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CULTURE AS A MODERATOR FOR THE INFUSION OF WEB 2.0 TECHNOLOGY: TAM VS WEBQUAL

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A research report submitted to the Faculty of Commerce, University of the Witwatersrand, Johannesburg in partial completion for the requirements of a Masters degree of Commerce (Information Systems).

Ethics Clearance number: CINFO/1000

I, Westley Hammerich (0611403h) declare that this is my own unaided work and is, to the best of my knowledge, original, except where acknowledged in the text. This work has not been submitted before, either in whole or in part, for any other degree at this or any other institution.

_____ _____

Signed Date

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ABSTRACT

It is clear that the internet is being used more often for social interactions but the reasons why people adopt these newer technologies are still unclear. Over the last thirty years numerous adoption theories have been proposed however few account for the newer types of technology, such as social website usage.

Purpose – The study will compare and contrast two different models of adoption to see if one model is better than the other in understanding the usage of social networking websites such as Facebook. At an organisational level the idea of extended usage of technology has been encapsulated in the construct of infusion of technology into a work place. The study will also show that infusion of technology may occur at an individual level of research. The argument is made that since national culture has been shown to affect usage, national culture may moderate the level of infusion that is found.

Methodology – The study will use a quantitative methodology to survey potential (or actual) users of Facebook using a structured questionnaire. Since two adoption models are being tested, two questionnaires were developed and tested. The items for the questionnaires have been adapted from prior literature. Reliability and validity tests confirmed the scales from prior literature. The sample was selected from higher education institutions within the Johannesburg region .Specifically, students from the University of the Witwatersrand and the University of Johannesburg were invited to complete the questionnaires. The two questionnaires were mixed randomly between the students.

Findings – It was found that the traditional technology acceptance model could better explain the usage of social networking websites when compared to the more modern WebQual framework. The study found that there is a strong positive relationship between usage and infusion. In line with the prior research on national culture moderating usage, the study found that national culture does moderate the relationship between usage and infusion.

Implications – The study has a number of implications. Firstly, the research compared two models of technology usage. The study showed that the technology acceptance model was better at explaining the usage of social networking websites. Future research should focus on improving the TAM model and may result in better understanding the usage of social websites. Secondly, a set of scales are provided for future research which allow for the measurement of infusion at an individual level. These scales were tested for reliability and validity in two separate data collections and in both collections the scales met or exceeded the statistical requirements. Thirdly, the relationship between usage and infusion is seen to be moderated by national culture. This has

large implications for organisations and people who use Web2.0 as a medium for business. As an example, marketers could use the results in better understanding the usage of these types of websites, in the hope that it would allow for better targeting and placement of adverts. Lastly, the implications may extend beyond the context of the research. The study found a relationship between usage and infusion at an individual level of analysis. The relationship may exist in other areas of research which relate to Information systems including but not limited to Marketing (increasing the life cycle of products and increasing the value of customers through brand loyalty) and human resources (increasing employee efficiency through understanding peoples infusion of different types of technology).

Research limitations – The research is limited to the sample that was achieved. The findings can be directly inferred to a similar sample base within South Africa, however cannot be generalised to samples of dissimilar natures. While the study used Facebook as a case, it should be cautioned that the results should not be generalised to other forms of social networking websites such as Twitter.

Originality – The study is original in the following ways: Firstly, the study was conducted in South Africa where few other studies been found with a similar nature. Secondly, the study extended the thoughts on usage to the idea of infusion. Thirdly, two models were directly compared with independent data collections occurring. Fourthly, the relationship between usage and infusion is seen to be moderated by national culture. Both the relationship as well as the moderation effects has previously been empirically shown.

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CHAPTER 1 – INTRODUCTION

Facebook claims to have over 500 million active members (Facebook, 2011), while MySpace claims to have more than 115 million active users (MySpace, 2011). Neal (2010) maintains that this potential for growth is only starting to be realized as mobile usage increased in South Africa by 124% during the 2010 world cup soccer. The Economic Times (2010) reports that the growth of Facebook in Britain has slowed in the period March 2010 to August 2010 while Mobile Internet (2010) makes the argument that in Africa there is large potential for growth and it is largely due to cellular mobile telephones. While Britain's growth has slowed, Africa's growth has increased showing that there are large contrasts between the usage behaviour between any two countries.

Davis (1989) suggested the Technology Acceptance Model (TAM) can predict the usage of technologies. Since 1989 there have been numerous models and thoughts on how technology adoption should be viewed, and operationalised. Although the models since 1989 have been tested there is a lack of explanation as to why millions of people are using social networking websites. By including both cultural studies as well as the more recent adoption theories we may better understand the adoption of technology within some of the new and upcoming social environments like Facebook. The WebQual framework will be used as an investigative tool into adoption of web 2.0 technologies and later compared to the TAM.

Hofstede suggests that national culture can be observed along several dimensions. These cultural dimensions have previously been used within the Information Technology/Information Systems fields (Gaspay, Dardan, & Legorreta, 2008) however there is a lack of evidence to support the idea that culture may affect the relationship between usage and infusion of technology.

The value that this research has is as follows: Firstly the research does provide an empirical testing of the WebQual framework in comparison to the TAM model within the web 2.0 context. Secondly, it brings together the relationship of usage and infusion showing that they are highly related. Thirdly, it suggests that the WebQual framework could act as a model for the prediction of usage that an individual may exhibit. Fourthly, the idea of national culture affecting the level of infusion is examined. Fifthly, the research measures national culture and infusion from an individual level (as opposed to a societal level or an organisational level) within the web 2.0 context. Lastly, the study was conducted in South Africa which is a multi cultural environment.

This research report has the following chapters. Firstly, a literature review is presented where culture and adoption theories are brought together. In the literature review the technology acceptance model is discussed and then WebQual framework is presented. The relationship between the usage and infusion is then examined. Afterwards, the argument is made for the

inclusion of Hofstedes cultural values into the study of technology usage. The methodology section presented a discussion of the data collection process, and data exploration process. After which, a full data analysis is done in order to test for the hypotheses. The next section is a discussion which presents my results of the tests as well as a discussion of the results in terms of other studies. The last section consists of my recommendations for future studies as well as some of the limitations of the current study.

CHAPTER 2 – LITERATURE REVIEW

The study aims to answer three distinct questions relating to usage and culture. The literature review will continue in the following manner. Firstly the history of adoption theories will be traced showing that there are many ways to view usage. The argument will be made that the more recent WebQual framework will better explain the variance in usage of social networking websites. Secondly infusion of technology at an organisational level will be discussed making the argument that the same idea of extended usage can be found at an individual level. Lastly the idea of culture affecting usage has previously been studied however the study will show that culture will affect the level of infusion at an individual level in a similar manner as it does affect usage.

TRACING THE HISTORY: BEHAVIOURAL AND ADOPTION THEORIES

In this section I aim to trace the history and development of the technology acceptance model as well as the WebQual model. Both models essentially attempt to explain behaviour in some context. The focus of the technology acceptance model explains the use of some form of technology while the WebQual model is more specific and tries to explain usage of websites. Once the history and development has been explored, I will attempt to show the significance and widespread use of the different models in different contexts. Although the research referenced in the literature review may use different methodologies and have different assumptions, I believe that the use of some global research assists in making the argument for the inclusion of both the technology acceptance model as well as the WebQual model. The concept of what actually constitutes usage will then be discussed. It has been found that there are large disparities in the way usage as a construct has been viewed and reviewed.

The beginning of adoption theories was the Theory of Reasoned Action. Icek Azjen and Martin Fishbein wrote numerous articles on the ideas of beliefs, attitudes and intentions. Azjen & Fishbein (1975) suggested an attitudinal model which has impressive predictive ability for any voluntary act. Action is hypothesised to be a direct function of a person's intentions. The TRA suggests that action comes from the intention to act and an intention is made from a combination of the attitude toward the act and the subjective norm (Ajzen & Fishbein, 1975). Their model has been empirically tested in different contexts and environments, and maintains a strong predictive quality (Sheppard, Hartwick, & Warshaw, 1988).

Belleau, Summers, XU, & Pinel, (2007) aimed to understand a consumer in terms of the theory of reasoned action. Their study was done in the context of the fashion industry within the United States of America. They found that a respondent's attitude towards the behaviour had the largest

influence on the purchase intention. Although their study aimed to generate a better marketing strategy, it nevertheless shows the importance that attitudes have on a behaviour.

Ajzen later attempted to include actions that were not under volitional control. An assumption of the TRA is that the behaviour is under volitional control if the person is able to perform the behaviour at any given time. In most cases a persons' behaviour is contingent on some extraneous force such as having money or the opportunity. The theory of planned behaviour (TPB) allows for an added predictor of both action and intention to be included (Azjen, 1985). The TPB uses similar predictors as the TRA however it includes perceived behavioural control (PBC). The reason for the inclusion of PBC was to capture a sense of risk or control from the person over the behaviour (Azjen, 1985). The PBC is used to account for some of the personal and situational reasons behind doing something (Bagozzi, Gurhan-Canli, & Priester, 2002).

Johnston & White (2003) examined the utility of the TPB in understanding student binge drinking. The methodology and extension of theoretical constructs is different to that of this study. They used a longitudinal approach and later combined the TPB with social identity theory. They nonetheless found support for the precedents of the theory of planned behaviour in predicting student binge drinking.

The theory of planned behaviour has not been neglected by African researchers. Schaalma et al. (2009) applied the theory of planned behaviour to the intention to use condoms. The sample consisted of 15 782 people coming from both South Africa and Tanzania. They found that they were able to explain about 77% of the variance in the intentions to use condoms, concluding that the theory of planned behaviour is not just applicable to African contexts but directly comparable to UK and USA contexts.

The TRA and TPB have added much value to the IS/IT body of literature. Rivis & Sheeran (2003) conducted a meta-analysis on the TPB and TRA. Their methodology looked for a number of different articles which had a bivariate relationship between descriptive norms and intention for action. They used 14 different studies' data, resulting in just more than 5800 data points begin used. They found that the TPB could explain 39% of the variance of intentions, having very high significance but more importantly they found that when descriptive norms were included 44% of the variance of intentions could be explained. The meta analysis shows that an argument for the inclusion of descriptive norms in the theory of planned behaviour is valid.

Cooke & French (2008) did a meta-analysis of 33 studies that involved screening behaviour. They were interested in the behaviour of people attending screening programmes that identified particular health conditions. They sought to make the argument for moderators in screening behaviour. They examined four possible moderators of screening behaviour which were the type of

screening test, the location of recruitment, the screening cost and the invitation to screen. They found that all the proposed moderators had an effect on the theory of planned behaviour. In concluding they make the comment that "Attitudes appear to be the best predictor of intentions to attend for screening." (p762).

In the above two meta analyses, it can be seen that there is much debate on things that affect the hypothesised relationships. The two analyses had a number of similarities but a few need to be pointed out. Firstly, they used similar foundations with both using the theory of reasoned action and the theory of planned behaviour. Secondly, both analysis conclude that more needs to be done in terms of extending the respective theories. Lastly, both analyses used a number of different samples from very different contexts.

The similarities are pointed out to assist in making the argument that the technology acceptance model was built on stable and sound theories which have been tested in numerous contexts. Ajzen (1991) stated that his work was open to additional variables being added and alterations been made. Sheppard, Hartwick, & Warshaw (1988) conducted two different meta analysis in numerous contexts making the argument for the TPB and TRA. Since 1988 there has been much focus on the theory of reasoned action and theory of planned behaviour. Davis (1989) was one of the first people who reviewed the TRA and TPB in terms of using technology. These theories acted as inspiration for his Technology Acceptance Model (TAM).

Davis (1989) suggested that a persons' acceptance is based on two factors: perceived ease of use and perceived usefulness. They have been found to be two good predictors for the adoption of a technology. He found that "users are driven to adopt an application primarily because of the function it performs for them, and secondly for how easy or hard it is to get the system to perform those functions" (p333). The technology acceptance model is aimed at explaining usage of technology.

Yousafzai, Foxall, & Pallister (2010) review and empirically test three different models of usage. They used the theory of reasoned action, theory of planned behaviour and the technology acceptance model as theories in the prediction for the usage of internet banking. Structural equation modelling was used in the analysis of the three models. They found that the technology acceptance model was superior in explaining behaviour when compared to the other two models.

They make a strong theoretical argument for the inclusion of trust in the technology acceptance model but relate the implications for the inclusion of trust to the banking sector, as opposed to general technology acceptance model. The WebQual model has included the concept of trust and will be discussed later in this section.

The technology acceptance models has received some criticism over the last twenty or so years. The criticism ranges from the model being over simplistic and too exclusive (Bagozzi R. , 2007) to the idea that TAM makes researchers focus on the wrong level of research (Lucas, Swanson, & Zmud, 2007). There have even been suggestions that the focus on the TAM has diverted attention away from other important issues (Benbasat & Barki, 2007, p. 211).

Davis (1989) proposed the TAM which comes from a strong theoretical background and is rather simple in their design, having a limited number of constructs and a well validated scale creating a parsimonious and practical model. As previously mentioned when Davis (1989) is compared to the work by Venkatesh, Morris, Davis and Davis (2003) the technology acceptance model is more parsimonious. Straub and Burton-Jones (2007) make the argument that the technology acceptance model is in fact not as parsimonious as initially thought. It is suggested that the evolution of the technology acceptance model into the Unified Theory of Acceptance and Use of Technology (UTAUT) model presents a deceptively parsimonious model. If one is to research all constructs involved in the UTAUT model, they may find commonalities and could group constructs. Straub and Burton-Jones (2007) suggest that a meta-alaysis be done to determine the parsimoniousness of the suggested model.

There have been some comments that the technology acceptance model has reached a turning point and therefore as researchers we need to perhaps consider a paradigm shift (Bagozzi R. , 2007). Despite all the criticism, it is clear that there is some validity for the use of the technology acceptance model in understanding the usage of technology. Goodhue (2007, p. 220) makes the comment “that [he] cannot stress enough how powerful and valuable the TAM model has been in our field”.

Venkatesh & Davis (2000) extended the technology acceptance model by adding three additional constructs. They combined the original technology acceptance model constructs with subjective norms, voluntariness and image. Their model become known as TAM 2. Their research used four different studies to test and validate their model. The model extension showed significant direct effects on usage intentions across all four studies. Soroa-Koury & Yang (2010) used the TAM2 as a theoretical underpinning to their study. They aimed to understand the factors affecting the responses to mobile advertising, and more specifically aimed to understand the effect that a misrepresentation of social norms had on the attitudes towards mobile advertising. Soroa-Koury & Yang (2010) found that the social norm misrepresentation was able to predict the perceived ease of use and perceived usefulness which in turn was able to predict the intention to adopt mobile advertising.

Venkatesh & Bala (2008) aimed to understand how managers make informed decisions about different interventions that could lead to greater acceptance and usage of information technology within an organisation. As a theoretical underpinning they used the technology acceptance model as well as the technology acceptance model 2. They found that their new model, the TAM3, had good psychometric qualities both reliability and validity. Pookulangara (2011) proposed that through the combination of the technology acceptance model 3 and Hofstede's cultural dimensions one can better understand how consumers use consumer–generated–media to make decisions. Although this is a good proposition Pookulangara (2011) fails to present empirical evidence.

Venkatesh & Davis (2000) and Venkatesh & Bala (2008) adapted and extended the initial technology acceptance model to account for different situations however their models lack the support that the original TAM already has.

FROM TAM TO WEBQUAL

In the previous theories and models the construct of behaviour is broadly defined. The theory of reasoned action and the theory of planned behaviour make no attempt in narrowing the term of behaviour. The technology acceptance model related the construct of usage to people using a specific software program or specific piece of hardware (Srite & Karahanna, 2006). WebQual was specifically designed for the evaluation of websites, by consumers, using the theories of service.

Barnes & Vidgen (2000) initially proposed the idea that quality of information on the internet would, in some way lead to people using the website through a model of satisfaction. Later work, specifically Barnes & Vidgen (2002) used a combination of website usability, information quality and service interaction constructs to generate what has become known as the WebQual Index. The WebQual index was generated through an iterative process; with numerous research studies been undertaken (Barnes & Vidgen (2002) provide a summation of the research process that was carried out).

The WebQual Index was tested on a sample of 376 online responses. Barnes & Vidgen (2002) showed that the items have good reliability with Cronbach alphas being between 0.70 and 0.90. Barnes and Vidgen (2002) make the argument that the items can essentially be grouped into three constructs which they say confirm prior research. The first construct is usability and is explained as relating to the design and usability of the website. The second construct was information quality which is said to identify with the content of the website. The last construct is service interaction quality which related to the service interaction experienced by users.

Loiacono, Watson, & Goodhue (2007) adapted the WebQual model in combination with the technology acceptance model as well as the theory of reasoned action. They make the argument that no instrument exists that can be used to explain the usage of websites. With this in mind they aimed to develop and produce such an instrument. Their instrument showed good reliability with Cronbach Alphas in the range of 0.72 to 0.93. In all the chi–squared difference tests that were done their scales showed good discriminant validity, with all pairs being significantly different. They had good convergent validity and showed it through a comparison to SERVQUAL. They failed to show nomological validity but did suggest some ways in which it could be achieved.

When comparing Loiacono, Watson, & Goodhue (2007) to the work of Barnes and Vidgen (2002) both cases show good validity and reliability. They both conclude that although further research needs to be done, the WebQual model can be used to evaluate consumers' perceptions of websites in terms of its quality. Furthermore they relate the idea of good service quality leading to return purchases or alternatively put, to their usage.

It is for the above argument that the following hypothesis is made:

> H1: The WebQual framework will be better in explaining the variance in the usage of social networking websites when compared to the technology acceptance model.

USAGE – WHAT EXACTLY IS IT?

The question of what constitutes usage is one that has plagued the technology adoption research field. Davis (1989) conceptualised adoption in the initial TAM as the action of someone using a piece of technology. In his study, usage was measured on a scale of frequency, specifically on a scaled anchored by 'dont use at all' and 'Uses several times each day'. TAM2 "measured usage behaviour by asking subjects: "on average, how much time do you spend on the system every day? _hours and _minutes" (Venkatesh & Davis, 2000, p. 194). This suggests that instead of the frequency it is rather the duration that should be measured. In looking at more and more recent studies, we find that the construct of usage has become more and more generalised. While TAM2 attempted to extend the way in which usage was defined and later measured, it has not become prominent within the research field with most studies using a theoretical base of TAM adopting TAMs definition of usage, in terms of frequency.

In a commentary by Straub & Burton-Jones (2007) the argument is made that TAM has provided a stable platform for others to build upon however many have done so to the detriment of other work. In an effort to bolster their argument, they cover some broad areas of agreement. They agree that looking at the usage of systems is an important topic within the information systems industry however remark that about 10% of journal space now contain TAM type studies. An area of agreement (and for particular interest to this study) is the call to 'unpack the construct of usage'. They conclude that researchers should strive to adapt and extend the ideologies and conceptualisations of the usage of systems in the most parsimonious manner as is possible.

It is clear that no majority view has been reached on how usage should be measured or viewed. It is for this reason that we should return to the original studies of TAM and more closely define how usage should be viewed. In an effort to heed the call of Straub & Burton-Jones (2007) the study will return to the way usage was initially measured however will attempt to unpack the idea of extended usage. Although researchers have previously had some difficulty in determining exactly what usage is the field have only recently become interested in what happens when usage is extended over a period of time.

INFUSION

The idea of extended usage has been encapsulated in terms of organisational routinization and infusion models but has lacked in terms of individual level studies. Pongpattrachai (2010) reviewed how infusion has been captured and measured through the last 20 years. In his work he cited Sullivan (1985) who defined infusion as "the degree to which an innovation has penetrated a firm in terms of importance, impact, or significance". This definition has been adapted in two different ways. Firstly, to account for the individual level of analysis and secondly to account for a technology as opposed to an innovation. The adaption is as follows: Infusion refers to the degree to which a technology has penetrated a persons' lifestyle in terms of importance, impact or significance.

In light of the above argument for the relationship between infusion and usage the following is hypothesised:

H2: Infusion can be shown to exist at an individual level of analysis.

H3: Usage is positively correlated to infusion.

CULTURE

Hofstede (1983) suggested that culture is a "collective mental programming: it is that part of our conditioning that we share with other members of our nation, region or group but not with members of other nations, regions, or groups" (p76). Benbasat & Barki (2007) talk to the idea of researchers needing to return to the core theory in order to progress research in a field. Over the last twenty years Hofstedes definition has largely been used however this is not to say that other definitions weren't put forward. Kroeber & Kluckhohn (1952) reviewed more than 160 different definitions of culture and most pertain to the idea that culture is a learnt behaviour by a group of people, hinting to the idea of shared thinking within a group. Straub, Loch, Evaristo, Karahanna, & Srite (2002) also present a comprehensive review of the ways in which culture has been defined, and operationalised over the years. Although they did an impressive review they conclude that more care needs to be taken in the initial model development. They further suggest that should a solid theoretical base not be formed, it is difficult to gauge the methodological implications.

Doney, Cannon, & Mullen (1998, p. 607) adapt Hofstedes definition and define culture as "a system of values and norms that are shared among a group of people and that when taken together constitute a design for living". Their study suggests a framework that can be used to understand the influence culture has on trust. Part of their study suggests that when a trustor and a trustee have values and norms that are common between them, there is a greater propensity for a trusting relationship to develop. Meyers & Tan (2002) as well as Morling & Lamoreaux (2008) comment that the Hofstede definition for culture has been used most widely. In light of Benbasat & Barki (2007) and Straub, Loch, Evaristo, Karahanna, & Srite (2002) comments, the study will adopt the definition for culture that was originally proposed by Hofstede therefore allowing having more predictable methodological implications.

Hofstede's original work makes use of four dimensions that encapsulate culture. Specifically he used individualism versus collectivism, power distance, uncertainty avoidance and lastly masculinity versus femininity.

Hofstede (1983) explains that individualism versus collectivism concerns itself with "the relation between the individual and his or her fellow individuals" (p79). Power distance refers to "how society deals with the fact that people are unequal" (p81). Uncertainty avoidance looks at how people deal with uncertain situations (p81). Masculinity versus femininity attempts to capture how a society deals with different genders. These four dimensions have been used in numerous studies.

In the meta-analysis of culture by Morling & Lamoreaux (2008), the contextual evaluation for the idea of individualism-collectivism seems to be supported. The study adopted an exploratory perspective and aimed to find evidence (or lack thereof) for two guiding hypothesis. Firstly, they

expected studies which had Western samples to have a higher individualism scoring and lower collectivism scoring. Second, when compared to Oyserman, Coon, & Kemmelmeier (2002) the measured constructs would show greater effect sizes. They found that both hypotheses were supported. Eastern countries exhibited more collectivism while the western countries exhibited more individualism and the effect sizes were greater than Oyserman *et al.* (2002).

Straub (1994) examined the effect of culture on IT diffusion. His work posited that there would be a distinction between Japanese and American IT diffusion process. The main cultural value that was used was Individualism-Collectivism. In order to account for extraneous variables numerous firms were chosen, which were as alike as possible in terms of the use of FAX and e–mail. In terms of methods, the work aimed to be as inclusive as possible using field interviews, questionnaires and policy capturing. The study found that cultural effects can moderate theoretical relationships in the IT diffusion process.

Although culture was for many years considered to have only four dimensions, a later piece of work (Hofstede, 1991), suggests a fifth dimension: long–term orientation. This dimension aims to account for when results are expected to be attained. This dimension will not be used in the study because of 3 main reasons. Firstly, there seems to be conflicting evidence for the significance of the dimension. Everdingen & Waarts (2003) looked at the effects that culture has on the adoption of ERPs. They used all five dimensions of Hofstedes work. They found significance for all five dimensions. Erumban & Jong (2006) also used all five of Hofstede's dimensions yet found that they were able to establish significance for all dimensions except the long term orientation dimension.

Secondly, by reviewing popular press (Martin (2011); Pimentel (2011); Siciliano (2011)) it can be seen that consumers who are using social technologies tend not to be concerned with future implications of current actions. According to the above popular press sources, it is not just social media websites who have privacy issues Pimentel (2011) claims that banks can now sell personal information to whomever they like as long as it remains within the law. Martin (2011) reports that the right for privacy is synonymous with the right to be forgotten, and even then he comments that 'experts can't agree on the privacy issues'. Siciliano (2011) reviews 10 social media security considerations and of the 10 that were reviewed most related to the way or manner in which data is being used. These three press releases, although not fully representative, give some indication as to the concerns of the larger public showing that people are more concerned about the repercussions that will affect them today as opposed to ones that affect them in the future.

An argument is made to remain as parsimonious as is possible in the model development. To demonstrate the necessity for parsimoniousness one can review the findings by Venkatesh, Morris, Davis, & Davis (2003). Although in a different area of research, the UTAUT model (Venkatesh,

Morris, Davis, & Davis, 2003) shows that in order to achieve an R^2 of 0.69 one should use ten constructs. In the same study, the Technology Acceptance Model showed a R^2 value of 0.53 using three constructs.

Although Hofstede has been profound in reviewing culture, he has not been alone. Morden (1999) examines culture from three different perspectives. Firstly, he suggests that culture may be viewed from a single-dimensional perspective citing methods such as the high-low context evaluations and the Fukuyamas Analysis of trust. The construct, culture, when explained using a single dimension may seem simple but it largely relates to an aggregation of lower order constructs. Morden (1999, p. 22) explains that when looking at culture from a contextual perspective, one is looking at how individuals and societies search for information and knowledge. The higher order construct of information and knowledge acquisition describing culture, is illustrated as numerous informational activities affecting an individual. This may appear to be simplier but practical application and further review for the use of single dimensional cultural models is limited.

Secondly, multiple dimension models can and do account for culture. Hofstedes model, Hampden-Turner and Trompenaars Analysis and Lessem and Neubauer's Analysis are cited as examples for the use of multidimensional cultural models. Hofstedes model has already been explained. Trompenaars Analysis uses seven dimensions to explain the concept of national culture (Trompenaars, 1993). Trompenaars analysis makes the argument that culture is more than just a shared meaning but it is rather about making sense of the world around them (Romani, 2004, p. 155). Hofstede (1996) compared the Trompenaars analysis to the Hofstede model. Through a critical review of the two models he found that Trompenaars analysis "confuses conceptual categories with dimensions" (Hofstede, 1996, p. 194). Lessem and Neubauer's Analysis uses four dimensions: Pragmatic, rationalistic, holistic and humanistic ((Morden, 1999) and (Morden, 2004)). This is an alternative approach to culture however is rarely been used in the field of cultural studies.

Lastly, historical social models use historical and social dimensions to describe and explain culture. Morden (1999) used The Euro Management study and the south East Asian Management study as examples for this categorisation of cultural models. The Euro management study aimed to find commonalities between European managers. There were five areas of commonality identified in the study by Bloom, Calori, & de Woot (1994) however further evidence of the use of this taxonomy is limited. The last example of the historical social models stems from the inspiration of historic events which shape a culture. Morden suggests that this form of culture categorization is found in the South East Asian areas. Specific examples that are cited are Taoism, Confucianism, The five cardinal Relations and the Taipans. Due to the fact that the study will be conducted in a

South African context which is seen to have a more western culture, the South East Asian models will not be discussed further.

Hofstede is a prominent author in terms of cultural research, relating much of his interest in culture to other areas of research. His work ranges from the initial papers in 1981 and 1983 to the recent work of 2011. The work of Hofstede (1983) is of particular note as it is in this paper he explored and operationalised culture into the four traditional dimensions that will be used in this study. Other prominent work include the analysis of the relationship between organisational and national values (Hofstede, 1985), international business culture and how it is managed (Hofstede, 1994), testing other cultural models as compared to his own model (Hofstede, 1996), the link between personality and cultural values (Hofstede & McCrae, 2004) and more recently his analysis of how cultural research can be used in training situations (Hofstede, 2009).

Although Hofstede's work has had an impact on the way in which culture has been perceived it is not without its criticisms.

Firstly it has been suggested to be biased towards the American culture (Sharp & Salter, 1997). Hofstedes work was initially done using a sample of people within a single multinational company (Hofstede, 1983) however work on culture has extended worldwide. Straub (1994) examined the effect of culture on IT diffusion in both Japan and the U.S. His sample included respondents from both countries coming from two different sectors (financial sector and airline transportation sector). He found that due to cultural differences Japanese people view email in a different light as to how American people view email. Gaertner, Sedikides, & Chang (2008) and Dima, David, & Paiusan (2010) have both applied the Hofstede measurements in a non-western contextshowing that there is no reason that Hofstedes work cannot be used or applied outside the American culture.

Secondly, Hofstedes work was done at a societal level whereby there is an assumption that all people within a certain area have the same culture. Van de Vijver & Poortinga (2001; 145) make the comment that disaggregating data is simply not acceptable. They cite Hofstedes work in saying that it is largely applied to an individual level analysis despite the data coming from a societal level analysis. They further make the argument that one should rely on a statistical techniques to 'address this relationship' (p145). Fischer (2009) suggests that one should use a four stage model when using culture within a study. They suggest that there are a number of issues to be aware of when considering culture as a 'shared construct'. Although there is a necessity for a researcher to be aware of such arguments it has been shown that culture is a subjective phenomenon (Tsikriktsis, 2005), is still yielding empirical results (Srite & Karahanna, 2006) and is still relevant

in current day times (Minkov & Hofstede, 2011). Meyers & Tan (2002, p. 11) propose that "culture is complex and multidimensional and can be studied at many different levels".

Lastly, his work has been suggested that his work is over simplistic; with the assumption that national culture stops where geographic boundaries end. Hofstede used measurements of culture that aggregated data up to the country level however Meyers & Tan (2002, pp. 8-9) 'do not believe that there is any necessary alignment between a nation-state (which is a political entity) and culture'. South Africa is a multi-cultural environment and it would be incorrect to assume that all people exhibit similar characteristics.

Although Hofstede has been a prominent author his works are used by numerous other authors and it is largely for this reason that the multidimensional Hofstede model will be adopted for the study.

CULTURE AND INFORMATION TECHNOLOGIES

The prior section of the literature review reviewed national culture in terms of the Hofstede model for national culture. The literature review will now attempt to show that national culture has been shown to affect usage of technology in many different contexts however has ignored the possible effects that can have on extended usage.

Work on national culture and its effects on the IT field have been reviewed by other authors, however it is lacking when regarding the newer type technologies such as web2.0. Srite & Karahanna (2006) used TAM and the four main dimensions of national culture (as suggested by Hofstede) in looking at the use of personal computers and personal digital assistants. They found that cultural values of uncertainty avoidance and masculinity/ femininity have moderating effects on the intention for usage. Although their study used both TAM and national culture they lacked the extension into extended usage, infusion. Furthermore the technologies that were investigated were less social technologies. My study is using a popular social networking website, Facebook, as the technology of interest. Furthermore, my study will add a comparison of the TAM to the WebQual framework.

Yang & Shim (2009) used the WebQual framework and Hofstedes dimensions in an evaluation of knowledge sharing services. Their study "focuses on users' different attitudes and expectations toward the domestic online knowledge sharing service" (p1). The paper is a conceptual paper but they do expect to find differences in quality expectations of the different consumers. This paper is a conceptual paper which currently lacks empirical evidence; my study will contain empirical evidence. Their work suggests that a domestic online knowledge sharing service can be used for the study and this is more comparable to my study.

In both of the previous studies the samples were taken from non–African countries, specifically America and Korea. In my study I have made the argument that culture should not be geographically bound however there seems to be a trend to assume that there is a western culture and an eastern culture. My study will use respondents from within South Africa, and undoubtedly will reveal underlying cultural value systems that were previously unknown.

Srite & Karahanna (2006) reviewed a number of different studies that contained both gender as well as age. Venkatesh, Morris, Davis, & Davis (2003) also used the constructs of gender and age, and found that both gender and age act as moderators. In terms of moderators, the focus of my study will not on the moderating constructs of gender and age however in light of the work by Venkatesh *et al*, (2003) and Srite & Karahanna (2006), the measurement of both age and gender is a necessity.

The above studies all show that in some way national culture is able to affect usage. When the idea of extended usage/ infusion is combined with the ideas of national culture, the following hypotheses are suggested:

H4 - Uncertainty Avoidance will moderate the relationship between usage and infusion.

H5 - Masculinity/femininity will moderate the relationship between usage and infusion.

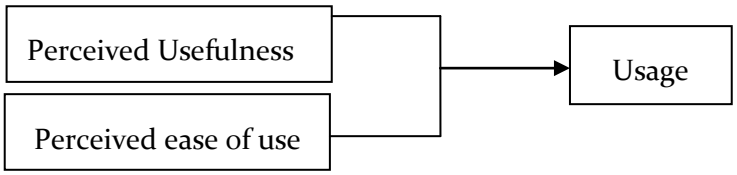
H6 - Power distance will moderate the relationship between usage and infusion.

H7 - Individualism/collectivism will moderate the relationship between usage and infusion.

PROPOSED THEORETICAL MODELS

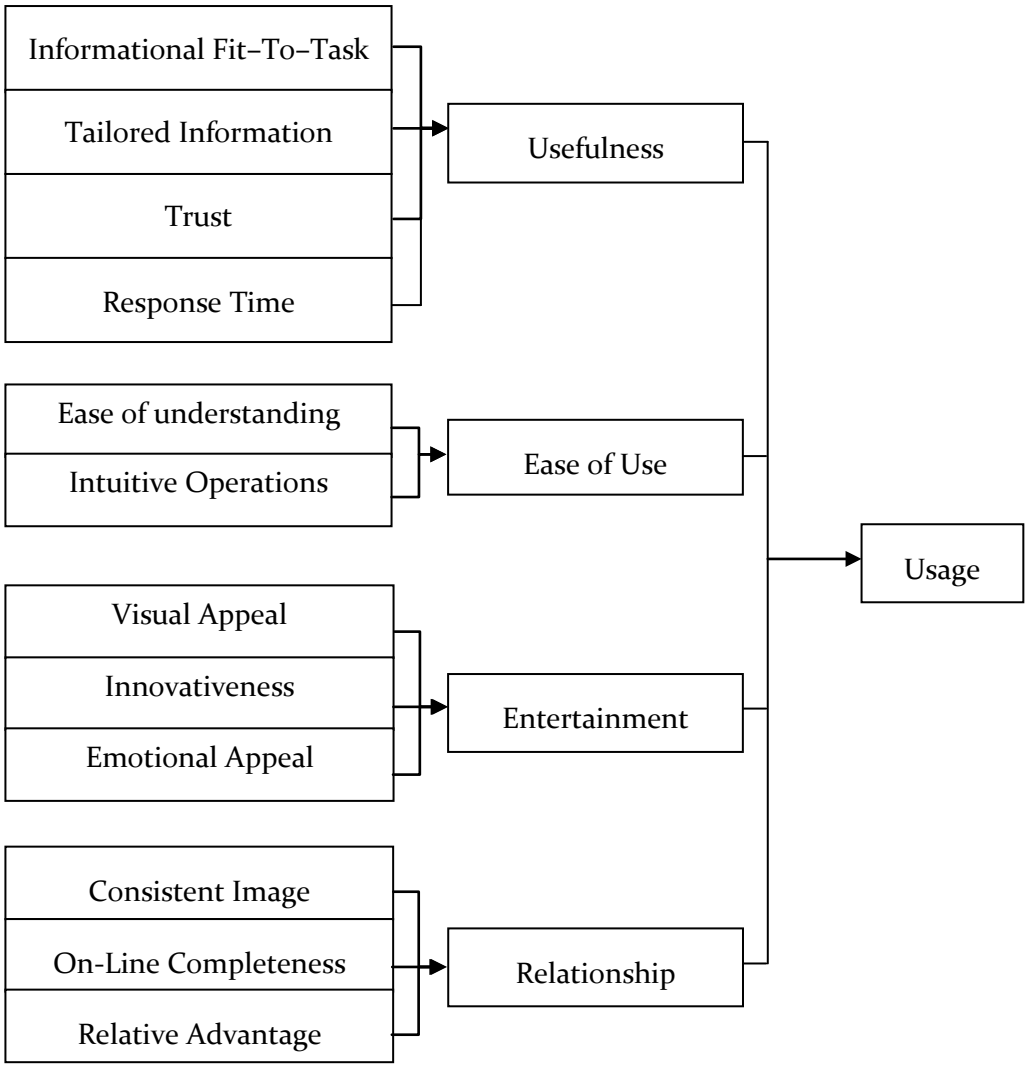
The following pictures represent the Technology Acceptance Model as well as the WebQual model and how they fit together. These are the two models that will be compared. Afterwards a model pertaining to moderation effects is shown. Each hypothesis is depicted on the diagram.

TECHNOLOGY ACCEPTANCE MODEL



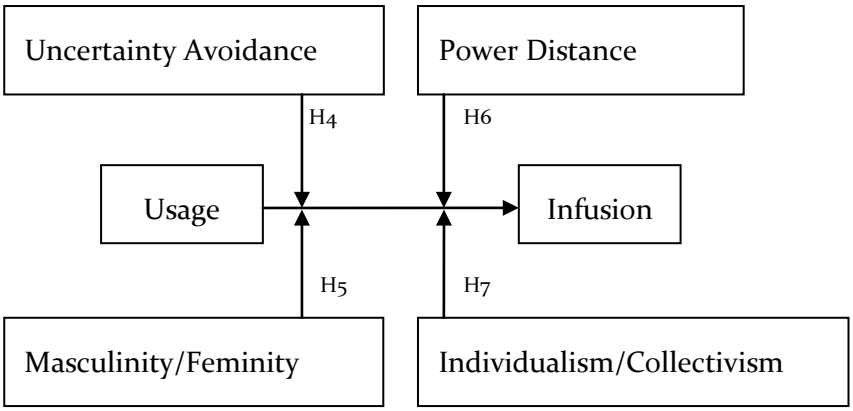
Technology Acceptance Model

WEBQUAL MODEL



WEBQUAL MODEL

MODERATION EFFECTS



Moderation Effects

HYPOTHESES

Table 1 is a summary of the hypotheses that were made in the literature review.

H1	The WebQual framework will be a better explain the variance found in usage when compared to the Davis model.
H2	The items used for Infusion show that infusion can be measured at an individual level of analysis.
H3	Usage and infusion will be positively correlated.
H4	Uncertainty Avoidance will moderate the relationship between usage and infusion.
H5	Masculinity/femininity will moderate the relationship between usage and infusion.
H6	Power distance will moderate the relationship between usage and infusion.
H7	Individualism/collectivism will moderate the relationship between usage and infusion.

Table 1: Summary of the Hypotheses

CHAPTER 3 – METHODOLOGY

The previous chapter explored the different theories that the study is based upon. This chapter aims to theoretically understand the methodology that I involved in such a study. The chapter will proceed with a discussion on the positivistic world view and its assumptions. After which an argument is made for the items that were used in the study. Once the items for the study have been explored, the expected sample and expected sample characteristics will be reviewed. The chapter will conclude with theoretical arguments for the types of analyses that are going to be used in the following chapter.

In this study I have adopted a positivistic world view, which in turn has loaned itself to the use of quantitative measures and a structured questionnaire. Davis (1989), Hofstede (1983) and Loiacono, Watson, & Goodhue (2007) all used quantitative analytics. Davis (1989) conceived of technology adoption as a quantitative measurable phenomenon. Davis evaluated usage, perceived ease of use and perceived usefulness on a number of scales. Hofstede conceptualised and later operationalised culture through a number of value measurements which were then measured using a survey (Hofstede, 1983). Loiacono, Watson, & Goodhue (2007) developed a framework for the evaluation of website quality through quantitative measures. The three above mentioned studies utilized a positivistic world view and therefore I am in line with prior literature.

In a more recent piece of work by Hofstede (2009), in which an interpretivist world view was adopted suggests that culture may be viewed from both a positivistic as well as an interpertivistic world view. Due to the large number of studies that measure culture from a quantitative perspective, the study will measure culture as initially proposed in Hofstede (1983)

DATA COLLECTION

INSTRUMENT AND MEASUREMENT

The instrument that was used was a structured questionnaire. The questionnaire items were adopted from previous studies. For a comprehensive list of the items that were used in the final data collection please refer to Appendix A and B where details for each of the two versions of the survey can be obtained.

The questionnaire had items relating to the different theoretical constructs that are theorised in determining usage however they had the same questions relating to national culture, infusion and the construct usage. In order to measure culture, Hofstedes model of cultural values has been adopted. Srite & Karahanna (2006) examined the role of espoused national culture in technology

adoption. They adapted measures from both Hofstede (1980) as well as Dorfman and Howell (1988). Their items were adopted for the measurement of culture.

Usage as a construct was measured using a contextualised item from the work of Davis (1989). He measured usage using a six position categorical scale. The question asked 'What is your current usage of Facbook?'. The six item scale had the following items "Dont use at all", "Use less than once a week", "Use about once each week", "Use several times each week", "Use about once each day" and "Use several times each day".

In both of the theorised models it is suggested that usage would lead to the infusion of the technology into the persons' life. Pongpattrachai (2010) uses three items to measure infusion. These items have been adapted and made more relevant. As an example a question used by Pongpattrachai (2010) is "There are many better ways for our firm to use spread sheets to support audit work". This particular question was adapted into "There are many better ways for me to use Facebook within my life". The adaption accounts for the individual level of analysis that I am conducting as well as moving from spread sheets to social networks.

Although the same questionnaire was administered to the sample, there were however two versions of the questionnaire. The first version contained items relating to the Davis model while the second version contained items relating to the WebQual framework. Each version contained the same items for usage, infusion and culture however the questionnaire also contained items that related to the specific hypothesised models. In the following chapters the versions will be distinguished through the different question sources (i.e. version 1 will be known as the Davis version and the second version will be known as the WebQual version)

The WebQual framework was developed by Barnes & Vidgen (2002) and later used by Loiacono, Watson, & Goodhue (2007). The items that will be used come from Loiacono *et al* (2007). They showed that the WebQual items and constructs had both good reliability and good discriminant validity. They also showed that nomological and convergent validity existed. Some of their items were adapted to suite the context of the research as an example Loiacono *et al* (2007) suggested that an item for online–completeness is "All my business with the company can be completed via the Web site". This question was adapted to "All my social interactions can be completed via the Facebook website". The adaption accounted for the fact the Facebook is a social networking website and people who use it would be having social interactions.

Davis (1989) proposed a number of items for perceived ease of use and perceived usefulness. These items were developed over two different studies and show good psychometric characteristics. These psychometric characteristics ranged from good convergent and discriminate validity, good factor structures and Cronbach alphas of above 0.90 in all studies. The questionnaire items for the

Davis questionnaire were adapted from his original study. As an example Davis (1989, p. 340) suggested that "Using CHART–MASTER in my job would enable me to accomplish tasks more quickly" was able to measure perceived usefulness. This question was adapted to the following, "Using Facebook in my life would enable me to accomplish social tasks more quickly". The adaption accounts for the social element as well as the individual level of analysis.

PRETEST AND PILOT TEST PROCEDURE

A pilot test was conducted in order to determine face validity. Malhotra & Birks (2007) explain that face validity is also known as content validity. The explain that this form of validity looks at how well a scale represents the measured task at hand.

The people who were asked to assist in determining the face validity were experts in adoption theories and or cultural theories, and may be found within the Information Systems department and Marketing departments at the university of the Witwatersrand.

The proposed model suggests that usage is determined by a number of factors. In the research it is proposed that the WebQual frame work will a yield better multivariate regression than the original work by Davis (1989). For this reason two questionnaires were developed and each had to undergo a pretest as well as a pilot test.

The pilot test for the WebQual framework questionnaire revealed some issues around grammar and spelling. In addition it was noted that some questions were very similar to each other. Most of the questions were made context, and in doing so they became slightly complex. As an example the statement "Facebook website projects an image consistent with the company Facebook PTY LTD", may be complex because it is uncertain if people see the company and the website as separate entities.

The pilot test for the Davis questionnaire found similar issues around grammar and spelling however most comments were around the idea of scope. The questions that were raised were largely due to miscommunication. It was initially thought that a traditional technology acceptance study was being conducted and concern was raise regarding the scope in terms of completing a Masters degree. Once explained the issues were retracted and no further questions were raised.

After the pilot test, a pre–test was done. The pre-test needs to have 50 – 75 respondents so that a factor analysis may be run without limitations on significance or any other statistical test. The pre test was done using students from the commerce faculty within the University of the Witswatersrand. The pretest process was conducted over a number of days. The Davis questionnaire had 52 respondents while the WebQual survey had 66 respondents while. Because

the two questionnaires had certain questions that were the same in both questionnaires, when those respondents were added together it yielded a total of 118 responses.

Malhotra & Birks (2007) state that reliability "refers to the extent to which a scale produces consistent results if repeated"(p357). Hair et al.(2006: 137) explain that there are many forms of reliability testing however the more common is the "measure of internal consistency". The Cronbach alpha is a measure of internal consistency. The Cronbach alpha has to be calculated for all constructs and for each type of scale that is used; most of the questions used a seven point likert scale. The lower limit for the Cronbach alpha is 0.6 when doing exploratory research (Hair et al., 2006: 137).

SAMPLE AND SAMPLING METHOD

Sampling method

The sampling technique that was used was a convenience sampling method whereby the respondents were intercepted in a casual manner in a common location (Malhotra & Birks, 2007, 271). The common locations were the University of the Witwatersrand and the University of Johannesburg. In an effort to ensure that the sample was as random as possible a number of classes were approached throughout the different departments in the different institutions.

The use of multiple samples ensured that people within one area did not have an underlying cultural factor (e.g. being a 'Witsie' may have a certain cultural characteristics attached). This allowed the generalizability to extend throughout the different educational levels. I checked for representability after each data collection period. Where there were any areas that lacked respondents, I filled the lacking areas with additional respondents from a similar area. Where the respondents were not available I accounted for the discrepancies through statistical techniques.

The sample was collected over the months of May and June. The sample consisted of students from the University of the Witwatersrand (Wits) and the University Of Johannesburg (UJ). Within the larger sample of Wits students, sub samples were collected from different schools. This was done to remove the cultural characteristics that may exist within a 'commerce' school or a 'mathematics' school. Students from the school of Mathematics, Humanities and Commerce were invited to complete the surveys.

Sample characteristics

The population of people that the study will generalize to are all users of social networking websites who are currently in some sort of higher education program. The sample characteristics should be as similar to the larger population as is possible. Adam, Backhouse, Baloyi, & Barnes (2010, p. 11) show that at the University of the Witwatersrand there are equal number of males and

females, when aggregating the university as a whole. Srite & Karahanna (2006) found that their sample consisted of approximately 46% female and 54% being male. Statistics South Africa (2010, p. 7) report that the population is made up of 49% males and 51% females. It is expected that gender differences, for the study will be in the region of 50% males and 50% females.

There were 492 responses with 67.48% being females and 32.52% being male. When compared to previous studies such as Adam, Backhouse, Baloyi, & Barnes (2010) and Srite & Karahanna (2006) the proportions are dissimilar.

Adam, Backhouse, Baloyi, & Barnes (2010, p. 128) showed that in the study for the University of Western Cape the average age was 23 with the minimum age of 19 and maximum age of 36. It is expected that the age range will therefore be similar to Adam, Backhouse, Baloyi, & Barnes (2010) and therefore be between 18 and 36 however a report from the University of the Witwatersrand will be requested to confirm the age demographics of the university The large age range is expected to be filled through the invitation of students from both undergraduate as well as post graduate courses.

Administration procedure

The administration of the survey was preceded by a short introduction to the research topic. For a more detailed outline of what in the introduction please refer to Appendix C. The prospective participants were then offered a questionnaire, and asked to please fill it out. Once the questionnaires had been distributed, the prospective participants will be asked to return the questionnaires to me when they were done with it.

Anonymity was maintained through the lack of identification within the survey. Ethical guidelines suggested that informed consent needed to be achieved and therefore the prospective participant were asked to sign the front sheet with just their signature (Please refer to Appendix D) . In addition to the lack of identification, once the audience members were done with the questionnaire they were asked to place it in a box. Confidentiality of anyone who responded will be maintained to the extent that Wits University requires it to be. Once the data from the surveys have been collected, the surveys will be placed in a sealed box and stored for the required time.

STRUCTURE EQUATION MODELLING: THE BACKGROUND

Structural equation modelling (SEM) is a multivariate analytical tool developed to examine a series of dependence relationships simultaneously (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 718). Hair et al. (2006:711) explains that all SEM analytics have three underlying characteristics: Firstly it estimates multiple and interrelated dependence relationships, secondly it has the ability to represent unobserved concepts in these relationships and correct for measurement error in the estimation process and lastly it can define a model to explain the entire set of relationships.

Hair et al. (2006: 734) explains that there are six steps in a SEM analysis. Step one is the defining of the individual constructs. Step two is developing the overall measurement model. Step three is designing a study to produce empirical results. Step four assesses the measurement model validity. Step five specifies the structural model and lastly step six assesses the structural model validity. The research presented will use SEM in both measurement theory as well as structural theory analysis.

As with any statistical analysis there are some preliminary checks that need to occur for the SEM analysis to be valid. These checks are divided into two sections: research design and model estimation (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 737). Hair et al. (2006:737-744) discusses them as follows:

> "Research design involves three fundamental issues specifically whether to use correlations or covariance, missing data and sample size. In the debate of correlations or covariance it is suggested that covariance's are used whenever possible however in the study where two samples are being compared, covariance's are used as an input. Missing data profoundly impacts the analysis and may be remedied however any missing data will affect the model convergence, parameter estimate accuracy and goodness-of-fit accuracy. Sample size is suggested to be between 100 and 150 to no more than 400 to 500. When the sample size is too small the analysis becomes unreliable however when the sample size is too large hypersensitivity may occur.
>
> Model estimation includes the model structure, the estimation techniques and the computer software used. Model structure has become easier with the newer more graphical interfaces found in the software packages however one needs to consider how many parameters need to be estimated using SEM (known as free parameters) as opposed to how many are predefined by the researcher (known as a fixed parameter). Differentiations in the estimation techniques have become a non-issue again due to the increase in personal computing power however the maximum likelihood estimation (MLE) has been found to be the most robust despite the numerous violations of distributional normality."

Once the above issues have been dealt with a researcher may continue with the analysis. When assessing the measurement of model validity one would need to consider the Goodness-of-fit indices. Hair et al. (2006:745-750) suggests that all goodness-of-fit indices be used and each may be classified into one of three groups, this is summarised in the below table.

Statistical Grouping	Measure
Absolute measures	The chi-squared measure is a good basis for analysis however is flawed and therefore should never be used alone. Other tests include the GFI, RMSR, SRMR and lastly RMSEA. Details of these tests have been discussed by (Hair et al., (2006); Shevlin and Miles, (1998) and Cheung and Lee, (2000)).
Incremental measures	These forms of fit indices are tests that suggest how well a specified model fits compared to a baseline model. For details see (Hair et al., (2006); Bentler, (1990) and McDonald and Marsh, (1990)).
Parsimony measures	These tests look to see which model among all competing models is best; specifically it looks at the fit compared to the model complexity. For details see: (Mulaik, (1998) and Gulick, (1967)).

Table 2: Goodness-of-fit indices used in SEM analysis

The absolute measures of fit should use the χ^2/degrees of freedom (χ^2/df), Goodness-Fit-Index (GFI), Adjusted-Goodness-Fit-Index (AGFI) and the Root Mean Squared Error Approximation (RMSEA). For the Incremental measures one would use the Comparative fit index (CFI) and the Tucker-Lewis-index (TLI), and lastly for the parsimonious measures one would use the Parsimonious-Comparative-Fit-Index (PCFI). Each of the above tests has critical values that need to be met or exceeded (Johnson, 2008, pp. 117-118).

The χ^2/df has to be below the absolute value of 3, both the GFI and the AGFI need to be greater than 0.80, the RMSEA needs to be less than 0.08. The CFI as well as the TLI both need to be greater than 0.9, and lastly the PCFI needs to be greater than 0.8 (Johnson, 2008, p. 118) and (Browne & Cudeck, 1993).

OTHER STATISTICAL TOOLS

Prior to any hypotheses being tested one needs to ensure that the correct validity and reliability measures have been met.

Validity can be measured in three different ways. Firstly, convergent validity should be measured to ensure that measures of a construct indeed correlate. Secondly, the presence of discriminant validity will ensure that the measured concepts are distinct enough to be considered separate constructs. Lastly, nomological validity should be established in as much as showing the existence of theoretical relationships in the real world. Nomological validity will be established up to the point where a model determines usage, for all other areas of the research nomological validity will be vaguely interpreted (Hair, Black, Babin, Anderson, & Tathom, 2006).

Reliability refers to the extent that the scales used in this study, if used again will produce similar results (Malhotra & Birks, 2007). Reliability will be examined in two ways. Firstly the scales were drawn from prior studies and therefore they are expected to perform in a similar manner. Secondly, the reliability coefficients will be measured using the Cronbach's Alpha. A commonly accepted cut off point for the Cronbach alpha is 0.60 (Robinson, Shaver, & Wrightsman, 1991).

To assist in determining reliability and validity a factor analysis should be run to ensure that the items that are expected to load together do, and ones that are expected to not load together don't. The type of factor analysis that should be run largely depends on the amount of theoretical knowledge that is being drawn upon. In this study numerous theoretical constructs are drawn upon and therefore a confirmatory factor analysis should be done (Hair, Black, Babin, Anderson, & Tathom, 2006).

The hypotheses that have been stated suggest that a number of statistical tests have to be run. For the first hypothesis, a complete comparison of the two models is going to be performed. The comparisons will include two main discussions. Firstly the validity and reliability differences and similarities will be stated and examined and secondly structural equation modelling differences and similarities between the two different models will be scrutinized.

For the second hypothesis (infusion items working at an individual level) one would need to reply on the reliability and validity measures. Reliability will be measured using the Cronbach Alpha measure. This measure is widely accepted and can be seen in a number of articles ((Lin, 2008); (Lam, Lee, & Mizerski, 2009); (Helfenstein & Penttilä, 2008)). To establish evidence for the third hypothesis one would need to show through a simply correlation matrix that the items, and therefore the constructs are correlated.

Hypotheses four through 4d will need to be shown through the analysis of interaction effects. These interaction effects are known as moderation effects. Frazier, Barron, & Tix (2004) present an overview on the idea of moderation. They explain that a moderating variable has the ability to "alter the direction or strength of the relation between a predictor and an outcome. Thus, a moderator effect is nothing more than an interaction whereby the effect of one variable depends on the level of another" (p116). In the case of this research, the variables that are hypothesised to alter the direction or strength of the relationship between two other variables are the different dimensions of culture. It has been hypothesized that culture will alter the relationship between usage and infusion. Hair, Black, Babin, Anderson, & Tathom (2006, p. 202) provide a structure for the analysis of moderation effects. They suggest three steps: Firstly is to estimate the original (unmoderated) equation. Secondly, estimate the moderated relationship (original equation plus moderator variable). Lastly, assess the change in R2. In line with Hair, Black, Babin, Anderson, & Tathom (2006, p. 202) regression analysis will be done. Although SEM could be used to analyse the hypothesised relationships, the analysis may become drawn out. When using SEM one needs to ensure that a good fit is achieved and only then can the analysis be done. This is seen as over kill for the current study. Hair, Black, Babin, Anderson, & Tathom (2006, p. 202) suggest a comparison of the R^2 is sufficient for the determination of the interaction effects, and therefore regression analysis will be used.

The confidence interval that will be used for this study will be 0.05 and is a generally accepted thresh–hold (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 216). Residual plots will be reviewed to ensure that the assumptions of multiple regression has not been violated (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 204).

CHAPTER 4 – DATA ANALYSIS

The previous chapter explored the theoretical underpinnings of the methodology for this study. In this chapter I aim to apply the above theoretical arguments to the data. The chapter will begin with a brief discussion on the pre–test and the pilot test. The adjustments to the questionnaire will be discussed and clarified. Reliability and validity analysis will be conducted and the results will briefly be discussed. Statistical evidence will then be given for the support (or lack thereof) for the hypotheses stated at the end of chapter 2.

PRE-TEST

A pre test was done to ensure the theoretical constructs that were employed were complete and not ambiguous. A lecturer and two professors within the University of the Witwatersrand were asked to comment on each of the questions. The two main comments that were received were caution on the length of the survey and secondly that some of the questions may be perceived as repetitive. With regard to the first issue, it was felt that little could be done about this without limiting the potential of the survey. In terms of solving the second issue some of the questions were re–worded to make them appear less repetitive.

PILOT TEST

Once the pre–test was done a pilot test was conducted. The pilot test aimed to ensure that the expected sample was being reached, the questionnaire design was appropriate, the administration procedure was understandable and logical and to give a rough estimate of whether or not the research questions could be answered.

The pre–test was conducted in the first two weeks of May 2011. The pilot test was conducted in a two phase approach. Each phase aimed to pilot test a single questionnaire and used a different independent sample of respondents. This was done to reduce the complexity of the procedure. The first phase, piloted the Davis questionnaire where 73 responses were collected. The second phase piloted the WebQual questionnaire. 66 responses were received for the WebQual pilot test. The high response rate can be attributed to the administration procedure, and the fact that students were given time during class to complete the questionnaire. Once the responses had been collected and examined for missing data and completeness a brief analysis was done. Each will now be discussed in turn.

PHASE 1: DAVIS QUESTIONNAIRE

The pilot test for the Davis version of the questionnaire consisted of 73 responses and showed that 66% were female, ranging from 18 years of age to 24 years of age (See figure 1 for the distribution of the age).

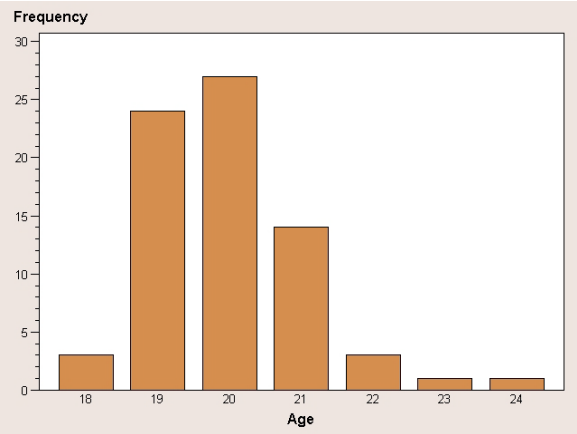


Figure 1: Graph showing the age distribution for the respondents who responded to the Davis version of the questionnaire.

The table below shows the Cronbach alpha for each construct.

Table 3: Table showing each construct and its respective Cronbach Alpha for the Davis version of the questionnaire

Construct	Cronbach alpha (Raw)
Perceived ease of use	0.8178
Perceived usefulness	0.9317

Table 3 shows that both constructs hold good psychometric properties. Each of the above two constructs were measured using a number of items. The following table details the means, standard deviations and number of observations for each item:

PHASE 2: WEBQUAL QUESTIONNAIRE

The pilot test for the WebQual version of the questionnaire contained 66 respondents. 59% of the respondents were female and the age ranged from 19 to 36 (See figure 2 for the distribution of the age).

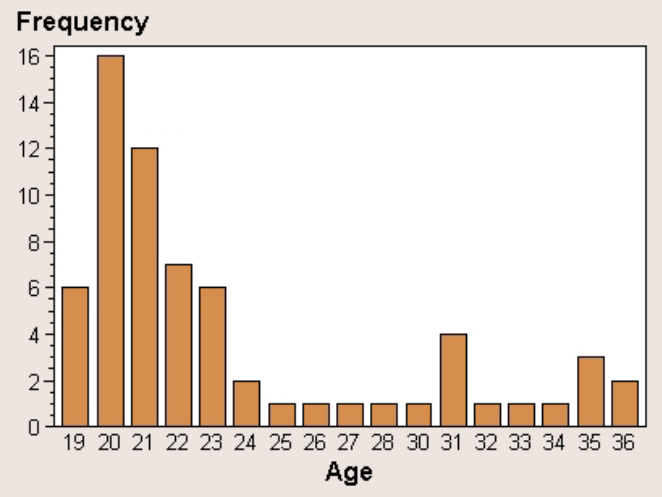


Figure 2: Graph showing the age distribution for the respondents of the WebQual version of the questionnaire

The table below shows Cronbach alpha for each construct for the WebQual questionnaire.

Table 4: Table showing the constructs used in the WebQual version of the questionnaire and their respective Cronbach Alphas

Construct	Cronbach alpha (Raw)
Informational Fit–To–Task	0.5934
Tailored Information	0.784
Trust	0.8297
Response Time	0.7119
Ease of Understanding	0.7914
Intuitive Operations	0.8306
Visual Appeal	0.8749

Innovativeness	0.7297
Emotional Appeal	0.7950
Consistent Image	0.8855
On–Line Completeness	0.5120
Relative Advantage	0.7394

Table 5 shows that most of the factors are above the 0.60 cut off. There are two constructs that do not meet this requirement, specifically On–Line Completeness (0.5120) and Informational Fit–To–Task (0.5934). The construct items were reviewed and changes were made (please see the section on 'Changes for the final questionnaire' that details what the changes were).

National Culture and Infusion

Although the two questionnaires were piloted separately there were a number of questions that were the same in both questionnaires. The questions that are the same in both questionnaires relate to the cultural variables as well as the construct of infusion. In looking at the combination of the two versions the following was found.

There were a total of 139 responses with 47% having completed the WebQual version question set and 52% completing the Davis version. The common constructs are Infusion, masculinity/femininity, uncertainty avoidance, power distance and individualism/collectivism.

The table below shows the mean, standard deviation and Cronbach alpha for each construct for the new combined dataset after the transformations.

Table 5: Table showing the common constructs between the two questionnaire versions, as well as the cronbach alpha for each construct

Variable observed	**Cronbach alpha (Raw)**
Infusion	0.6310
Uncertainty avoidance	0.4568
Power distance	0.5311
Masculinity/femininity	0.5707

Individualism/collectivism	0.7147

Of the above constructs there are three that are of concern because they lack the psychometric properties. They are uncertainty avoidance, power distance and masculinity/femininity. Some changes had to be made to the questionnaire.

CHANGES MADE FOR THE FINAL QUESTIONNAIRE

In looking to improve the questionnaire in terms of reliability and validity three things may occur. Firstly, should the reliability and validity be so bad that the questionnaire is deemed unusable one should return to the literature review and begin the questionnaire development again. Secondly during analysis of the construct items the researcher may find that through the removal of certain items the cronbach alphas may be significantly improved. Lastly the researcher may return to the literature and find additional questions that measure the same construct and supplement the questionnaire.

For this study the questionnaire was deemed salvageable and therefore only the second two options will be considered. Constructs that were identified as not meeting psychometric properties were analysed again in order to determine which (if any) items could be removed. The Davis version achieved the required psychometric properties and therefore no improvement was necessary. The WebQual version had two constructs that needed improvement. Informational fit–to–task and on–line completeness were both under the 0.6 cut off. The removal of the item 'Info3' allowed the cronbach alpha for information Fit–To–Task to be improved to 0.6263.

In terms of uncertainty avoidance, a small improvement could be achieved through the removal of items but perhaps a larger sample would yield a fruitful solution. Should this increase in sample size not help, items could be easily removed due to the fact that it was being measured using five items. Masculinity/femininity was seen as a bigger problem because although masculinity/femininity can be improved through the reduction of items, there were only three items measuring MF. Should the reduction have to occur, it would reduce the power of any statistical tests that were done.

Based on the above analysis additional questions for masculinity/femininity and uncertainty avoidance have been sourced from Lam, Lee, & Mizerski (2009, pp. 65-66). Their study looked at the effect of national culture on word–of–mouth communications. Some of these questions were added in the hopes that better Cronbach alphas would be found in the actual data collection.

Once these changes had been made to the questionnaire the actual data collection process began.

DATA ANALYSIS– THE FINAL DATA COLLECTION

SAMPLING METHOD

Table 6 shows the contribution from each area within Wits and UJ.

Table 6: Breakdown of sample into university and section within university

University and Section					
University	**section**	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Wits	Ecos1	92	18.70	92	18.70
Wits	General_BSc	101	20.53	193	39.23
Wits	Maths	96	19.51	289	58.74
Wits	Media_Studies_Y1	80	16.26	369	75.00
Wits	Media_Studies_Y3	66	13.41	435	88.41
UJ	Science	57	11.59	492	100.00

Once the 550 surveys had been distributed and later collected they were analysed for completeness. Table 6 shows the usable surveys vs. the total received. In looking at whether or not a survey may be deemed to be complete, a number of guidelines were followed. Firstly, any survey that had 20% or more of the questions unanswered was immediately discarded. Secondly, if an answer was missing from the usage question, the gender question or the age question the survey was discarded. Lastly, if the front sheet did not have a signature on it the response was discarded. If a questionnaire was deemed to be complete, yet had missing data this was dealt with in a specific way. For more information on how missing data was dealt with please refer to the Missing Data section.

The age ranged from 18 to 33 years old. In order to conform to the ethical rules set out, surveys who had people indicating that they were 18 years of age were immediately excluded from the study. There were 3 surveys that had to be excluded for this reason. Table 7 shows the distribution for the age of the sample.

Table 7: Table showing the age distribution of the sample

Age				
Age	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
18	187	38.32	187	38.32
19	166	34.02	353	72.34
20	73	14.96	426	87.30
21	32	6.56	458	93.85
22	9	1.84	467	95.70
23	6	1.23	473	96.93
24	9	1.84	482	98.77
25	3	0.61	485	99.39
26	2	0.41	487	99.80
33	1	0.20	488	100.00

When looking at the comparisons between UJ students and WITS students, they are very similar in terms of their age, gender and usage (Table 8 shows the percentage for each). The percentage is shown as an indication because there were different numbers of students within each group.

Table 8: Table showing the percentage of the sample coming from each of the institutions in terms of the Age and gender

<table>
<tr><td></td><td></td><td>Wits Students</td><td>UJ Students</td></tr>
<tr><td rowspan="11">Age</td><td></td><td><table><tr><th>Age</th><th>Percent</th><th>Cumulative Percent</th></tr><tr><td>18</td><td>40.05</td><td>40.05</td></tr><tr><td>19</td><td>32.87</td><td>72.92</td></tr><tr><td>20</td><td>14.81</td><td>87.73</td></tr><tr><td>21</td><td>6.02</td><td>93.75</td></tr><tr><td>22</td><td>2.08</td><td>95.83</td></tr><tr><td>23</td><td>0.69</td><td>96.53</td></tr><tr><td>24</td><td>2.08</td><td>98.61</td></tr><tr><td>25</td><td>0.69</td><td>99.31</td></tr><tr><td>26</td><td>0.46</td><td>99.77</td></tr><tr><td>33</td><td>0.23</td><td>100.00</td></tr></table></td><td><table><tr><th>age</th><th>Percent</th><th>Cumulative Percent</th></tr><tr><td>18</td><td>25.00</td><td>25.00</td></tr><tr><td>19</td><td>42.86</td><td>67.86</td></tr><tr><td>20</td><td>16.07</td><td>83.93</td></tr><tr><td>21</td><td>10.71</td><td>94.64</td></tr><tr><td>22</td><td>0</td><td>94.64</td></tr><tr><td>23</td><td>5.36</td><td>100.00</td></tr></table></td></tr>
<tr><td rowspan="2">Gender</td><td>Male</td><td>32%</td><td>33%</td></tr>
<tr><td>Female</td><td>67%</td><td>66%</td></tr>
</table>

When a two sample T–Test is done with a Satterthwaite method employed, to compare the UJ students with the Wits students in terms of their usage. An insignificant result is found (p =

0.0985, df = 70.439). This result supports the idea of there being no significant difference between Wits and UJ students for the purposes for this study.

MISSING DATA

Stevens (2002, p. 33) explains the different ways in which missing data may be dealt with. He suggests that if the missing data is completely at random then statistical techniques may be applied however if the missing data is not at random "then there is no general consensus as to what should be done". For this reason a step wise procedure was followed. Hair J *et al*. (2006, pp. 52-57) suggest a four step procedure for accounting for missing data. First, is to determine the type of missing data, secondly is to determine the extent thirdly is to diagnose the randomness and the last step is to select the imputation method.

It was determined that all missing data points should be addressed as they are considered non–ignorable (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 52). To determine the extent of the missing data responses were analysed. After the initial checks for completes (as reported above), surveys were deemed complete if more than 80% of the questions were filled in. Anything less than 80% would result in the questionnaire being immediately destroyed. Missing data was then examined based on each of the two versions of questionnaires.

The analyses can be split into three sections. Firstly, the Davis questionnaire version contained a total of 3288 data points. Within this subset of data there were 14 missing data points resulting in 0.4% of the data set containing missing data. Secondly, the WebQual dataset contained 7276 total data points. Within this subset of data there were 87 missing data points resulting in 1.2% of the data point being missing. Lastly, when considering the dataset in its entirety (analysing just the common questions between the two versions) there are 13776 data points. It was found that there were 165 missing data points resulting in 1.2% of the data being missing.

From the above it can be concluded that the extent of the missing data is minimal and therefore according to the process, the analysis would continue at stage four. The question asked in stage four of the process is 'Do you want to replace the missing data?'. In a rather lengthy discussion concerning missing data Hair J. , Black, Babin, Anderson, & Tathom (2006, p. 63) conclude that when moderate relationships exist between variables and the missing data percentage is low the strategy to adopt is to use all available data. This strategy has the advantages in that it maximizes the use of valid data. The disadvantage of this technique is that it may introduce certain statistical errors such as 'out of range value' for correlations or eigen values. This technique may also result in varying numbers of observations being used in the different statistical tests.

NORMALITY

For any statistical analysis to be done one needs to understand the distribution found within data. It is important to know what the distribution is as this affects what analyses will be used. Hair J *et al*, (2006, p. 41) explains that use of multivariate techniques place additional emphasis on knowing the underlying data structures so to better interpret the results. They also explain that a large assumption of most multivariate statistical techniques is that the data maintains a normal distribution. The authors go onto explain that normality should be reviewed using two techniques. Firstly one should employ a graphical analysis. This mode of analysis is however considered simplistic and it is cautioned that when dealing with small samples one should not use this technique. The second technique would be to employ a statistical test of normality. Stevens (2002, p. 264) makes a good argument for the use of the Shapiro–Wilk test over any other test as it has been showed to be the most powerful test in assessing skewness and kurtosis.

Both graphical analysis as well as the Shapiro–Wilk test will be used to test for normality and are shown in appendices E, F, and G. Each of the two datasets will be discussed in turn and then a brief discussion on the remaining items will ensue. Lastly a brief discussion on remedies for non–normal data will be explored.

The Davis dataset (Appendix E) shows a fair amount of non–normality. The graphical representation shows that most of the items have a clear non–normal distribution. When looking at the statistical tests for normality all p–values are significant and therefore on all items the null hypothesis that the data came from a normal population is rejected. When looking at the graphical analysis of the WebQual dataset (Appendix F), one can see that some items appear to be normal. As examples one can review CONSIMG1, CONSIMG2, CONSIMG3, INFO1, INFO2, INFO3 and OLCOMP ADAPTED 2. It should be pointed out that not all items are visually normal. As examples INTUIT 1, INNOV 1 and EUDSTD 3 are most notable. In looking at the statistical analysis of the items ability to come from a normal population it is clear that no items do. All p values are very significant (<0.0001) and the test statistics all show that no item is even close to normality.

The cultural and infusion items resemble similar graphical patterns to the other items used. In Appendix G the graphical representation show that some items are normal looking (e.g. IC6, Infusion 2 Adapted and Infusion 3 Adapted) however there are some items which are clearly not graphically normal (e.g. UA1, UA5 and MF2). In terms of statistical analysis all Shapiro–Wilk results show that the p–value is highly significant therefore rejecting the null hypothesis that the data comes from a normal population.

Based on the above results it is concluded that the data is non–normal. Sample size has been shown to affect the outcomes of both type 1 and type 2 errors in multivariate statistical analysis

(Stevens, 2002; Hair J. *et al*, 2006 and Johnson, 2008). The sample size for the study was 492 and for this reason the effects of non–normality of the data on the analyses would be minimal (Stevens, 2002, pp. 262-263). Stevens (2002, p. 262) explains that the central limit theorem may be assumed to assist data normalisation. He explains that the central limit theorem can be applied to samples as small 20 observations. The research resulted in a complete sample of 492 respondents and therefore the central limit theorem can assist in the argument for normal data.

In light of the different arguments for presented above, the analysis will be treated as though the data was moderately non–normal. Should the non–normal data problem simply be ignored all parametric analyses would become invalid. Hair J. *et al*, (2006, pp. 83-87) suggest that the transformation of data through log, square root and inverting functions are able to address non–normality. This type of remedy although effective with single items has larger implications when looking at multivariate data analysis. A remedy that would better suit multivariate data analyses is a statistical technique called bootstrapping.

Bootstrapping is a form of re-sampling that allows estimation of the sample distribution without relying on population properties (Hair J. *et al*, (2006, p. 25), Efron (1993) and Stevens (2002, pp. 468-469)). Freedman (1981) provides a more technical explanation on how bootstrapping techniques work and shows that bootstrap approximation for distribution purposes is valid. The structural equation model analysis will employ bootstrapping methods to better validate the results.

CONFIRMATORY FACTOR ANALYSIS

Prior to any analyses, factor analyses should be done to confirm the underlying factor structures. There are two types of factor analyses. The first type is an exploratory factor analysis. This type of analysis aims to find a structure within a dataset that is not based on prior literature (Stevens, 2002, p. 411). For this reason the research should not hypothesis the number of factors or which indicators load on a specific factor, it should rather aim to uncover the number of factors and where each item loads. The second type of factor analysis is the confirmatory factor analysis. This analysis is based on prior literature or theories (Stevens, 2002, p. 411). When doing a confirmatory factor analysis the number of factors should be known as well as which indices load on the different factors. This study employed a number of theories and frameworks and therefore confirmatory factor analyses will be done.

The factor analyses will be reviewed in two stages. Firstly the complete dataset will be analysed for factors pertaining to culture, infusion and usage. Secondly the larger dataset will be split based on the specific theory that was used, be it TAM or WebQual. The factor analyses were done using all items that were aimed to measure the respective constructs (so none were excluded). The factor analysis was done using the statistical package AMOS 19.

Cultural Factor Analysis

Once the CFA was run with boot strapping, the modification indices were analysed. It was found that the regression weights suggest improvement will be found when a large number of paths are added to the diagram. The paths where the most gain could be found was when paths were added between PD3–PD1 and IC4–IC3. In looking at the covariance modification that was suggested it is found that the error terms for the above items (PD3–PD1 and IC4–IC3) were of most concern. It was decided that two items should be excluded from the study and so items PD1 and IC3 were both removed. The analysis was re–run once the modifications noted above were implemented.

The path diagram (appendix H) shows a confirmatory factor analysis for the cultural dataset. The model fit indices are as follows:

Table 9: A comparison of the accepted cut off points of a CFA compared to what was achieved for the Moderation Model.

Fit Statistic	Cut off Value	Value achieved
χ^2/df	< 3	419.606 / 203 = 2.067
GFI	>0.80	0.912
AGFI	>0.80	0.891

RMSEA	<0.1	0.052
CFI	> 0.9	0.869
TLI	> 0.9	0.851
PCFI	> 0.8	0.763

In light of the modifications that were made and the above indices, it is concluded that the model fits the data fairly well.

Davis Factor Analysis

Once the CFA was run with boot strapping, the modification indices were analysed. It was found that the regression weights suggest improvement will be found when paths are included between Perceived_ease_of_Use_4 and PU, perceived_Usefullness_6 and PEOU as well as between the item perceived_Usefullness_6 and Perceived_Ease_Of_Use_6. No substantive covariance modification was suggested. It was decided that although an improvement would be seen when the paths were added. These items have good weights on their relative constructs as well as relatively good R2 values. The extra paths were not added as they lacked theoretical support and the contribution to the overall fits were not substantive.

The path diagram (appendix I) shows a confirmatory factor analysis for the Davis dataset. The model fit indices are as follows:

Table 10: A comparison of the accepted cut off points of a CFA compared to what was achieved for the Davis Model

Fit Statistic	Cut off Value	Value achieved
χ^2/df	< 3	162.8/53 = 3.07
GFI	>0.80	0.904
AGFI	>0.80	0.858
RMSEA	<0.1	0.089
CFI	> 0.9	0.935
TLI	> 0.9	0.919
PCFI	> 0.8	0.751

The above table shows that most of the indices either achieve the cut off or come very close to achieving the cut off. It is concluded that the model fits the data relatively well.

WebQual Factor Analysis

Once the CFA was run with boot strapping, the modification indices were again analysed. It was found that the regression weights suggest improvement will be found when a number of additional paths are included. The paths that are suggested were between two different constructs and not between an item and a construct. When consulting the literature (Barnes & Vidgen, 2000 as well as Loiacono, Watson, & Goodhue, 2007), there is a lack of theoretical argument for the inclusion of these suggested paths. There were a number of suggested covariance modifications however they existed between error terms and constructs. It again was decided that although an improvement would be seen when the paths were added the items have good weights on their relative constructs as well as relatively good R^2 values. The extra paths were not added as they lacked theoretical support and the contribution to the overall fit was not substantive.

The path diagram (appendix J) shows a confirmatory factor analysis for the WebQual dataset. The model fit indices are as follows:

Table 11: A comparison of the accepted cut off points of a CFA compared to what was achieved for the WebQual Model

Fit Statistic	Cut off Value	Value achieved
χ^2/df	< 3	1327.834 / 616 = 2.156
GFI	>0.80	0.663
AGFI	>0.80	0.615
RMSEA	<0.1	0.092
CFI	> 0.9	0.719
TLI	> 0.9	0.697
PCFI	> 0.8	0.665

The above table shows that few of the indices achieve the required cut offs. It is concluded that the model does not fit the data.

From the above analyses it can be concluded that although the data does not have perfect fit, it will need to suffice for this research. Improving the fit to ensure that all fit statistics are of an acceptable nature for each model is beyond the scope of this research paper. The research did attempt to improve the fit for the WebQual model but this was only done once the hypotheses had been tested (Please refer to the section 'Other interesting findings' for details of improvement). The next section will proceed with each hypotheses been analysed through

statistical tests and brief conclusions being found. After which additional interesting analyses will be done showing some unintended results.

HYPOTHESIS TESTING

Hypothesis 1

H1:	The WebQual framework will better explain the variance found in usage when compared to the Davis model.
Null Hypothesis	The WebQual framework will explain less than or equal the amount of variance when compared to the Davis model.

In order to evaluate this hypothesis a number of factors should be considered. Yousafzai, Foxall, & Pallister (2010) considered the R^2 values for each construct within each model and directly compared them. In the two models that this research focuses on the constructs are similar in intention however were measured differently. In order to determine which model better explains the variance found in usage, one needs to be aware of the models ability to fit the data, as well as the individual regression estimates. Bacon & Lynd Bacon & Associates (1997) explain that when a researcher is simply comparing one model to a nested model they can use the model measures that are provided by the statistical packages (e.g. chi–Squared improvement). They further comment that when one attempts to compare two models that are not nested, the analysis is not that simple. "[The comparison] is usually done using measures of fit for which there isn't a convenient statistical theory, such as the x2 statistic" (Bacon & Lynd Bacon & Associates, 1997, p. 6).

In light of the above CFAs, when the structural equation models are done they will be employing a bootstrapping method, which will again reduce the reliance on the population distribution. The section will proceed by first doing two structural models and comparing the fit statistics and then comparing the other statistics.

Davis Structural Model

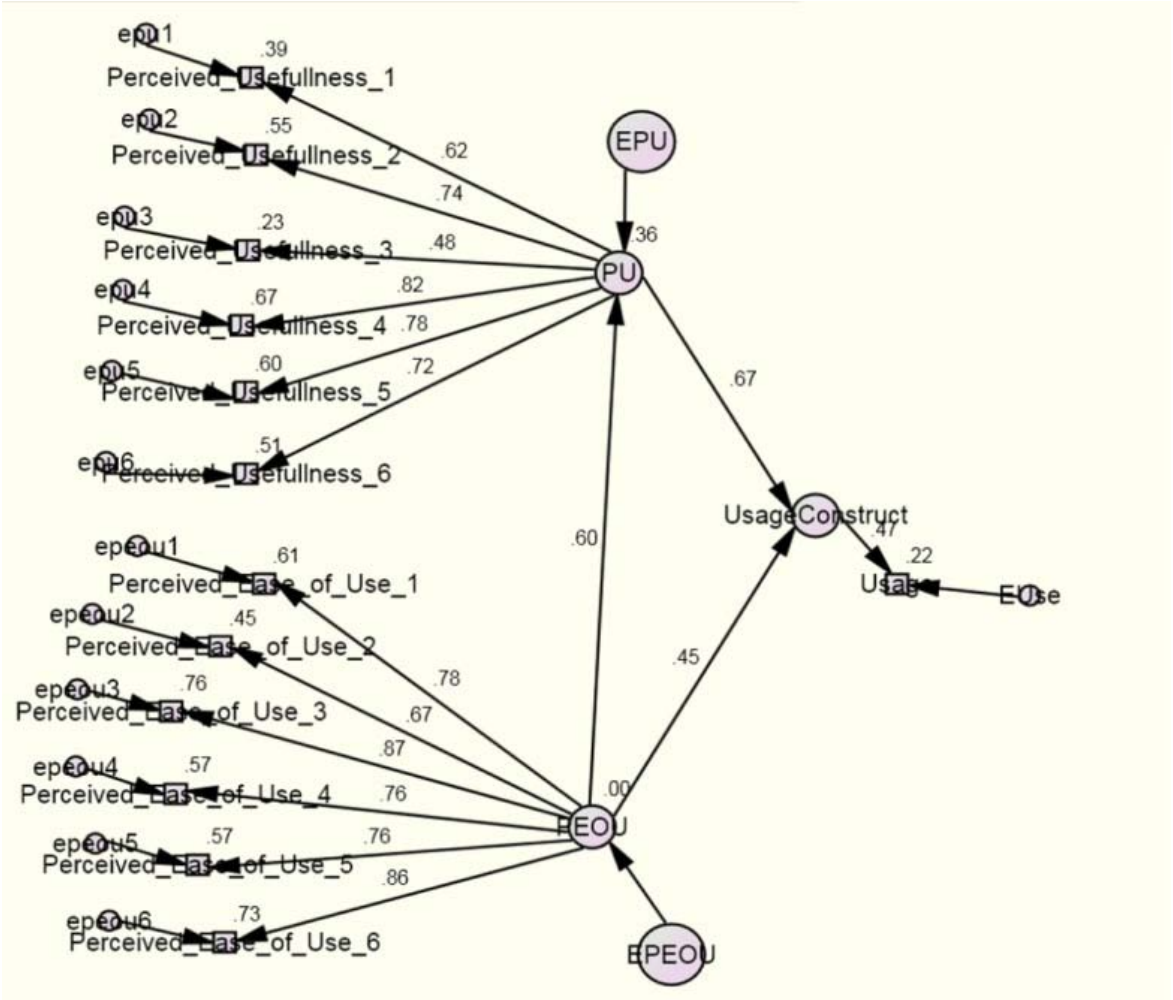


Figure 3: Structural Model for the Davis model

Fit Statistic	Cut off Value	Value achieved
χ^2/df	< 3	207.546 / 63 = 3.294
GFI	>0.80	0.892
AGFI	>0.80	0.844
RMSEA	<0.1	0.094
CFI	> 0.9	0.919
TLI	> 0.9	0.899
PCFI	> 0.8	0.742

Table 12: The following is a table of the fit indices for the model in Figure 3.

Regression Variables/ Construct			Estimate
PU	<---	PEOU	.599
UsageConstruct	<---	PU	.667
UsageConstruct	<---	PEOU	.446
Perceived_Ease_of_Use_3	<---	PEOU	.869
Perceived_Ease_of_Use_2	<---	PEOU	.672
Perceived_Ease_of_Use_1	<---	PEOU	.780
Perceived_Ease_of_Use_4	<---	PEOU	.757
Perceived_Ease_of_Use_5	<---	PEOU	.758
Perceived_Ease_of_Use_6	<---	PEOU	.857
Perceived_Usefullness_6	<---	PU	.717
Perceived_Usefullness_5	<---	PU	.776
Perceived_Usefullness_4	<---	PU	.817
Perceived_Usefullness_3	<---	PU	.479
Perceived_Usefullness_2	<---	PU	.744
Perceived_Usefullness_1	<---	PU	.622
Use	<---	UsageConstruct	.469

Table 13: The following is a table showing the standardised regression weights

	PEOU	PU	Total
PU	.599	.000	0.599
UsageConstruct	.846	.667	1.513
Perceived_Usefullness_1	.373	.622	0.995
Perceived_Usefullness_2	.446	.744	1.19
Perceived_Usefullness_3	.287	.479	0.766
Perceived_Usefullness_4	.489	.817	1.306
Perceived_Usefullness_6	.430	.717	1.147
Perceived_Usefullness_5	.465	.776	1.241
Use	.397	.313	0.71
Perceived_Ease_of_Use_6	.857	.000	0.857
Perceived_Ease_of_Use_5	.758	.000	0.758
Perceived_Ease_of_Use_4	.757	.000	0.757
Perceived_Ease_of_Use_1	.780	.000	0.78
Perceived_Ease_of_Use_2	.672	.000	0.672
Perceived_Ease_of_Use_3	.869	.000	0.869

Table 14: Table showing the standardised total effects

WebQual Structural Model

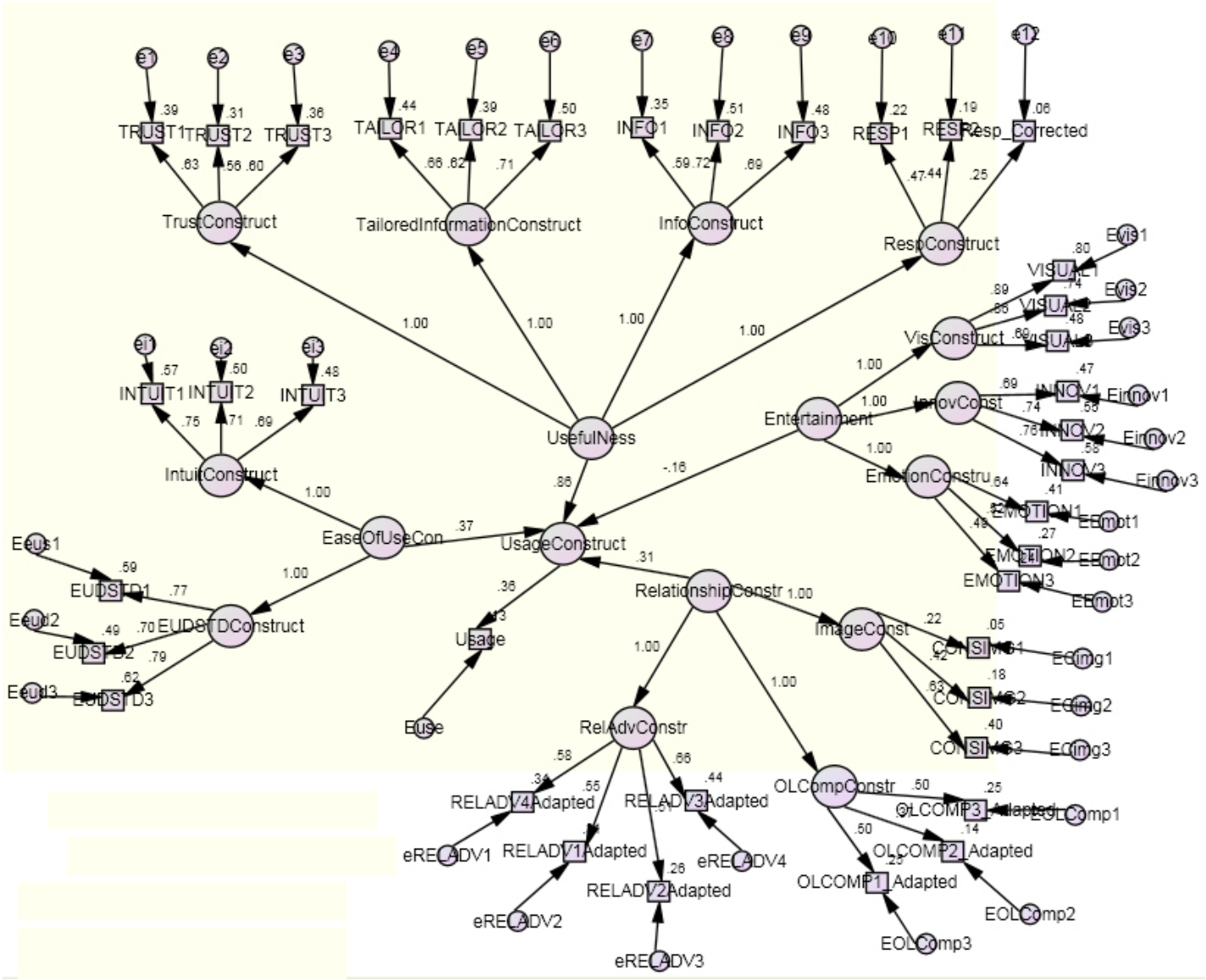


Figure 4: Structural Model for the WebQual model

Fit Statistic	Cut off Value	Value achieved
χ^2/df	< 3	1645.776 / 776 = 2.120
GFI	>0.80	0.608
AGFI	>0.80	0.561
RMSEA	<0.1	0.104
CFI	> 0.9	0.622
TLI	> 0.9	0.598
PCFI	> 0.8	0.586

Table 15:The following is a table of the fit indices for the model in Figure 4

Regression Variables/ Construct			Estimate
InfoConstruct	<---	UsefulNess	1.000
TrustConstruct	<---	UsefulNess	1.000
TailoredInformationConstruct	<---	UsefulNess	1.000
RespConstruct	<---	UsefulNess	1.000
UsageConstruct	<---	UsefulNess	.861
UsageConstruct	<---	EaseOfUseCon	.366
IntuitConstruct	<---	EaseOfUseCon	1.000
EUDSTDConstruct	<---	EaseOfUseCon	1.000
VisConstruct	<---	Entertainment	1.000
UsageConstruct	<---	Entertainment	-.161
InnovConst	<---	Entertainment	1.000
EmotionConstru	<---	Entertainment	1.000
OLCompConstr	<---	RelationshipConstr	1.000
RelAdvConstr	<---	RelationshipConstr	1.000
UsageConstruct	<---	RelationshipConstr	.313
ImageConst	<---	RelationshipConstr	1.000
TRUST1	<---	TrustConstruct	.627
TRUST2	<---	TrustConstruct	.556
TRUST3	<---	TrustConstruct	.602
TAILOR1	<---	TailoredInformationConstruct	.661
TAILOR2	<---	TailoredInformationConstruct	.621
TAILOR3	<---	TailoredInformationConstruct	.710
INFO1	<---	InfoConstruct	.591
INFO2	<---	InfoConstruct	.717
INFO3	<---	InfoConstruct	.694
RESP1	<---	RespConstruct	.467
RESP2	<---	RespConstruct	.440
Resp_Corrected	<---	RespConstruct	.248
Usage	<---	UsageConstruct	.357
INTUIT1	<---	IntuitConstruct	.753
INTUIT2	<---	IntuitConstruct	.708

INTUIT3	<---	IntuitConstruct	.693
EUDSTD1	<---	EUDSTDConstruct	.766
EUDSTD2	<---	EUDSTDConstruct	.702
EUDSTD3	<---	EUDSTDConstruct	.787
CONSIMG1	<---	ImageConst	.218
CONSIMG2	<---	ImageConst	.421
CONSIMG3	<---	ImageConst	.632
OLCOMP1_Adapted	<---	OLCompConstr	.503
OLCOMP3_Adapted	<---	OLCompConstr	.499
OLCOMP2_Adapted	<---	OLCompConstr	.369
RELADV1Adapted	<---	RelAdvConstr	.552
RELADV2Adapted	<---	RelAdvConstr	.506
RELADV3Adapted	<---	RelAdvConstr	.662
RELADV4Adapted	<---	RelAdvConstr	.581
VISUAL1	<---	VisConstruct	.892
VISUAL2	<---	VisConstruct	.859
VISUAL3	<---	VisConstruct	.695
INNOV1	<---	InnovConst	.686
INNOV2	<---	InnovConst	.741
INNOV3	<---	InnovConst	.758
EMOTION3	<---	EmotionConstru	.486
EMOTION2	<---	EmotionConstru	.516
EMOTION1	<---	EmotionConstru	.638

Table 16: The following is a table showing the standardised regression weights:

Table showing the standardised total effects for the usage construct (for a full matrix please refer to the appendix K)

	RelationshipConstr	Entertainment	EaseOfUseCon	Usefulness	Total
UsageConstruct	0.313	-0.161	0.366	0.861	1.379

The above analyses provide a great amount of insight into the underlying relationships among the different variables. The analyses will be discussed in turn.

Firstly, the graphical representation of the models will be discussed. The Davis model appears to be less complex with considerably less items and therefore the number of degrees of freedom is also reduced. The graphical representation of the technology acceptance model (Davis, 1989) shows the expected hypothesised of the relationship between PU and PEOU. The WebQual graphical representation was then reviewed and it appears to be complex with many relationships occurring simultaneously among many constructs.

Secondly, looking at the fit statistics for the models will be discussed. Looking at the Davis model the following can be said: The χ^2/df is out of the range of the cut off however this is expected due to the reduced number of degrees of freedom. The TLI and the PCFI are both forms of incremental

measures, and both missed the required cut off. Although these measures missed the cut offs it was by a marginal value and the other incremental measure (CFI) is within the required value range. It is therefore concluded that the Davis model shows a moderate to good fit. Looking at the WebQual model the following can be said: The χ^2/df is within the range of the cut off and this is largely due to the number of degrees of freedom. Regrettably all other fit statistics fall outside the required cut off ranges. It is therefore concluded that the WebQual model has a bad to very bad fit to the data. When comparing the models in terms of their statistical fits it is clear that the Davis Model fits the data better than the WebQual model.

Although we may not yet reject the null hypothesis, it is suggested that should one not find a good fit for the data then that model may not be seen as a valid model for that data (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 857) and all proceeding analyses should be carefully considered.

When looking at the standardised regression weights for the Davis model a number of interesting things may be seen. Firstly the regression weight of PEOU on PU is estimated at 0.599. This reaffirms that the hypothesised relationship does exist. The second thing to note is the difference between the constructs affecting usage. It is estimated that PU and PEOU affect Usage construct by 0.667 and 0.446 respectively. This again shows support for the theory as well as introducing some interesting aspects into the practical applications of the theory. The standardised regression estimates for the WebQual model are not so easy to read. Of importance are the estimates for the constructs that affect usage. It is shown that entertainment affects usage by –0.161, Usefulness affects usage by 0.861, ease of use affects usage by 0.366 and relationship affects usage by 0.313. These estimates do not show resounding support for the theory of the WebQual framework however three of the four constructs behave as theorised.

Finally the standardised total effects need to be discussed for each of the two models. The Davis model shows that between the PU and PEOU, the usage construct is affected a total of 1.513. The squared multiple correlations for usage is 0.220. This suggests that the model is able to explain approximately 22% of the variance found within usage. The WebQual model shows that the total effects of on the usage construct is 1.379 and furthermore the squared multiple correlations for this models' usage is 0.128. The WebQual model is able to explain 12.8% of the variance seen within usage.

Based on the above analysis the null hypothesis for H1 has failed to be rejected. The Davis model exhibited superior fit qualities, enhanced standardised regressions, clearer standardised total effects and had a better squared multiple correlation for usage. It is clear that the Davis model is better suited to explain the variance of usage over the WebQual model.

Hypothesis 2

Hypotheses 2 through 7 all use a single dataset which emanated from two distinct collection phases. To show that the respondents were not in any way biased one–way ANOVAs for the constructs of usage and infusion should be run. For there to be a lack of bias the results would need to suggest that there are no significant differences between the usage and infusion measurements for respondents from each survey.

The ANOVA test is found to be appropriate for looking at the differences between the two different surveys. Firstly usage will be analysed followed then by infusion. When looking at the ANOVA test results for the usage construct the F value is 1.17 resulting in a p–value ofo.2795. We can therefore conclude that there is no significant difference between the mean of usage for each of the questionnaires at the 0.05 level of confidence. The ANOVA test for the level of infusion shows an F value of 0.41 and a p value of 0.5237. It is therefore concluded that there is no significant difference between the mean values of infusion for the respondents of each survey at the 0.05 level of confidence.

Due to the lack of evidence towards bias the datasets can safely be integrated into a single large dataset.

H2	The items used for Infusion show that infusion can be measured at an individual level of analysis.
Null Hypothesis	The Items used for infusion do not show that infusion can be measured at an individual level of analysis

In order to show that items can be used as a good measure for a construct the items need to maintain validity and reliability. When the tests for reliability and validity are run for the infusion items the following is found. The test for internal consistency shows that a Cronbach Alpha value of 0.648 exists. This is above the recommended cut off point of 0.6 (Hair, Black, Babin, Anderson, & Tathom, 2006, p. 137). For items to be considered valid a number of measurements can be reviewed (Malhotra & Birks, 2007, pp. 358-359). Construct validity is assessed in terms of the theoretical reasoning for the use of the scale. Construct validity is therefore found to exist because of the arguments made by Pongpattrachai (2010). Convergent validity is the measure of the correlations of items to other items hypothesised as measuring the same construct. Based on the following table of correlations convergent validity is supported.

Pearson Correlation Coefficients Prob > |r| under H0: Rho=0 Number of Observations				
	AverageIC	**infuse1_adapted**	**infuse3_adapted**	**infuse2_adapted**
AverageIC	1.00000	0.08757	0.07435	0.09877
		0.0635	0.1140	0.0364
	456	450	453	449
infuse1_adapted	0.08757	1.00000	0.46044	0.41549
Infuse1 Adapted	0.0635		<.0001	<.0001
	450	478	472	471
infuse3_adapted	0.07435	0.46044	1.00000	0.25981
Infuse3 Adapted	0.1140	<.0001		<.0001
	453	472	482	474
infuse2_adapted	0.09877	0.41549	0.25981	1.00000
Infuse2 Adapted	0.0364	<.0001	<.0001	
	449	471	474	479

Table 17: Pearson correlation coefficients for the items of infusion as well as the aggregated average individualism/collectivism

The above table also makes the argument for discriminant validity. Discriminant validity assesses whether or not items that are not theoretically supported to correlate, in fact don't correlate. In the above table averageIC (which is the average for all individualism/collectivism items, and is a cultural construct) does not correlate with the items of infusion. Lastly nomological validity should be evaluated. This form of validity compares results of this study to other studies, showing evidence that these items behave in a previously predicted manner. Again referring to Pongpattrachai (2010) the items do perform in a similar manner to how they performed in his research. The extent to which validity can be confirmed to prior studies is limited because the available literature on individual IT infusion is limited.

In light of the above arguments the null hypothesis is rejected in favour of H2.

Hypothesis 3

H3	Usage and infusion will be positively correlated.
Null Hypothesis	Usage and infusion will not be positively correlated.

In order to show evidence for H3 a correlation matrix is presented with all the items for infusion as well as usage.

Pearson Correlation Coefficients Prob > |r| under H0: Rho=0 Number of Observations				
	usage	**infuse1_adapted**	**infuse3_adapted**	**infuse2_adapted**
usage	1.00000	0.36944	0.32183	0.26299
Usage		<.0001	<.0001	<.0001
	488	478	482	479
infuse1_adapted	0.36944	1.00000	0.46044	0.41549
Infuse1 Adapted	<.0001		<.0001	<.0001
	478	478	472	471
infuse3_adapted	0.32183	0.46044	1.00000	0.25981
Infuse3 Adapted	<.0001	<.0001		<.0001
	482	472	482	474
infuse2_adapted	0.26299	0.41549	0.25981	1.00000
Infuse2 Adapted	<.0001	<.0001	<.0001	
	479	471	474	479

Table 18: Correlation matrix for the items of both infusion and usage

Table 18 shows all items for the usage and infusion constructs. It can be seen that all items within the matrix are positively correlated and further more in all occasions the correlations are significant at the 0.001 level of confidence. Based on the above argument, the null hypothesis is rejected in favour of H3.

Hypothesis 4 through 7 –Base model

To show evidence in support for the moderation effects, regression analysis will be used. Prior to any regression analysis being done, it is recommended that the variables be standardised. All variables that were used in the following analyses were standardized using Mean = 0 and a standard deviation = 1. McClelland & Judd (1993) make the argument and show evidence that field studies are reporting significantly smaller changes in the R2 when compared to the theorised effects. If this is true it should be remembered that the opposite may also be true. A small change in an R2 value could actually be later theorised as having a large effect. Hair, Black, Babin, Anderson, & Tathom (2006, p. 202) suggest that when one is looking for moderation effects the R2 value can be compared. To achieve this comparison hierarchical regression analysis can be done. The following equation acts as a preface for the base line analysis.

$$Infusion = \beta_0 + \beta_1 USE$$

The regression analysis is as follows:

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	84.00958	84.00958	101.31	<.0001
Error	486	402.99042	0.82920		
Corrected Total	487	487.00000			

Root MSE	**0.91060**	**R-Square**	**0.1725**
Dependent Mean	-1.4228E-15	Adj R-Sq	0.1708
Coeff Var	-6.40001E16		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**StD Est**
Intercept	Intercept	1	-1.316E-15	0.04122	-0.00	1.0000	0
stnd_usage	Standardized usage: mean = 0 standard deviation = 1	1	0.41534	0.04126	10.07	<.0001	0.41534

The overall model is very significant (df = 487, p = <0.0001, F = 101.31). The amount of variance that is explained by usage is 17.08%. When looking at the parameter estimates, it can be seen that the effects seen in the model analysis is caused by Usage.

Hypothesis 4

H4	Uncertainty Avoidance will moderate the relationship between usage and infusion.
Null Hypothesis	Uncertainty Avoidance will have no effect on the relationship between usage and infusion.

The following equation acts as a preface for the analysis of hypothesis 4. It builds on the base equation by adding the uncertainty avoidance measure as well as the product of Usage and uncertainty avoidance:

$$Infusion = \beta_0 + \beta_1 USE + \beta_2 UA + B_3 USE \times UA$$

The regression analysis follows:

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	3	123.82946	41.27649	55.01	<.0001
Error	484	363.17054	0.75035		
Corrected Total	487	487.00000			

Root MSE	**0.86623**	**R-Square**	**0.2543**
Dependent Mean	-1.4228E-15	Adj R-Sq	0.2496
Coeff Var	-6.08814E16		

Parameter Estimates						
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Standardized Estimate**
Intercept	1	-0.00882	0.03930	-0.22	0.8224	0
stnd_avgua	1	0.26792	0.03959	6.77	<.0001	0.26792
STD_UA_USE	1	0.12419	0.03625	3.43	0.0007	0.13593
stnd_usage	1	0.40951	0.03951	10.36	<.0001	0.40951

The above output shows that the model is still significant (df = 487, p = <0.0001,F = 55.01).The R^2 value is 0.2543, meaning that 25.43% of the variance found within infusion can be explained. With the inclusion of the additional terms there is an increase of R^2 over the base model by 0.0818. In addition, the significance of the additional terms is high, with both terms having p values of less than 0.001. It should be noted that the intercept is insignificant and therefore all variance explained can be attributed to the three other variables.

In light of the above analysis, the null hypothesis for H4 is rejected.

Hypothesis 5

H5	Masculinity/femininity will moderate the relationship between usage and infusion.
Null Hypothesis	Masculinity/femininity will have no effect on the relationship between usage and infusion

The following equation acts as a preface for the analysis for hypothesis 5. It builds on the base equation by adding the masculinity/femininity measure as well as the product of usage and masculinity/femininity:

$$Infusion = \beta_0 + \beta_1 USE + \beta_2 MF + B_3 USE \times MF$$

The regression analysis follows:

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	96.64317	32.21439	39.94	<.0001
Error	484	390.35683	0.80652		
Corrected Total	487	487.00000			

Root MSE	**0.89807**	**R-Square**	**0.1984**
Dependent Mean	-1.4228E-15	Adj R-Sq	0.1935
Coeff Var	-6.3119E16		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate
Intercept	1	-0.00401	0.04072	-0.10	0.9215	0
stnd_avgmf	1	0.14193	0.04084	3.48	0.0006	0.14193
STD_MF_USE	1	-0.06547	0.03878	-1.69	0.0921	-0.06889
stnd_usage	1	0.42731	0.04081	10.47	<.0001	0.42731

The above analysis shows that the overall model is significant (df=487, p=<0.001, F=39.94). The model is able to explain 19.84% of the variance found within infusion. This is an increase of 2.76% over the base model. When looking at the significance of the individual items it is found that the

hypothesised moderator variable is insignificant (p = 0.0921) while both standardized usage variable (p < 0.0001) and the masculinity/femininity measures (p= 0.0006) are significant. The intercept is still insignificant (p = 0.9215). Interestingly the moderation effects are estimated to be negative.

Strictly speaking, the above analysis suggests that the null hypothesis is rejected because the moderation did increase the overall variance explained. When one looks at the individual terms within the parameter estimates section, the moderator variable is found to be insignificant. It is therefore concluded that because the marginal increase in the R2 could simply be attributable to the mere addition of terms, the null hypothesis is not rejected.

Hypothesis 6

H6	Power distance will moderate the relationship between usage and infusion.
Null Hypothesis	Power distance will have no effect on the relationship between usage and infusion

The following equation acts as a preamble for the analysis for hypothesis 6. It builds on the base equation by adding the Power distance measure as well as the product of usage and Power distance:

$$Infusion = \beta_0 + \beta_1 USE + \beta_2 PD + B_3 USE \times PD$$

The regression analysis is as follows:

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	3	105.03326	35.01109	44.36	<.0001
Error	484	381.96674	0.78919		
Corrected Total	487	487.00000			

Root MSE	**0.88836**	**R-Square**	**0.2157**
Dependent Mean	-1.4228E-15	Adj R-Sq	0.2108
Coeff Var	-6.2437E16		

Parameter Estimates						
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Standardized Estimate**
Intercept	1	-0.01687	0.04045	-0.42	0.6769	0
stnd_avgpd	1	0.13266	0.04052	3.27	0.0011	0.13266
STD_PD_USE	1	-0.15298	0.03931	-3.89	0.0001	-0.15717
stnd_usage	1	0.44198	0.04061	10.88	<.0001	0.44198

The above analysis shows that once again the model is significant (df=487, p < 0.0001,F = 44.36). The amount of variance that the model is able to explain is 21.57%, showing an increase of 4.49% from the base model. The parameter estimates show that the intercept is again insignificant (p = 0.6769). They also show the interaction effects are significant. Use and power distance are both positively significant (p < 0.0001 and p=0.0011 respectively). It should be noted that although the power distance effects are positive the standardized estimates show that the moderation effects are negative.

In light of the above analysis the null hypothesis has to be rejected in favour of H6.

Hypothesis 7

H7	Individualism/Collectivism will moderate the relationship between usage and infusion.
Null Hypothesis	Individualism/Collectivism will have no effect on the relationship between usage and infusion

The above hypothesis denotes the use of the following equation. This equation builds on the base equation through the addition of individualism/collectivism as well as the product term of usage and individualism/collectivism.

$$Infusion = \beta_0 + \beta_1 USE + \beta_2 IC + B_3 USE \times IC$$

The regression analysis is as follows:

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	3	104.33822	34.77941	43.99	<.0001
Error	484	382.66178	0.79062		
Corrected Total	487	487.00000			

Root MSE	**0.88917**	**R-Square**	**0.2142**
Dependent Mean	-1.4228E-15	Adj R-Sq	0.2094
Coeff Var	-6.24937E16		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate
Intercept	1	-0.01082	0.04037	-0.27	0.7887	0
stnd_avgic	1	0.13225	0.04059	3.26	0.0012	0.13225
STD_IC_USE	1	-0.14371	0.04038	-3.56	0.0004	-0.14406
stnd_usage	1	0.42555	0.04041	10.53	<.0001	0.42555

The above regression analysis shows that the model is significant (df= 487, p <0.0001, F43.99). The model is able to explain 21.42% of the variance within the measurement of infusion. When looking at the parameter estimates the intercept is insignificant (p = 0.7887). Both the usage and individualism/collectivism items are both positively significant (p<0.0001 and p = 0.0012 respectively). The moderator item is negatively significant (p= 0.0004) which is an interesting find.

The null hypothesis is therefore rejected and support is found for H7.

OTHER INTERESTING FINDINGS

The following section has two goals. Firstly, the section aims to shed light on some unhypothesised relationships that may exist, despite lacking theoretical evidence. Secondly, the section aims to lay the ground work for future research. The section proceeds in the following manner. Firstly an exploratory analysis of the WebQual framework is undertaken. This was done to gain a better understanding of why there was a lack of evidence for the use of the WebQual framework. Secondly, the relationship between usage and infusion has yet to be fully explored in the literature. Analyses will be run based on some of the more common demographic variables such as gender and age to see if this relationship can be more understood. Lastly and in terms of understanding culture, demographic analysis of each of the culture variables will be done.

A better understanding of the WebQual

In the study it was found that the WebQual model lacked the necessary fit statistics and therefore this shall be addressed first. The WebQual model was seen to be very complex having many constructs as well as second order constructs. When the WebQual model (which has many different paths) was compared to the Davis model (which had far fewer paths) the number of parameters that were required to be estimated was substantially more. It is thought that if the number of parameters needing to be estimated were to be reduced the model fit would improve. As an experiment, the model was adjusted according to the modification indices provided by AMOS. This was done for the three regression items that were estimated to increase the model fit the most. Each item was added and the analysis was rerun. The items that had additional regression lines employed were first checked for theoretical understanding. In other words assuming a regression line was added between an item of intuitive operations, this item was first checked to see if it could be theoretically possible for this item to affect the dependent variable. The regression lines are discussed in turn:

AMOS suggests that a regression line be added between the construct of relationship and the construct of emotion. The data suggests that having a relationship may have an effect on emotion and this is deemed to be logical. It is also suggested that emotion construct has an effect on ease of understanding construct. This relationship can be justified through an analogy: Assume that one is browsing a social networking website such as Facebook. Assume that you, as a user are happy and excited to be using Facebook. It can be arguably said that because you have these emotions you are more patient and open to new ideas and because you are more patient and open you find Facebook easier to use and understand. It is therefore conceivable that the relationship could exist and the regression line was added. Lastly, it is suggested that the ease of understanding construct regresses on image construct. A strong argument or logical understanding for this situation cannot

be comprehended and therefore this regression line was not added. Once this was done the following fit statistics were achieved:

Fit Statistic	Cut off Value	Theorised Model	New Adjusted model
χ^2/df	< 3	1645.776 / 776 = 2.120	1504.787/660 = 2.280
GFI	>0.80	0.608	0.644
AGFI	>0.80	0.561	0.600
RMSEA	<0.1	0.104	0.096
CFI	> 0.9	0.622	0.675
TLI	> 0.9	0.598	0.654
PCFI	> 0.8	0.586	0.634

Table 19: Fit statistics for the theorised model compared to the adjusted model

From table 19 it can be seen that although there has been a increase in the χ^2/df, all other fit indices have improved but most are still not achieving the cut off value. It is presumed that through an increase in the fit statistics, the interrelationship between constructs may be improved.

USAGE AND INFUSION – FURTHER EXPLORED

Additional interesting concepts can be found when looking at how usage and infusion differ based on a number of demographic variables. Srite & Karahanna (2006) suggest that most literature has a focus towards demographic variables such as age, gender and experience as affecting the use of information technology in some manner. For this reason age and gender will be reviewed for the constructs of both usage and infusion with the hope that differences may occur. The variables of age and gender were both explicitly measured in each questionnaire.

Age

It was decided that a one way ANOVA would be an appropriate statistical test to determine if usage and infusion differed based on the age of the respondent. Prior to the analysis being run the respondents were grouped into one of four groups. The groups were conveniently named A,B,C and D. Group A was for respondents who were 18, group B was aged 19, group C was aged 20 and group D were any respondents that were older than 21. The choice of grouping the age variable into four groups (as opposed to 13 groups or 2 groups) was made for two particular reasons. Firstly, 13 groups was seen to be excessive and statistical complications arose. It was thought that

with a reduction in the number of groups any differences that may exist had more chance of being detected. Secondly, a similar argument can be made for using only two groups (e.g. above 21 years and below 21 years of age). It was thought that two groups would not be ideal as results would then be too aggregated.

Once the analysis was run having usage as a dependant variable, an F value of 0.65 was calculated resulting in a p value of 0.5836. We can therefore conclude that there is no significant difference between the usage behaviour of the respondent in each of the age groups that were reported. A second one way ANOVA was done comparing the means of infusion and age. The tests report the F value equal to 1.19 therefore resulting in a p value of 0.3125. We are unable to find evidence that there is any significant difference for the mean of infusion, for the different ages of the respondents.

Gender

Again it was found that a one–way ANOVA would be an appropriate test to show the presence (or lack thereof) of any differences between the usage and the respondents gender. The ANOVA test was applied to both usage and infusion. The ANOVA for usage and gender returned an F value of 0.07 and a p–value of 0.7866. We can safely conclude that there is no significant difference between the usage of males and the usage of females. The ANOVA which was run based on infusion and gender yielded the following results. The F- value is reported at 0.94, having a p value of 0.3331. The results suggest that there is no significant difference in the level of infusion between males and females.

CHAPTER 5 – DISCUSSION

In the preceding sections the following has been achieved. Firstly a comprehensive overview of the literature was discussed. A methods section was then presented which in turn was followed by an in depth analysis of the case in question. In order to frame the following discussion, a summary of the hypotheses is offered with each of the hypotheses conclusions. The section will then continue in the following manner. Firstly, a discussion of the Davis and the WebQual model will be done. Secondly, arguments will be made around the numerous implications for the idea of infusion. Thirdly, culture as a moderator will be discussed. Lastly, a discussion on the explorative analysis into additional findings will ensue.

SUMMARY OF THE HYPOTHESES

Hypothesis		Conclusion
H1	The WebQual framework will better explain the variance found in usage when compared to the Davis model.	Support was not found for this hypothesis.
H2	The items used for Infusion show that infusion can be measured at an individual level of analysis.	This hypothesis was supported.
H3	Usage and infusion will be positively correlated.	This hypothesis was supported.
H4	Uncertainty Avoidance will moderate the relationship between usage and infusion.	This hypothesis was supported.
H5	Masculinity/femininity will moderate the relationship between usage and infusion.	Support was not found for this hypothesis.
H6	Power distance will moderate the relationship between usage and infusion.	This hypothesis was supported.
H7	Individualism/collectivism will moderate the relationship between usage and infusion.	This hypothesis was supported.

DAVIS MODEL VS. WEBQUAL MODEL

In the literature review section the history of both the Davis and the WebQual models were traced as coming from the theory of reasoned action. This was done to lay the ground work for analysing which model could better explain the variance in usage of the popular social networking website, Facebook. Davis (1989) hypothesised that perceived usefulness and perceived ease of use would lead to the explanation of usage. His model and framework have been used in numerous studies over the last 21 years. In the recent past, a number of commentaries have been published (Bagozzi R. , 2007; Benbasat & Barki, 2007; Straub & Burton-Jones, 2007) which critique his technology acceptance model, showing its imperfections.

Loiacono, Watson, & Goodhue (2007) designed, developed and adapted the WebQual framework to better explain website usage. They claim that the WebQual framework has its origins in the technology acceptance model work done by Davis. The WebQual framework hypothesises a number of relationships and includes complex relationships with second order constructs. To date there has been a lack of evidence supporting (or discrediting) the WebQual framework suggesting that the framework is under researched. Due to the additional number of relationships it was expected that the WebQual framework could better explain the variance seen within the usage of the social networking website, Facebook.

In order to directly compare the above two models a few changes had to be made so that congruency could be achieved. Firstly, each model was encapsulated in a questionnaire. The use of two questionnaires required certain questions to be similar across the two surveys. Usage was measured in the same way across both questionnaires as Davis (1989) had measured his. This was done so that a direct comparison could be made between the two surveys. In order to show support for one model over another structural equation modelling was employed. The two models were examined using the structural equation modelling program AMOS and the results compared.

It was found that the Davis model had better fit statistics when compared to the WebQual model. Fit statistics cannot by themselves show support for a model, and so a composite set of analyses were performed. They all showed that the Davis model bests suited the data and as such the null hypothesis for H1 was not rejected. Although it would be nice to know that over the past 22 years our insight into the concept of usage has progressed, the lack of evidence for the newer model should not suggest a lack of development in understanding the construct of usage. A number of reasons may be attributable for the lack of support for the newer model.

Firstly, Loiacono, Watson, & Goodhue (2007) used a number of samples but all came from developed countries. Perhaps the WebQual model can better explain usage of websites for consumers in developed countries as opposed to developing countries. The argument can be made

that developing county consumers have different perspectives of what a website needs to deliver. As an example, consumers in a developed country may wish to have an entertaining experience that is largely interactive, while a consumer in a developing country could not afford the costs of browsing the interactive websites and therefore may appreciate websites which are more functional in nature.

Secondly, Loiacono, Watson, & Goodhue (2007) claim to have used a number of different websites in their study. However they focused on B2C websites that may or may not have had e–commerce functionality. Facebook is a C2C website, and the interactions with the website are largely of a social nature. Perhaps the differences between a traditional B2C website (with or without e–commerce functionality) and a social networking website account for the lack in fit between the WebQual framework and the data.

Thirdly, Loiacono, Watson, & Goodhue (2007) did publish some fit statistics (such as SRMR, RNI, NNFI and REMSA) and when compared to their published results the results obtained in this study are much worse. REMSA was the only common fit statistic reported in both the current study and their study. The reported RMSEA in their study ranged from 0.055 to 0.062. In the current study the REMSA is reported at 0.104. This perhaps shows a misunderstanding of what is expected as output when comparing different models, in different contexts.

Lastly, the above three arguments can be seen as logical arguments however these same logical arguments have not been identified in prior literature. This may suggest that the above logical arguments have not reached critical mass. Perhaps the sheer complexity of the WebQual framework has frightened researchers away from the use of the framework. When a researcher is searching for theories to explain and understand a phenomenon, they may tend to look for the more parsimonious models. If the Davis model and the WebQual framework were similarly represented within the body of literature, one could expect more reliable results. The process of theorise–collect data–analyse has merit and perhaps this is why the Davis model is preferred as it has been through this process many more times.

Not only did the study not support H1, the Davis model was impressive. Firstly, the model performed exactly as expected, with the hypothesised relationships showing. It was found that the estimate for the relationship between perceived usefulness and perceived ease of use was strong and positive. Furthermore (and although not hypothesised), it again confirms what Davis (1989) originally said:

> *"One of the most significant findings is the relative strength of the usefulness–usage relationship compared to the ease of use–usage relationship. In both studies, usefulness was significantly more strongly linked to usage then was ease of use" (p333).*

IMPLICATIONS FOR INFUSION

Usage as a construct has been reviewed for a number of years. The WebQual framework showed the importance of understanding usage better. The idea of re–using technology for economic gain has largely been captured at an organisational level. Pongpattrachai (2010) reviewed infusion of technology in small audit firms and found that infusion could be measured at an individual level. His study was exploratory and quantitative in nature, and so he developed a questionnaire that was administered to auditors within the country of Thailand. For this study, the questions were adapted for the social networking website context. The results of the present study show that infusion can in fact be measured at an individual level. Support for the use of infusion measurements at an individual level was shown through the reliability and validity testing.

Usage as measured by Davis (1989) aims to identify current usage, while the new adapted questions aimed to see how much a technology permeates into a persons' lifestyle. It is claimed by Facebook and MySpace that combined there are approximately 615 million active users, and perhaps the reason for the large quantity of users comes from the way in which these social networking websites have entrenched themselves into their users lives. They have effectively become part of a persons' lifestyle, very much like an operational system (such as Quickbooks or PASTEL Accounting) becomes a part of a company. Social media can have powerful positive effects which may result in people seeking a permanent connection. Konjicanin (2010) examines how Justin Beiber became famous. Justin Beiber was initially discovered via a video website called YouTube. Konjicanin (2010) claims that practically overnight Justin Beiber became a worldwide pop–sensation through the use of social media. This is just one example of someone using social media for personal gain.

In the future it can be expected that social media will become more popular, and as such it will be of interest for researchers to identify factors affecting the level of infusion that any single social networking website has into users' lives. The current research has its context grounded in social networking websites however other consumer technologies should not be disregarded. The implications for identifying which people are more likely have infused certain technologies into their lifestyles, goes beyond economic gains. As an example, Blackberry (Owned by RIM in motion) has reported that it will assist police in identifying criminals who used the Blackberry service to co–ordinate criminal offences in London (Halliday, 2011).

As a start, usage was seen to affect the level of individual infusion of Facebook. In this study it was found that usage and infusion have a positive relationship. It was later suggested that the moderation effects of culture on this relationship could be examined.

CULTURE – THE MODERATION EFFECTS

Srite & Karahanna (2006) found that the different aspects of culture each affected the usage of technology in different ways. Hofstede (1983) defined culture as a "collective mental programming: it is that part of our conditioning that we share with other members of our nation, region or group but not with members of other nations, regions, or groups" (p76). He also explains each of the constructs of culture. Firstly, individualism versus collectivism concerns itself with "the relation between the individual and his or her fellow individuals" (p79). Power distance refers to "how society deals with the fact that people are unequal" (p81). Uncertainty avoidance looks at how people deal with uncertain situations (p81). Masculinity versus femininity attempts to capture how a society deals with different genders. One of the goals for this research was to examine the effects of culture on the relationship between usage and infusion. The discussion will begin with a brief explanation of the base model for the relationship between usage and infusion and will then look at each of Hofstedes' four constructs of culture and how they affected the relationship between usage and infusion.

The base model

In order to compare the results of the additional interaction terms of culture one needs to have a base model showing the results of the analysis without the moderating terms. The base model analysed the relationship between usage and infusion using the following equation:

$$Infusion = \beta_0 + \beta_1 USE$$

When the model was run the model was able to explain approximately 17% of the variance found within infusion. Overall, the model was found to be significant with usage being the only significant element in the determination of infusion. The constructs of culture will now be discussion relative to this base model.

Uncertainty avoidance

Uncertainty avoidance aims to capture how people deal with uncertain situations (Hofstede, 1983, p. 81; Hofstede, 1994, p. 4). Srite & Karahanna (2006) found that uncertainty avoidance did moderate the behavioural intentions. They explained that reason for this moderation was due to people (who espoused a high level of uncertainty avoidance) looking to their own social environments for cues on whether or not to adopt and use a piece of technology. In the present study support was found for the moderation of uncertainty avoidance on the relationship between usage and infusion.

The moderation effects were found to be significant and positive, meaning that people who exhibited a high level of uncertainty avoidance infused the social website, Facebook, into their

lives more than people who had a lower level of uncertainty avoidance (assuming the same amount of usage). The explanation for the results of this study is of a similar nature to that of Srite & Karahanna (2006). (**For example…**)This has large implications for the understanding, of where people sort their technological cues from. There is a large body of literature that examines the effects of word–of–mouth transactions (Herr, Kardes, & Kim (1991), Rodrigues, Benevenuto, Cha, Gummadi, & Almeida (2011) and Lans, Bruggen, Eliashberg, & Wierenga (2010)), and perhaps there are underlying links between constructs of word–of–mouth interactions and underlying cultural value sets.

Masculinity / femininity

Masculinity versus femininity attempts to capture how a society deals with different genders (Hofstede, 1983, p. 81). Srite & Karahanna (2006) found a lack of support for the moderation effects of masculinity/femininity. They attribute the lack of moderation effects to a number of different issues ranging from loose coupling between the items and underlying theoretical constructs to the moderation effects working through other unrealised constructs, such as quality of life. In the present study masculinity/femininity was found not to moderate the relationship between usage and infusion. To ensure that similar mistakes (as Srite & Karahanna (2006)) were not made, a review of the question items was done. It is believe that the items used, were as close as possible to measuring the theoretical constructs because items were drawn from two different authors **(Mention the Authors)** who each had support for their items in numerous different contexts.

The lack of evidence for the moderation effects of masculinity/femininity, in a number of studies could suggest a number of things. Firstly, as researchers we need to accept that perhaps the masculinity/femininity value set indeed does not moderate the relationships between intention to use, usage or infusion. Secondly, the idea that this value set does moderate relationships but rather works through other unmeasured constructs cannot be excluded, however the lack of support, is resounding. Finally, finding a lack of support in itself is interesting because one can generate a number of reasons for this lack of support. Perhaps as a society we have come to accept the differences between men and women, at least in terms of using and infusing technology into one's lifestyle. Another reason could be that gender differences (at least in South Africa) may be seen as a lower priority when compared to the other demographic differences (e.g. race, education and income) and as such people and the larger society treats either gender similarly.

Power distance

Power distance refers to "how society deals with the fact that people are unequal" (Hofstede, 1983, p. 81). Srite & Karahanna (2006) found that there was a negative moderation which was then re–analysed. They made the argument that socially accepted positions of power (e.g. Professors)

could influence the moderation effects. In the present study this was accounted for through methodological aspects. Firstly, in the sample that was used, it was unlikely that any one respondent had any such authoritative power over any other respondent. Secondly, most of the sample were full–time students, with few having part time jobs which could place the student into a position of power. Thirdly, in terms of procedural outlines for the administration of the questionnaire, it was made clear to all respondents who were invited to participate, that the participation in the research would have no ramifications on their performance at university and/or in any other aspects (for a full procedural outline please refer to Appendix C and D).

In the present study support was found for the rejection of the null hypothesis therefore holding that the cultural construct power distance did have a moderation effect on the relationship between usage and infusion. The moderation effects are seen as significantly negative. This is in line with the finding of Srite & Karahanna (2006). The negative effect of power distance suggests that people who see their societies as more accepting of their own differences (low power distance) would be more likely to infuse the social networking website into their lifestyles based on their own usage. This is compared to people who are less accepting of their own differences (high power distance) would be less likely to infuse the social networking websites into their lifestyles based on their own usage. A possible reason for this finding could be due to the informality of social networks. Perhaps high power– distance respondents avoided infusing Facebook into their lives because it is seen as too informal and non–complimentary to their lifestyles, and therefore avoid using the technology.

Individualism / collectivism

Hofstede (1983) explains that individualism versus collectivism concerns itself with "the relation between the individual and his or her fellow individuals" (p79). Srite & Karahanna (2006) found that individualism/ collectivism had no moderating effect when looking at the intended behaviour. In the current study, support was found for the moderation effects of this element of culture on the relationship between usage and infusion. The analysis showed the standardised estimate was in fact negative. This suggests that the moderation effects would also be negative. The effect of usage on infusion would be decreased when the person tends to have a collectivistic value set. Therefore the converse is also true, the effects of usage would have a larger impact on infusion when the person has a more individualistic value set. The social networking website that was used was Facebook, and is positioned as a website that allows people to connect. One would expect people with more collectivistic natures, who use the website, to have their level of infusion increased, but it shows that the opposite is true.

When looking at a social networking website, the online interactions between people may be perceived as having less value when compared to meeting the person offline. People who tend to have individualistic value sets, would find that using social networking websites could assist them in having less personal interactions. The person can maintain a social presence that fits into their lifestyle. There are a number of articles (for example Lampe, Ellison, & Steinfield (2004) and Ellison, Steinfield, & Lampe, (2007)) dealing with the perceived value of a social transaction in online communities and perhaps the ideas of the value of the transaction (as opposed to the underlying cultural values) may affect the relationship between usage and infusion.

Culture has been shown to be a complex construct having numerous dimensions, each of which affects the relationship between usage and infusion in their own way. The result of this study has been compared to the results of another study (Srite & Karahanna, 2006) however this is not to preclude other comparisons.

Post Hoc Explorative Analysis – Age and Gender

Although not originally hypothesised it is seen in literature (Srite & Karahanna, 2006) that both age and gender are important demographic variables that are used through–out the information systems literature. Two additional analyses were done. Firstly age was analysed to see if there were any significant differences between the age of the respondent and the respondents' level of infusion as well as their usage. Secondly, gender was analysed to see if there were any significant differences between the genders of the respondents and the respondent's level of infusion as well as their usage.

CHAPTER 6 – CONTRIBUTIONS, LIMITATIONS AND FUTURE RESEARCH

This chapter is intended to achieve two main objectives. Firstly make the contributions of this research explicit and secondly highlight some limitations of the research.

CONTRIBUTIONS AND FUTURE RESEARCH

The research set out to achieve three main goals. Firstly the study compared two different models of adoption to see if one was better than the other in understanding the usage of social networking websites such as Facebook. It is now evident that the traditional technology acceptance model outperformed the more recent WebQual model. Bagozzi (2007) explains that the technology acceptance model has much support however the support comes in a piecemeal manner.

Benbasat & Barki (2007) suggest that, as researchers, we should attempt to move from a perceptual interpretation of constructs to actual measurements of constructs. The second goal of this research was to examine the idea of repeated or continued usage, which the research attempted to measure through the construct of infusion. The research identified, validated and presented reliable measures of infusion at an individual level of analysis. Very few instances of individual level infusion were found in the literature and perhaps this research could act as the starting point for more research going forward.

Bagozzi (2007) also highlights the fact that the technology acceptance model has been overlooked when looking at the idea of culture. The argument was made that since national culture has been shown to affect usage (Srite & Karahanna, 2006), national culture may moderate the relationship between infusion and usage. The research shows that culture does affect the relationship between usage and infusion. Furthermore, individual operationalisations of culture (Hofstede, 1983) were shown to have varying effects.

Importantly, masculinity/femininity, which Srite & Karahanna(2006) found did not moderate usage, was also found not to moderate usage in this study. This has large implications for other research into infusion. The thought behind using constructs that affect usage as a proxy for constructs that may affect the relationship between usage and infusion could extend to other constructs. Other researchers could look at what affects the construct of usage and they would have a good idea of what constructs would affect the relationship between usage and infusion.

The previous contributions have all been of an academic nature the following are more from a practitioner's perspective. The implications of the model comparison suggests to practitioners that although more variance could be explained through the use of a more complex model, as a

practitioner one should strive for the most parsimonious model possible. A social networking website can be seen as software used in a specific context, and therefore contributions to practitioners can be extended to general software (to some extent). The research shows that after the last 20 years of research, two factors that have been shown to affect the use of software and, in this research, social networking websites, are perceived usefulness, and perceived ease of use. Practitioners in the software industry and more specifically in the website field need to ensure that their websites are easy to use, and are useful. Practitioners in the social networking website field (e.g. Facebook and Myspace) should heed similar advice in terms of perceived ease of use and perceived usefulness.

The idea that usage could determine infusion has large ramifications in the software industry and more specifically to the social networking website world. The prevalence of mobile applications and mobile devices suggests that people cannot have a lifestyle that does not involve connectivity to the outside world. Understanding the idea of continued use is critical, and with the research that has been conducted, it is clear that if practitioners can induce usage the chances of continued usage considerably increase.

LIMITATIONS

Any methodology in itself suggests some sort of limitation. The convenience selection of the sample for the study is seen as a limitation. Firstly, the sample was achieved through asking university students in the Johannesburg area to participate in the study. This is limiting, in that no person from any other area of the country were sampled. Secondly, the sample consisted of only people who were students at the University of the Witwatersrand and the University of Johannesburg. This is a limitation because results may not be representative of students outside of the Johannesburg region. The last limitation resulting from the sample is that the results apply to people between the age of 18 and 33 although this limitation was partly expected because the intended sample was university students.

When looking at the method of data collection, a number of limitations are seen. Firstly, a structured questionnaire was used. This is limiting as the responses are limited to the specific scales that were specified. The structured questionnaire did not allow for any open answers or explanations. Secondly, although much effort was put into standardising the administration procedure, this was not possible as in some cases the students asked additional questions, or the time pressures from lecturers forced the administration procedure to deviate from the plan. Lastly, due to time constraints for the research each of the questionnaires were pretested and piloted separately. This time differential may have induced a biased in response between data collection periods.

Although there were significant time and money constraints, the study is considered a success. The study achieved the three main goals that were envisioned from the start. Moreover the contributions to both academia as well as practise are rather extensive. The next section aims to make these contributions more explicit.

In conclusion, the research was largely driven by three research goals. The first research goal was to examine which one of two popular models for adoption could best explain the variance that was measured in the construct of usage. The second research goal was to explore and measure the construct of infusion at an individual level of analysis. The final goal of this research was to see if culture affected the relationship between usage and infusion. The research found that the three driving goals were largely satisfied through a single iteration of the process theorise–collect data–analyse and perhaps now certain suggestions can be of use in future research.

APPENDICES

APPENDIX A – ITEMS THAT WERE USED IN THE DAVIS VERSION OF THE QUESTIONNAIRE

What is your current usage of Facebook?

Dont use at all	Use less than once a week	Use about once each week	Use several times each week	Use about once each day	Use several times each day

Please answer the following questions by placing an X in the appropriate block.

Perceived Usefulness

Using Facebook in my life would enable me to accomplish social tasks more quickly.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
Using Facebook would improve my social life.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
Using Facebook in my life would increase my productivity.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
Using Facebook would enhance my effectiveness in creating social connections.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite	Unlikely

	extremely	
Using Facebook would make it easier to initiate social interactions		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
I would/do find Facebook useful in my social life.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely

Perceived Ease of use

Learning to operate Facebook would be easy for me.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
I would find it easy to get Facebook to do what I want it to do.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
My interaction with Facebook would be clear and understandable.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
I would find Facebook to be flexible to interact with.		
Likely	|_____|_____|_____|_____|_____|_____|_____|	Unlikely

	extremely quite slightly neither slightly quite extremely	
It would be easy for me to become skillful at using Facebook		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely
I would find Facebook easy to use.		
Likely	|_____|_____|_____|_____|_____|_____|_____| extremely quite slightly neither slightly quite extremely	Unlikely

Construct	**Question**	Strongly Disagree	Strongly Agree
UA_5	I am reluctant to use Facebook if the security of its operations are compromised in any way	1 2 3 4 5 6 7	
MF_3	Solving difficult problems requires the active forcible approach which is typical of men.	1 2 3 4 5 6 7	
IC_2	Being accepted as a member of a group is more important than being independent.	1 2 3 4 5 6 7	
IC6	It is more important for people to encourage loyalty and a sense of duty towards other people than it is to encourage individual initiative.	1 2 3 4 5 6 7	
PD_1	Those in charge should make most decisions without consulting those who are not.	1 2 3 4 5 6 7	
UA_4	I get very upset when Facebook does something strange	1 2 3 4 5 6 7	
PD_3	Those not in charge should not disagree with the decisions of those in charge	1 2 3 4 5 6 7	
IC_1	Being accepted as a member of a group is more important than	1 2 3 4 5 6 7	

	having personal independence.	
PD5	I feel like what happens in my life is determined by powerful people.	1 2 3 4 5 6 7
UA1	Rules and regulations are important because they inform workers what the organization expects of them	1 2 3 4 5 6 7
Infuse3 Adapted	There are many better ways for me to use Facebook within my life.	1 2 3 4 5 6 7
PD2	Those in charge should not delegate important tasks to those who are not.	1 2 3 4 5 6 7
UA3	I do not use Facebook content when in doubt of its quality	1 2 3 4 5 6 7
Infuse1 Adapted	I use Facebook to its fullest potential for supporting my lifestyle	1 2 3 4 5 6 7
PD4	My life is chiefly controlled by powerful others	1 2 3 4 5 6 7
MF1	It is preferable to have a man in a high level position rather than a woman.	1 2 3 4 5 6 7
MF2	It is more important for men to have a professional career than it is for women to have a professional career.	1 2 3 4 5 6 7
UA2	Order and structure are very important in a online environment	1 2 3 4 5 6 7
IC3	Group success is more important than individual success.	1 2 3 4 5 6 7
IC4	Being loyal to a group is more important than individual gain.	1 2 3 4 5 6 7
IC5	Individual rewards are not as important as group welfare.	1 2 3 4 5 6 7
Infuse2 Adapted	I am using all capabilities of Facebook in the best fashion to help me in my life	1 2 3 4 5 6 7
UA6	Standard operating procedures are helpful to those on the job.	1 2 3 4 5 6 7
MF4	Meetings are usually run more effectively when they are chaired by a man.	1 2 3 4 5 6 7
UA8	Team managers expect their members to closely follow instructions and procedures.	1 2 3 4 5 6 7

MF5	Men solve problems with logical analysis, women solve problems with intuition.	1 2 3 4 5 6 7
UA7	Instructions for operations are important for those on the job.	1 2 3 4 5 6 7

	Please indicate how old you are in years?	_____ years
	What gender do you belong to?	Male

APPENDIX B – ITEMS THAT WERE USED IN THE WEBQUAL VERSION OF THE QUESTIONNAIRE

USE	What is your current usage of Facebook?

Dont use at all	Use less than once a week	Use about once each week	Use several times each week	Use about once each day	Use several times each day

Construct	**Question**	Strongly Disagree	Strongly Agree
OLCOMP2 Adapted	All my social interactions can be completed via the Facebook website.	1 2 3 4 5 6 7	
UA5	I am reluctant to use Facebook if the security of its operations are compromised in any way	1 2 3 4 5 6 7	
MF3	Solving organizational problems requires the active forcible approach which is typical of men.	1 2 3 4 5 6 7	
VISUAL3	Facebook is visually appealing.	1 2 3 4 5 6 7	
IC2	Being accepted as a member of a group is more important than being independent.	1 2 3 4 5 6 7	
CONSIMG1	Facebook website projects an image consistent with the company Facebook PTY LTD.	1 2 3 4 5 6 7	
IC6	It is more important for people to encourage loyalty and a sense of duty towards other people than it is to encourage individual initiative.	1 2 3 4 5 6 7	
PD1	Those in charge should make most decisions without consulting those who are not.	1 2 3 4 5 6 7	

UA4	I get very upset when Facebook does something strange	1 2 3 4 5 6 7
TRUST2	I trust Facebook to keep my personal information safe.	1 2 3 4 5 6 7
PD3	Those not in charge should not disagree with the decisions of those in charge	1 2 3 4 5 6 7
IC1	Being accepted as a member of a group is more important than having personal independence.	1 2 3 4 5 6 7
PD5	I feel like what happens in my life is determined by powerful people.	1 2 3 4 5 6 7
UA1	Rules and regulations are important because they inform workers what the organization expects of them	1 2 3 4 5 6 7
RESP 2	Facebook loads quickly.	1 2 3 4 5 6 7
Infuse3 Adapted	There are many better ways for me to use Facebook within my life.	1 2 3 4 5 6 7
PD2	Those in charge should not delegate important tasks to those who are not.	1 2 3 4 5 6 7
UA3	I do not use Facebook content when in doubt of its quality	1 2 3 4 5 6 7
Infuse1 Adapted	I use Facebook to its fullest potential for supporting my lifestyle	1 2 3 4 5 6 7
PD4	My life is chiefly controlled by powerful others	1 2 3 4 5 6 7
INFO 2	Facebook adequately meets my information needs.	1 2 3 4 5 6 7
EUDSTD2	The text on Facebook is easy to read.	1 2 3 4 5 6 7
TAILOR1	Facebook allows me to interact with it to receive tailored information.	1 2 3 4 5 6 7
INNOV2	Facebooks design is innovative.	1 2 3 4 5 6 7
MF1	It is preferable to have a man in a high level position rather than a woman.	1 2 3 4 5 6 7
TAILOR3	I can interact with Facebook in order to get information	1 2 3 4 5 6 7

	tailored to my specific needs.	
TRUST1	I feel safe interacting with Facebook.	1 2 3 4 5 6 7
INTUIT2	It would be (or was) easy for me to become skilful at using Facebook.	1 2 3 4 5 6 7
TRUST 3	I trust Facebook administrators will not misuse my personal information.	1 2 3 4 5 6 7
RESP 1	When I use Facebook there is very little waiting time between my actions and Facebook response.	1 2 3 4 5 6 7
INFO 3	The information on Facebook is effective.	1 2 3 4 5 6 7
RESP 3	Facebook takes long to load	1 2 3 4 5 6 7
EUDSTD1	The display pages within Facebook are easy to read.	1 2 3 4 5 6 7
TAILOR2	Facebook has interactive features, which help me accomplish my task.	1 2 3 4 5 6 7
EUDSTD3	Facebook labels are easy to understand.	1 2 3 4 5 6 7
INTUIT1	Learning to operate Facebook is easy for me.	1 2 3 4 5 6 7
MF2	It is more important for men to have a professional career than it is for women to have a professional career.	1 2 3 4 5 6 7
INTUIT3	I find Facebook easy to use.	1 2 3 4 5 6 7
VISUAL1	Facebook is visually pleasing.	1 2 3 4 5 6 7
UA2	Order and structure are very important in a online environment	1 2 3 4 5 6 7
VISUAL2	Facebook displays a visually pleasing design.	1 2 3 4 5 6 7
EMOTION1	I feel happy when I use Facebook.	1 2 3 4 5 6 7
INNOV1	Facebooks functionally is innovative.	1 2 3 4 5 6 7
IC3	Group success is more important than individual success.	1 2 3 4 5 6 7
INNOV3	Facebook is creative.	1 2 3 4 5 6 7

IC4	Being loyal to a group is more important than individual gain.	1 2 3 4 5 6 7
EMOTION3	I feel sociable when I use Facebook.	1 2 3 4 5 6 7
RELADV1 Adapted	It is easier to use Facebook to complete social interactions than it is to use a telephone, fax, or e mail.	1 2 3 4 5 6 7
CONSIMG2	Facebook website fits within with the way I view Facebook PTY LTD as a company.	1 2 3 4 5 6 7
IC5	Individual rewards are not as important as group welfare.	1 2 3 4 5 6 7
OLCOMP1 Adapted	Facebook allows social transactions on-line.	1 2 3 4 5 6 7
RELADV3 Adapted	Facebook is an alternative to calling people on the telephone.	1 2 3 4 5 6 7
OLCOMP3 Adapted	Most all business processes can be completed via the Web site.	1 2 3 4 5 6 7
INFO 1	The information on Facebook is pretty much what I need to carry out my daily social tasks.	1 2 3 4 5 6 7
RELADV2 Adapted	Facebook is easier to use than calling a person on the phone.	1 2 3 4 5 6 7
EMOTION2	I feel cheerful when I use Facebook.	1 2 3 4 5 6 7
RELADV 4 Adapted	Facebook is a better alternative to other social networks.	1 2 3 4 5 6 7
CONSIMG3	Facebook websites' image matches that of the company, Facebook PTY LTD.	1 2 3 4 5 6 7
Infuse2 Adapted	I am using all capabilities of Facebook in the best fashion to help me in my life	1 2 3 4 5 6 7
UA6	Standard operating procedures are helpful to those on the job.	1 2 3 4 5 6 7
MF4	Meetings are usually run more effectively when they are chaired by a man.	1 2 3 4 5 6 7
UA8	Team managers expect their members to closely follow	1 2 3 4 5 6 7

	instructions and procedures.	
MF_5	Men solve problems with logical analysis, women solve problems with intuition.	1 2 3 4 5 6 7
UA_7	Instructions for operations are important for those on the job.	1 2 3 4 5 6 7

	Please indicate how old you are in years?	_____ years	
	What gender do you belong to?	Male	Female

APPENDIX C – INTRODUCTION DURING ADMIN PROCEDURE

Prior to the questionnaire being distributed I would like to speak with the class. I will be explaining the following things to them:

1) The survey is completely voluntary. There will be no ramifications on their course or their marks in any such way.

2) The study will be looking at the effect that culture has on the use of Facebook. Although I am trying to understand culture, I do not ask any race questions.

3) If they feel uncomfortable in any way, at any stage they are welcome to stop the survey.

4) They will be asked to sign the front page of the questionnaire indicating that they have read the front page (see attached "Davis Front Cover.pdf").
(should I get any questionnaire that is not signed, it will be disregarded).

After the above points have been made clear I will then distribute the questionnaire to the audience.

APPENDIX D – FRONT COVER FOR THE QUESTIONNAIRES

To whom it may concern,

My name is Westley Hammerich and I am currently enrolled for the Masters degree in Information Systems at the University of the Witwatersrand. I would like to invite you to complete my questionnaire. The questionnaire is part of a research component and therefore your participation would be much appreciated. The questionnaire should take about 10 to 15 minutes to complete.

- Please do not explore (or page through) the questionnaire, prior to answering the questions.
- All answers will be kept anonymous and confidential.
- Please answer as honestly as you possibly can.
- Should you feel uncomfortable in answering any of the questions, you may stop answering the questionnaire at any time.
- Should you have any questions about the survey, please raise your hand and I will gladly assist you.
- Should you have any questions pertaining to the research after you have completed the questionnaire, you are welcome to contact me on Westley.Hammerich@wits.ac.za.
- **In order to conform to ethical standards, this form needs to be signed and will be kept with the questionnaire.**
- Other than your signature on this piece of paper, please do not mark the questionnaire in any manner that will reveal your identity.

Thank you for consideration in answering my questionnaire.

Best regards
Westley Hammerich
Westley.Hammerich@wits.ac.za

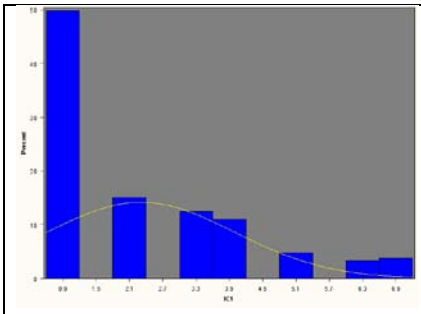
I have read the above instructions and understand that I am able to stop at any point in time, that my answers will remain confidential and anonymous.

_____ 2011 / ___ / ___

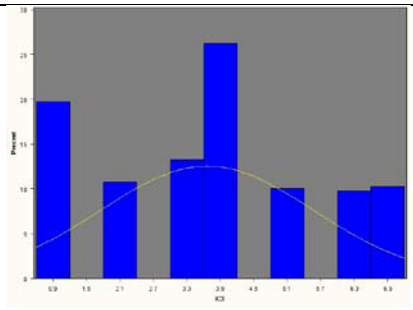
Sign Date

APPENDIX E – NORMAL DATA ANALYSIS FOR THE DAVIS DATASET

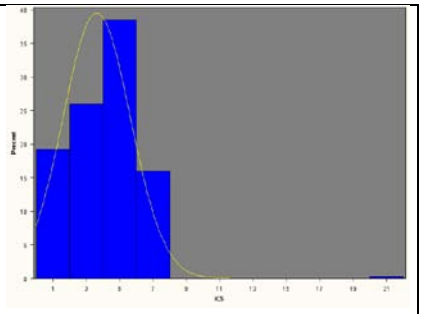
GRAPHICAL REPRESENTATION OF NORMALITY



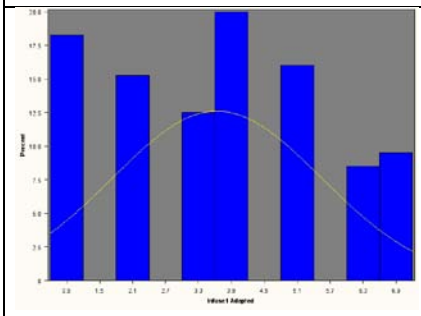
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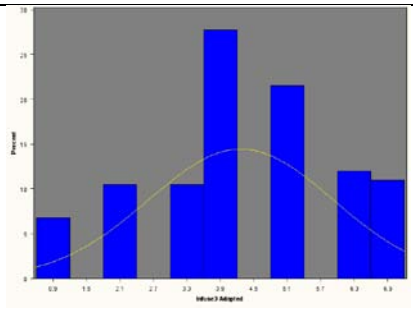
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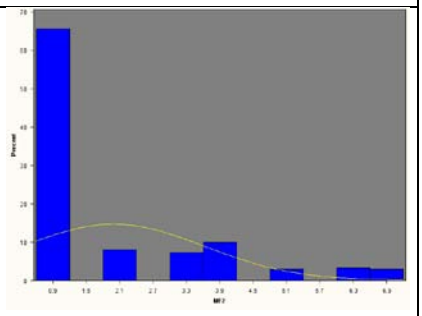
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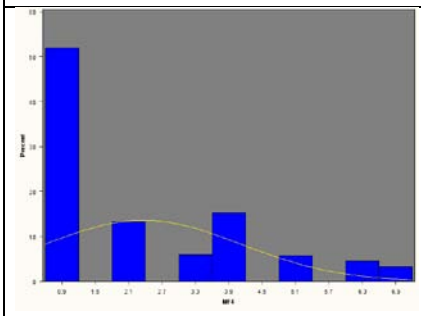
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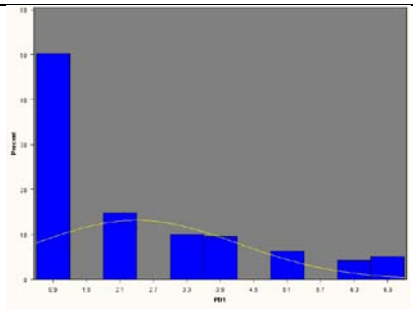
Perceived Ease of Use 4



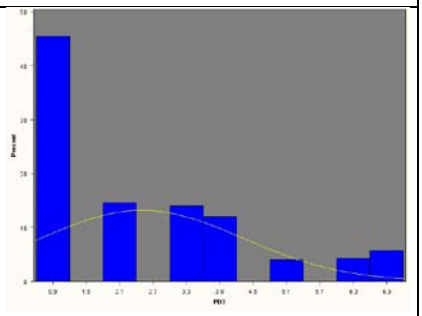
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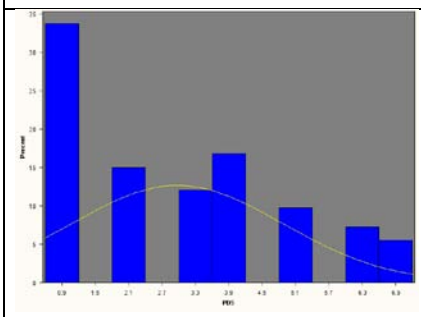
Perceived Ease of Use 6



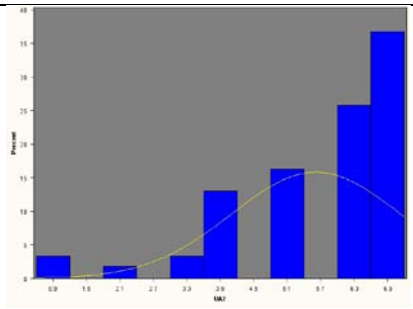
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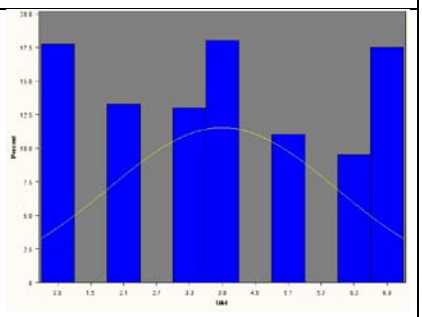
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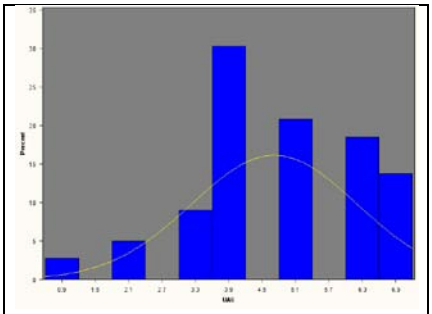
Perceived Usefulness 3



Perceived Usefulness 4



Perceived Usefulness 5



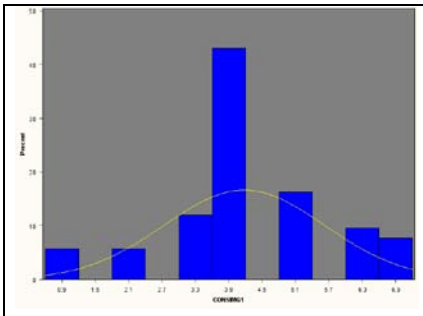
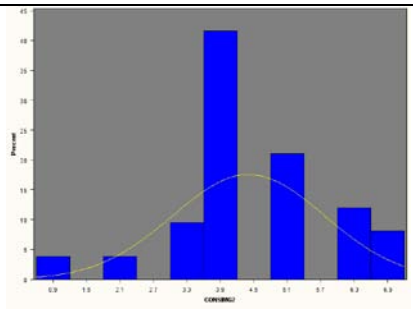
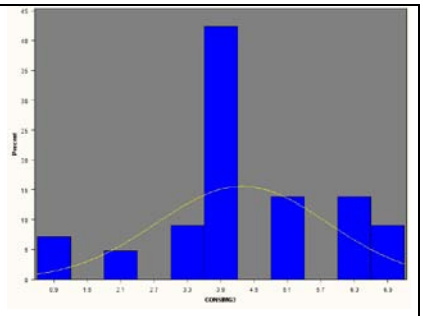
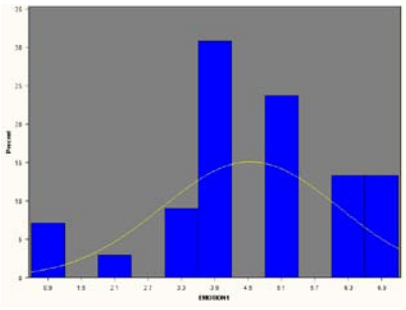
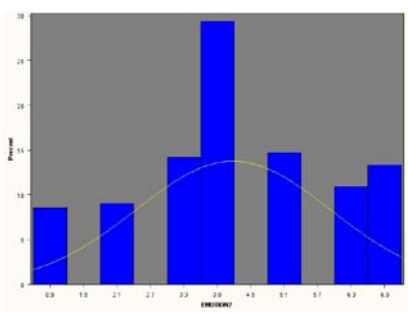
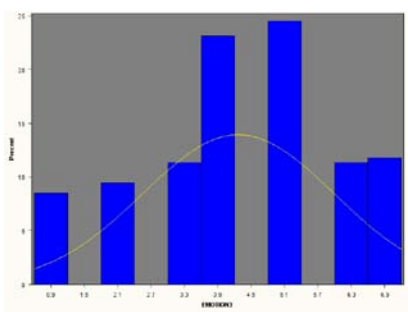
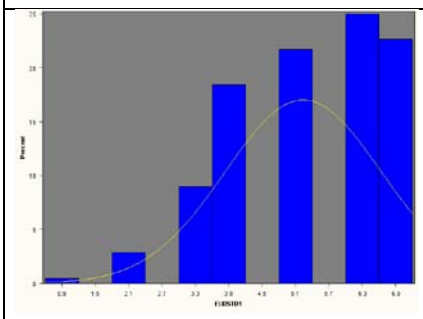
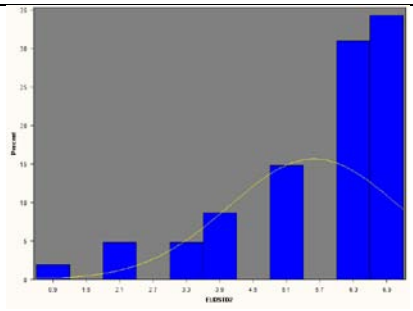
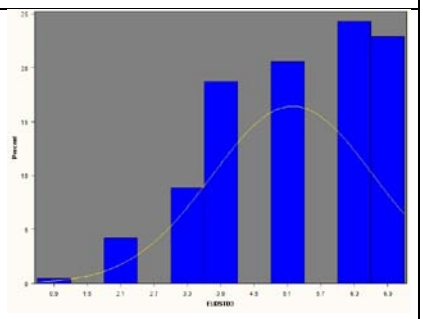
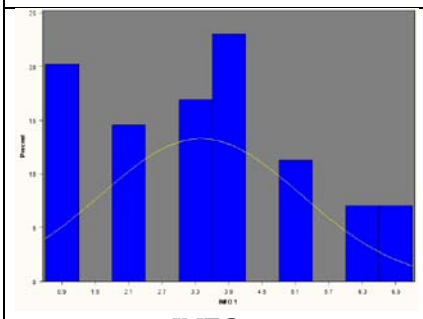
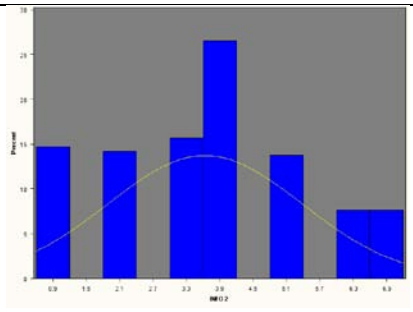
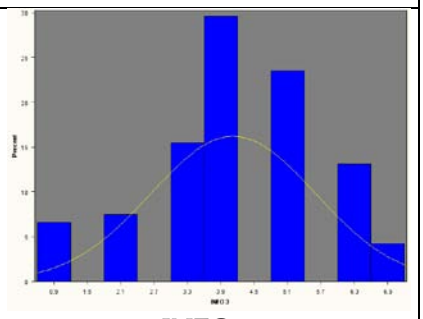
Perceived Usefulness 6

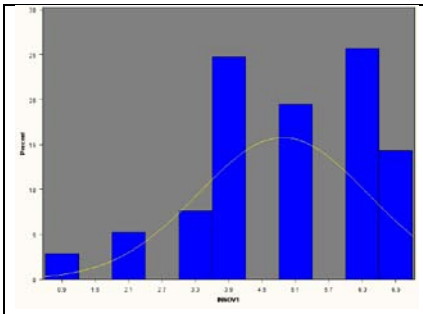
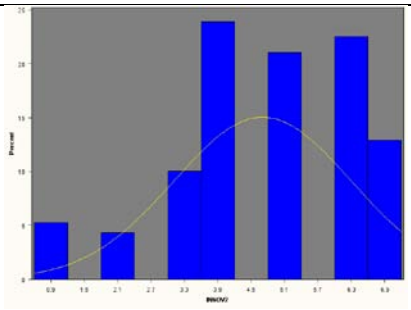
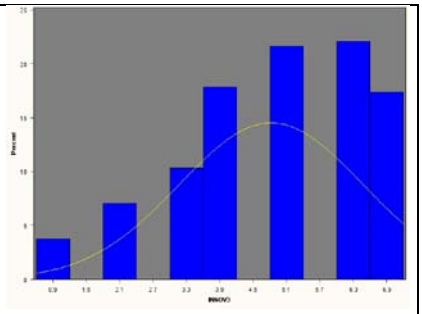
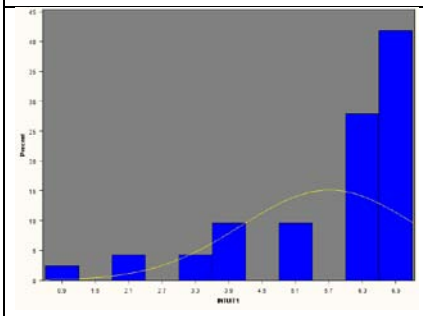
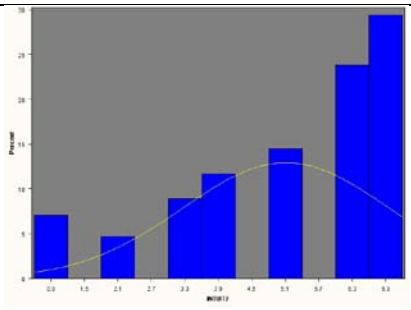
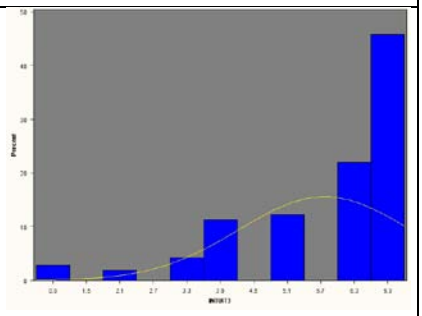
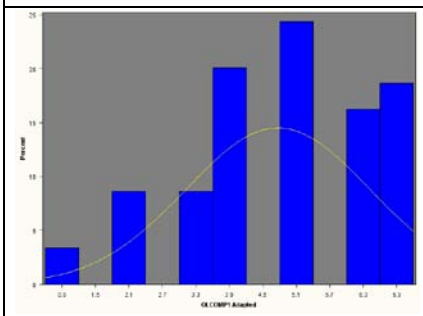
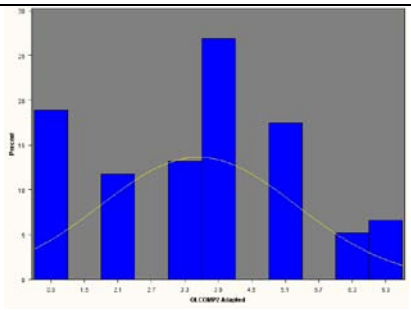
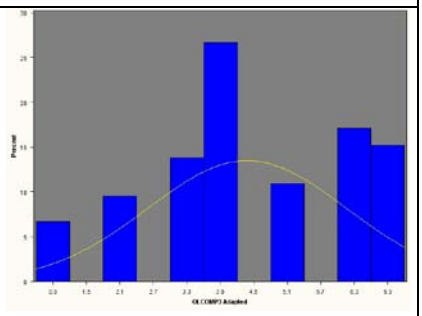
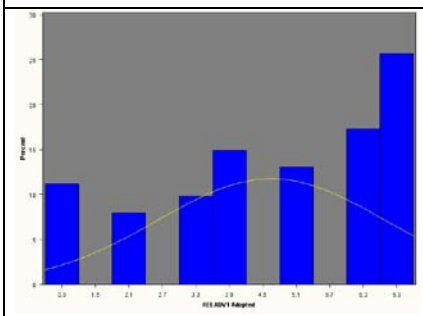
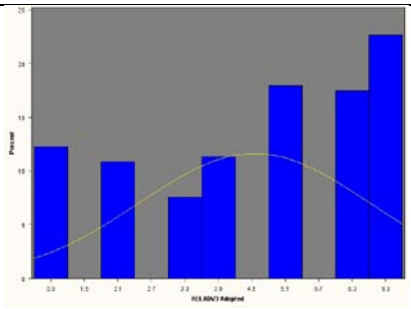
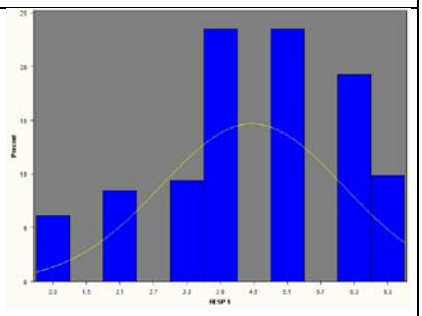
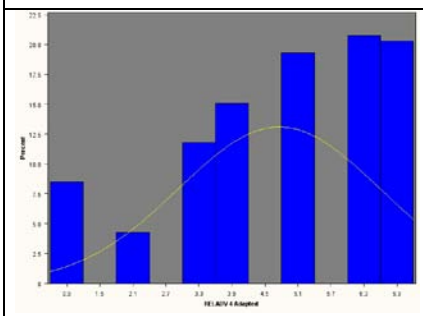
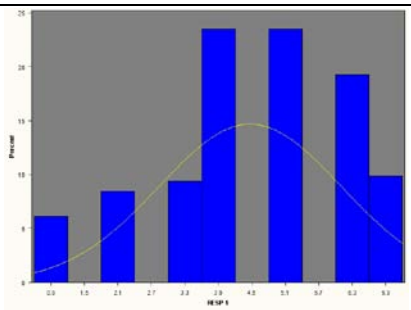
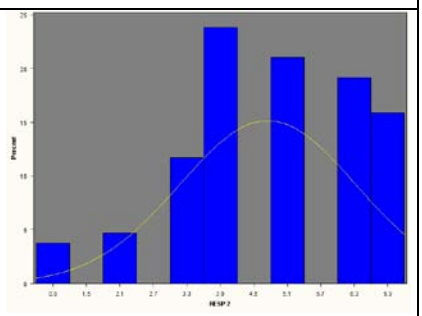
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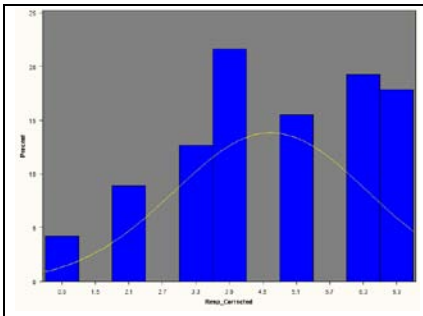
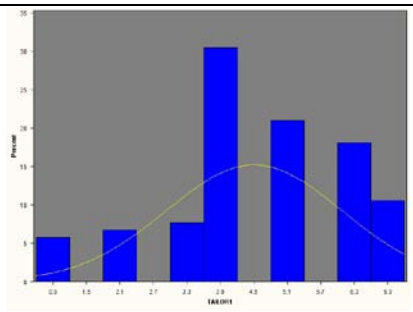
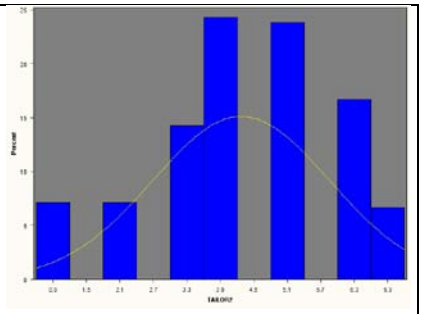
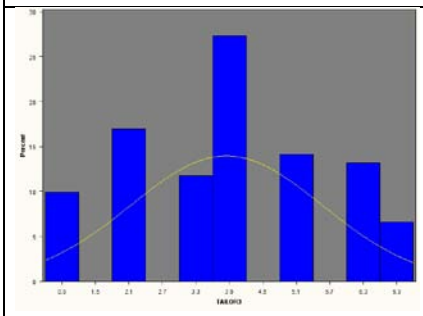
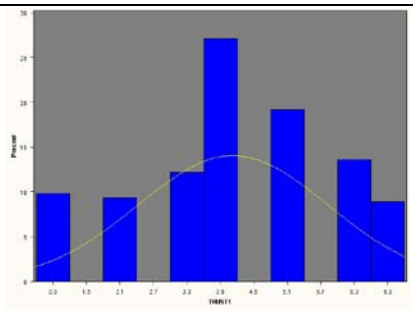
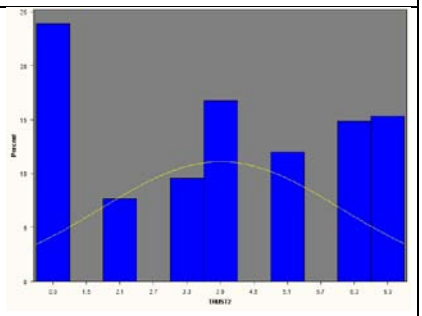
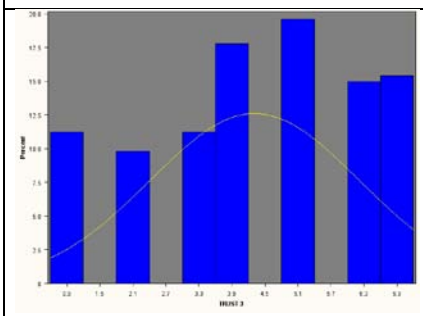
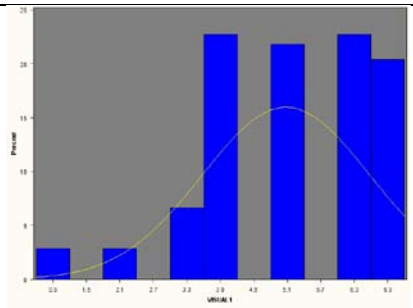
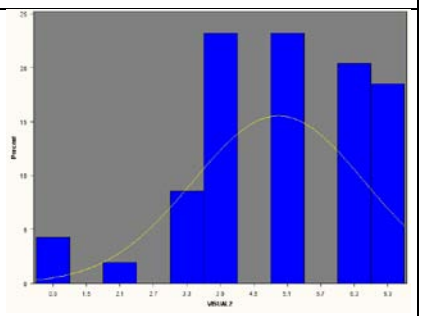
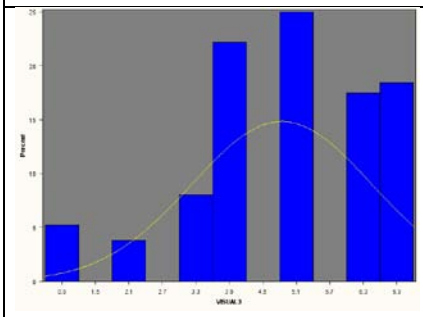
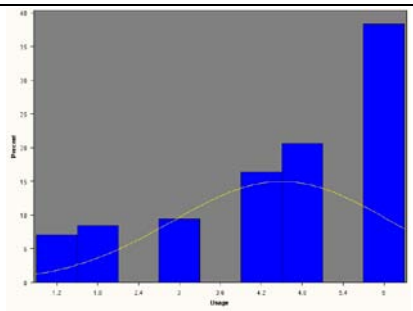
Item Description	Mean	Standard Deviation	Shapiro–Wilk Results	
			Statistic	P Value
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perceived_ease_of_use_2	2.681319	1.56157	0.84837	<0.0001
perceived_ease_of_use_3	2.284672	1.32846	0.78226	<0.0001
perceived_ease_of_use_4	2.477941	1.45773	0.819975	<0.0001
perceived_ease_of_use_5	2.099265	1.43535	0.738856	<0.0001
perceived_ease_of_use_6	1.853383	1.37811	0.634916	<0.0001
perceived_usefullness_1	3.270073	1.75413	0.882994	<0.0001
perceived_usefullness_2	3.364964	1.75569	0.893963	<0.0001
perceived_usefullness_3	4.861314	1.77150	0.898867	<0.0001
perceived_usefullness_4	2.806569	1.61580	0.851227	<0.0001
perceived_usefullness_5	2.846715	1.63250	0.873544	<0.0001
perceived_usefullness_6	2.835766	1.64151	0.846468	<0.0001

APPENDIX F – NORMAL DATA ANALYSIS FOR THE WEBQUAL DATASET

GRAPHICAL REPRESENTATION OF NORMALITY

 CONSIMG 1	 CONSIMG 2	 CONSIMG 3
 EMOTION 1	 EMOTION 2	 EMOTION 3
 EUDSTD 1	 EUDSTD 2	 EUDSTD 3
 INFO 1	 INFO 2	 INFO 3

		
INNOV 1	INNOV 2	INNOV 3
		
INTUIT 1	INTUIT 2	INTUIT 3
		
OLCOMP ADAPTED 1	OLCOMP ADAPTED 2	OLCOMP ADAPTED 3
		
RELADV ADAPT 1	RELADV ADAPT 2	RELADV ADAPT 3
		
RELADV ADAPT 4	RESP 1	RESP 2

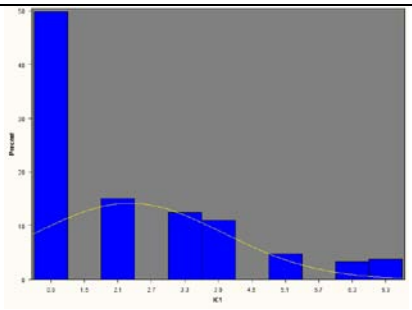
 RESP 3	 TAILOR 1	 TAILOR 2
 TAILOR 3	 TRUST 1	 TRUST 2
 TRUST 3	 VISUAL 1	 VISUAL 2
 VISUAL 3	 USAGE	

The table below shows the item description, mean, standard deviation, Shapiro–Wilk Statistic and its relative P–Value.

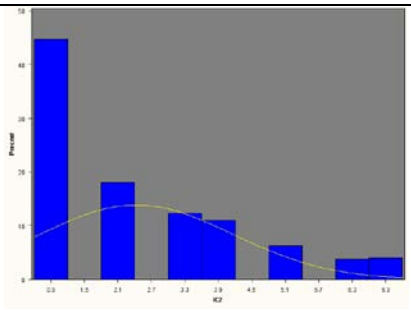
Item Description	Mean	Standard Deviation	Shapiro–Wilk Results	
			Statistic	P Value
Usage	4.500000	1.60032	0.834562	<0.0001
consimg1	4.177033	1.44190	0.918887	<0.0001
consimg2	4.406699	1.36303	0.917323	<0.0001
consimg3	4.285714	1.53563	0.914305	<0.0001
emotion1	4.540284	1.58926	0.922411	<0.0001
emotion2	4.184834	1.73999	0.936851	<0.0001
emotion3	4.268868	1.71925	0.937594	<0.0001
eudstd1	5.235849	1.40784	0.911589	<0.0001
eudstd2	5.595238	1.53210	0.822238	<0.0001
eudstd3	5.191589	1.45857	0.910729	<0.0001
info_1	3.399061	1.80288	0.922679	<0.0001
info_2	3.635071	1.74697	0.935897	<0.0001
info_3	4.122066	1.47755	0.943301	<0.0001
innov1	4.871429	1.51788	0.923450	<0.0001
innov2	4.703349	1.59266	0.927392	<0.0001
innov3	4.821596	1.65007	0.922857	<0.0001
intuit1	5.706731	1.58360	0.786183	<0.0001
intuit2	5.112150	1.85294	0.861716	<0.0001
intuit3	5.771028	1.53791	0.784454	<0.0001
olcomp1_adapted	4.770335	1.65101	0.926166	<0.0001
olcomp2_adapted	3.542453	1.75599	0.924923	<0.0001
olcomp3_adapted	4.380952	1.77641	0.931298	<0.0001
reladv1_adapted	4.654206	2.03769	0.887066	<0.0001
reladv2_adapted	3.909953	2.17703	0.888371	<0.0001
reladv3_adapted	4.547170	2.06130	0.886970	<0.0001
reladv4_adapted	4.759434	1.82756	0.905307	<0.0001
resp_1	4.469484	1.63259	0.934006	<0.0001
resp_2	4.747664	1.58095	0.933068	<0.0001
resp_corrected	4.643192	1.73053	0.927972	<0.0001
tailor1	4.504762	1.57810	0.931127	<0.0001
tailor2	4.271429	1.58571	0.941495	<0.0001
tailor3	3.849057	1.71579	0.940098	<0.0001
trust1	4.126168	1.70555	0.940310	<0.0001
trust2	3.909091	2.15870	0.889048	<0.0001
trust3	4.313084	1.90135	0.924104	<0.0001
visual1	5.075829	1.50046	0.912365	<0.0001
visual2	4.943128	1.54198	0.916525	<0.0001
visual3	4.839623	1.61531	0.918436	<0.0001

APPENDIX G – NORMAL DATA ANALYSIS FOR INFUSION AND CULTURE

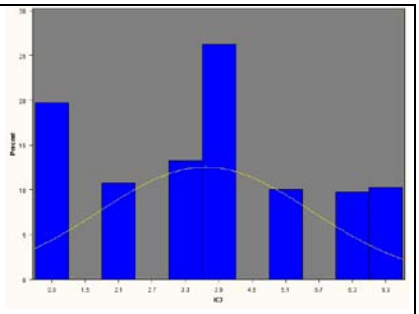
GRAPHICAL REPRESENTATION OF NORMALITY



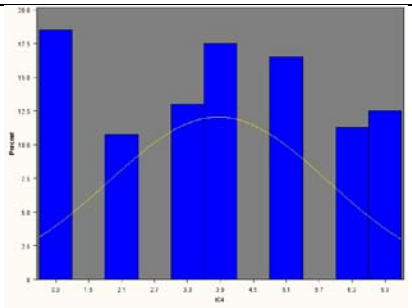
IC1



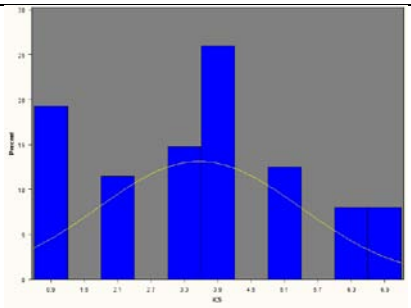
IC2



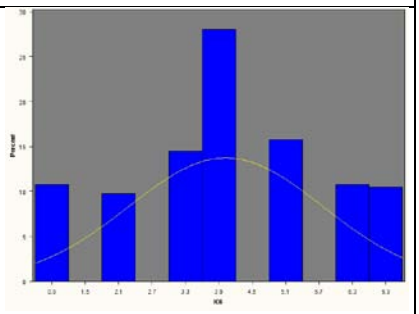
IC3



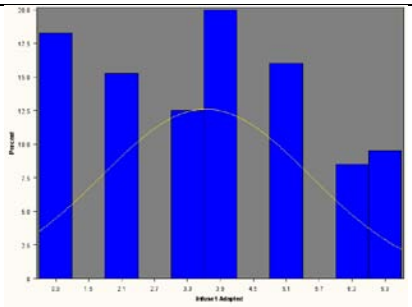
IC4



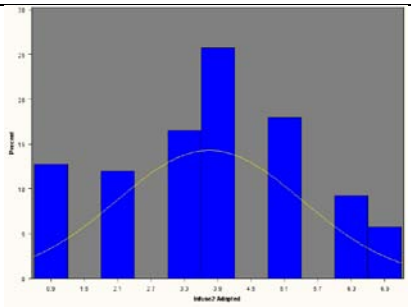
IC5



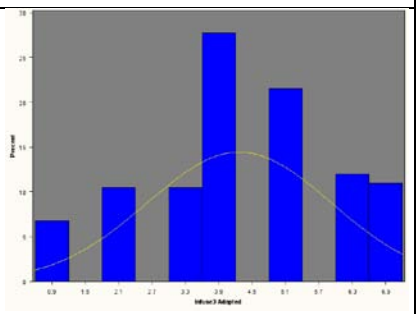
IC6



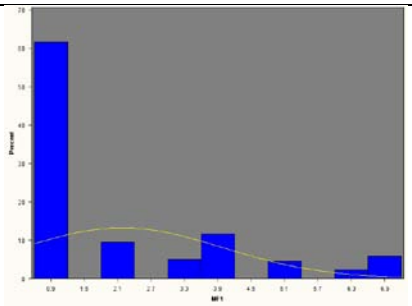
INFUSE 1 ADAPTED



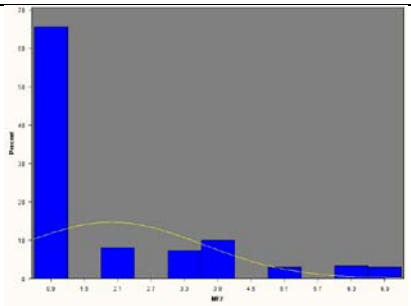
INFUSE 2 ADAPTED



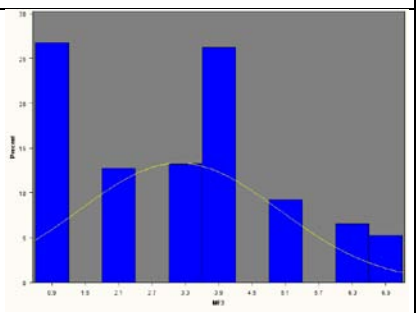
INFUSE 3 ADAPTED



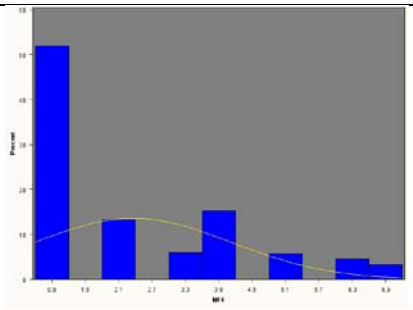
MF1



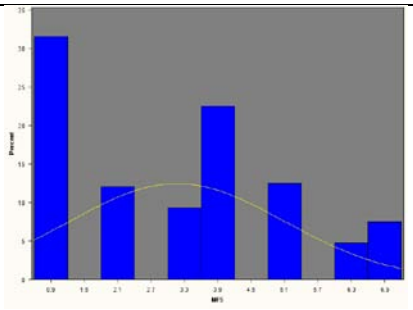
MF2



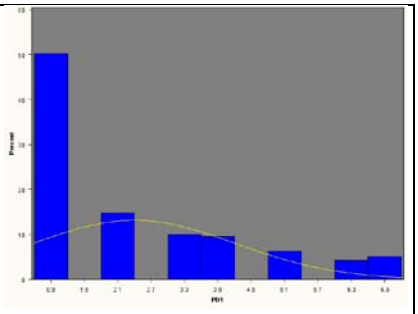
MF3



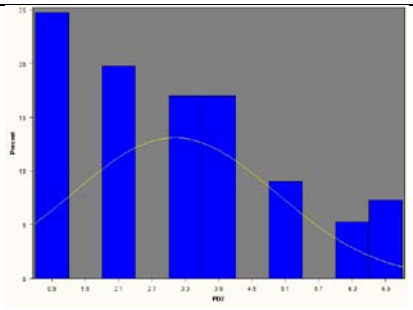
MF4



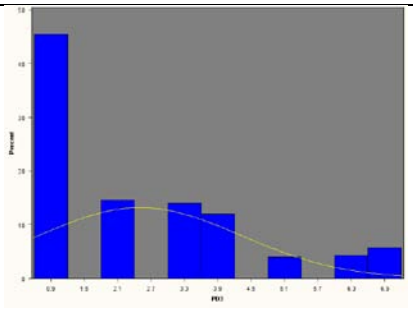
MF5



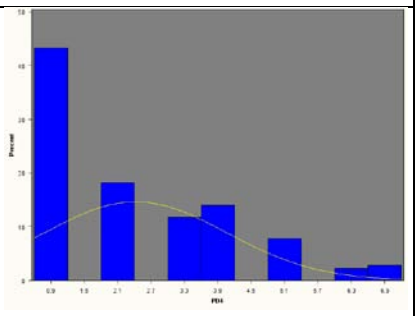
PD1



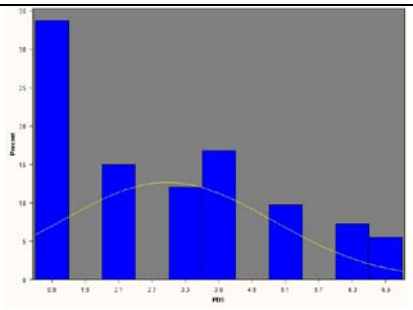
PD2



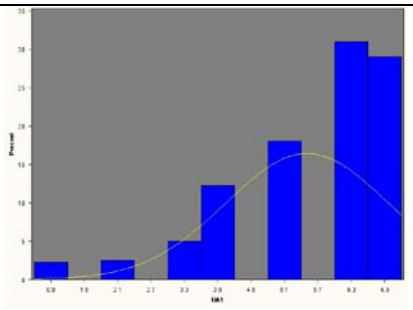
PD3



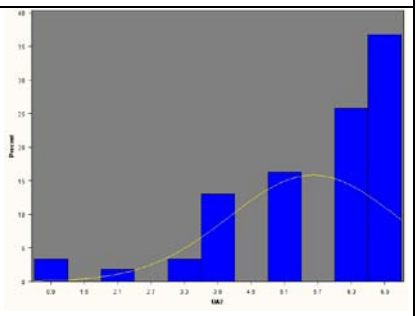
PD4



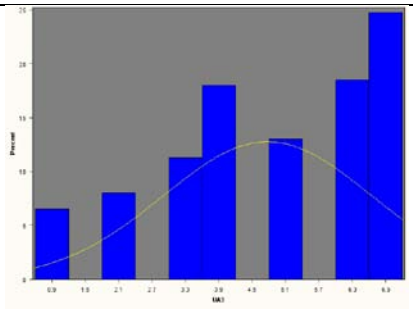
PD5



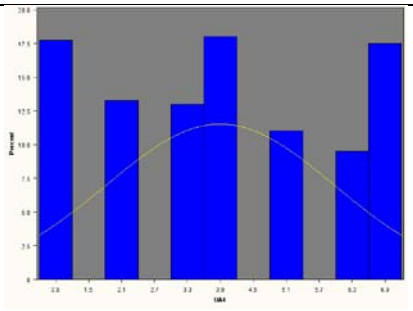
UA1



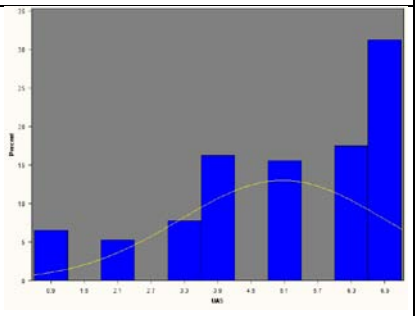
UA2



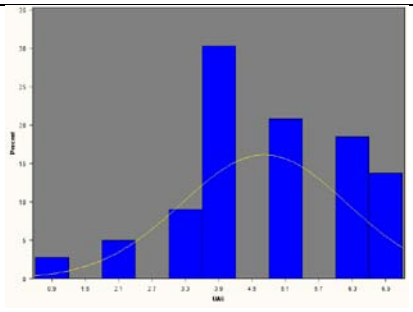
UA3



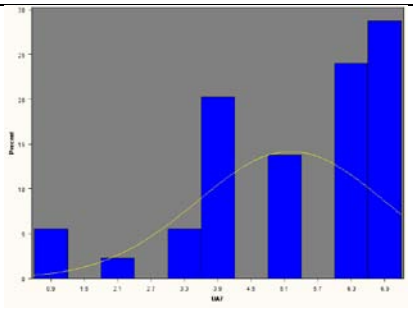
UA4



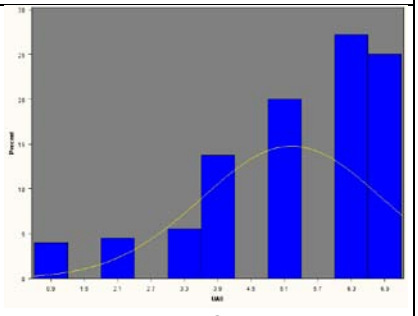
UA5



UA6



UA7

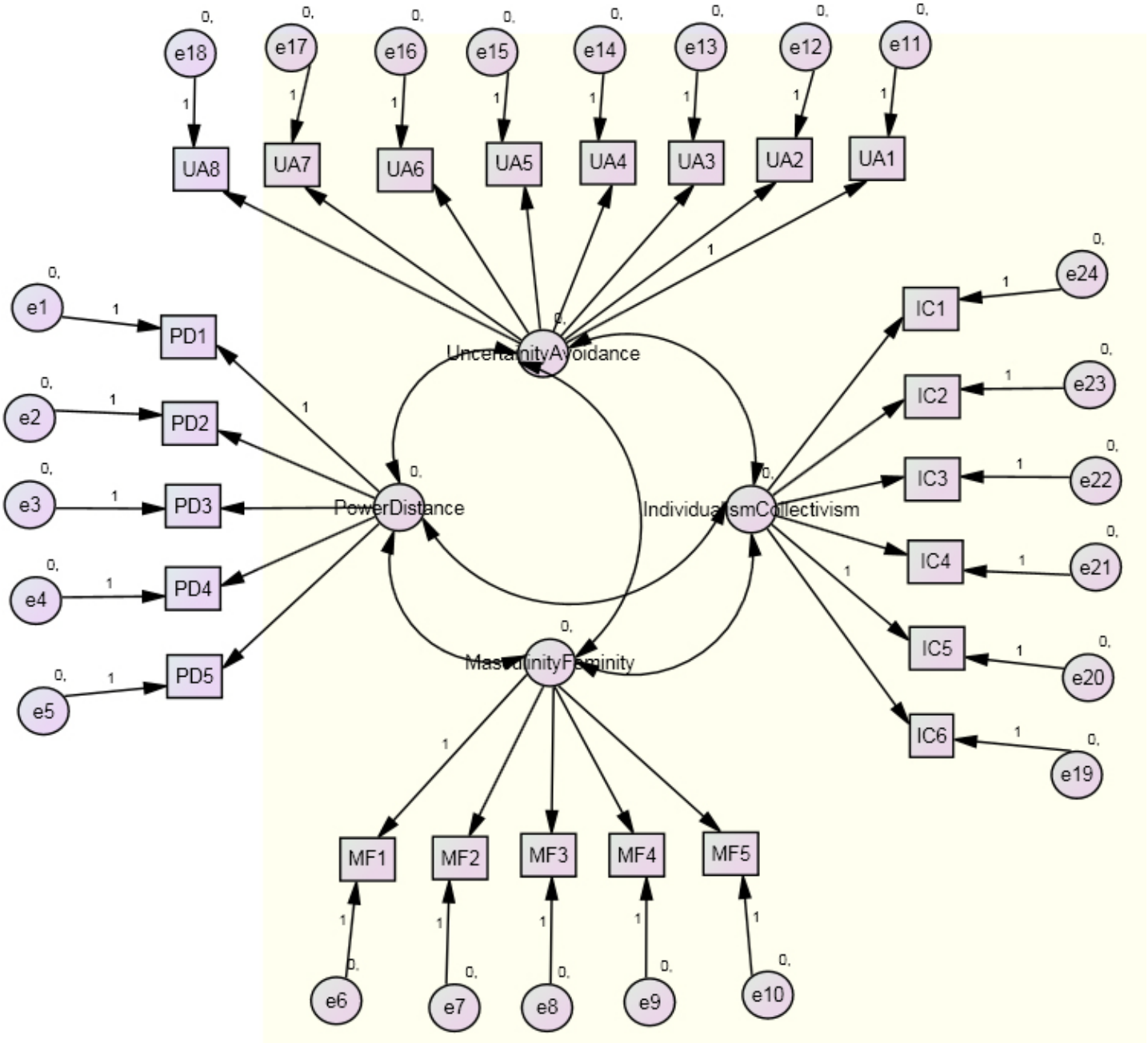


UA8

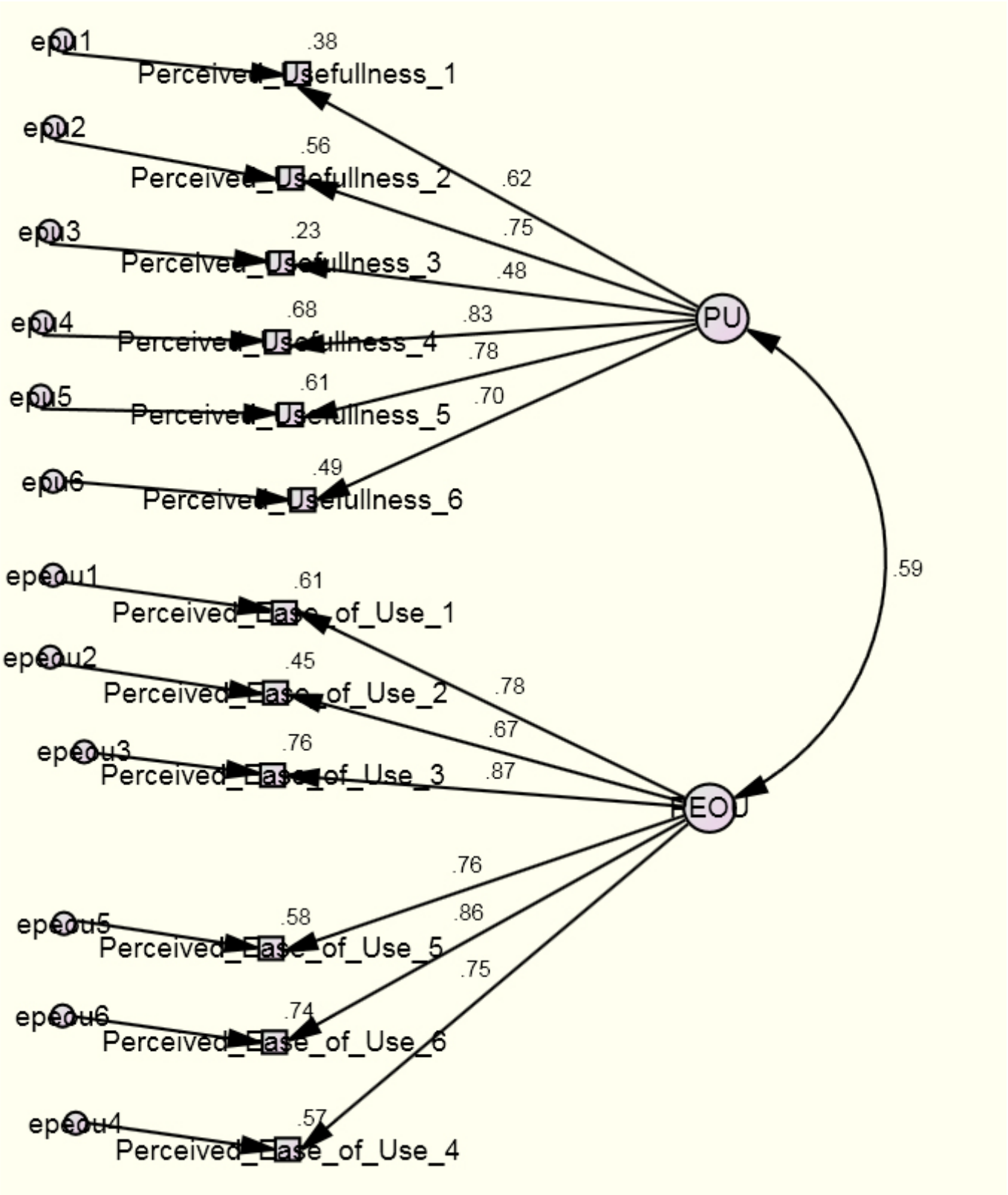
The table below shows the item description, mean, standard deviation, Shapiro–Wilk Statistic and its relative P–Value.

Item Description	Mean	Standard Deviation	Shapiro–Wilk Results	
			Statistic	P Value
IC1	2.307500	1.69118	0.772959	<0.0001
IC2	2.432500	1.73001	0.799890	<0.0001
IC3	3.662500	1.90990	0.918601	<0.0001
IC4	3.865000	1.98914	0.918188	<0.0001
IC5	3.570000	1.82440	0.925267	<0.0001
IC6	4.025000	1.74413	0.939922	<0.0001
Infuse1 Adapted	3.637500	1.90003	0.923362	<0.0001
Infuse2 Adapted	3.750000	1.67467	0.943186	<0.0001
Infuse3 Adapted	4.267500	1.65916	0.941281	<0.0001
MF1	2.177500	1.81776	0.687125	<0.0001
MF2	1.987500	1.63525	0.659276	<0.0001
MF3	3.190000	1.79638	0.902490	<0.0001
MF4	2.360000	1.76584	0.765983	<0.0001
MF5	3.167500	1.92710	0.881657	<0.0001
PD1	2.395000	1.82409	0.765571	<0.0001
PD2	3.105000	1.82957	0.895521	<0.0001
PD3	2.502500	1.81886	0.795426	<0.0001
PD4	2.425000	1.63740	0.818549	<0.0001
PD5	2.975000	1.89694	0.870978	<0.0001
UA1	5.502500	1.45956	0.856836	<0.0001
UA2	5.615000	1.51410	0.825517	<0.0001
UA3	4.775000	1.87701	0.902115	<0.0001
UA4	3.897500	2.07913	0.905722	<0.0001
UA5	5.065000	1.84779	0.874032	<0.0001
UA6	4.717500	1.48769	0.933190	<0.0001
UA7	5.215000	1.68995	0.869345	<0.0001
UA8	5.230000	1.62132	0.875777	<0.0001

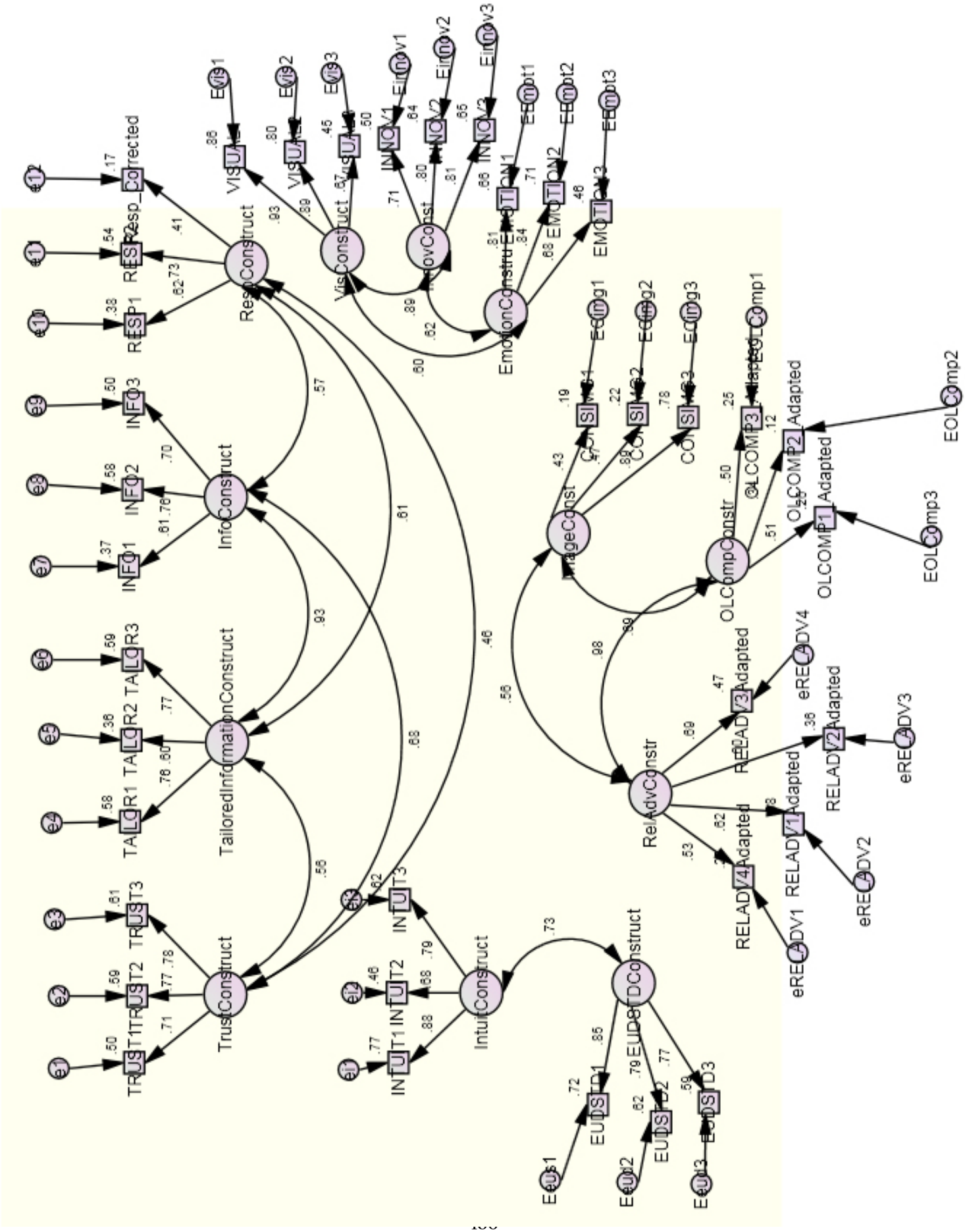
APPENDIX H – PATH DIAGRAM OF THE CFA FOR THE CULTURAL MODEL



APPENDIX I – PATH DIAGRAM OF THE CFA FOR THE DAVIS MODEL



APPENDIX J – PATH DIAGRAM OF THE CFA FOR THE WEBQUAL MODEL



APPENDIX K – COMPLETE STANDARDISED TOTAL EFFECTS FOR THE WEBQUAL MODEL

	RelationshipConstr	Entertainment	EaseOfUseCon	UsefulNess	RelAdvConstr	OLCompConstr	ImageConst	EmotionConstru	InnovConst	VisConstruct	EUDSTDConstruct	IntuitConstruct	RespConstruct	InfoConstruct	TailoredInformationConstruct	TrustConstruct
RelAdvConstr	3.462	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OLCompConstr	2.848	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ImageConst	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EmotionConstru	0	0.752	0	0	0	0	0	0	0	0	0	0	0	0	0	0
InnovConst	0	0.768	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VisConstruct	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EUDSTDConstruct	0	0	0.942	0	0	0	0	0	0	0	0	0	0	0	0	0
IntuitConstruct	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
UsageConstruct	0.567	-0.066	0.182	0.465	0	0	0	0	0	0	0	0	0	0	0	0
RespConstruct	0	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0
InfoConstruct	0	0	0	1.014	0	0	0	0	0	0	0	0	0	0	0	0
TailoredInformationConstruct	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TrustConstruct	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
EMOTION1	0	0.752	0	0	0	0	0	1	0	0	0	0	0	0	0	0
EMOTION2	0	0.654	0	0	0	0	0	0.87	0	0	0	0	0	0	0	0
EMOTION3	0	0.621	0	0	0	0	0	0.826	0	0	0	0	0	0	0	0
INNOV3	0	0.884	0	0	0	0	0	0	1.15	0	0	0	0	0	0	0
INNOV2	0	0.87	0	0	0	0	0	0	1.132	0	0	0	0	0	0	0
INNOV1	0	0.768	0	0	0	0	0	0	1	0	0	0	0	0	0	0
VISUAL3	0	0.858	0	0	0	0	0	0	0	0.858	0	0	0	0	0	0
VISUAL2	0	0.89	0	0	0	0	0	0	0	0.89	0	0	0	0	0	0
VISUAL1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
RELADV1Adapted	3.978	0	0	0	1.149	0	0	0	0	0	0	0	0	0	0	0
RELADV3Adapted	4.432	0	0	0	1.28	0	0	0	0	0	0	0	0	0	0	0
RELADV2Adapted	3.632	0	0	0	1.049	0	0	0	0	0	0	0	0	0	0	0
RELADV4Adapted	3.462	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
OLCOMP2_Adapted	2.087	0	0	0	0	0.733	0	0	0	0	0	0	0	0	0	0
OLCOMP3_Adapted	2.848	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
OLCOMP1_Adapted	2.711	0	0	0	0	0.952	0	0	0	0	0	0	0	0	0	0
CONSIMG3	3.15	0	0	0	0	0	3.15	0	0	0	0	0	0	0	0	0
CONSIMG2	1.889	0	0	0	0	0	1.889	0	0	0	0	0	0	0	0	0
CONSIMG1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

EUDSTD3	0	0	0.971	0	0	0	0	0	0	0	1.031	0	0	0	0	0
EUDSTD2	0	0	0.879	0	0	0	0	0	0	0	0.934	0	0	0	0	0
EUDSTD1	0	0	0.942	0	0	0	0	0	0	0	1	0	0	0	0	0
INTUIT3	0	0	0.91	0	0	0	0	0	0	0	0	0.91	0	0	0	0
INTUIT2	0	0	1.172	0	0	0	0	0	0	0	0	1.172	0	0	0	0
INTUIT1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Usage	0.567	-0.066	0.182	0.465	0	0	0	0	0	0	0	0	0	0	0	0
Resp_Corrected	0	0	0	0.414	0	0	0	0	0	0	0	0	0.552	0	0	0
RESP2	0	0	0	0.694	0	0	0	0	0	0	0	0	0.926	0	0	0
RESP1	0	0	0	0.75	0	0	0	0	0	0	0	0	1	0	0	0
INFO3	0	0	0	1.029	0	0	0	0	0	0	0	0	0	1.014	0	0
INFO2	0	0	0	1.248	0	0	0	0	0	0	0	0	0	1.231	0	0
INFO1	0	0	0	1.014	0	0	0	0	0	0	0	0	0	1	0	0
TAILOR3	0	0	0	1.174	0	0	0	0	0	0	0	0	0	0	1.174	0
TAILOR2	0	0	0	0.941	0	0	0	0	0	0	0	0	0	0	0.941	0
TAILOR1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
TRUST3	0	0	0	1.099	0	0	0	0	0	0	0	0	0	0	0	1.099
TRUST2	0	0	0	1.18	0	0	0	0	0	0	0	0	0	0	0	1.18
TRUST1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1

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