervisor: Ms Kathy Murrell, ITEd   email: murrell@ukzn.ac.za

Participation:
Participation in this research study is purely voluntary and no benefits will be accrued by participants. Similarly participation, or refusal to participate, in this study will have no effect on any other area of student activities. Participants' details will be kept confidential, with any personal information stored on computer in coded format. After the required legal time frame all original documents will be destroyed. Participants are free to withdraw from this study at any time.

Signed agreement to participate is required as part of the ethical considerations of any research. Should you agree to take part by filling in the questionnaire, being interviewed or taking part in usability observation studies, please sign below:

Participant's signature: _____   Date: _____

About SAMAP
The aim of the Digital Imaging South Africa (DISA) project "is to make South African material of high socio-political interest, which would be difficult to locate and use, accessible to scholars and researchers world-wide" (DISA, undated). The South African Music Archives Project (SAMAP) intends extending the original DISA resources to include musical archives. According to the HYMAP vision statement:

> *"The project aims to create an online resource on indigenous South African music and associated cultural heritage, so as to promote multidisciplinary research into the field of popular music and culture."*
>
> (See Ballantine, et al (2004). Online at http://aboutdisa.ukzn.ac.za/hymap/mission.htm)

EXPERT REVIEW

REVIEWER: _____ **DATE:_____**

AREA OF EXPERTISE:_____ (e.g. HCI, Library Sciences)

Please tick/circle your rating and write comments on each aspect of the SAMAP web site.1 represents the lowest and most negative impression on the scale, 3 represents an adequate impression, and 5 represents the highest and most positive impression. Choose N/A if the item is not appropriate or not applicable to this system. Use additional paper for comments if necessary.

N/A=Not applicable   1=strongly disagree   2=disagree   3=neither agree/nor disagree   4=agree 5=strongly agree

1. This site fulfills its intended function.

N/A	1	2	3	4	5

_____

_____

_____

2. The website design fulfills the World Wide Web Consortium requirements.

N/A	1	2	3	4	5

_____

_____

_____

3. The feedback to users of this website is clear.   N/A | 1 | 2 | 3 | 4 | 5

_____

_____

_____

4. The terminology used in the indexing is consistently applied.

N/A | 1 | 2 | 3 | 4 | 5

_____

_____

5. The cataloguing retrieval system conforms to information   N/A | 1 | 2 | 3 | 4 | 5
   management principles.

_____

_____

_____

6. Navigational tools are easy to understand.   N/A | 1 | 2 | 3 | 4 | 5

_____

_____

_____

7. Error/alert messages could be interpreted as offensive.

N/A	1	2	3	4	5

_____

_____

_____

8. Error messages are helpful.

N/A	1	2	3	4	5

_____

_____

_____

9. The site is forgiving (if you have gone to the wrong place, can you start over easily?)

N/A	1	2	3	4	5

_____

_____

_____

10. Colour is appropriately used in this website.

N/A	1	2	3	4	5

_____

_____

_____

11. The screen displays are consistent.

N/A	1	2	3	4	5

_____

_____

_____

12. The screen layout reduces user's cognition load (the layout makes it easy for the user to concentrate on the task/s they want to perform).

N/A	1	2	3	4	5

_____

_____

_____

13. The site search engine operates flawlessly.

N/A	1	2	3	4	5

_____

_____

14. There is consistency in terms of:

(a) Navigational operations

N/A	1	2	3	4	5

(b) Screen displays

N/A	1	2	3	4	5

(c) Keyword coding

N/A	1	2	3	4	5

(d) Colour

N/A	1	2	3	4	5

_____

_____

_____

Additional comments.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your time and input

Appendix C: User questionnaire

South African Music Archive Project (SAMAP)
Website Evaluation Questionnaire

Background to the study:

This research serves two purposes: firstly to advise Digital Imaging South Africa (DISA) and SAMAP of any potential usability problems faced by users of their SAMAP web site; secondly, it forms part of the research component for a masters degree in Digital Media. The results of this research will be reported to DISA, form part of the dissertation stored in the University library and may be published in a peer reviewed journal if the results are of significant value to other developments.

The research is carried out within the Department of ITEd at the University of KwaZulu-Natal, Howard College campus.

Researcher: Lesiba Kutumela (201508103)   email: 201508103@ukzn.ac.za
Supervisor: Ms Kathy Murrell, ITEd   email: murrell@ukzn.ac.za

Participation:

Participation in this research is purely voluntary and no benefits will be accrued by participants. Similarly participation, or refusal to participate, in this study will have no effect on any other area of student activities. Participants' details will be kept confidential, with any personal information stored on computer in coded format. After the required legal time frame all original documents will be destroyed. Participants are free to withdraw from this study at any time.

Signed agreement to participate is required as part of the ethical considerations of any research. Should you agree to take part by filling in the questionnaire, being interviewed or taking part in usability observation studies, please sign below:

Participant's signature: _____   Date: _____

About SAMAP

The aim of the Digital Imaging South Africa (DISA) project "is to make South African material of high socio-political interest, which would be difficult to locate and use, accessible to scholars and researchers world-wide" (DISA, undated). The South African Music Archive Project (SAMAP) intends extending the original DISA resources to include musical archives. According to the SAMAP vision statement:

> "The project aims to create an online resource on indigenous South African music and associated cultural heritage, so as to promote multidisciplinary research into the field of popular music and culture."

(See Ballantine, et al (2004). Online at http://aboutdisa.ukzn.ac.za/hymap/mission.htm)

About the Questionnaire

The questionnaire is divided into sections: the first section will give the researcher demographic details about the people who have responded; this is necessary to ensure that the broad spectrum of potential users is represented. The second section will find out general information about your use of web resources and the third section will look specifically at music websites. Finally, the fourth section will deal specifically with the SAMAP website.

Section 1: Demographic information

Name (optional):	_____
Gender:	Male ☐
	Female ☐
Race:	African ☐
	White ☐
	Indian ☐
	Coloured ☐
	Other ☐
Home Language:	_____
Nationality:	South African ☐
	Other _____
Home area:	(Where you live when not at University)
	_____
Area of study:	_____
Current level of study:	_____

The purpose of this research is to ensure a user interface that caters for all needs. The following questions are designed to facilitate access for users with special needs.

Do you have a disability which impacts on your use of computers?:   Yes ☐   No ☐

If so, what are your special needs: _____

_____

_____

Do you use any adaptive technology/software to cater for this need? Please give the name of the software or explain the process you use: _____

_____

_____

_____

Section 2: General web usage

1. **Do you have access to the web at home?**   Yes ☐   No ☐

2. **If you do <u>not</u> have access at home where do you get access to the internet? (Mark as many as you need).**

   University ☐

   Work ☐

   Parents' place of work ☐

   Friend's house ☐

   Internet café ☐

   Other ☐   _____

3. **What types of web sites do you visit and how often do you visit them?**

	—Daily	—3 to 6 times a week	—2 times week	—Once a week	—Once in two weeks	—Once in 3 weeks	—Once a month	—Less than that	—Never
Academic									
Academic web sites									
Online journals									
Online books									
Sites prescribed by lecturers									
General Interest:									
Sport									
Hobbies									
Music									
News links									
Chat rooms									

   Other (please specify) _____

   _____

4. How do you find the information on the sites you visit?

Library databases ☐

Search engines (if so specify which ones) ☐ _____

_____

Links from other pages ☐

Friends make suggestions ☐

I go to the sites the lecturer tells me to go to ☐

Other (please specify ☐ _____

_____

Section 3: Music web sites

Please skip this section if you never go to a site that has anything to do with music.

5. Indicate if you strongly agree, agree, are uncommitted, disagree or strongly disagree with the following statements:

	Strongly agree	Agree	Uncommitted	Disagree	Strongly disagree
I go to music related websites to find out more about the artists					
I like to download music to play on my own equipment					
I like to get music scores from web sites					
I like to get a copy of the lyrics					
I expect a music web site to list their music according to genre /style					
I would go to good sites for academic purposes					

6. Indicate which of the following items reflect your interest in music sites

Personal enjoyment: ☐

Formal Music studies: ☐

Music development (own band etc): ☐

Sociological studies: ☐

Other _____

7. What terms do you look for when trying to find a music site that interests you (e.g. artists name, genre name, song title, a line or phrase from the lyrics)

    _____

    _____

    _____

    _____

8. Is there any thing you would like to find on a music web site that you have not been able to get?

    _____

    _____

    _____

9. Are there any things that you dislike about the music sites that you visit?

    _____

    _____

    _____

Section 4: SAMAP

10. Other than what you have read here, do you know anything about SAMAP? (Please specify) _____

    _____

    _____

    _____

11. Would you make use of this site?   Yes [   ]   No [   ]

    If so what would you use it for? (Research, personal interest) _____

    _____

12. What would you expect to find on the site? _____

    _____

13. Would you be willing to participate in follow up interviews / exercises?   Yes [   ]   No [   ]

    If you are willing please give a contact number where you can be reached (this will not be divulged to any other party). _____

Thank you for your time and input

Appendix D: Observation form

NFORMATION TECHNOLOGY IN HIGHER EDUCATION
(ITEd), FACULTY OF HUMANITIES
UNIVERSITY OF KWAZULU-NATAL,
DURBAN

Organizer: Lesiba Kutumela
Master of Arts in Digital Media candidate
Center for IT in Higher Education
Contact no: 083 336 7796
Email: 201508103@ukzn.ac.za

Supervisor: Kathy Murrell
Tel: (031) 260 2478
Email: murrell@ukzn.ac.za

SOUTH AFRICAN MUSIC ARCHIVE PROJECT WEBSITE EVALUATION

RESEARCH CONSENT FORM

To the Participant

Technological advancement is rapid and yet becoming complex and difficult to use and understand. The South African Music Archive Project (SAMAP) is one of South Africa's online digital archives that houses digital objects (audio files, images and publications) of historical significance. As we are living in a multicultural society, it is imperative to ensure that the SAMAP website is usable for a vast majority of potential users with diverse skills, cultural and technological experience.

This study seeks to identify common vocabulary including keywords that are used by potential users while reducing ambiguity within the interface and improve navigation. This will ensure that the SAMAP website is more user friendly thus eliminating possibilities of alienating other users. You are therefore requested to participate in our usability study through which the outcome will inform further improvement and development of the SAMAP website.

The results of the study will be made available for others to view, comment on, or even implement.

In the final report or any other published document, participants' names will be codified so that their identities will remain anonymous. To confirm your understanding of the information given above and your agreement to participate, please sign the consent form below and return it to the organizer.

Participant's declaration

I…………………………………………………………………… (Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

_____ _____

SIGNATURE OF PARTICIPANT   DATE

SOUTH AFRICAN MUSIC ARCHIVE PROJECT WEBSITE EVALUATION.
OBSERVATION SHEET.
WEBQUEST.

DATE: _____   PLACE: _____

NAME OF OBSERVER:_____

ACTIVITY: _____

Description of the incident:

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Interpretation:

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SOUTH AFRICAN MUSIC ARCHIVE PROJECT WEBSITE EVALUATION.

OBSERVATION SHEET.

WEBQUEST.

DATE: _____   PLACE: _____

NAME OF PARTICIPANT/Coded identification:_____

ACTIVITY: _____

<u>STEPS TAKEN (to be filled in by participant).</u>

1. _____

2. _____

3. _____

4. _____

5. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Appendix E: Focus group base questions

EVALUATION FOCUS GROUP

SOUTH AFRICAN MUSIC ARCHIVE PROJECT

(These are guideline questions for discussion by the group, all are open ended questions)

Numer of participants: _____   Host: _____

Date: _____   Site: _____

1.   What is your opinion of the SAMAP website?

2.   Were your expectations met? Please clarify.

2.   Was the language used in the program easy to understand (e.g. key words and descriptions)?

3.   Was the material easy to locate and use?

4.   Were there any irritating delays?

4.   Compare the SAMAP website with similar websites you have used.

5.   What could be done to improve the SAMAP website?

6.   What other types of information would you like to see on the website?