



**FACTORS INFLUENCING USER ACCEPTANCE OF ONLINE
ENCYCLOPAEDIAS IN THE ARTS AND HUMANITIES.**

By

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Declaration

I, Samantha Nokuthula Sosibo, declare that this dissertation is a representation of my own work both in conception and execution. This work has not been submitted in any form for another degree at any university or institution of higher learning. All information cited from published or unpublished works have been acknowledged.

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25 August 2014

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Approved for final submission



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Abstract

This study aimed to explore user factors that may influence attitude and behaviour where technology acceptance is concerned. The Technology Acceptance Model (TAM) Framework was used as a tool to map this degree of acceptance in relation to the design of the current Encyclopaedia of South African Arts, Culture and Heritage (ESAACH).

ESAACH is an encyclopaedia intended to address the dearth of reference material in South African arts, culture and heritage studies (ESAACH.org.za). The encyclopaedia is divided into broader areas of research such as: verbal arts, performing arts, visual arts, and heritage. It was originally established as a tool to provide support for education in arts, culture and heritage. There has been an increase in interest in the ESAACH online resource platform. This has resulted in the need to capture user perceptions and attitudes on the site in order to provide guidelines on the improvement of the site and to make usage of the encyclopaedia easier and less frustrating.

The researcher investigates English Language Proficiency, Perceived Ease of Use and Perceived Usefulness and Computer Self-Efficacy as factors that influence an online user's attitude towards intention to use and acceptance of an online encyclopaedia. There have been concerns expressed by website designers that because users may not be fully acquainted or familiar with using the Internet in general when accessing information, they anticipate some resistance or reluctance to make full use of available online content. The study included the administration of an online survey to a sample of 149 students from the Arts and Design and Library Information Studies departments whereby their demographics, antecedents and precedent constructs of the TAM were tested for co-relationships of user's intention regarding usage and acceptance of the website. The TAM model was used as a tool to determine: whether a positive confidence in the students' English language proficiency would affect intention to use the encyclopaedia and to predict whether positive Computer Self-Efficacy is an indicator for a positive effect regarding Ease of Use and/or Perceived Usefulness.

Results confirmed that users perceived Computer Self-Efficacy as a positive contributor to the usefulness of the ESAACH online encyclopaedia. Although no significant relationship between English Language Proficiency and Perceived Ease of Use was demonstrated, the need for a design which caters for sensitivity to the language of users was identified.

Keywords: technology acceptance, Technology Acceptance Model (TAM), computer self-efficacy, online encyclopaedias.

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Chapter 01: Introduction

1.1 Context and Relevance of the study

The technological landscape is ever changing, reinforcing the familiar view by a Greek philosopher of the late 6th century BCE, Heraclitus, that “change is the only constant” (Graham, 2005). This is most apparent in technologies that are widely used like websites of companies or organizations which are intended to generate positive user impression and in turn keep users onsite after visits. Outmoded website home pages are no longer catchy enough to draw clients (users) to accept them or stimulate their intention to use. Online encyclopaedias, the Internet and electronic databases are increasingly evolving and can be very challenging for users who are at times not information specialists. As time has progressed, the growing importance of information technology has been more widely recognised and user technology has been studied intensively (Gong, Xu and Yu, 2004: 366). The huge increase in Internet usage and funding in digital libraries has drawn a lot of attention from researchers. Recent research has shown that even though considerable expense has gone into building such systems, online users may not be using online library resources in spite of their availability (Hong *et al.*, 2002; Barrett, 2005; Ramayah, 2006; Connaway, Dickey and Radford, 2011). Barret (2005) explores the extent humanities students’ information-seeking habits might contribute to a very unique group where Internet usage is concerned. In that they might be lacking in basic skills in effectively using the library and its resources because of a misrepresented few that have a “fear” of technology (Barret, 2005). Hong *et al.* (2002) further confirms that there is a definite need to identify the factors that determine user’s adoption of such libraries. Based on their research survey results, it was strongly suggested that TAM should be used to predict user’s intention to adopt and demonstrate external effects that may influence digital libraries’ ease of use and perceived usefulness (Hong et al., 2002). This is clearly supportive about the usage shortage of this type of online technology.

Understanding the factors that influence user acceptance of technology, particularly with regards to online encyclopaedias, is of immense interest to researchers in a variety of fields as well as managers of technology in large organizations (Dillon and Morris, 1996: 3; Chiu *et al.*, 2007; Chuttur, 2009b; Brown, Dennis and Venkatesh, 2010; Holden and Karsh, 2010; Lee, 2010). What emerges clearly from the above is that it offers insights that can support reliable predictions for user acceptance. Without a measure of the acceptance of technology, users will likely seek alternatives if the presumed benefits of a particular technology are not well-received (Dillon and Morris, 1996: 4).

An online website that has expressed the need for such evolution is the *Encyclopaedia of South African Arts, Culture and Heritage (ESAACH)* which is an encyclopaedia intended to address the dearth of reference material in the South African arts, culture and heritage studies. The encyclopaedia is divided into broad areas of research such as: verbal arts, performing arts, visual arts, and heritage. It was originally established as a tool to provide support for education in arts, culture and heritage. There has been an increase in interest in this online resource platform resulting in the need to capture user perceptions and attitudes on the site in order to provide guidelines on the betterment of the site and to make the usage of the encyclopaedia easier and less frustrating. As Stewart (2012: 99) confirms, online user analysis shows that this *ESAACH* wiki appears to be extensively searched online by users looking for information on South African Literature. This wiki site recorded more than 40 000 visitors between 2008 and 2011, which places it amongst the most popular Internet reference sites of its type (Stewart, 2012: 99).

In his dissertation, Rahman (2008: 81) defines a *wiki* as a result of an open-source effort. He adds that it is a technology that allows users to freely create and edit web page content using any web browser. Social networks and interactive media are among the cornerstone of “Web 2.0” whereby applications which run on the web browser have rich and dynamic content offering user interfaces that allow participation on content editing (Denoyer and Gallinari, 2007). A wiki is well known for this feature providing free

content which promotes collaborative works from different contributors around the world (Buffa *et al.*, 2008). The *ESAACH* wiki is in the same category as it also forms part of the community of practice environment whereby contributors interact and are enabled to edit the website content freely.

In the words of the Wiki community:

“Like many simple concepts, ‘open editing’ has some profound and subtle effects on Wiki usage. Allowing everyday users to create and edit any page in a Web site is exciting in that it encourages democratic use of the Web and promotes content composition by nontechnical users”(Rahman, 2008: 81).

The relevance of this study is that it looks at a specific group of online users (students) who can benefit academically from accessing online resources like *ESAACH*. The assessment of this group of users’ perceptions on English language proficiency, computer self-efficacy, ease of use and usefulness is thus relevant for the future design of such resources.

1.2 Research Problem

In his published doctoral dissertation titled “Essays Analysing blogs and Wikipedia”, Rahman (2006: 6), probes the question of the rapid growth of *Wikipedia* which has content roughly seven times more than of its commercial counterparts. He also raises the question of how people assess the reliability of this giant encyclopaedia arising solely from free-editing.

In his paper, Martin (2011: 1) remarks that *Wikipedia* is fast becoming complex and relevant and that even though there are some efforts that exist to deny its credibility, it is rapidly becoming the first stepping stone for anyone seeking concise information on a

specific topic. Users attracted to this information database range from those who are searching for reference material or just keyword definitions to those whose interest is in contributing to the knowledge bank on a specific topic. The *Encyclopaedia for South African Arts, Culture and Heritage (ESAACH)* flights a number of concepts of extreme importance in knowledge production for social transformation (Mzamane, 2009). Importantly, within the context of this study, the content and navigation design of the encyclopaedia are entirely in English. A lack of English language proficiency may pose as a contributing factor to the lack of use especially to users that might be keen to extract reference material. This online encyclopaedia was originally designed for the benefit of this group, to be able to have access to reference material, as well as use as a guide into their humanities discipline. This has not been fully utilized because of indicative factors such as lack of computer efficacy and Internet experience which has now contributed to their poor acceptance of this online encyclopaedia.

Over and above the issue of the choice of a wiki platform for the encyclopaedia, it is argued that language and computer self-efficacy are key underlying factors in determining user acceptance of a particular website or computer system. Hence, in this study one focus is on examining the self-perception of English language proficiency in users whose second spoken language is English. The study aimed to determine the extent to which the self-perception of English language proficiency of second language users, together with their rating in computer self-efficacy can determine the overall acceptance of the online encyclopaedia therefore becoming instrumental factors.

In this study, the Technology Acceptance Model (TAM) was used as the conceptual framework within which to evaluate whether evidence of positive confidence in students' English language proficiency would influence their intention to use the encyclopaedia, and together with Computer Self-Efficacy, predict ease of use and/or perceived usefulness.

Past research (Davis, 1989; Bagozzi, Davis and Warshaw, 1992; Liu *et al.*, 2010; Birba and Diagne, 2012) has established a model within which various factors influencing user acceptance of technology may be critically examined. However, in the particular context of a South African community that has limited access to computers and low proficiency in the English language, the researcher set out to investigate how these new factors might influence user acceptance of online encyclopaedia technology with specific reference to the *ESAACH*.

1.3 Problem Statement

Resistance use and low motivation by users of this encyclopaedia have resulted in this online technology's acceptance being questioned. Although the *ESAACH* attracts visitors from all over the world, either through online users going directly to the site for material or because Google directs hits to it by means of matching keywords, an important local consideration of the present study is the relationship between South African users' self-perception of their English language proficiency and their intention to use the resource. Even though the site has been successful in attracting many users in the past, it is still in need of a considerable facelift and the development of a new set of recommended guidelines to its design to sustain user acceptance of the site and intention to use the site. Exploring the factors that influence online users' intention to use a technology enables us to investigate their intention to use this site in particular.

The assumption underlying this study is that users who rate themselves as less confident in computer self-efficacy and English (non-English Home Language users or L2 users) will show a lower measure of intention to use of the online encyclopaedia than English Home Language (L1) users and those with a high computer self-efficacy. Further, students with a library information studies background will show a higher acceptance of the online encyclopaedia than students with a more general Arts background. This will be discussed further in Chapter 04 where data analysis and findings on these particular

assumptions either show positive or negative significance on the collected data. Just as computer self-efficacy is often a predictor of a person's intention to use a computer, English language confidence (self-perception of English proficiency) would also denote a person's judgement of his/her capability to use a system with an English interface; and influences that individual's perception of a technology's ease of use and intention to use (Gong *et al.*, 2004: 370). In technology acceptance research, "intention to use" reflects a user's desire to use technology in the future. Determining the desire to use technology in the present may inform us to how to further optimize the dynamic nature of technology usage (Teo, 2011: 117), in this case to enhance the usage of *ESAACH*.

In the light of the foregoing, this research aims to unpack the abovementioned factors to determine the acceptance of the said technology (encyclopaedia) by eliciting responses from a group of students from the Durban University of Technology. It is assumed that the findings extrapolated from this sample will be of value in contributing to the future design of the technology.

1.4 Research Objectives and Research questions

1.4.1 Research Objectives

The objective of this research is to use the Technology Acceptance Model (TAM) to:

- Analyze and determine online encyclopaedia user's acceptance and
- Ascertain to what extent perception factors such as English Language Proficiency (ELP) and Computer Self-Efficacy (CSE) predict Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) respectively.

The findings will inform the evaluation of user acceptance of the *ESAACH* site in order to produce recommendations to make the website more efficient and user friendly.

1.4.2 Research Questions

In view of the above research objectives, the following research questions will be answered in this study:

Research Question 1 (RQ1): *To what extent does a higher Computer Self-Efficacy score predict a higher Ease of Use score for users of the ESAACH website?*

Research Question 2 (RQ2): *To what extent does a higher Computer Self-Efficacy score predict a higher Perceived Usefulness score for users of the ESAACH website?*

Research Question 3 (RQ3): *To what extent does a higher English Language Proficiency score predict a higher Ease of Use score for users of the ESAACH website?*

Research Question 4 (RQ4): *To what extent does a higher English Language Proficiency score predict a higher Perceived Usefulness score for users of the ESAACH website?*

The above research questions are discussed in Chapter 4 of this study and the results will be used to contribute to future re-design of the ESAACH online encyclopaedia.

1.5 Overview of Research Approach

Self-confidence in one's English language proficiency is defined as the perception of one's capability to read and understand the English language interface (and content) of an online encyclopaedia. Even if the online media user has little or no practical experience of the new medium, their general perception of their capability to read and understand the English language becomes key to the individual's perception of how easy to use the new medium will be. The concerns expressed by the website designers about users that may not be familiar with using the Internet in general when accessing

information, is shown in their anticipated resistance or reluctance to make full use of available online content. Reporting of the results will have much discussion on the difference in significance on Internet Experience when compared with the average score of users English Language Experience.

This study attempts to answer the research questions presented above by surveying the perceptions of first year students in Arts and Design, and third year students from the Library Information programmes at the Durban University of Technology. In chapter 4 of this study, the data thus gathered to seek patterns in their behavioural intention to use an online encyclopaedia, ie *ESAACH*, is analysed (see TAM in Section 3.4.5 Figure 5).

In this research the current TAM was used as a basis and which extends and adapts Gong, Xu and Yu's (2004: 365) framework which uses the original TAM. Computer self-efficacy is then added as another construct that also affects a user's intention to use technology. The researcher has added English Language Proficiency and Computer Self-Efficacy, as antecedents of perceived ease of use and perceived usefulness to the model (Venkatesh and Davis, 1996).

According to the standard model, computer self-efficacy denotes one's judgment of his/her capability to use a computer. This sense of self-efficacy may in turn, influence an individual's perception of a technology's ease of use and thus their acceptance decision. Furthermore, the individual's weak sense of computer self-efficacy will be more readily triggered by obstacles to their performance, leading to frustrations and consequently lowering their perceptions of their capability to use computers or any information systems technology (Gong *et al.*, 2004: 367).

The importance of this study is its relevance to users, especially students, in the current digital information environment. This study looks at today's modern society, especially the abovementioned student group which is completely embedded within a technological

context, and which makes the understanding and evaluation, in our case, of technological acceptance of the online medium, critically important for academic success. The education environment is no exception to a world in which the cell phone, computer, and the internet are becoming increasingly common with an annual increase of 26% on internet usage and 79% increase in mobile subscriptions or usage globally as reported by International Telecommunications Union (2011) and the Internet World Stats website (2012). Notwithstanding the delimitations outlined below, better understanding of the factors influencing technology acceptance in the present sample representing a diverse South African student body, may contribute to the general effort to improve the design of online technology in an education context.

1.6 Scope of the study/Delimitations

This study was based on a single-study design, researching internet technology (the online encyclopaedia) in a user group which is specific. This study was restricted to the Library Information Studies students and Arts and Design students at the Durban University of Technology in KwaZulu-Natal province in South Africa. Therefore, it is important that caution be exercised when generalising research results to other research done with similar populations of students or in the same geographical area.

This study was limited in the timing and method of data collection. The data collection was planned around student activities or availability which was sometimes narrowed as and when students were occupied by university pressures, especially during the exam period.

The acceptance of technology may also have been subject to time or behaviour variants as students gained more knowledge and experience about the technology (online encyclopaedia).

1.7 Organisation of the Study

1.7.1 Chapter Summary

Chapter 01: Introduction

The introductory chapter presented a brief background of the study in terms of the investigation of user attributes when using an online encyclopaedia and the detection of technology acceptance patterns using the TAM in relation to the Wiki application (online encyclopaedia) called *ESAACH*. The context and relevance of this study was discussed in this chapter which gave a brief overview of the research problem, and further discussed the main objectives of the study. Research questions were also introduced. The researcher examined the research approach which outlines the constructs to be used to investigate the factors influencing user intention to use this encyclopaedia, ie. English Language Proficiency, Computer Self-efficacy, and Perceived Ease of Use and Perceived Usefulness.

Chapter 02: Literature Review

In this chapter, previously published literature on the subjects and issues concerning this study are critically discussed. A wide range of topics relating to the study are included in this literature review, including: technology acceptance studies on the adoption of the internet; reports on adoption of medical systems; perceptions when adopting a system; as well as reporting on the various countries and South African context.

The literature review highlights the following:

- An analysis of existing online encyclopaedias and user perceptions on their usage. An examination of how the widely-used Technology Acceptance Model (TAM) can be used to find attributes that influence the failure or success of user acceptance of the encyclopaedias.

- An observation of the behaviour of experienced and inexperienced online users using the TAM to measure user acceptance. In addition the researcher considered English Language Proficiency, and Computer Self-Efficacy in relation to TAM.

Chapter 03: Research Design and Methodology

This chapter represents a broader discussion on the research problem. It presents the study's theoretical framework which is the Technology Acceptance Model (TAM). It also discusses the research design, research sample, data collection methods, and the data analysis model.

Chapter 04: Findings and Interpretation (Results and Data Analysis)

In this chapter, data are analysed from the demographics of the sample group, the research questions relating to Computer Self-efficacy (CSE), and English language proficiency (ELP). This chapter also presents an overview and discussion of each item result as well as significant cross-correlations between the items tested in the online survey. The focus areas are as follows:

- Computer Self Efficacy (CSE) as a predictor of Intention to use technology
- English Language Proficiency (ELP) as a predictor of Intention to use technology

Chapter 05: Conclusion and Recommendations

This chapter interprets the findings, draws conclusions and presents implications for future research. Limitations and challenges of the study are also reported.

Chapter 02: Literature Review

2.1 Introduction

The *ESAACH* is housed on a wiki platform, similar to the well-known *Wikipedia*, and is an online encyclopaedia intended to contribute towards the body of knowledge of South African arts, culture and heritage studies. *Wikipedia* is defined by its founders as the “free encyclopaedia that anyone can edit.” The *ESAACH* has been developed along with other online encyclopaedias to take advantage of the growth of the World Wide Web. This is because it is part of a general Internet phenomenon known as the Collaborative Net (Rahman, 2006:7) whereby users can choose to freely edit and add to the content of an online information source. Especially in the early days of the web, some online users challenged the reliability of such reference sources, based on the assumption that like the book publishing industry model, everything online could only be considered authentic if it was written and updated by the website owner rather than anyone who does it for free. These emerging technologies are having profound impacts on the information architecture of the Internet, and on the behaviour of Internet users. The users of *ESAACH*, the online encyclopaedia which is the focus of this study, are no exception. For the purpose of this study, the collaborative nature of the wiki technology has been excluded, and user access to the online encyclopaedia confined to the conventional read-only “navigate, search and retrieve” interactivity to be found in comparable online resources such as *The South African History Archive* and *South African History Online* (see below Table 1).

A search of the research literature reveals numerous studies on online encyclopaedias, their reliability and many implications for their design and content (Bryant, Forte and Bruckman, 2005; Emigh and Herring, 2005; Forte and Bruckman, 2006; Bradley, Lindstrom and Rystedt, 2010). Since this study pursues to investigate factors which influence user acceptance of technology using the Technology Acceptance Model, this

discussion of the literature devotes particular attention to studies that have used the TAM as their theoretical framework. Reviews from a wider range of literature have also been included. The discussion is not limited to studies done in the Management Information systems, but also includes related research in the health service sector. Information provision in medical sciences has been extensively researched as most systems used by the health services must comply with rigorous accuracy standards and be accepted by users who view the reliability of such systems as a matter of life or death. In the findings in their article which looked at factors affecting 221 Egyptian doctors' intention to use e-medicine, (Ash and Bates, 2005) reported that these doctors' intention to use a technology was significantly affected by the pressures to use e-medicine, their attitude towards this practice and the usefulness of this platform. Likewise, in this present study, similar factors that influence the use of online encyclopaedia are explored, taking into consideration user attitudes and behaviours. It is significant that no matter which discipline a technology may be located in, users seem to initially have a reluctance to use it and this is influenced by their attitude towards the said technology. Eventually once they have overcome their hesitancy, they go on to explore the technology without the fear of uncertainty, but this still does not guarantee their intention to accept it. The present study further explores these perceptions so that design interventions that could turn such attitudes around are implemented so that a user can stay on the said technology and keep coming back for more.

Later in this chapter discussions of literature relating to the four constructs that underpin this research are deliberated around:

- English Language Proficiency (ELP),
- Computer Self-Efficacy (CSE),
- Perceived Ease Of Use (PEOU), and
- Perceived Usefulness (PU).

The researcher then goes on to review the issue of user acceptance and technology resistance as it applies to user intention to use a computer system, in this study more specifically surrounding an online encyclopaedia. In so doing, the researcher draws on literature in the areas of the two distinct constructs of the TAM model.

The discussion begins with an overview of two South African online information resources that in many ways resemble the online encyclopaedia structure adopted by *ESAACH*.

2.2 An Overview of Two South African Encyclopaedias

Over the years many researchers have archived important information on South African art, culture, heritage and history. The websites considered below are similar in intention and structure to the *ESAACH* and are primarily read-only resources, although they do offer some limited scope for users or site viewers to contribute the information featured on the websites.

As Jordan (2008:2) has argued in his introduction on the *ESAACH* 2008 Annual Report, there is a major need to reflect the importance of cultural studies and arts in South Africa and that a resource of encyclopaedic scope would be of great benefit.

The table below (Table 1) represents the researcher's analysis of two South African online encyclopaedias that also contain reference material on the history, art and culture of South Africa. Data is taken from a group of six Information Technology experts who accessed the websites and submitted their perceptions on these websites. It should be noted that some were using these websites for the first time. These respondents were requested by the researcher as they were experienced academically and have been in the information technology field for over five years. The researcher felt that with their experience, they will be able to provide meaningful feedback on the said websites.

In order for the researcher to represent this analysis, she used the same criterion (using meta-analysis) which has been used in the TAM (Davis, 1989), ie: Perceived Usefulness and Perceived Ease of Use, to compare and contrast users' perceptions of the two South African encyclopaedias. The data was collected *via* the online survey which was also used to evaluate the *ESAACH*.

Table 1: Analysis of two other South African Online Encyclopaedias

Website	Description	Perceived Ease of Use	Perceived Usefulness
<p>The South African History Archive www.sahra.org.za</p>	<ul style="list-style-type: none"> • SAHRA is a statutory organisation established under the National Heritage Resources Act, No 25 of 1999, as the national administrative body responsible for the protection of South Africa's cultural heritage • Assists local and provincial authorities to manage heritage resources for the communities. • Encourages public involvement in the identification of heritage resources, with the recording of living heritage associated with heritage and oral history • Creates an awareness among the people of our country of their right to conserve what they consider to be valuable heritage resources • Aims to introduce an 	<p>More than 50% found this website inflexible and awkward to interact with which made them give an overall perception that it was not easy to use.</p>	<p>Most respondents found this website useful even though they are not using it in their line of work.</p> <p>They felt that the extra features eg: printer friendly pages and links to archive would be beneficial.</p>

	<p>integrated system for the identification, assessment and management of the heritage resources and to enable provincial and local authorities to adopt powers to protect and manage them.</p>		
<p>South African History Online www.sahistory.org.za</p>	<ul style="list-style-type: none"> • The largest independent non-partisan peoples' history project in the country. • Aims to address the biased manner in which the history and cultural heritage of South Africa (and Africa) has been represented in our educational and cultural institutions. • Largest history website project of its kind on the continent • Comprises a vast archive and collection of articles, biographies, books, images and videos • Nearly two million users visit the SAHO website every year 	<p>Most felt that this website required determined effort to interact with as it was not easy to understand.</p> <p>Although over 50% of respondents found this website difficult to use but they felt that learning how to use it would be easy.</p>	<p>Most participants found this website not useful in their line of work. Although 50% of the respondents felt that this website wished that there was a clear link to the archives but a quarter felt having a printable version of the pages, which this website did not have, did not really matter.</p> <p>It seems as if respondents preferred having control over the website in terms of it allowing them to search and make use of the features that they can control. Overall, they found it not likely to increase their work performance in any way.</p>

Further discussion of user experience of these online encyclopaedias in relation to the findings of student survey on *ESAACH* can be found in Chapter 4. Notably, some responses to the *ESAACH* survey contrast sharply with the low estimate of “Perceived Ease of Use” (PEOU) demonstrated from the expert respondents to both the other online encyclopaedias. For instance, student response to question Q10, “I can use this online encyclopaedia even if I had never used it before” shows a high degree of agreement (87.9%).

Although the mean scores indicated to be lower (75.2%) on overall perception on this encyclopaedia’s Usefulness, it was also noted that a higher agreement (87.2%) was reported on the Usefulness being a condition if users were able to have a print feature on the site (Q37).

2.3 User Acceptance and Technology

2.3.1 Online Users Internet Trends

In a less than half a century, the Internet has emerged as the dominant form of communications medium (Peterson, 1997:3) and the likelihood of students depending on online resources like *ESAACH* and the other encyclopaedias mentioned above for pursuing their studies has increased accordingly. The world continues to observe the Internet becoming the central communications, information, commerce and entertainment medium as it sees over 2.4 billion users worldwide. It is estimated that an 8% annual growth rate will be maintained in the foreseeable future (Meeker and Wu, 2013). Growth rates vary around the world but generally follow the same pattern of exponential increase. Through the Internet World Stats (2013), Meeker and Wu (2013) report that a 15% growth was reported for the top 15 countries and out of that, 8% was reported for world growth. This is a significantly high rate of increase with Iran reporting 205% and Indonesia at second place at a mere percentage of just 58. China is reported as being the first on that top 15 list because it has the highest growth of Internet

users (see Figure 1 below). It was also reported that although the USA has the highest population penetration of 78%, it was predicted to have the lowest internet year-on-year growth of just 3%. While it could be expected that there might be something of an inverse relationship between Internet penetration figures and growth, the reason for this particularly slow rate is unknown.

2.4B Global Internet Users in 2012* – 8% Y/Y Growth*, Driven by Emerging Markets

Rank	Country	2008-2012 Internet User Adds (MMs)	2012 Internet Users (MMs)	Y/Y Growth	Population Penetration
1	China	264	564	10%	42%
2	India	88	137	26	11
3	Indonesia	39	55	58	23
4	Iran	35	42	205	55
5	Russia	33	70	6	49
6	Nigeria	31	48	15	30
7	Philippines	28	34	32	35
8	Brazil	27	88	6	45
9	Mexico	19	42	9	37
10	USA	18	244	3	78
11	Argentina	17	28	57	68
12	Egypt	17	30	11	38
13	Colombia	14	25	39	54
14	Turkey	13	35	17	47
15	Vietnam	12	31	7	35
Top 15		654	1,473	15%	34%
World		902	2,406	8%	34%

KPCB Note: *All data (except China) as of 6/12, 2.4B global Internet users and 8% Y/Y growth rate based on the latest available data. China Internet user data as of 12/12, per CNNIC. Source: United Nations / International Telecommunications Union, internetworldstats.com. 4

Figure 1: Year on Year Global Internet Growth (Meeker and Wu, 2013: 4)

While in the pre-ICT era people used their own memories or books to store information, the Internet has introduced a click, share and send technique, and within moments, all of the user’s contacts can be part of their experiences. Of course the downside to that is on the Internet “You can run, but you can’t hide” (Meeker and Wu, 2013), when privacy is

threatened and your identity is hardly yours anymore. Finding information on almost anything now on the Internet is increasingly easy, which is why there is a growing reliance on the Internet to provide answers to queries on just about anything. The amount of global digital information (from documents to pictures to social networks) created and shared was estimated to be just under 4 zettabytes (trillion gigabytes) in 2013 alone with an estimated growth to reach just under 8 zettabytes in 2015 (Meeker and Wu, 2013:11). With this large volume and easy availability of data, it is vital to control how long your data's lifespan should be on the Internet. Even though there is no guarantee that your sensitive data might not remain private, you have more chances of protecting your information by removing what you do not want to be public property at regular intervals. Even though with this clear growth trend on internet general usage, user intention to use the ESAACH online technology is still at a grappling trend. Therefore this study is of relevancy so that the abovementioned user attitudes on internet can be best used in order to draw attention to the adoption of this encyclopaedia.

According to statistics reported from Facebook for December 2012, the continent of Africa showed a 15.6% Internet user penetration and over 51 million people who were then connected and posting on the social media platforms (Internet World Stats, 2013). From the same world stats (Internet World Stats, 2013), South Africa is in the fifth position in the continent with its 8.5 million internet users. *ESAACH*, *The South African History Archive*, and *South African History Online* are among the many online resources being developed for the growing cohort of educational users in Africa. Below, discussions relating to studies surrounding technology adoption are engaged upon.

2.3.2 User's Attitudes towards Technology Adoption

Fishbein and Ajzen (Ajzen and Fishbein, 1969; Ajzen, 1991) argue that a user's attitude is the key determinant of technology adoption. Abukhzam and Lee (2011) add that there are other influential factors such as perceived ease of use, usefulness, availability and

other factors, which affect a user's very own attitude towards adoption of a said technology.

In Abukhzam and Lee's paper (2011) titled "Workforce Attitude on Technology Adoption and Diffusion", they reference Fazio's (1990) definition of attitude as "a learned association in memory between an object and a positive or negative evaluation of that object". Many researchers have looked at attitude as a determinant factor of technology adoption (Ajzen, 1991; Lederer *et al.*, 2000; Ajzen, Czasch and Flood, 2009; Abukhzam and Lee, 2011; Teo, 2011; Birba and Diagne, 2012); it is the cumulative effect of these findings that identify an individual's behaviour as a key influence on the adoption of any technology. It is in response to these findings that previous researchers have developed a core set of theoretical frameworks that list attitude amongst other key elements to explain and predict technology adoption (Davis, 1986; Ajzen, 1991; Compeau, Higgins and Huff, 1999).

The importance of website design on user acceptance has been noted by many researchers. When Muller and Chandon (2004:156) asked participants in their study to rate a range of websites, they found that the complexity of the website affected user attitudes towards the sites, with low ratings being recorded for more complex sites. Visual complexity seemed to affect a user's attitude towards the use of the said website because of the impact the users' attitudes had towards a certain brand.

2.4 Key Concepts Defined

Different models of technology acceptance have been explored by researchers using a variety of theoretical perspectives (Dillon and Morris, 1996; Legris, Ingham and Collette, 2003; Gong *et al.*, 2004). Gong *et al.* (2004) point out that several theories examining the notion of "intention to use" with regard to technology have been used to explain different user acceptance scenarios, for example: the Theory of Reasoned Action

(TRA) (Fishbein and Ajzen, 1975); the Theory of Planned Behaviour (TPB) (Ajzen, 1991); the Technology Acceptance Model (TAM) (Davis, 1986); and the Social Cognitive Theory (Hill, Smith and Mann, 1986; Compeau and Higgins, 1995; Compeau *et al.*, 1999). Theories such as TRA and TPB attempt to explain and predict user behaviour across a wide variety of fields as they were originally developed in social psychology, while the TAM was actually adapted from TRA to specifically explain computer/information technology usage behaviour (Davis, 1986).

User perception and/or behaviour, widely interrogated by researchers within the above theoretical frameworks, are some of the observable influences in determining the issues affecting technology acceptance. This study will unpack the perceptions and behaviours that are relevant to our online South African encyclopaedia context – the *Encyclopaedia of South African Arts, Culture and Heritage*.

End-users' behaviour, their opinions and reactions to a website or merely a computer system can be used to measure their interest in a system and if they find it useful or easy to use (Venkatesh, 2000:347). A user's perception of a website can arouse a variety of emotions and attitudes. Chen (2009) points out that these emotions and perceptions impact the user's attitude towards a website's content, advertised products, company, credibility and site usability. She goes on to presume that as the website's likeability and credibility increases, so too will the likelihood of engaging in a task orientated interaction with that website increase.

In their paper, Dillon and Morris (1996: 3), describe the concept of user acceptance as the “demonstrative willingness within a user group to employ information technology for the tasks it is designed to support”. Similarly, this concept can be applied to situations where technology users may provide evidence of use. For the purpose of this study, it is assumed that acceptance of the technology can be measured by the willingness to use the said technology and also users' intended purpose in using the system.

The researcher below discusses three of the eight theories in Information Systems that have the most relevance to this study:

2.4.1 Technology Acceptance Model (TAM)

Fred Davis's Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use technology. The model suggests that when users are presented with a new technology a number of factors influence their decision about how and when they will use it, particularly:

- Perceived Usefulness (PU) - This was defined by Fred Davis (1989: 320) as "the degree to which a person believes that using a particular system would enhance his or her job performance", (i.e. by reducing the time to accomplish a task or providing timely information (Lederer *et al.*, 2000: 270)).
- Perceived Ease-Of-Use (PEOU) - Davis (1989: 320) defined this as "the degree to which a person believes that using a particular system would be free from effort".

The TAM proposes that the above constructs will predict system usage (Lederer *et al.*, 2000: 269). In their study, these authors show that with TAM, perceived ease of use and perceived usefulness can predict attitudes toward technology and hence can predict usage of that technology. Following the same line of reasoning, other researchers have made use of the TAM to validate usage of different applications including email, voice mail and word processing. By the same token, it can be argued that a Web application like *ESAACH* can be classified similarly in relation to the TAM model. In our study of the *ESAACH* website, it was our aim to use the TAM as basis for evaluating the online encyclopaedia as well as to measure the extent that antecedents such as Computer Self-Efficacy (CSE) and English Language Proficiency (ELP) could predict perceived ease of use and/or perceived usefulness.

The TAM was designed to measure technology acceptance which is widely considered to be the most important factor in determining the success or failure of an information system (Spacey, Goulding and Murray, 2004: 556). TAM was produced in 1986 by Fred Davis as part of his doctoral dissertation, “A technology acceptance model for empirically testing new end-user acceptance of information systems: theory and results” (Davis, 1986). The two constructs that he used as part of this model were: *Perceived Usefulness* (PU), which is the “degree to which a person believes that using a particular system would enhance his or her job performance”; and *Perceived Ease of Use* (PEOU) which is “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989: 320).

In his critical survey of the development and use of the Technology Acceptance Model (TAM), Chuttur (2009a: 1), asserts that although many models have been proposed to explain and predict the use of a system, the Technology Acceptance Model is the one which has captured the most attention of the Information Systems community. In his paper, he summarizes the evolution of TAM, its key limitations, applications and extensions which will be discussed further in our literature review of this study.

The TAM model thus provides an authoritative framework for measuring the extent to which users’ confidence in their English language proficiency (ELP) and Computer Self-Efficacy (CSE) would serve as a predictor of their Perceived Ease of Use (PEOU) and/or Perceived Usefulness (PU), and hence their intention to use the *ESAACH* encyclopaedia.

2.4.2 Theory of Reasoned Action (TRA)

Before understanding how the TAM works, let us first evaluate the works or motivation behind it. The TAM was inspired by the Theory of Reasoned Action (TRA) of Fishbein and Ajzen, developed in 1975 which asserted that both the attitude towards an action and subjective norm have an impact on behavioural intention which in turn affects how people perform the action. An attitude can be defined as the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour (Ajzen, 1991). Lederer *et al* (2000: 270) further reported that Davis applied this reasoned action to show that beliefs influence attitude which leads to intentions, and therefore generate behaviours. Davis thus perceived that TAM's "belief-attitude-intention-behaviour" relationship predicts user acceptance of Information Technology (Lederer *et al.*, 2000: 270). In the *Encyclopaedic Dictionary of Psychology* (2006) it is asserted, like many other concepts that have been absorbed into scientific psychology from everyday language that the concept of attitude has had many definitions and variations in its long history in social psychology but on some features there has been general agreement. Attitudes always have an "object" (they are always about "something": a material object, a person, a group, a policy, etc.), and in this way they are different from personality traits. Thus, it is believed in this study that this could be linked to the degree of anxiety (from high to low) in the ability of an individual to perform tasks on the technology, which could result in either continued further use on the system, or the lack of intention to use the technology thereafter.

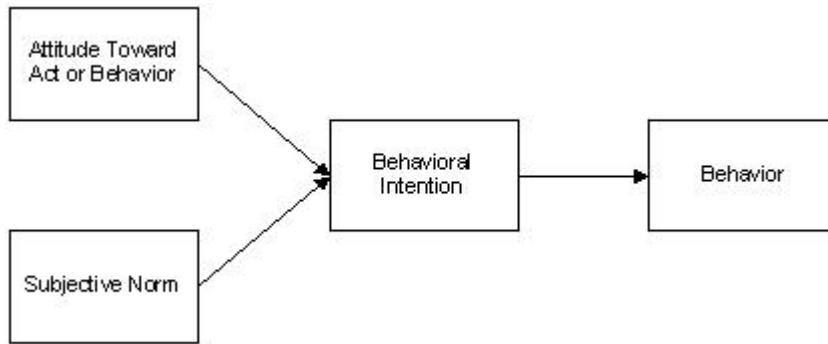


Figure 2: TRA by Fishbein and Ajzen (1975)

Figure 2 above shows the main dependent factors of this theory as Behavioural Intention and Behaviour; and Attitude and Subjective Norm as being independent factors.

TRA suggests that an individual's behaviour is directly driven by their behavioural intention where behavioural intentions are depicted as functions of an individual's attitude towards behaviour and subjective norms surrounding the performance of the behaviour (Fishbein and Ajzen, 1975).

The said constructs above are elaborated as follows:

- Attitude toward act or behaviour - a person's attitude is a result of their behavioural beliefs and there has to be an outcome that is based on their evaluation on a certain situation.
- Subjective Norm - these are from an individual's normative beliefs which could result from their customs. These are then followed by an individual's motivation to comply with those customs or standards.
- Behavioural Intention - this is based on the result in the assortment of the above constructs
- Behaviour - this is finally the result of an individual's intention based on their standards which resulted from their attitude towards certain behaviour.

The relationships among these factors can be seen in Davis' diagram (Figure 3 below).

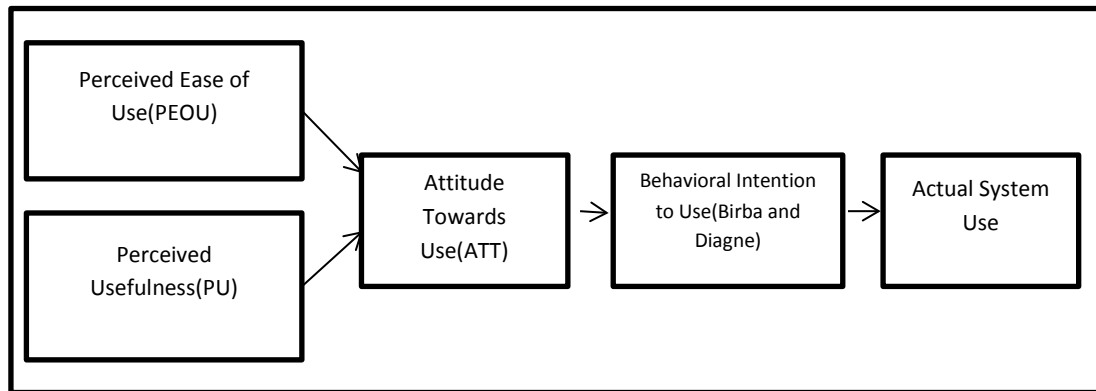


Figure 3: The Technology Acceptance Model (TAM), version 1. (Davis, 1989)

In the above figure (Figure 3), the generic TAM model with extended constructs is represented with original constructs exhibited in the TRA model. For the purpose of this study, the researcher will later indicate the external variables or factors which influence the first constructs of the TAM model which are hereby referred to as proposed antecedents. The TAM replaces many of TRA's attitude measures with the two technology acceptance measures, ie. ease of use, and usefulness. Both the TAM and TRA assume that when a person forms an intention to pursue something, they will be free to act without limitation such as time, environmental limits, restricted ability and unconscious habits (Forte and Bruckman, 2006; Cilliers, 2010). Unfortunately in the real world there will be many constraints such as limited freedom to act as Bagozzi, Davis and Warshaw (Bagozzi *et al.*, 1992: 657) suggest.

Resulting from the evolution of technology which comes with its complexity and user uncertainty, people may form an attitude and intention to learn the new technology as opposed to the actual usage. As supported by Bagozzi, Davis and Warshaw (1992), there are issues surrounding learning of a new technology, and actual usage may or not be a consequence of a person's attitude and intentions.

In their analysis, Bagozzi, Davis and Warshaw (1992) assert that a variety of factors or issues first need to be encountered by users before the actual system usage. These factors are not necessarily linked directly to the actual system use; this means that based on their attitude or behaviour, a user may have decided not to use the system even before assessing if it is going to be useful or easy to use. At this stage when people are anxious about using a particular system, they have already been affected by thoughts or behaviours surrounding them which reduce their confidence in terms of whether they will be able to adopt or even use the system. In the present study, a user's lack of confidence in his/her use of English may be such a factor. These issues need to be addressed as they impact on how to attain users' intention to use a technology so they can easily adopt that technology.

2.4.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The critical shift of focus to Information Science and IT in business management can be seen in the work of Davis and can, it is argued, be equally applied in the context of a literary/humanities application such as *ESAACH*. The TAM has been extensively studied with reference to system usage, acceptance and adoption. Given the factor relationship to user attributes, it has also been expanded – the major upgrades being the TAM2 (Venkatesh, 2000; Venkatesh and Davis, 2000) and the Unified Theory of Acceptance and Use of Technology, UTAUT (Venkatesh, Morris, Davis and Davis, 2003: 425) where the authors review and compare eight empirical models and their extensions. The UTAUT (Figure 4) was formulated with four core determinants of intention and usage. It was then tested using original data and found to outperform the eight individual models thus providing a useful tool for managers when assessing the likelihood of success of new technology. This model further helps in understanding drivers of acceptance in order to proactively design interventions targeted at users who may be less inclined to adopt and use new systems (Venkatesh *et al.*, 2003: 426). The relevance of

the TAM for the present study in which factors influencing user acceptance are vital for the longer-term sustainability of the online encyclopaedia may be clearly recognised.

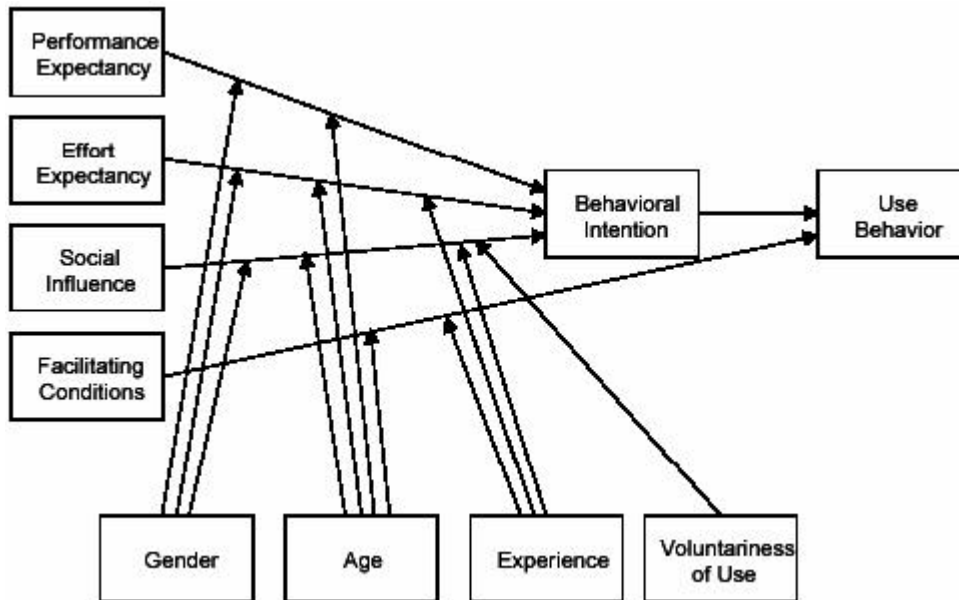


Figure 4: UTAUT Diagram (Venkatesh *et al.*, 2003: 447)

Because online encyclopaedias, like the business applications referred to by Venkatesh (2000), are under constant development and subject to changes in their user interface, the more these students from Humanities studies are exposed to these new technologies, the more there is a visible element of uncertainty that exists in their minds, especially when making decisions as to which encyclopaedia to use for their reference material. In the above figure (Figure 4), this theory is graphically represented, showing the relationship between the constructs and how the items affect them. In this theory, the determinants of user acceptance and behaviour are presented above as: performance expectancy; effort expectancy; social influence; and facilitating conditions (such as Internet experience and hours spent on the usage of the computer). In this model, Performance Expectancy is defined as the degree to which an individual believes that using the system will help him/her to attain gains in job performance (Venkatesh *et al.*,

2003: 448). In TAM, the construct that pertains to the same wavelength, is perceived usefulness. It is in this model that the section on Perceived Usefulness of our research study questionnaire was derived from.

Table 2 (below) represents these constructs and briefly elaborates the items in narrative form as they relate to the applicable theories. The table shows a brief description of the dependent and independent constructs from the original TAM, the TRA and the UTAUT.

Table 2: Theories referenced in this study depicting the variables used

Theory Name	Main Constructs	Concise Description
Technology Acceptance Model (TAM)	¹ Behavioral Intention to Use, System Usage ² Perceived Usefulness, Perceived Ease of Use	TAM is an adaptation of the Theory of Reasoned Action (TRA) to the field of IS. TAM posits that perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use. Perceived usefulness is also seen as being directly impacted by perceived ease of use. Researchers have simplified TAM by removing the attitude construct found in TRA from the current specification (Venkatesh et. al., 2003). Attempts to extend TAM have generally taken one of three approaches: by introducing factors from related models, by introducing additional or alternative belief factors, and by examining antecedents and moderators of perceived usefulness and perceived ease of use (Wixom and Todd, 2005). TRA and TAM, both of which have strong behavioural elements, assume that when someone forms an intention to act, that they will be free to act without limitation. In practice constraints such as limited ability, time, environmental or organisational limits, and unconscious habits will limit the freedom to act.
Unified Theory of Acceptance and Use of Technology (UTAUT)	¹ Behavioral Intention, Usage Behavior. ² Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Gender, Age, Experience, Voluntariness of Use	The UTAUT aims to explain user intentions to use an IS and subsequent usage behavior. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behaviour (Venkatesh et. al., 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior (Venkatesh et. al., 2003). The theory was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain IS usage behaviour (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behaviour/technology acceptance model, model of PC utilization, innovation diffusion theory, and social cognitive theory). Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention (Venkatesh et. al., 2003).
Theory of Reasoned Action (TRA)	¹ Behavioral Intention, Behavior ² Attitude Toward Behavior, Subjective Norm	TRA posits that individual behaviour is driven by behavioural intentions where behavioural intentions are a function of an individual's attitude toward the behaviour and subjective norms surrounding the performance of the behaviour. Attitude toward the behaviour is defined as the individual's positive or negative feelings about performing a behaviour. It is determined through an assessment of one's beliefs regarding the consequences arising from a behaviour and an evaluation of the desirability of these consequences. Formally, overall attitude can be assessed as the sum of the individual consequence x desirability assessments for all expected consequences of the behaviour. Subjective norm is defined as an individual's perception of whether people important to the individual think the behaviour should be performed. The contribution of the opinion of any given referent is weighted by the motivation that an individual has to comply with the wishes of that referent. Hence, overall subjective norm can be expressed as the sum of the individual perception x motivation assessments for all relevant referents.

¹Dependent Constructs

²Independent Constructs

2.5 Overview of Factors Influencing User Acceptance of Technology

In this present study TAM is used with user confidence in using the English language user interface (ELP) and Computer Self-Efficacy (CSE) as predictors (or independent) variables, and Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) as dependent variables. Analysis of the relationship between the variables is used to explore more thoroughly the attitudes of typical users, in this case, Humanities students, using the Technology Acceptance Model (TAM) Framework and the degree of acceptance in relation to the current *ESAACH* design.

Further insights into user motivation are provided by Liu et al. (2010: 601) in a paper that explores the factors that affect intention to use in an online community. The authors in their study propose that the two constructs: Perceived Usefulness and Perceived Ease of Use could very well be affected by external variables (ie computer self-efficacy and previous online learning experience) as reflected from the original TAM. In their empirical study they explore which external variables directly or indirectly affect learners' intentions to use an online learning community. Among other issues that stood out in their paper was the external variable "Previous Online Learning Experience" which was basically used to measure how comfortable a user would be if their computer experience was elongated. It was noted that learners' previous experience in using information technology will affect the usefulness of future online activities (Song *et al.*, 2004). In this study, the researcher explores the two proposed external (constant/independent/predictor) variables which are believed, through the original TAM's main constructs, directly affect the users' intention to use online technology, specifically the online encyclopaedia under scrutiny.

The two external variables are Computer Self-Efficacy (CSE) and the English Language Proficiency (ELP). Both these constructs are drawn from a measurement of experience, the former from computer usage and the latter from language usage.

2.5.1 Computer Self Efficacy (CSE)

In their review of literature, de Guinea and Webster (2011) define the term “Self-efficacy” as an individual’s perceived ability to exert control over a situation or task to achieve the desired outcome. This concept was derived from Bandura’s Social Cognitive Theory (SCT) (1977). According to Bandura (1977; 1989; 1991; 2001), the desired outcome emphasizes the interplay between self-referent thoughts, actions, and effect. Bandura’s SCT model addresses the three most important aspects of human adaptation, that is:

- the origins of human behaviour - which is a temporal extension of intervention through amongst other behaviours such as intentionality and forethought, self-reflectiveness about one’s capabilities, etc. (Bandura, 2001);
- the mechanisms governing its activation and direction – which are self-regulatory and encompass different types and patterns of changes (Bandura, 1989); and
- its long-term regulation – which concerns the readjustment of personal standards in light of one’s attainments (Bandura, 1991)

Many researchers have noted that the determinants and psychological mechanisms highlighted in this model draw on different specialties of psychology and different disciplinary domains (Compeau and Higgins, 1995; Compeau *et al.*, 1999; Agarwal and Karahanna, 2000; Venkatesh *et al.*, 2003). As briefly defined by Bandura (1977), self-efficacy is a belief in one’s capabilities to organize and execute the course of action required to attain a goal. Therefore, Computer Self-efficacy refers to self-efficacy beliefs with respect to a specific computer system or application (Agarwal *et al.*, 2000). These researchers also hypothesize that “self-efficacy judgment in the task domain of computing is strongly influenced by the extent to which individuals believe they are personally innovative with respect to information technology”; and their findings support the relationships posited. Self-efficacy is one of the most highly considered constructs in psychology and in organizational behaviour; and is important in computer

training (de Guinea, 2011). Empirical evidence suggests that computer self-efficacy plays an important role in one's acceptance and use of a new information technology (Saleem, 2011). In his theory, Bandura (1977; 1989) emphasizes the importance of the context by defining human functioning as being "dynamic and reciprocal interaction of cognitive and personal factors". That is, computer self-efficacy does not occur in a vacuum, but in the context of a task: "we use computers to accomplish an activity in our work" (de Guinea, 2011: 978). In their study, de Guinea and Webster (2011: 978), show that CSE positively influences perceptions of usefulness, and as such, CSE represents one of the building blocks of the formation of beliefs about computer applications.

Likewise, when students use an online encyclopaedia such as the *ESAACH* with a motive to gain insights on the context of the website or to attain reference material, there is an assumption that their task performance will also be associated with a self-perception of their computer self-efficacy or skill. This judgment will be based on their behaviour and attitude towards this online encyclopaedia. In this study, it is well noted that these students' high CSE would benefit their task performance which would therefore affect or reveal positive results on their intention to use the online encyclopaedia. In Chapter 04, the discussions on the data analysis provide a point of significance for this construct as a predictor of user acceptance of the encyclopaedia. The results indicated the average measure for this construct was significantly different for different racial groups which took part in the data collection. But generally the mean score suggested a significant agreement of 2.14 from a neutral score of 3. Further discussions will be engaged in Chapter 04.

2.5.2 English Language Proficiency (ELP)

2.5.2.1 How ELP affects the Intention to use technology

This section discusses how the English Language Proficiency plays a role in identifying the main challenges surrounding online technology adoption and intention to use.

In a paper based on the TAM research model, Yang et al (2008), explore language anxiety, prior non-native language experience, Internet self-efficacy, and language self-efficacy. These factors are analysed for the intention to use a non-native language commercial website.

Their paper also probes and provides answers to the question: how are people's prior non-native language experiences associated with their subsequent language anxiety, language self-efficacy and their intention to use a non-native website. The mentioned non-native language, in the South African context as well as in the purpose of this study, is English. As a principal, the medium of language clearly plays a very important role in medium of communication. Owing to globalization, English is the most commonly used second language across the world, more especially now in the Internet world. However, this article ponders to what extent a student with more English learning experience will have less anxiety and/or be more self-efficient when using an English based website intend to use this website? It is within reason then, to test a user's (self-tested) English language proficiency against the constructs of perceived ease of use and perceived usefulness. This will be discussed further in our data analysis which will give a clear connection or misconnection between these constructs.

Yang et al (2008) also uncovered the impact of prior non-native language experience on language anxiety, language self-efficacy and intention to use a non-native commercial website. They further examined the effect these factors have on the intention to use a commercial website as a shopping medium on the Internet. Their paper's findings hypothesized that language is an important interface affecting people's intention to use various systems.

Related research by (O'cass and Fenech, 2003; Yang and Lay, 2009) considers that many web users are identifying attractive shopping opportunities on the Internet but there are barriers and other concerns preventing them from completing a purchase online and from revisiting the website. The authors go on to query the hesitancy of use of these commercial websites, proposing that language interface could play a critical role as a foundation of communication. Previous researchers indicated that people can easily communicate with each other because they use the same language and if they do migrate to unfamiliar areas they tend to adjust to the host's language (Dustmann, 1997; de Haan and Elbers, 2005). De Haan and Elbers (2005: 317) and Gardner and MacIntyre (1993: 1); note that cultural factors such as language differences, influence an individual's perception and behaviour when it comes to communication. Recent estimates suggest that there are over 900 million Internet users globally (Internet World Stats, 2013). Among them, just over half do not use English as their daily language of communication (Internet World Stats, 2013).

In South Africa with a population of just over 51 million, there is just a small number of 8.2% that use English as their first language (Statistics.gov.za, 2011) the rest of the population's medium of communication is spread over the other eleven official languages. Our research data analysis reports that over 60% of the respondents mostly use one of the other official languages, ie. IsiZulu, as their home language compared to just 22% who use English as their home language. Only 28.4% of South Africans over the age of twenty years have completed the 12th grade while a much higher percentage even got to high school. Very few have a tertiary education (Statistics.gov.za, 2011). These statistics indicate the dearth of communication leverage in this country; and even though more people use the Internet, there are still those who find themselves challenged by its medium of communication. As most websites are in English, the assumption can be made that if a South African user does not have positive English language proficiency, this would result in them having a negative perception on ease of use and usefulness on the website they are accessing which would in turn have a negative effect

on their intention to use a particular website or system. Chapter 4 will report on the significance on this assumption.

As reflected in Yang's (2009) paper, the effect of language anxiety and self-efficacy on intention to use commercial websites is very notable. In Bandura's (1997) self-efficacy framework, it is stated that self-efficacy and anxiety are determinants of technology adoption. He also suggests that if individuals doubt their capability to undertake certain actions or behaviours, it will affect their intention to perform certain behaviours. Among the cognitive variables, computer anxiety and self-efficacy stand out as two of the main factors for effective system adoption or acceptance in management information systems (MIS) research (Igarria and Iivari, 1995; Hong *et al.*, 2002).

Bandura (1997) consequently states that if an individual has little confidence in his/her ability to use the Internet, s/he is dissatisfied with her/his Internet skills or is uncomfortable using the Internet, s/he may be said to have a weak self-efficacy mind-set and is less likely to perform related behaviour in the future.

In other previous research it is indicated that if students have a wide range of prior experience and knowledge, it will help them learn more quickly, adopt, and develop self confidence in the new skills or capabilities that they are learning (Yates and Chandler, 1991; Yang *et al.*, 2008; Yang and Lay, 2009). What this means is that past success would increase one's self-efficacy and reduce one's fear, and in turn increase one's effort to work with potential new projects (Wood and Bandura, 1989: 363). It is therefore assumed that fluency in the non-native language (those who use English as their second language) would increase their sense of self-efficacy with the language which would in turn increase their adoption of a website like the *ESAACH*.

In its broad sweep, Bandura's paper (2001) aimed to bridge the gap among research findings regarding language education practice, business practice, and system design by

enabling language educators, business and system designers to identify the importance of language interface for user adoption of new technology.

Thus, in the context of this study English Language proficiency is investigated as being one of the factors that influence an online user's attitude towards intention to use and acceptance of an online encyclopaedia.

Furthering this study, in regard to other factors affecting user acceptance of technology, the researcher investigates how the next two constructs also play a role in determining a user's perception of technology usage.

In 1989, Fred Davis published results of a study that investigated and validated using a scale of two determinants of user acceptance of technology. The two constructs, Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) were found to be fundamental determinants of acceptance of technology as reported by Fan (2008: 19) from Davis's TAM model (Davis, 1986). These two constructs, as Adams *et al.* (1992: 227) suggest, may be used in systems settings to gain user feedback on either system features or after implementation to diagnose problems in user acceptance. In our study these two constructs were included to gain perceptions from the user on their acceptance of the online encyclopaedia. The regression analysis of these two constructs as dependent variables are presented and discussed in Chapter 4; they indicated Perceived Usefulness as significantly predicted by Computer Self-Efficacy.

2.5.3 Perceived Ease Of Use (PEOU)

Many researchers have investigated features that can potentially predict a website's perceived ease of use (Davis, 1986; Davis, 1989; Lederer *et al.*, 2000: 271; Legris *et al.*, 2003; Gong *et al.*, 2004). Many have also accumulated supporting evidence for this construct, perceived ease of use (PEOU), as predictor of user acceptance and sustained usage of systems (Davis, 1986; Davis, 1989; Lederer *et al.*, 2000; Abukhzam and Lee, 2011).

What causes people to accept or reject an information technology system? The variable PEOU is of special interest to our study, as it is one of the important constructs in the research model of interest (TAM). As already indicated in our earlier definition of the study's key concepts, PEOU is "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989). Naturally, people tend to want to use any technology/object when it's not going to require them to use much effort and promises a low level of difficulty. While effort is a finite resource as reported by Davis, it is related to an individual's strain in performing various activities for which they are responsible. Above all else, it is claimed that an application perceived to be easier to use than another is more likely to be accepted by users (Davis, 1989: 320). The results from the data analysis indicated that this construct alone can determine if the said encyclopaedia is perceived, or not perceived, to be easy to use by our users. The analysis presented in Chapter 4 deals with this construct in more detail.

2.5.4 Perceived Usefulness (PU)

When people use an information technology resource, many variables have been shown to influence system use. For example, the extent to which people will engage or not engage with a system is related to their benefit and whether it will help them improve their job performance. This variable is referred to as Perceived Usefulness (PU) (Davis, 1989: 320). PU is described by Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". Such system's usefulness is known to have meaning of "capable of being used advantageously". Generally people are persuaded for good job performances by salary raises, promotions and other rewards in an organization. So if a system is considered to be high in PU, it is expected to have its users believe that its existence will have a positive user-performance relationship (Davis, 1989), which in turn will indicate higher usage of the said system.

2.7 Conclusion

There are other theoretical models predicting user behaviour and user acceptance towards technology. However, the Technology Acceptance Model (TAM) is one of the most accepted theories for defining acceptance of technologies. TAM proposes that constructs such as perceived usefulness and perceived ease of use will predict system usage.

This literature described TAM and its origin with the analysis of studies that have previously looked at its definition and constructs. By this analysis it is evident that the TAM has been previously proven to be a useful model in helping to understand user behaviour and acceptance of technology. In this literature review different theoretical models were analysed and significant relationships between different variables were reported on.

Owing to the relevance in user acceptance of technology, the researcher has also reported on English Language Proficiency and Computer Self-Efficacy as additional factors that contribute towards user acceptance of technology.

The objective of this research is to use the TAM to determine the extent to which English language proficiency and computer self-efficacy predict perceived usefulness and perceived ease of use respectively. The literature confirms the relevance of the above constructs in adoption and user acceptance of technology. With a few limitations, the TAM that has been analysed here has assured the researcher the model is a significant tool in realising this study's objective.

In the following chapter 3, research design, methods and techniques used to obtain data from participants in this research are discussed. Research problem and research questions are also vastly discussed in order to broaden the evidence about how this study's research aims are recognised.

Chapter 03: Research Design and Methodology

3.1 Introduction

In this chapter the researcher outlines the research problem and related research questions in order to provide a rationale and clear account of this study's research design and methodology.

In the course of the discussion that follows, the research design, methodology, standards and techniques that were used to obtain a representative data from a sample of students from the Durban University of Technology will be explained.

Prior to finalizing the research questionnaire for this study, a pilot questionnaire test was performed to test face validity and evaluate the instrument. In view of the TAM that was chosen as a framework for the study, appropriate multiple choice and Likert scale questions were devised to probe the selected variable constructs, i.e. Computer Self-Efficacy, English Language Proficiency, Perceived Ease of Use and Perceived Usefulness. The data collected was then analysed using SPSS version 20.0.

The results are presented in the form of graphs, cross tabulations and other figures in Chapter 4 of this study. The results are presented using frequency, percentages, charts (pie and bar), and tables. The face value of the questionnaire was confirmed by expert opinion and the reliability of the results was tested using a Cronbach's alpha score for all the items that constituted the questionnaire which was all within an acceptable range.

In Chapter 2, the review of the literature identified and confirmed the authority of the TAM and it was argued that it was the most useful model for this study in order to provide a conceptual framework for the analysis of factors influencing user acceptance of technology, specifically the *ESAACH* online encyclopaedia. The variables derived from the TAM were used in this study as a basis for the development of the questionnaire and for the analysis of the findings.

3.2 Research Problem

Faced with the increasing failures of system adoption since the widespread application of technology in organisations since the 1970s, many researchers have turned to predicting system use as an area of interest and investigation (Chuttur, 2009a: 2). Despite the burgeoning research endeavour, there has been a failure to produce reliable measures that could support evidence in system acceptance or rejection (Davis, 1989; Kirlidog and Kaynak, 2011). Davis further acknowledges that most subjective measures used in practice are invalid and most times their relationships to the system unknown. Davis developed the TAM framework to address these shortcomings, and offer a reliable system for analysing technology acceptance. Hence the TAM and related models as argued above were chosen as the framework for this present investigation into user acceptance of the *ESAACH*. Among the broader aims of the present study is the intention to use the findings to inform design changes to the *ESAACH* user interface and thus by enhancing its acceptance by users, contribute to the sustainability of the resource.

3.3 Research Questions

In this study the following research questions arising from our research objective mentioned in Chapter 01 are explored:

Research Question 1 (RQ1): *“To what extent does a higher Computer Self-Efficacy score predict a higher Ease of Use score for users of the ESAACH website?”*

In this research question the study will look at predicting if a user’s computer self-efficacy does any predictions where ease of use is concerned. A number of question items in the questionnaire will indicate a scale for this prediction.

Research Question 2 (RQ2): *“To what extent does a higher Computer Self-Efficacy score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

Research question 2 will look at the same construct if users' results found it predicted on their perception of the encyclopaedia's usefulness. Users' perceptions from the questionnaire will indicate a variety of pointers towards a positive direction of this construct or negative. It is anticipated that this shows a positive agreement on the fact that users with a high computer self-efficacy would likely find this encyclopaedia useful.

Research Question 3 (RQ3): *“To what extent does a higher English Language Proficiency score predict a higher Ease of Use score for users of the ESAACH website?”*

For research question 3 it is expected for the study to show the effect of non-native language does when it comes to perceiving an online encyclopaedia or any online system for that matter. In the data analysis very interesting reporting will be done for this construct when compared to the perception of ease of use.

Research Question 4 (RQ4): *“To what extent does a higher English Language Proficiency score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

In this research question it is tested further if a user's self-rated English Language proficiency does predict a significant agreement on their perception on the encyclopaedia's usefulness.

In Chapter 4 the data analysis and findings address the above research questions and reports on user perceptions of the *ESAACH*. Discussion of the findings clarify the encyclopaedia's perceived ease of use, perceived usefulness as well as examine the relationship of these constructs against the predictor variables: computer self-efficacy and English language proficiency.

3.4 Research Design

This is a quantitative study using the TAM which is aimed at measuring user acceptance and determining the extent to which user attributes such as English language proficiency; and Computer Self-Efficacy predict Perceived Usefulness and Perceived Ease of Use. Consideration of data collected from the sample group of student via the questionnaire is intended to critically examine the *ESAACH*'s usability and usefulness.

Quantitative study refers to a research approach in social sciences that is more formalized and more explicitly controlled with a range that is more exactly defined (Marais and Mouton, 1988: 155). In this type of research, researchers typically pose specific, narrow questions and collect a sample of numerical data from participants in the hope that it will yield unbiased results that can be generalized to a larger population. According to Creswell (2013: 150), in quantitative research, many terms must be clearly defined and delineated in the study so that the researcher may share common and consistent definitions with her peers.

This study can also be characterised as descriptive research in that set out to check the extent to which the framework represented by the TAM was borne out by the specific findings in the case of the *ESAACH*.

3.4.1 Population Profiling and Sample Selection

3.4.1.1 Target Population

Respondents were selected from two broad categories of Arts and Design and Library Information Studies students using a purposive sampling approach. Purposive sampling is where the sample is, in a sense “hand-picked” for the topic. “Purposive sampling operates on the principle that we can get the best information through focusing on a relatively small number of instances deliberately” (Denscombe, 2010a: 34). For further discussions relating to the sample, see below.

Arts and Design students were considered most likely to use the *ESAACH* site for reference purposes in their study environment to search for materials in the arts. The material contained within this site would be useful to them, they were therefore considered to be most suitable for evaluating the content based on its usefulness and ease of use.

On the other hand, the Library Information Systems students were chosen on the basis of their course registration as this is taken as an indicator of an interest in technology and its place in creating, delivering and preserving information, including the Humanities content intrinsic to the *ESAACH*. Therefore having such students participate would be ideal as they would likely be able to evaluate a site based on its ease of use and usefulness.

The mix represented by both groups of students was considered to be well placed to investigate whether a home language (specifically in relation to English Language Proficiency) increases or decreases a website's ease of use and usefulness as different home languages are represented in the sample.

In addition, it was anticipated that the research question for computer self-efficacy would return useful results with a generation of students generally familiar with an online environment.

3.4.1.2 Sampling Procedure

3.4.1.2.1 Sampling Technique

Sampling is a technique of selecting a set of selected subjects from a population with an aim to select a sample where the sampling error (or difference between sample and population characteristics) is minimized (Miller and Salkind, 2002: 51).

The likelihood of the abovementioned characteristics being represented led to the purposive sampling approach used to select the group of 149 first level students enrolled in the Arts and Design, and third level students from the Library Information Studies

courses at the Durban University of Technology. The argument for using this sampling method is that the group reflects particular qualities of the study and their relevance to the topic of investigation (Denscombe, 2010b: 35). Thus, these groups of students were intentionally selected because they were seen as instances that were likely to produce valuable data in this study. When practical considerations preclude the use of probability sampling, researchers may seek to represent the sample by other non-probability means whereby a sub-group is selected from a large population, observations are restricted to this sub-group, and conclusions from the data obtained are generalized to the total population (Miller and Salkind, 2002: 53).

3.4.1.2.2 Sample Selection

Using the university's ITS (student information) system; the sample was drawn from an accessible database of students from the above-mentioned departments and faculties within the Durban University of Technology. The choice of this sample was made possible mainly based on the students' group of choice and their willingness to participate in the online questionnaire.

3.4.1.2.3 Sample Size

One hundred and forty nine (149) students from both the Departments of Arts and Design and Library Information systems were selected for this research study. These students were invited to meet in a computer laboratory at designated times. They were directed to the online questionnaire either *via* email or the online link posted on an online classroom. Care was taken to ensure that all respondents submitted the survey while retaining anonymity and confidentiality.

3.4.2 Questionnaire Development

Each question that was designed in this study provided a number of alternative answers for respondents to select from. The responses were then quantified and put in categories for statistical analysis. Cronbach's alpha was used to check that for each construct, the group of variables provided a reliable measure and that the questions in the group were consistent. Further discussion of this reliability testing is presented in Chapter 4.

The questionnaire comprised of 48 items. Although most of the questions in the Demographics section do not form part of the formal research questions (see Section 3.3, Research Questions 1-4), the researcher was interested in identifying possible correlations between the respondents' demographic information and perceptions towards the ease of use and usefulness of the online encyclopaedia.

The sample rating scales which were used when developing this questionnaire were multiple choice single response questions and a five point Likert-type scale to capture user's perceptions on user acceptance of technology.

Questions 9 to 16 – see Appendix A for full items

These questions were used to measure the first independent variable: Computer Self-Efficacy.

Questions 17 to 26 – see Appendix A for full items

This set of questions was then used to measure the second independent variable: English Language Proficiency (ELP).

Question 18 was rephrased so that the wording could be in the positive so that the scores could point the same direction.

The questions below were then used to measure the dependent variables such as Perceived Usefulness and Perceived Ease of Use. These were adapted from Davis' (1989: 324) survey questionnaire items which were used to develop and validate new scales for the above variables.

Questions 27 to 38 - were used to capture user perceptions on Usefulness of the encyclopaedia.

Questions 39 to 48 – were used to capture user perceptions on the encyclopaedia's Ease of Use.

Some questions were re-coded in order for scores to point in the same positive direction. These included questions: 18, 36, 37, 39, 41, 43, 44 and 48. The wording for all these was changed, thus making the results to reflect this reversed recoding.

3.4.3 Questionnaire Pre-Test

A pre-test phase was considered important in order to ensure that the respondents' interpretation of the questionnaire was correct and at the same time evaluate the quality of the collected data. This stage involved distributing a sample questionnaire to a small group of respondents to determine if the questionnaire was coherent and consistent with the research aims.

The researcher determined that the questionnaire required pre-testing by a variety of respondents across the chosen discipline areas. This field-testing process was used to evaluate a number of issues, point out areas where effectiveness of the questionnaire could be assessed, and to test whether the respondents were able to interpret the questions and whether they had problems with any of the questions (Hunt, Sparkman Jr and Wilcox, 1982: 270).

The first sample consisted of five of the researcher's colleagues who were also enrolled in postgraduate programmes; they tested the presentation and wording of the survey. This group gave feedback on items that showed any ambiguity and imprecise wording.

To test this questionnaire's face validity, a second sample of twenty one first level Information Technology students from the Durban University of Technology were given the online questionnaire to pilot. These students were able to give feedback regarding the construction and wording of the questionnaire as well as the presentation online as they are already trained to assess a system's usability and presentation.

The third pre-test questionnaire was given to ten students of the Arts and Design department in the Durban University of technology. The aim of this sample's pilot was to test if the survey adequately covered the disciplines the encyclopaedia intended to serve.

The pre-test phases enabled the researcher to rigorously assess the survey instrument on the basis of input from each sample group and discussion with her research supervisors. Changes were made to the questions where applicable. This process was proved valuable in ensuring both the validity and the reliability of the questionnaire items. The average completion time for the questionnaire was 10 minutes.

3.4.4 The Final Questionnaire

The questionnaire consisted of five parts (online pages) as per Appendix A.

Page One was used as an information page for the participants. Here the respondents were assured of their confidentiality and details of the researcher and her mentor were also made available. Because this data was collected online, this consent page was structured in such a way that the participant was required to understand issues

surrounding the questionnaire and then be able to either quit the process or click on “Next” button to indicate the giving of consent, and then continue with the survey.

This page also outlined what information the other pages contained.

Page Two obtained participants’ demographic information which ensured anonymity and thus encouraged honest opinions and answers. Respondents identified their ages from selected age ranges to avoid giving specific age information which could make them uncomfortable.

This page also captured a respondent’s self-rating of Internet Experience as well as hours spent using a computer per week. Responses to these questions proved particularly valuable as can be seen from the discussion in Chapter 4. A multiple choice single answer question was a set up for this page which allowed respondents to select their responses from a variety of available responses.

Page Three captured responses related to Computer Self-Efficacy. Participants were asked to respond with their views on how they rated themselves on their efficiency when it came to using an online platform such as the online encyclopaedia. This also captured their confidence or lack of on their usage of the online platform. This was used to measure respondents’ confidence in computer usage which could determine a significant agreement towards accepting this encyclopaedia if it is rated high.

Page Four measured a user’s English Language Proficiency. It must be noted that this construct merely represented a user’s self-rating on their proficiency of English Language. This part of the questionnaire captured their language preference and their attitude towards given tasks that are presented in English. Although language is very significantly related to race, this variable was used to also test it against PEOU and PU in order to report on the significance between the variables in the regression analysis to ascertain whether significant prediction could be found between the constructs.

Page Five measured PU scores. This page was used to determine users' perceptions on the usefulness of this online encyclopaedia. Different items were used to collect perceptions on accomplishment of tasks that could be given to them to do on the encyclopaedia. Any positive agreement would indicate that if they were to use this encyclopaedia in their work, it would assist them in accomplishing many tasks successfully and so enhance their effectiveness in their work.

Page Six captured users' perceptions of how easy they find navigating, searching and using the encyclopaedia. The items on this page allowed the participants to indicate if they find the usage of, or interactions with, the encyclopaedia effortless.

On Pages 3, 4, 5 and 6: a 5 point Likert scale was used to determine online user perceptions regarding the *ESAACH* encyclopaedia.

3.4.5 Theoretical Model

Below is this study's theoretical model which has taken constructs from Davis's (1986) theoretical model, TAM. Based on the earlier mention of the research questions of this study, the figure below presents the relationship between all the factors, discussed earlier in Section 1.4 that may influence a user's intention to use the online encyclopaedia.

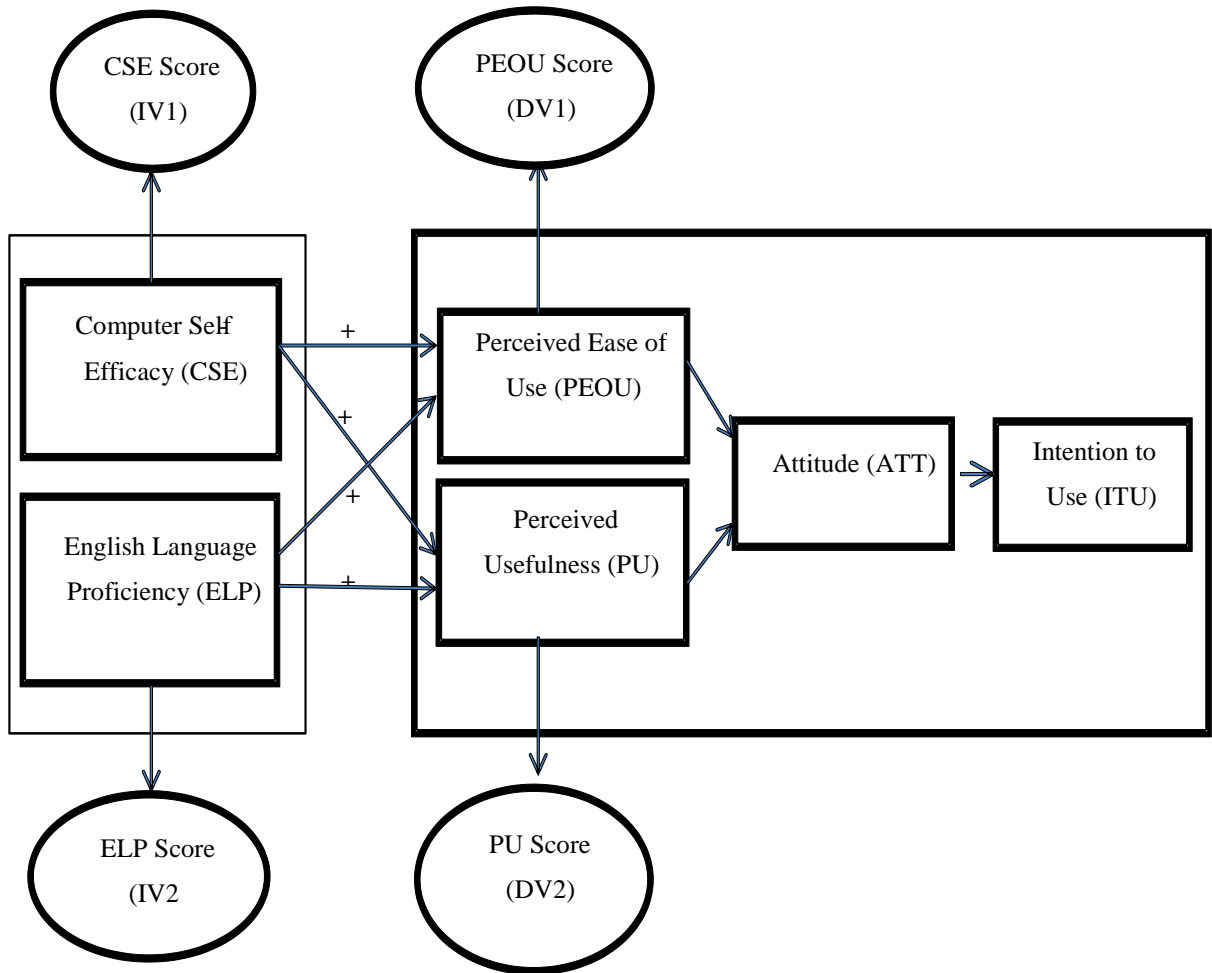


Figure 5: Research Theoretical Model Taken from part of Davis' Technology Acceptance Model (TAM) and Gong et al (Davis, 1986; Gong *et al.*, 2004)

The above model was used to design questions for the questionnaire. Chapter 4 illustrates results for each construct and shows relationships in the form of tables, graphs and scales. The variables will also be rated by score to determine the significance of the

predictions proposed in the research questions. For the purpose of this study, the above figure indicates, the external variables or factors ie: Computer Self-Efficacy and English Language Proficiency which influence the first constructs of the TAM model which herein referred to as antecedents (illustrated in the block on the right) (Gong *et al.*, 2004).

The arrows, in the above diagram (Figure 5), pointing from Independent Variables to Dependent variables illustrate the extent to which higher Computer Self-efficacy and English Language Proficiency scores predict higher scores for Ease of Use and Perceived Usefulness for users of the ESAACH website.

3.5 Data Collection

3.5.1 Questionnaire Distribution

Data for this research were collected using an online survey tool (www.sogo-survey.com) where the questionnaire resided. The questionnaire was distributed in a form of a link accessed using a survey key in order to login to the survey. Responses were then collected *via* the tool and all data was stored online. The questionnaire was active for respondents online from 30 July 2013 to 31 August 2013. Participants were assured of confidentiality. All participants were informed that no information would be linked to them personally. Respondents were thus in a position to complete the online questionnaire freely and give input about their perceptions on the online encyclopaedia. The data was kept online in a tool that kept track of the number of participants that filled in the survey as well as the data relating to user perceptions on the online encyclopaedias.

3.5.2 Questionnaire Responses

One hundred and forty nine (149) responses were collected from the online tool sogo-survey.

The sessions that the researcher held to collect the data in the lab were attended by a group of 160 in total split over three groups from different departments. Out of the 160 participants, only 149 completed surveys were submitted. It is unclear as to what happened to the 11 responses as the survey could only save the responses if the “submit” button was clicked. It is suspected that some participants did not hit this button. The response rate did however provide a satisfactory ground for the researcher to answer the research questions and to realise the objectives of this study.

3.6 Validity and Reliability

The two most important aspects of precision which are used to reduce bias are **reliability** and **validity**. According to Cohen *et al.* in *Research Methods in Education* (2010), it is often suggested that these two criteria are sufficient for any research design as any threats to these would endanger the significance of the research report. Reliability is a necessary precondition for validity (Cohen, Manion and Morrison, 2011: 179). Reliability and validity influence what we learn about the phenomenon we are studying, and the probability that we will obtain any statistical significance in the data analysis and of course the extent to which we can draw meaningful conclusions from the data (Leedy and Ormrod, 2001: 28).

Both validity and reliability indicate the degree to which we may have error in our measurements (Leedy and Ormrod, 2001).

In the literature review chapter, the four factors in this study which influence user acceptance of technology are outlined and discussed. Our test measures used these constructs to measure the validity and reliability of the sample. To test validity the

researcher attempted to ask the same questions in different ways so that the validity of user responses could be measured. Cronbach's coefficient alpha was then used to measure the reliability scale of the data.

3.6.1 Validity

This is a very important aspect of research because if any part of research is invalid, it can render the entire study worthless. Validity refers to the extent that the measurement instrument measures what it is intended to measure. The researcher will need to engage discussion around validity within the research model used in this study.

According to (Cohen *et al.*, 2011), validity in quantitative research must be faithful in premising positive principles such as:

- Controllability which refers to the possibility that others, other than the researcher or participants, to have access to how the research was done as well as have access to the results.
- Predictability refers to the degree to which a correct prediction can be made
- randomization of sample when the description process does not follow a pattern.
- neutrality or objectivity when data is represented fairly, proportionally and as far as possible without bias.

The aim of this part of this study was use the data validity scores from the results in order to report on ESAACH online user's perceptions.

3.6.2 Reliability

Reliability is the consistency of the measurement instrument which yields a certain result when the data being measured has not changed. According to Leedy and Ormrod (2001: 29), instruments that are designed to measure psychological characteristics tend to be less reliable than the ones intended to measure physical (substantial) phenomena. As mentioned above, reliability is a necessary but insufficient condition for validity because consistency many not necessarily mean accurate measurement. Although the data collected in the present study is mainly subjective and psychological in nature, the employment of Cronbach's coefficient alpha (see above) assured the reliability of the questionnaire items.

While all alpha values are in the acceptable range, there is a large increase in the alpha value for PU when questions 36 and 37 are omitted.

3.7 Results and Data Analysis

3.7.1 Descriptive Statistics

This research uses descriptive statistics where large volume of data is condensed into summarized measures in order to indicate how certain measured characteristics appear to be on "average" and how closely related certain characteristics are (Leedy and Ormrod, 2001: 31). This method was applicable to this study since there was a need to summarize the main features of data collected and to compare relativeness of different constructs in order to report on the user perceptions of the encyclopaedia.

According to McHugh and Villarruel (2003: 35), the above statistics may assist with the process of organising and summarizing data so that it:

- can show a central point which the data would evolve,

- can also indicate the broad spread of data, and it
- may also show the relationship of one kind of data to another kind of data.

Some descriptions are useful for displaying the results of measurements of variables. These statistical descriptions include frequency distributions, graphs, measures of central tendency and variations, and reliability tests.

The researcher used the following measures of central location:

- **The Mean**

This is the arithmetic average. It is the sum of the observed values in the distribution divided by the number of observations (Rosner, 2011: 7).

- **The Mode**

This will show the most frequently appearing value among many observations in a sample (Rosner, 2011: 12)

- **The Standard Deviation**

In his book, Rosner (2011: 20) reports that this is when the notion of variability or spread is quantified ie measuring the dispersion of a set of data from the mean. In this study this data spread is discussed. The more spread the data is from the mean, the higher the deviation.

The following statistical methods of display (formats) were used:

- a) **Frequency Distributions**

This method is good for presenting *univariate* (one-variable) distribution whereby the number (N), percentage, or both, corresponding to each variable's values are displayed (Chambliss and Schutt, 2012: 159).

b) Percentages

A numerical expression presenting variables' values that includes a percent sign, with 100 assumed as the denominator.

c) Charts/Graphs

There are many kinds of graphs but the most common ones are bar charts and frequency polygons (Chambliss and Schutt, 2012: 158). In this study bar charts were used to present univariate frequency distributions. These graphs are good at displaying nominal variables.

d) Cross Tabulation

Cross tabulation displays the distribution of one variable within each category of another variable. It is also termed *bivariate distribution* because it shows two distributions of two variables at the same time (Chambliss and Schutt, 2012: 168).

e) Pearson's Chi-Squared Test

This test is commonly used to compare observed data with data that would be expected to obtain according to specific assumptions. This test is used to assess the goodness of fit as well as test the independence of the compared variables (Vogt and Johnson, 2011).

f) Independent sample-t Test

This test is designed to test whether the two variables means are different. In her book, Rumsey (2009: 154) describes the two mostly used comparisons:

- The *t*-test is used to test for two population means when the variances are unknown or when the sample size is too small.

- Whereas a Z- test is used for larger sample sizes and when variances are known.

In this study the researcher analysed the data and used frequency tables to present variable distributions from the sample data. Pearson's coefficient was also used to measure of skewness to show how the observations were distributed. The illustrations of results are presented by use of charts in order to easily show frequencies. Using chi-square allowed the researcher to test the relationships between variables in order to determine which ones were significantly related and which were clearly influencing user acceptance of technology.

3.8 Conclusion

In this chapter the researcher was interested in the research problem and indicated how the research questions would be tested in the data analysis chapter. The theoretical model is also presented and discussed in this chapter. Many concepts on data analysis and tools were discussed to give understanding for the next chapter when results and findings are reported.

The next chapter presents an overview and discussion of each item result as well as significant cross-correlations between questionnaire items tested in the ESAACH online survey.

Chapter 04: Results and Data Analysis

4.1 Introduction

In this chapter the data is presented and analysed. The first part of this chapter presents an assessment of the reliability of the measurements used in order to produce scores of the variables in the study. Thereafter, the sample characteristics and analysed data are presented. The research questions are analysed and reported on. An overview of how the data was captured for analysis is provided.

There were 149 responses available for analysis out of which 86% were from students of the Faculty of Arts and Design and 14% from the Library Information Studies students.

The results of the statistical analysis were obtained using SPSS Version 20.0. Appropriate frequency tables and graphs are used for reporting to show clear illustration.

4.1 Ethical Issues

To ensure that no participant was harmed or suffered from any consequences from this research activity, ethical clearance was applied for and obtained through the Institutional Research Ethics Committee at the Durban University of Technology (See Appendix B). The research process was carefully designed to ensure protection of respondents' rights at all times and to allow anonymity to be exercised throughout the survey session and beyond.

The researcher applied the following to ensure the above:

- Informed consent was signed by the participants and was kept safely.
- Questionnaire items did not ask for personal information and so anonymity was guaranteed.
- Respondents were not compelled to participate or to be part of this research.

- Respondents were treated with respect at all times.

4.2 Data Capturing

The researcher made use of an online instrument to collect data, this instrument allowed for data to be downloaded into a spreadsheet where each respondent's data was easily collected and set up for easy analysis.

The first eight questions allowed for multiple choices, which allowed for single answer responses. Each item was coded to capture choices, e.g. for Gender: '1' indicated Female as a choice and '2' a Male. Question 2 was an ordinal-scaled question where respondents indicated their age range. Each age range was assigned a numerical value. Values were from 1 to 6.

In order for respondents to rank their perceptions from high to low, a Likert Scale (Likert, 1932) was used for question items 9 to 48 as these items were designed to capture a range of user perceptions. The Likert Scale used allowed for five responses per question items, ie, 'Strongly Agree', 'Agree', 'Neutral', 'Disagree' and 'Strongly Disagree'. Numerical values of 1 to 5 were allocated in that order of responses, resulting in value 3 being for Neutral and 1 for 'Strongly Agree'.

4.3 Data Analysis

4.3.1 Descriptive Statistics

As mentioned in 3.7.1, this research makes use of descriptive statistics where large volume of data are summarised into a few measures.

The research instrument consisted of 48 items with a level of measurement at an ordinal level. The questionnaire was divided into 5 sections which measured various themes as illustrated below:

- Demographics,
- Computer-Self Efficacy,
- English Language Proficiency,
- Perceived Usefulness; and
- Perceived Ease of Use.

The above sections were analysed and are reported in detail under the section analysis for each variable.

4.3.2 Correlation Analysis

Pearson's coefficient was used to reveal the direction of the relationship between variables. The direction simply indicated whether large values on a variable were linked with large values on the other variable thus revealing whether or not there is a positive significance between the two variables. If the values are closer to zero it indicates that the observations are more symmetrical and therefore the stronger the measure of central location. This correlation measure was used to determine the relationship between Computer Self-efficacy and English Language Proficiency and variables from the Technology Acceptance Model. Most importantly this chapter will indicate results based on the Research Questions in Section 3.3.

Positive values indicate a directly proportional relationship between the variables and a negative value indicates an inverse relationship. All significant relationships are indicated by a * or **. For example, the correlation value between “I can use this online encyclopaedia without assistance” and “I have been using English for a long period of time”, is 0.196. This is a directly related proportionality. Respondents agree that the longer the period that they use English, the more they will be able to use the online encyclopaedia with assistance.

Negative values imply an inverse relationship. That is, the variables have an opposite effect on each other.

For example: The correlation value between “I attain high scores if I am assessed in English” and “I often find that I struggle with words/sentences when speaking in English” is -0.498. This implies that the higher the scores achieved in English assessments, the lower the level of difficulty that is experienced when speaking the language.

4.4 Data Results

4.4.1 Validity and Reliability

As discussed in Section 3.6.2, to improve on the coefficient alpha questions 36 and 37 were removed because it was judged that the meaning of these items did not fit well with the other items of the same category.

In order to ensure that for each construct the group of variables provides a reliable measure and that the questions in the group are consistent, measurements for validity and reliability were performed. A satisfactory alpha score is at least 0.7. The table

below (Table 3) reflects the values for Cronbach's alpha score for all items that formed the research questionnaire.

Table 3: Reliability Statistics - Cronbach's Alpha

Construct	Questions included	Alpha	Improved/best measure	
			Questions excluded	Alpha
Computer self-efficacy	9 – 16	0.73	9,10	0.76
English Language Proficiency	17 – 26	0.86	19	0.875
Perceived Usefulness	27 – 38	0.802	36,37	0.896
Perceived Ease of Use	39 – 48	0.733		
Overall	48	0.781		1.011

The reliability score is greater than the suggested value (of 0.7). This indicates a high degree of acceptable, consistent scoring for the different categories for this study. Analysis of the reliability statistics led to the decision to omit questions 36 and 37 as it was noted that while all alpha values were in the acceptable range, there was a large increase in the alpha value for PU when these specific questions were removed. As discussed earlier, the reason why these items caused this measurement difference, was that the meanings of these questions did not fit well with the rest in the construct and were not really measuring the same point. Hence, these questions were removed from the final scoring.

4.4.2 Demographic Factors

Frequencies were examined in order to determine how often respondents responded in a certain way to a particular question. This part presents the demographic profiles of the participants. For each demographic variable, the researcher has illustrated the frequency table and a relevant graph.

For the purposes of reporting, the category “African” equals “Black”. This is consistent with the category used in survey instrument, see appendix.

4.4.2.1 Biographical Data

The figures and tables below indicate a summary of the biographical details of the respondents.

The table below indicates the gender composition of the sample by age.

Table 4: Gender composition by Age

			Gender		Total
			Female	Male	
Age	13 to 16	Count	1	1	2
		% within Age	50.0%	50.0%	100.0%
		% within Gender	1.6%	1.2%	1.3%
		% of Total	.7%	.7%	1.3%
	17 to 24	Count	59	71	130
		% within Age	45.4%	54.6%	100.0%
		% within Gender	92.2%	83.5%	87.2%
		% of Total	39.6%	47.7%	87.2%
	25 to 34	Count	4	13	17
		% within Age	23.5%	76.5%	100.0%
		% within Gender	6.3%	15.3%	11.4%
		% of Total	2.7%	8.7%	11.4%
Total	Count	64	85	149	
	% within Age	43.0%	57.0%	100.0%	
	% within Gender	100.0%	100.0%	100.0%	
	% of Total	43.0%	57.0%	100.0%	

Forty three percent (43.0%) of the sample was female. The majority of the respondents (87.2%) were between the ages of 17 to 24 years. Of this, 39.6% were female.

Based on the scores, there was no indication of positive significance in difference of opinions between females and males.

The figure below indicates the racial composition of the respondents.

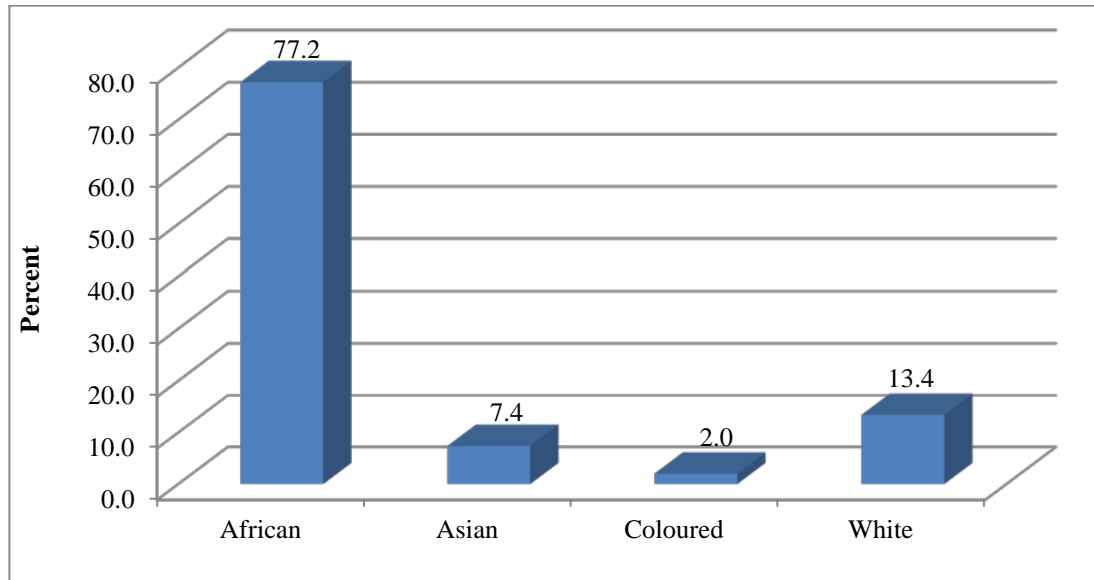


Figure 6: Racial composition

The majority of the respondents were Black (77.2%). The large contribution of Black respondents makes race a constant, that is, race would not have played a major role in terms of how respondents scored most statements.

4.4.2.2 Home Language

The language distribution is given in the Figure 7 below.

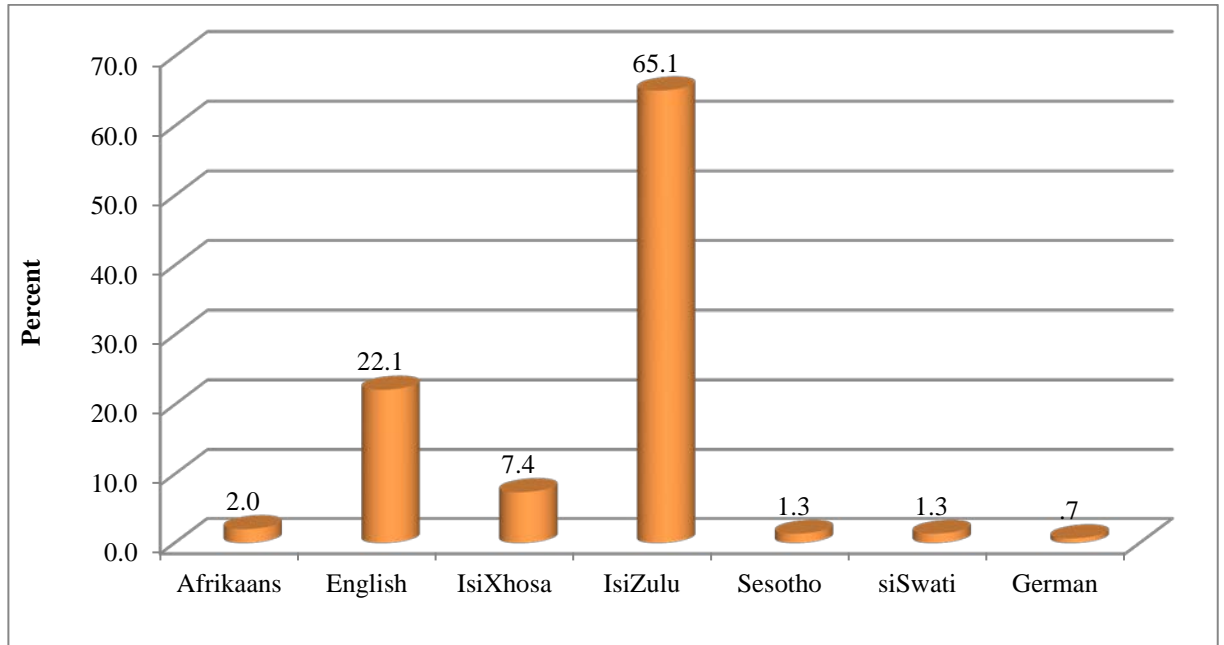


Figure 7: Language Distribution

Considering that most of the respondents were Black, it is predictable that the indigenous languages would be predominant. Less than a quarter of the respondents did not speak an indigenous language. The most common language was IsiZulu (65.1%).

4.4.2.3 Internet Experience

The table below displays the competencies of the respondents with respect to the amount of time spent on the computer and the influence this has on their Internet experience.

Table 5: Internet experience and hours spent using a computer

		How would you rate your Internet Experience?			Total	
		Excellent	Average	Poor		
Hours spent using a computer per week	Less than 2 hours	Count	4	24	1	29
		% within Hours spent using a computer per week	13.8%	82.8%	3.4%	100.0%
		% within How would you rate your Internet Experience?	6.2%	30.4%	20.0%	19.5%
		% of Total	2.7%	16.1%	0.7%	19.5%
	2 to 5 hours	Count	21	24	2	47
		% within Hours spent using a computer per week	44.7%	51.1%	4.3%	100.0%
		% within How would you rate your Internet Experience?	32.3%	30.4%	40.0%	31.5%
		% of Total	14.1%	16.1%	1.3%	31.5%
	6 to 10 hours	Count	9	21	0	30
		% within Hours spent using a computer per week	30.0%	70.0%	0.0%	100.0%
		% within How would you rate your Internet Experience?	13.8%	26.6%	0.0%	20.1%
		% of Total	6.0%	14.1%	0.0%	20.1%
More than 10 hours	Count	31	10	2	43	
	% within Hours spent using a computer per week	72.1%	23.3%	4.7%	100.0%	
	% within How would you rate your Internet Experience?	47.7%	12.7%	40.0%	28.9%	
	% of Total	20.8%	6.7%	1.3%	28.9%	
Total	Count	65	79	5	149	
	% within Hours spent using a computer per week	43.6%	53.0%	3.4%	100.0%	
	% within How would you rate your Internet Experience?	100.0%	100.0%	100.0%	100.0%	
	% of Total	43.6%	53.0%	3.4%	100.0%	

Only 3.4% of the respondents indicated that they had poor internet experiences. There was a 10% differential in terms of the excellent to average ratings which indicates normality within this group of respondents as some may use the internet just for communication amongst themselves and others could be using it for more than just communication. This latter group therefore could be excellent in their experiences.

Nearly a third of the respondents (31.5%) spent between two to five hours per week on the internet. Out of the respondents' size of 149, there are 31 respondents who reported to that they spend more than 10 hours on the computer (72.1%). Over forty seven percent (47.7%) of this group rated their Internet experience as excellent in comparison to the others. Overall, most (53%) of the respondents rated their Internet experience as average.

It is notable that high rating for Internet experience may indicate a positive significance when tested against Computer Self-Efficacy as it has been reported from many research that experience in computer usage is likely to influence internet experience (Park *et al.*, 2009).

4.4.3 Section Analysis for Mean Scores:

4.4.3.1 Analysis of the Mean Scores

Table 6: Mean Score of Constructs

	N	Mean	Std. Deviation
Computer_Self_Efficacy	149	2.1468	.52608
English_Language_Proficiency	149	1.8772	.62440
Perceived_Usefulness	149	2.1604	.60770
Perceived_Ease_of_Use	149	2.5315	.50445

One-Sample Test

Table 7: One-Sample *t*-Test

	Test Value = 3					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Computer_Self_Efficacy	-19.796	148	.000	-.85319	-.9384	-.7680
English_Language_Proficiency	-21.950	148	.000	-1.12282	-1.2239	-1.0217
Perceived_Usefulness	-16.865	148	.000	-.83960	-.9380	-.7412
Perceived_Ease_of_Use	-11.336	148	.000	-.46846	-.5501	-.3868

Table 5 above shows the mean values for each construct tested from the survey. The standard deviation values indicate that the measurement of the data dispersion was not great. In other words, the digression from significance agreement was not pronounced as most respondents were in agreement with the items of the questionnaire.

The **one-sample t-test** was then applied to ascertain whether the average scores for these constructs are significantly different from a neutral score of 3. The results reveal test scores which follow a normal distribution.

The p-value is used to identify the likelihood that a particular outcome may have occurred by chance (George and Mallery, 2007: 96). On the other hand Table 6 illustrates how this value is either closely significant or noting a further in significance. This is seen from the respondents' data noting their agreement to the constructs when they gave their perceptions in the survey questionnaire, especially to CSE and PEOU.

Based on the 95% confidence value ($p = 0.05$), a one-sample t-test indicating a significant agreement was shown for all scores.

The average Computer Self-Efficacy score (2.1468) is significantly different from a neutral score of 3 ($t(148) = -19.796, p < 0.0005$) and being less than 3, it indicates significant agreement.

For English Language Proficiency average score of 1.8772 it seems to be the furthest from the neutral score of 3 as opposed to the other three constructs tested here. ($t(148) = -21.950, p < 0.0005$) and being less than 3 it indicates an even more significant difference.

PU and PEOU with respective average scores of -16.865 and -11.336 also with p value of less than 0.0005 also indicate that there is confidence that the values are valid and significant.

The graphical representation of the above are also indicated in Figure 8 below where the mean values for each construct are clearly indicated how further or closer they are from the mean average of 3. Scores are rated as 1 representing Strongly Agree to 5 representing Strongly Disagree.

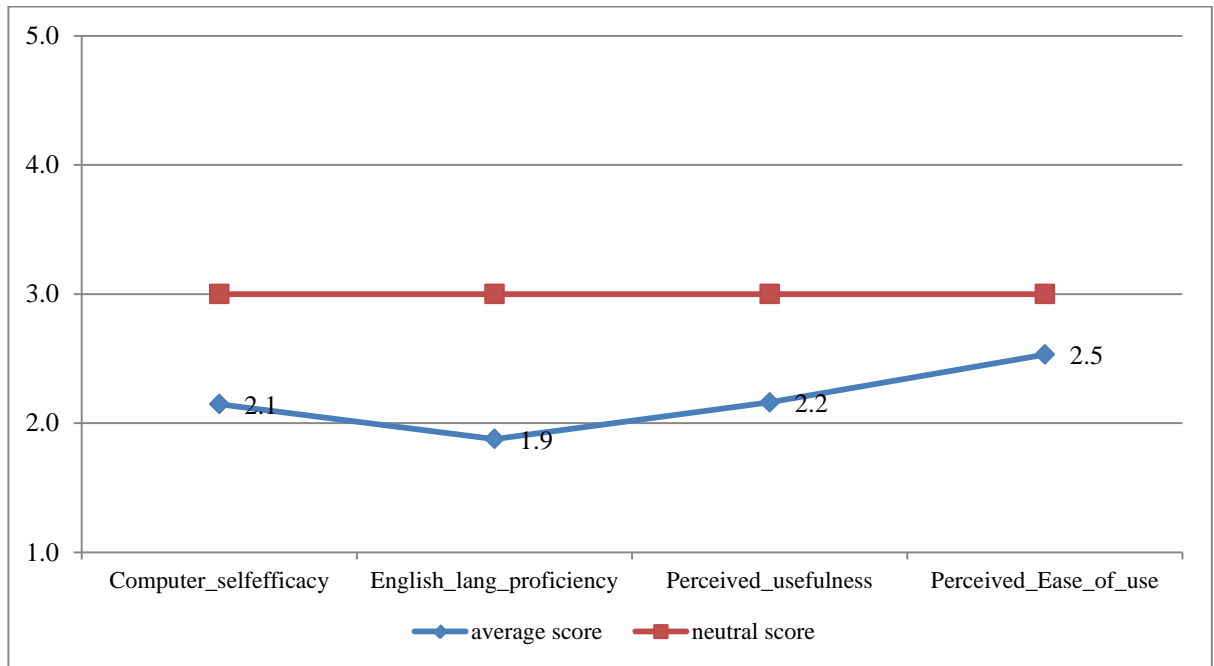


Figure 8: Statistical Significance of Constructs

4.4.3.2 Score Significance of Categories VS Demographic Variables

T-tests were also conducted to investigate whether the above scores were significantly different for the categories of the demographic variables. Our findings indicated that there were no significant differences where gender and race were concerned.

Because the sample sizes are so different for the categories, a Kruskal-Wallis test (non-parametric equivalent to ANOVA) was used as the population was not normally distributed.

It is worth noting that the assumption made in Section 1.2(Research Problem) of this study was proven to have no significance in difference for categories of the demographic variables. Specifically, there were no significant differences for gender, age, qualification or by academic field. Therefore the analysis disproved the assumption that students with a library information studies background will show a higher acceptance of the online encyclopaedia than students with a more general Arts background.

4.4.3.2.1 Results by Race:

A. Computer Self-Efficacy

Table 8: Mean Ranks by Race and All 4 Constructs

Ranks			
	Q3 race	N	Mean Rank
Computer_Self_Efficacy	Black	115	78.74
	Asian	11	88.50
	Coloured	3	46.33
	White	20	50.35
	Total	149	
English_Language_Proficiency	Black	115	86.01
	Asian	11	44.36
	Coloured	3	56.17
	White	20	31.38
	Total	149	
Perceived_Usefulness	Black	115	71.45
	Asian	11	96.05
	Coloured	3	83.67
	White	20	82.53
	Total	149	
Perceived_Ease_of_Use	Black	115	72.51

Asian	11	98.00
Coloured	3	92.17
White	20	74.10
Total	149	

Table 9 :Test Statistics^{a,b}

	Computer_Self_Ef ficacy	English_Language_Pr oficiency	Perceived_Usefulness	Perceived_Ease_of _Use
Chi-Square	9.874	34.142	4.139	4.008
Df	3	3	3	3
Asymp. Sig.	.020	.000	.247	.261

a. Kruskal Wallis Test

b. Grouping Variable: Q3 race

The results show that for the first 2 constructs (Computer Self-Efficacy and English Language Proficiency), average measures are significantly different for different races.

In the case of Computer Self-Efficacy, average scores are significantly different for the different races (χ^2 (3, N=149)=9.874, p=0.020), see Table 9 above. Specifically, the average score for Whites is significantly lower (higher Computer Self-Efficacy) than for Blacks

(Z (N=135) = -2.730,p=.006) and for Asians (Z (N=31) = -2.199,p=.028). Table 10 to Table 13 below illustrates this.

Table 10: Mean Rank for Computer Self-Efficacy for Blacks and Whites only

Q3 race	N	Mean Rank	Sum of Ranks
Computer_Self_Efficacy Black	115	71.82	8259.00
White	20	46.05	921.00
Total	135		

Table 11: Test Statistics^a for Blacks and Whites

	Computer_Self_Efficacy
Mann-Whitney U	711.000
Wilcoxon W	921.000
Z	-2.730
Asymp. Sig. (2-tailed)	.006

a. Grouping Variable: Q3 race

Table 12: Mean Ranks for Computer Self-Efficacy for Asians and Whites only

	Q3 race	N	Mean Rank	Sum of Ranks
Computer_Self_Efficacy	Asian	11	20.82	229.00
	White	20	13.35	267.00
	Total	31		

Table 13: Test Statistics^b for Asians and Whites

	Computer_Self_Efficacy
Mann-Whitney U	57.000
Wilcoxon W	267.000
Z	-2.199
Asymp. Sig. (2-tailed)	.028
Exact Sig. [2*(1-tailed Sig.)]	.029 ^a

a. Not corrected for ties.

b. Grouping Variable: Q3 race

B. English Language Proficiency

A similar result is found for the English language proficiency score (χ^2 (3, N=149)=34.142, $p<.0005$). Language is very significantly related to race therefore the respondents who will have a very significant agreement to English Language Proficiency would be the ones that are of a race other than African, as it is more likely the first spoken language for them. African were more in disagreement in this construct as they perceived communication and writing in English to be a challenge as it wasn't their home language and therefore not used frequently. The section in 4.4.4.2 presents the summarized results for this construct.

4.4.3.2.2 Cross Tabulation of Internet Experience and the Four Constructs

Table 14: Mean Ranks for all constructs with Internet Experience

	Q7 Internet experience	N	Mean Rank
Computer_Self_Efficacy	Excellent	65	69.39
	Average	79	77.11
	Poor	5	114.50
	Total	149	
English_Language_Proficiency	Excellent	65	61.54
	Average	79	84.44
	Poor	5	100.80
	Total	149	
Perceived_Usefulness	Excellent	65	69.24
	Average	79	78.18
	Poor	5	99.70
	Total	149	
Perceived_Ease_of_Use	Excellent	65	66.33
	Average	79	81.06
	Poor	5	92.00
	Total	149	

Table 15: Test Statistics^{a,b} for All Constructs

	Computer_Self_Efficacy	English_Language_Proficiency	Perceived_Usefulness	Perceived_Ease_of_Use
Chi-Square	5.522	11.931	3.238	4.976
Df	2	2	2	2
Asymp. Sig.	.063	.003	.198	.083

a. Kruskal Wallis Test

b. Grouping Variable: Q7 Internet experience

The above results (tables 14 and 15) show that for the English Language Proficiency construct, the average measure is significantly different for different categories of Internet experience (χ^2 (2,N=149)=11.931, p=0.003). Specifically, the average score for those with excellent experience is significantly lower (i.e. higher English Language Proficiency) than for those with just average experience ($Z(N=144) = -3.179, p=.001$), see Table 16 and Table 17 below.

Table 16: Mean Ranks for English Language and Internet Experience

Q7 Internet experience		N	Mean Rank	Sum of Ranks
English_Language_Proficiency	Excellent	65	60.34	3922.00
	Average	79	82.51	6518.00
	Total	144		

Table 17: Test Statistics^a for ELP and Internet Experience

	English_Language_Proficiency
Mann-Whitney U	1777.000
Wilcoxon W	3922.000
Z	-3.179
Asymp. Sig. (2-tailed)	.001

a. Grouping Variable: Q7 Internet experience

4.4.3.2.3 Results by Computer Hours

Table 18: Mean Ranks for Computer hours and All Constructs

	Q8 Computer hours	N	Mean Rank
Computer_Self_Efficacy	<2 hours	29	79.86
	2-5 hours	47	78.33
	6-10 hours	30	75.27
	>10 hours	43	67.90
	Total	149	
English_Language_Proficiency	<2 hours	29	96.36
	2-5 hours	47	76.61
	6-10 hours	30	81.22
	>10 hours	43	54.50
	Total	149	
Perceived_Usefulness	<2 hours	29	67.29
	2-5 hours	47	78.56
	6-10 hours	30	72.90
	>10 hours	43	77.77
	Total	149	
Perceived_Ease_of_Use	<2 hours	29	72.38
	2-5 hours	47	73.91
	6-10 hours	30	72.27
	>10 hours	43	79.86
	Total	149	

Table 19: Test Statistics^{a,b} for All Constructs and Computer Hours

	Computer_Self_Efficacy	English_Language_Proficiency	Perceived_Usefulness	Perceived_Ease_of_Use
Chi-Square	1.830	17.551	1.499	.806
df	3	3	3	3
Asymp. Sig.	.608	.001	.682	.848

a. Kruskal Wallis Test

b. Grouping Variable: Q8 Computer hours

The above results show that for the English Language Proficiency construct, the average measure is significantly different for different categories for Computer usage hours (χ^2 (2,N=149)= 17.551, p=0.001). Specifically below, the average score for those use have the highest usage computer hours is significantly lower (higher English Language Proficiency) than for those with just average experience (Z(N=76) = -2.105,p=.035). Tables 18 to 21 illustrate this analysis.

Table 20: Mean Ranks for ELP vs Computer Hours

	Q8 Computer hours	N	Mean Rank	Sum of Ranks
English_Language_Proficiency	<2 hours	29	45.28	1313.00
	2-5 hours	47	34.32	1613.00
	Total	76		

Table 21: Test Statistics^a for ELP vs Computer Hours

	English_Language_Proficiency
Mann-Whitney U	485.000
Wilcoxon W	1613.000
Z	-2.105
Asymp. Sig. (2-tailed)	.035

a. Grouping Variable: Q8 Computer hours

For this particular construct (English Language Proficiency), results show high significance agreements on hours spent using the computer, i.e. the more hours respondents spend on the computer, the more it shows higher significance to their ratings of English Language Proficiency.

The tables below illustrate the above analysis.

Table 22 : Mean Ranks for 72 respondents

	Q8 Computer hours	N	Mean Rank	Sum of Ranks
English_Language_Proficiency	<2 hours	29	47.95	1390.50
	>10 hours	43	28.78	1237.50
	Total	72		

Table 23: Test Statistics^a for 72 respondents

	English_Language_Proficiency
Mann-Whitney U	291.500
Wilcoxon W	1237.500
Z	-3.821
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Q8 Computer hours

Even more significant was that 48% of respondents rated their computer hours between 2 hours and more than 10 hour usage; therefore indicating that it is significantly lower (higher English Language Proficiency) than for those with just lower computer hours ($Z(N=72) = -3.821, p=.000$), see Table 22 and 23.

Table 24: Mean Ranks for 90 respondents

	Q8 Computer hours	N	Mean Rank	Sum of Ranks
English_Language_Proficiency	2-5 hours	47	52.15	2451.00
	>10 hours	43	38.23	1644.00
	Total	90		

Table 25: Test Statistics^a for 90 respondents

	English_Language_Proficiency
Mann-Whitney U	698.000
Wilcoxon W	1644.000
Z	-2.530
Asymp. Sig. (2-tailed)	.011

a. Grouping Variable: Q8 Computer hours

Out of a total of 149, 90 respondents (60%) rated their computer hours between 2 hours to over 10 hour usage therefore indicating that it is significantly lower (higher English Language Proficiency) than for those with just lower computer hours ($Z(N=90) = -2.530, p=.011$), see Table 24 and 25.

Below the researcher wants to look at analysis of each of the constructs that this investigation has found as contributing factors to user acceptance of the said encyclopaedia using the TAM constructs as a guide to the framework.

As mentioned in Section 1.4 of this study; the objective of this research was to use the TAM to ascertain the extent to which user attitudes such as: English language proficiency; and Computer Self-Efficacy predict PU and PEOU. The results section presented below will illustrate the assumptions, which were made earlier on in this study, relating to this objective.

4.4.4 Section Analysis for the Four Constructs

The section that follows analyses the scoring patterns of the respondents per factor per section. Levels of disagreement were collapsed to show a single category of disagreement. A similar procedure was followed for the levels of agreement. This is an acceptable approach due to the high levels of reliability and consistency.

The results are first presented using summarised percentages for the variables that constitute each section. Results are then further analysed according to the importance of the statements.

4.4.4.1 Computer Self-Efficacy

This section reports on results on participants' self-rated efficiency when using a computer or an application as an online platform such as the online encyclopaedia.

The summarised results are presented in Table 26 and Figure 9 below.

Please note: On the survey questionnaire, CSE1 to CSE8 were indicated as Q9 to Q16.

Table 26: Computer Self-Efficacy Summarized results

		Agree	Neutral	Disagree
CSE1	I can use this online encyclopaedia without assistance	75.8	14.8	9.4
CSE2	I can use this online encyclopaedia even if I had never used it before	69.1	18.8	12.1
CSE3	I can use this online encyclopaedia with just a manual as assistant (Select	71.1	18.8	10.1
CSE4	I can use this online encyclopaedia if I had seen someone else using it before trying it myself	68.5	18.8	12.8
CSE5	I can use this online encyclopaedia even if I was assisted by calling someone when I am stuck	75.8	14.8	9.4
CSE6	I can use this online encyclopaedia even if there was just the built-in help facility for assistance	74.5	22.1	3.4
CSE7	I can use this online encyclopaedia if someone showed me how to use it first	79.2	9.4	11.4
CSE8	I can use this online encyclopaedia if I had used other similar websites before	81.2	14.1	4.7

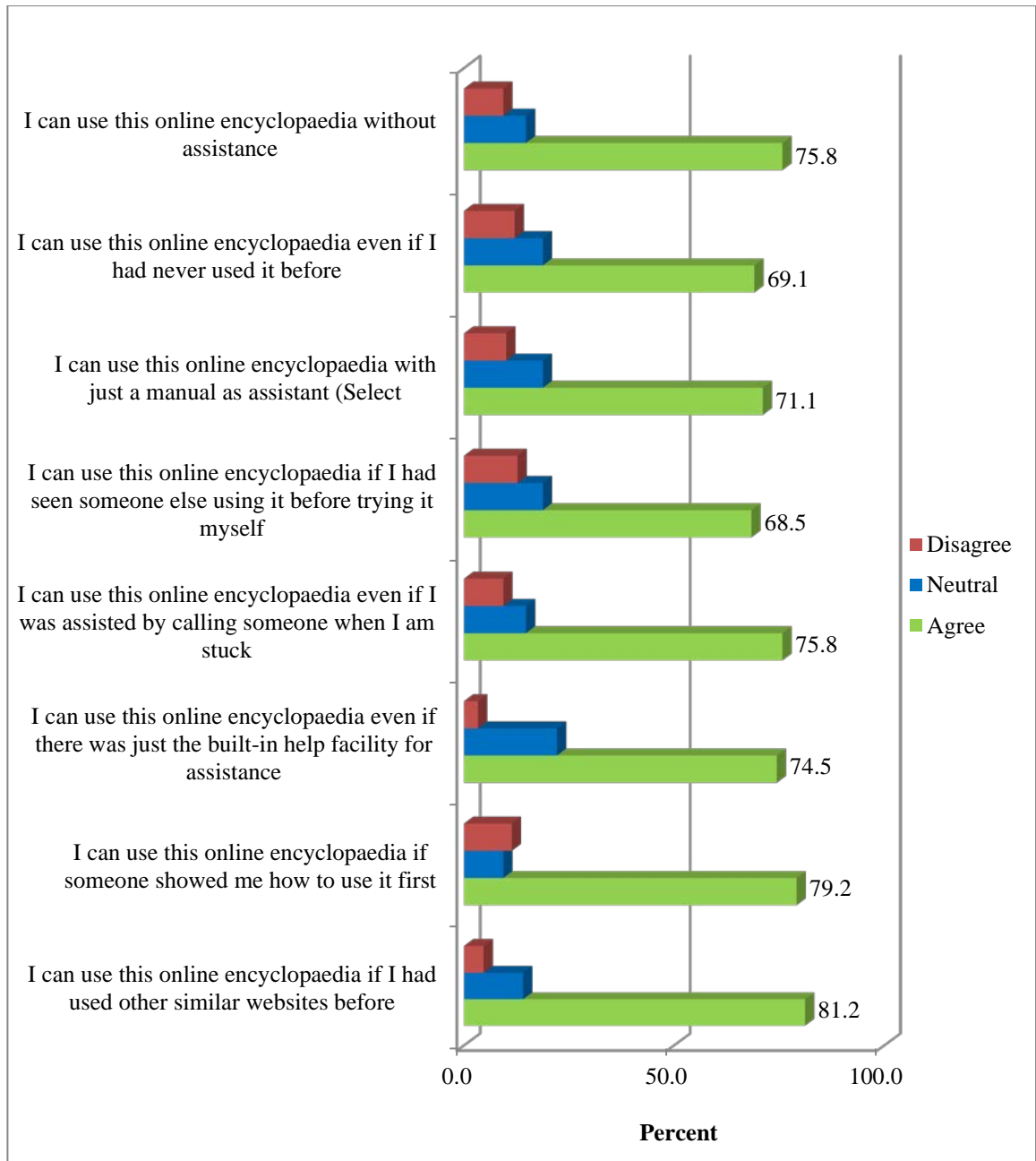


Figure 9: Computer Self-Efficacy Frequency presented graphically

The average level of agreement with the statements in this section is 74.4%. The first two statements relate to non-direct assistance in terms of using the online encyclopaedia. The remaining six statements relate to some level of assistance being offered, even though the nature of the assistance may not be similar.

Respondents are more in agreement that the online access becomes easier when there is some level of assistance. Most of the respondents (81.2%) indicated that this could have been learned by using other websites.

4.4.4.2 English Language Proficiency

In this section the researcher presents summarized results on how respondents rated themselves in English Language Proficiency. The results are summarised below in Table 27 and Figure 10.

Please note: On the survey questionnaire, ELP1 to ELP10 are indicated as Q17 to Q26.

Table 27: English Language Proficiency Summarized Results

		Agree	Neutral	Disagree
ELP1	I can read and write English with no assistance	91.3	5.4	3.4
ELP2	I often find that I struggle with words/sentences when speaking in English	26.2	16.8	57.0
ELP3	I prefer listening to English audio materials rather than that of any other languages	73.8	16.1	10.1
ELP4	I can follow instructions given in English	93.3	4.0	2.7
ELP5	I am good at reading extra-curricular and additional English materials	83.9	11.4	4.7
ELP6	I use English as my preferred language	79.2	13.4	7.4
-- *ELP7	I have the ability to do presentations to an audience and/or facilitate sessions in English	81.2	14.8	4.0
ELP8	I have the ability to effectively spot errors in materials written in English	79.2	14.8	6.0
ELP9	I have been using English for a long period of time	89.3	6.7	4.0
ELP10	I attain high scores if I am assessed in English	76.5	17.4	6.0

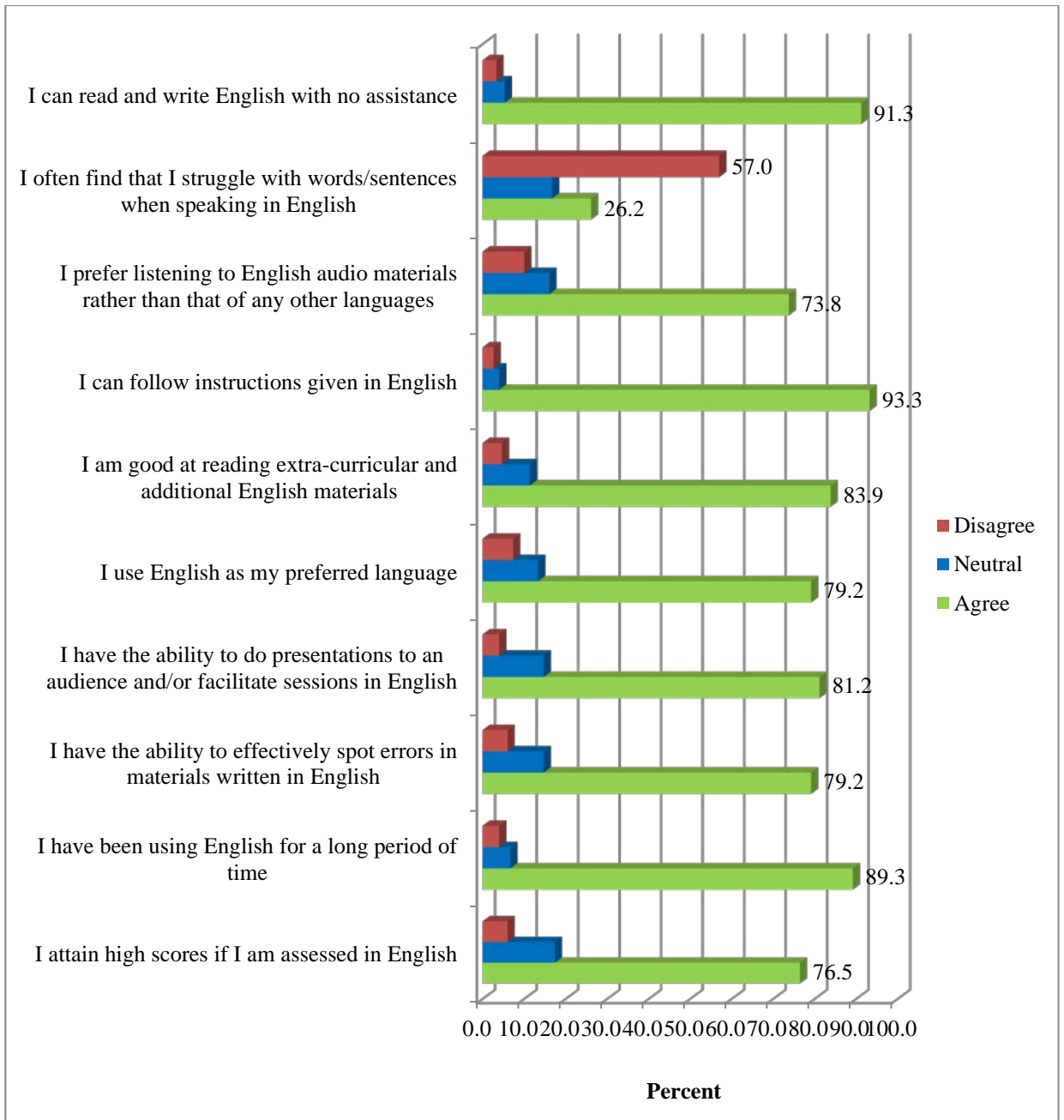


Figure 10: English Language Frequency represented graphically

Even though nearly a quarter of the respondents (26.2%) agreed that they struggle with the verbal communication using English, more than half of the respondents (57.0%) did not find this to be an issue.

The overall trend was that respondents were comfortable with the use of the English language.

4.4.4.3 Perceived Usefulness

This section reports on PU as a dependent variable in this study. Respondents results relating to how useful they find this encyclopaedia were grouped together to form the average of their scores. The average level of agreement was initially 80%, but when Q36 and Q37 were omitted, because of lack of correlation with the rest of this section (see 4.4.1 above), the average mean then increased to 89.6%.

Even though 48.7% were not positively keen on the search feature of the encyclopaedia, more than that percentage (50.6%) found that they gained greater control over what they were searching if they used the search text input feature.

Overallly the highest average (82.6%) revealed that the users found that this encyclopaedia assisted in increasing their work performance. This supports our initial assumption that the more useful the site is the more acceptable it will be by our online users. See Table 28 below.

Table 28: Factor Matrix^a for Perceived Usefulness

	Factor
	1
Q27.Using an online encyclopaedia improves the quality of the work that I do.	.597
Q28.Using the search text input on an online encyclopaedia gives me greater control over what I am looking for.	.506
Q29.Using the search feature allows me to accomplish more work than would otherwise be possible without it.	.487
Q30.This online encyclopaedia supports critical aspects of my work.	.745
Q31.This online encyclopaedia increases my productivity.	.788
Q32.This online encyclopaedia increases my work performance.	.826
Q33.Using this online encyclopaedia enhances my effectiveness on my work.	.672
Q34.Using this online encyclopaedia makes it easier for me to do my work.	.805
Q35.Using this online encyclopaedia reduces the time spent on unproductive activities.	.645
Q36.I DON'T wish this online encyclopaedia had a link where I can find where the actual material is located.	-.474
Q37.It would NOT be useful for this online encyclopaedia to have a printer feature so I can download and print my search results.	-.386
Q38.Overall, I find this online encyclopaedia useful in my work.	.705

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 4 iterations required.

4.4.4.4 Perceived Ease of Use

This section reports on how effortless the respondents found this encyclopaedia. In this area, average percentages were generally lower, indicating an inconclusive significant agreement on ease of use of this encyclopaedia. Table 29 below presents a variance of these factors as most respondents were neutral in their perceptions about the usefulness of this encyclopaedia. Although there is a lack of strong agreement, these results will be shown to have significant consequences when this construct is tested with the other independent constructs in the next sections.

Table 29: Factor Matrix^a for Perceived Ease of Use

	Factor
	1
Q39.I DON'T find this online encyclopaedia really awkward to use.	.641
Q40.Learning to use this online encyclopaedia is easy for me.	.413
Q41.Interacting with this online encyclopaedia is NOT often frustrating.	.648
Q42.I find it easy to get this online encyclopaedia to do what I want it to do.	.373
Q43.This online encyclopaedia is NOT rigid and inflexible to interact with.	.360
Q44.Interacting with this online encyclopaedia DOES NOT require a lot of mental energy.	.368
Q45.This online encyclopaedia allows you to search past content (i.e. archives).	.306
Q46.This online encyclopaedia looks professionally designed.	.480
Q47.This online encyclopaedia is arranged in a way that makes sense to me.	.723
Q48.This online encyclopaedia DOES NOT take a longtime to download.	.331

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 5 iterations required.

4.4.5 Research Questions Testing

Simple regression was used to ascertain whether significant prediction could be found with regard to the 4 research questions of this study.

Below are our research questions that were investigated in this study:

Research Question 1 (RQ1): *“To what extent does a higher Computer Self-Efficacy score predict a higher Ease of Use score for users of the ESAACH website?”*

Research Question 2 (RQ2): *“To what extent does a higher Computer Self-Efficacy score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

Research Question 3 (RQ3): *“To what extent does a higher English Language Proficiency score predict a higher Ease of Use score for users of the ESAACH website?”*

Research Question 4 (RQ4): *“To what extent does a higher English Language Proficiency score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

The results below will report and show the significant levels using the diagram below to show relationships between constructs.

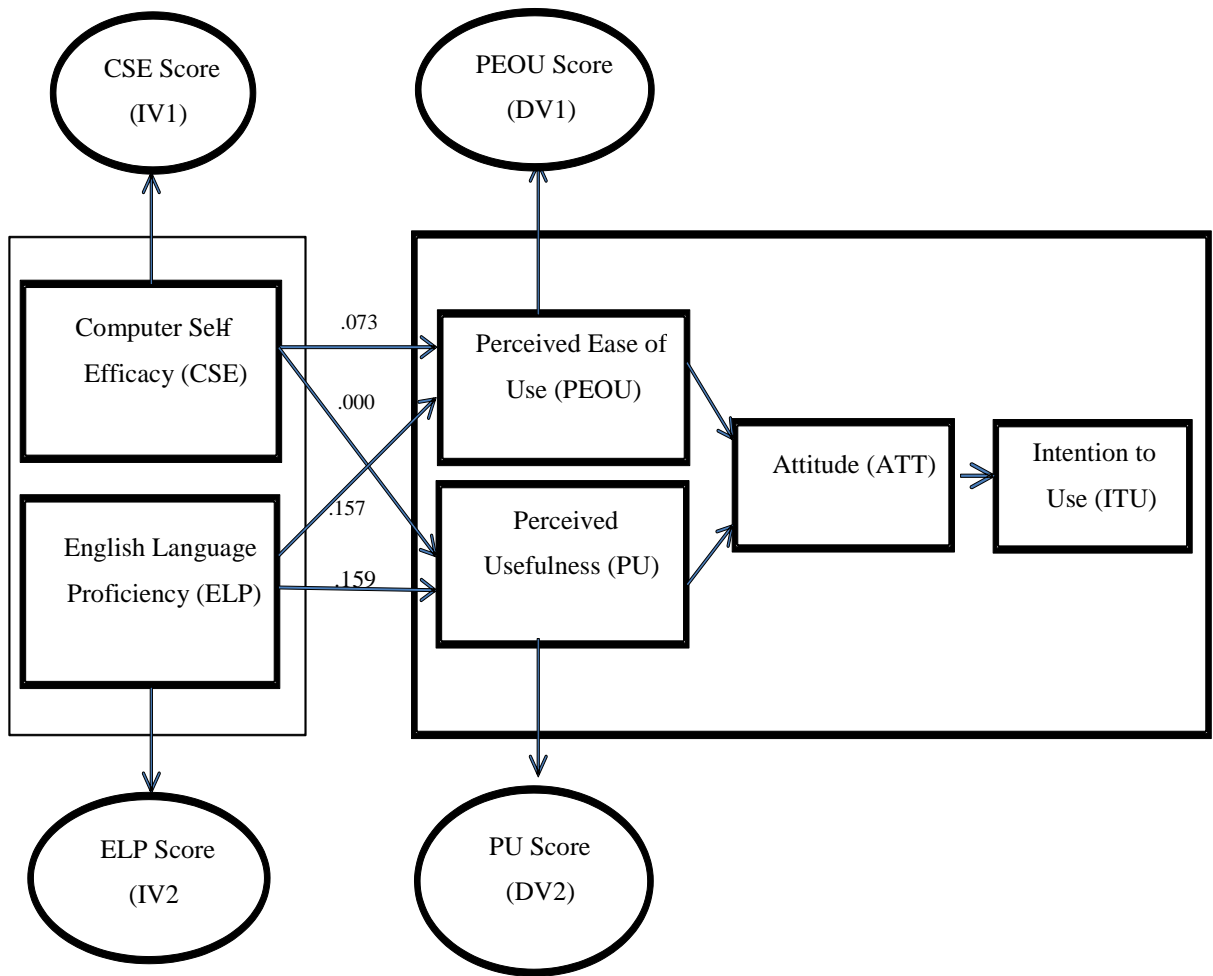


Figure 11 Research Model with sig. scores from data analysis

Research Question 1 (RQ1): “To what extent does a higher Computer Self-Efficacy score predict a higher Ease of Use score for users of the ESAACH website?”

Based on the above assumption that a higher Computer Self-Efficacy will predict a higher Ease of Use score, it is noted that this construction is *not* a significant predictor of ease of use.

Research Question 2 (RQ2): *“To what extent does a higher Computer Self-Efficacy score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

In contrast to the absence of a significant relationship in RQ1, RQ2 shows significant agreement for Computer Self-Efficacy as a predictor of Perceived Usefulness. Such that $b = 0.284$, $t(147) = 3.596$, $p < .0005$.

Computer Self-Efficacy also explained a significant proportion of variance in Perceived Usefulness scores, $R^2 = .081$, $F(1, 147) = 12.930$, $p < .0005$.

Research Question 3 (RQ3): *“To what extent does a higher English Language Proficiency score predict a higher Ease of Use score for users of the ESAACH website?”*

English Language Proficiency does not significantly predict ease of use for this website. A test score of $b = 0.116$ indicates a departure from the significant agreement.

Research Question 4 (RQ4): *“To what extent does a higher English Language Proficiency score predict a higher Perceived Usefulness score for users of the ESAACH website?”*

Results indicated that English Language is *not* a significant predictor of Perceived Usefulness. Such that a similar $b = 0.116$ just like the previous research question also indicates a departure from the significant agreement for both assumptions.

4.5 Conclusion

The Technology Acceptance model has been used in this study to assess how different constructs affect the acceptance of the said technology (*ESAACH*). Based on the findings presented, it can be seen that our assumption that the two independent variables would show high significance levels and therefore indicate the user's acceptance of this technology, were not fully in agreement. Earlier on it was discussed that previous studies indicated perceived usefulness to be the most significant determinant of intention to accept a technology. In this study, the researcher found that only Computer Self-Efficacy attained a significance level matching this theory. The recommendations and implications of these findings will be discussed in the following chapter.

Chapter 05: Conclusion, Research Implications and Recommendations

With the pressures of minimal user time availability, information and resource overload, not to mention multiple demands on our attention, it is critical that an information resource that is to be used online appeals to users' electronic taste buds by possessing easy to use and useful features to improve technology adoption.

The TAM is a well-researched theory in information systems and related fields. In this study the researcher was interested at presenting findings and their relationship with the TAM. This theoretical framework was used to investigate factors that influence intention to use the online encyclopaedia, *ESAACH*. Discussions and practical implications of the results from this theory arose from the significance of the following constructs in terms of influence on user's intention to use a technology: Computer Self-Efficacy; English Language Proficiency; Perceived Usefulness; and Perceived Ease of Use.

In the course of the discussions the researcher reported on the patterns of past research in relation to the current study where the encyclopaedia's noted constraints and limitations in respect of its design and presentation to online visitors and/or users were evaluated. The researcher discusses interventions and future recommendations that could express further cycle of assessment and improvement for this promising online reference work.

At the beginning of this study, the researcher presented a description of the encyclopaedia and its constraints in terms of its usefulness and ease of use. Among the motivations for conducting this study was the need for an investigation of the factors that could influence this encyclopaedia's ease of use as well as its usefulness. In addition, the researcher considered other factors that had been raised by previous researchers that had been shown to impact on technology acceptance. These factors were Computer Self-Efficacy and English language proficiency.

The objective of this study was to use the TAM to ascertain the extent to which user English language proficiency and Computer Self-Efficacy predict Perceived Usefulness and Perceived Ease of Use of the online encyclopaedia. Although the results revealed no significant predictive influence with respect to ease of use for either Computer Self-Efficacy or English Language Proficiency, it was noted that English Language Proficiency also showed no significant relationship with usefulness of the encyclopaedia. Nevertheless, Computer Self-Efficacy yielded a significant indication of agreement with perceived usefulness. Regardless of demographics, the participants indicated positive agreement when the Internet experience was tested against computer self-efficacy. There was no indication of positive significance difference of opinions between females and males.

In the literature review numerous previous studies on technology acceptance and the adoption of technology were discussed. Further consideration of perceptions when adopting a new technology, as well as analysis of the encyclopaedia (*ESAACH*) and perceptions of its usage are highlighted.

Based on the results of this study, users perceived computer self-efficacy to make a positive contribution to the usefulness of *ESAACH* online encyclopaedia. Although this was the only construct which proved to be significantly in agreement with just one assumption, it was noted that other constructs failed to correspond with this.

5.1 Research Implications and Recommendations

From the observed results, where positive significance was revealed, what was noticeable was that even though there was no significant relationship between English Language Proficiency and Perceived Ease of Use, there is clearly a need to look into linguistic interventions whereby the use of restricted vocabulary is used for a certain group of people that are accessing the encyclopaedia. Based on this, the researcher recommends implementation of a design that caters for sensitivity to language users.

Users indicated that if they are comfortable with the use of the computer then they find the encyclopaedia useful. Findings reported on significant agreement in computer self-efficacy against perceived usefulness substantiates this.

To promote high ease of use, designers need to prioritise the planning and structure of the encyclopaedia website and employ ways to reduce monotony (Chiu *et al.*, 2007). They need to consider sensitivity to language users, for example have a translator link to assist those that have different preferences in language use in order to promote and increase technology acceptance.

Some other means as well, need to be found, to promote user's loyalty as this is also a factor that may exert positive technology acceptance and adoption (Chiu and Wang, 2008).

5.2 Summary and Future Research

This study centred on using the TAM to ascertain users' attitudes regarding English Language and Computer Self-Efficacy to predict Perceived Usefulness and Perceived Ease of Use. The findings have contributed some valuable insights into the online encyclopaedia use in a South African context. Findings shed further light on how South African websites ought to take into account the language preferences of their users, and promote linguistic interventions. Contributions and future recommendations were made based on these findings.

Through an extensive review of the literature, this study has shown the importance for further research based on the findings. One recommendation for further research that this study has kindled is that by broadening the scope of the research the generalization of the results could be substantially increased thereby broadening the scope of different perspectives on technology adoption presented here.

This research study only focused on the selected student group restrictively from Durban University of Technology. Further research studies around the abovementioned factors could shed some light on these factors that influence user acceptance of technology by other people in different regions.

Although there are modifications of the TAM (TAMII) since the year 2000, the researcher did not see it necessary to use this expanded model as this research was exploratory. Further research could expand on this model and discuss the new external variables and their impact on factors influencing user acceptance of online encyclopaedias.

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APPENDIX A: DATA COLLECTION INSTRUMENT

*** Required Information**

page 1

Dear Participant,

The information in this questionnaire is for research purposes and your identity will not be known or used, therefore please answer as fully and honestly as possible.

The purpose of this survey is to investigate English Language proficiency and Computer Self-efficacy as being some of the factors that influence an online user's attitude towards intention to use and acceptance of an online encyclopaedia. We aim to explore more thoroughly the attitudes of typical users (Humanities students) using the Technology Acceptance Model (TAM) Framework and the degree of acceptance in relation to the current ESAACH design. Data collected here will be used to produce recommendations to make the website more efficient and user friendly.

The researcher undertakes to ensure the following to all participants:

- To maintain your confidentiality and your anonymity**
- To protect your rights and welfare, ie: to ensure that no harm comes to you as a result of your participation in this research**
- To present information and transcripts used in this research in such a way as to maintain your dignity, and if in doubt to consult you**

No manipulation or withholding of information is involved in this study. You are therefore requested to complete this online questionnaire as honestly and as completely as possible.

The results of this study will be used to improve the service provided by ESAACH.

There are only 5 Sections which will take you approximately 15 minutes, please help by completing all of them. Pages are as follows:

- Page 1- Letter of information and consent**
- Page 2- DEMOGRAPHICS**
- Page 3- COMPUTER SELF-EFFICACY**
- Page 4- ENGLISH LANGUAGE PROFICIENCY**
- Page 5- PERCEIVED USEFULNESS**
- Page 6- PERCEIVED EASE OF USE**

Thank you for volunteering to add to the body of academic knowledge. For further information regarding this study, you can contact the researcher on the email: sosibon@dut.ac.za or my supervisor, graham@esaach.org.za .

Please note that by pressing the Next button you consent the researcher that you were not forced to take part in this survey.

Your participation in this study is greatly appreciated.

Thank you.

*** DEMOGRAPHICS**

1. Select your Gender: (Select one option)

Female

Male

*** 2. Select your Age group:** (Select one option)

13 to 16

17 to 24

25 to 34

35 to 44

45 to 55

Over 55

*** 3. Indicate Racial Category** (Select one option)

Africa/Black

Asian

Coloured

- White
- Other (please specify) _____

*** 4. Indicate your Home Language (Select one option)**

- Afrikaans
- English
- IsiNdebele
- IsiXhosa
- IsiZulu
- Sesotho
- Setswana
- siSwati
- TshiVenda
- Xitsonga
- Other (please specify) _____

*** 5. Indicate Highest Qualification (Select one option)**

- Pre-University(eg: NSC/Matric etc)
- Under-Graduate(eg: National Diploma/Degree)

Post-Graduate (eg: Masters, PHD)

*** 6. Select your Academic Field/Faculty (Select one option)**

- Accounting and Informatics
- Applied Sciences
- Arts and Design
- Engineering and Built Environment
- Health Sciences
- Management Sciences
- Other (please specify) _____

*** 7. How would you rate your Internet experience? (Select one option)**

- Excellent
- Average
- Poor

*** 8. Hours spent using a computer per week: (Select one option)**

- Less than 2 hours

- 2 to 5 hours
- 6 to 10 hours
- More than 10 hours

page 3

*** COMPUTER SELF-EFFICACY**

9. I can use this online encyclopaedia without any assistance (Select one option)

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 10. I can use this online encyclopaedia even if I had never used it before (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 11. I can use this encyclopaedia with just a manual as assistant (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 12. I can use this encyclopaedia if I had seen someone else using it before trying it myself. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 13. I can use this online encyclopaedia even if I was assisted by calling someone when I am stuck. (Select one option)**

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 14. I can use this online encyclopaedia even if there was just the built-in help facility for assistance.**
(Select one option)

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 15. I can use this online encyclopaedia if someone showed me how to use it first.** (Select one option)

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 16. I can use this online encyclopaedia if I had used other similar websites before. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

page 4

*** ENGLISH LANGUAGE PROFICIENCY**

17. I can read and write English with no assistance. (Select one option)

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 18. I often find that I struggle with words/sentences when speaking in English. (Select one option)**

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 19. I prefer listening to English audio materials rather than that of any other languages. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 20. I can follow instructions given in English very well. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 21. I am good at reading extra-curricular and additional English materials. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 22. I use English as my preferred language. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 23. I have the ability to do presentations to an audience and/or facilitate sessions in English. (Select one option)**

- Strongly Agree
- Agree
- Neutral

Disagree

Strongly Disagree

*** 24. I have the ability to effectively spot errors in materials written in English. (Select one option)**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

*** 25. I have been using English for a long period of time. (Select one option)**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

*** 26. I attain high scores if I am assessed in English. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

page 5

*** PERCEIVED USEFULNESS**

27. Using an online encyclopaedia improves the quality of the work that I do. (Select one option)

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 28. Using the search text input on an online encyclopaedia gives me greater control over what I am looking for.** (Select one option)

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 29. Using the search feature allows me to accomplish more work than would otherwise be possible without it. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 30. This online encyclopaedia supports critical aspects of my work. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 31. This online encyclopaedia increases my productivity. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 32. This online encyclopaedia increases my work performance. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 33. Using this online encyclopaedia enhances my effectiveness on my work. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree

Strongly Disagree

*** 34. Using this online encyclopaedia makes it easier for me to do my work. (Select one option)**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

*** 35. Using this online encyclopaedia reduces the time spent on unproductive activities. (Select one option)**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

*** 36. I wish this online encyclopaedia had a link where I can find where the actual material is located. (Select one option)**

Strongly Agree

- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 37. It would be useful for this online encyclopaedia to have a printer feature so I can download and print my search results. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 38. Overall, I find this online encyclopaedia useful in my work. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

PERCEIVED EASE OF USE

*** 39. I find this online encyclopaedia really awkward to use. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 40. Learning to use this online encyclopaedia is easy for me. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 41. Interacting with this online encyclopaedia is often frustrating. (Select one option)**

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 42. I find it easy to get this online encyclopaedia to do what I want it to do. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 43. This online encyclopaedia is rigid and inflexible to interact with. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 44. Interacting with this online encyclopaedia requires a lot of mental energy. (Select one option)**

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 45. This online encyclopaedia allows you to search past content (i.e. archives). (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 46. This online encyclopaedia looks professionally designed. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

*** 47. This online encyclopaedia is arranged in a way that makes sense to me. (Select one option)**

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

*** 48. This online encyclopaedia takes a longtime to download. (Select one option)**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree